

# HUNGER IN A HEATING WORLD

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



Hawoua Ali Kékéye (30) is a livestock breeder who is facing drought.

### 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 years<sup>1</sup>, destroying homes, decimating livelihoods, fuelling conflict and displacement, and deepening inequality.

The causes of global hunger are deeply complex and conflict and economic disruptions, including those from COVID-19, remaining key drivers.<sup>2</sup> 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.<sup>3</sup> 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.<sup>4</sup> Nearly 18 million people in these 10 countries are on the brink of starvation<sup>5</sup>. 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 emissions<sup>6</sup> and each of them sits in the bottom third of countries that are least prepared to cope with climate change and its damages.<sup>7</sup> The carbon emissions of the G20 countries<sup>8</sup> – which together hold over 80% of the world's economy<sup>9</sup> - are 650 times higher than these ten.<sup>10</sup>

Addressing the complex drivers of hunger<sup>11</sup> 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.<sup>12</sup> Less than 18 days of those profits would cover the entire \$48.82 billion UN humanitarian appeal for 2022.<sup>13</sup>

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.<sup>14</sup> 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.<sup>15</sup> The number of climate disasters has increased five-fold over the past 50 years.<sup>16</sup>

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 2000<sup>17</sup>: 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,<sup>18</sup> 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 hunger<sup>19</sup> across these 10 climate hotspots has more than doubled over the last six years from 21.3 million to 47.5 million<sup>20</sup>. 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<sup>21,22</sup>. Nearly 18 million people in these 10 countries are currently on the brink of starvation.<sup>23</sup>

**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%
<b>Totals</b>	<b>85</b>	<b>21.3</b>	<b>47.5</b>	<b>123%</b>

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.<sup>24</sup>

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.<sup>25</sup>

Unless deep reductions in greenhouse gas emissions occur in less than eight years, global warming will exceed 1.5°C during the 21<sup>st</sup> 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.<sup>26</sup> Currently we are on a path to 2.7C warming.<sup>27</sup>

### 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 security<sup>28</sup>, and increasing security risks<sup>29</sup>.

#### 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.<sup>30</sup>

**Table 2: How climate change is undermining food security<sup>31</sup>**

Availability	Accessibility
Food is consistently available on local markets, through household production, or via other sources.	People must have economic and safe physical access to food.
The climate crisis is stressing agriculture systems around the world, reducing yields and productivity. <sup>32</sup> 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:	Stability:
Impact on nutritional quality of food and sufficiency of diets	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. <sup>33</sup> 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-born diseases resulting in poor absorption of nutrients. An estimated one in four people do not have access to safe drinking water. <sup>34</sup>	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. <sup>35</sup>

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 resources<sup>36</sup>. For farmers who rely on predictable seasonal weather patterns, for example, any climate changes directly hit agriculture and their source of income and food.<sup>37</sup>

Climate change is increasingly affecting water resources, as it alters the rates of precipitation and evaporation as well as groundwater levels<sup>38</sup>. 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 2030<sup>39</sup>. 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 variability<sup>40</sup>.

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,<sup>41</sup> 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.<sup>42</sup> 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.<sup>43</sup>

## 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.<sup>44</sup>

Climate change is a threat multiplier, worsening the situation especially in already fragile states<sup>45</sup>. By indirectly amplifying existing economic, social, and political risks<sup>46</sup>, 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 change<sup>47</sup>.

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.<sup>48</sup>

Worsening global warming will lead to more frequent weather extremes, particularly drought, which in turn contribute to increases in violent intrastate conflict<sup>49</sup>. With each additional 1 degree of temperature, interpersonal conflict is predicted to increase by 2.4% and inter-communal conflict by 11.3%.<sup>50</sup>

Similarly, weather extremes are causing water and food shortages, forcing people to move<sup>51</sup>. 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.<sup>52</sup> For example, in Somalia, the drought forced nearly one million people to flee their homes since January 2022.<sup>53</sup>

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.<sup>54</sup>

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.<sup>55</sup>

Displaced groups, especially women and girls<sup>56</sup>, 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 services<sup>57</sup>. In the Democratic republic of Congo, for example, women saw almost 10% rise in violence from their intimate partner as a result of displacement.<sup>58</sup> Women also are often paid less, and their care work increases during this time of upheaval.<sup>59</sup>

## **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.<sup>60</sup>

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.<sup>61</sup>

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.<sup>62</sup>

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.<sup>63</sup>

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.<sup>64</sup> 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 Africa<sup>65</sup>, and the more than 1.7 billion people working on farms, plantations, fishing boats and in processing factories<sup>66</sup>, 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: Pablo Tosco/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.<sup>67</sup> Systemic barriers such as patriarchal discrimination deny women the right to own land<sup>68</sup> and equal pay. For example, In Mali, where over 50% of women are involved in agriculture, just 5% are titled landholders.<sup>69</sup> Women's assets are also usually sold first when there is a shock, leaving them more vulnerable to hunger than men.<sup>70</sup>

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)<sup>71</sup>, often making them suffer early arthritis, and putting them at risk of sexual attacks.<sup>72</sup> Many girls are also forced to drop from school to help the family with these kinds of household tasks.<sup>73</sup>

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%.<sup>74</sup>

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.<sup>75</sup> After the 2017 hurricane<sup>76</sup> devastated Puerto Rico, relief efforts failed to protect communities from food insecurity<sup>77</sup> caused by lack of potable water, energy blackouts that caused food to spoil, farming disruptions<sup>78</sup>, 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 insecurity<sup>79</sup>.

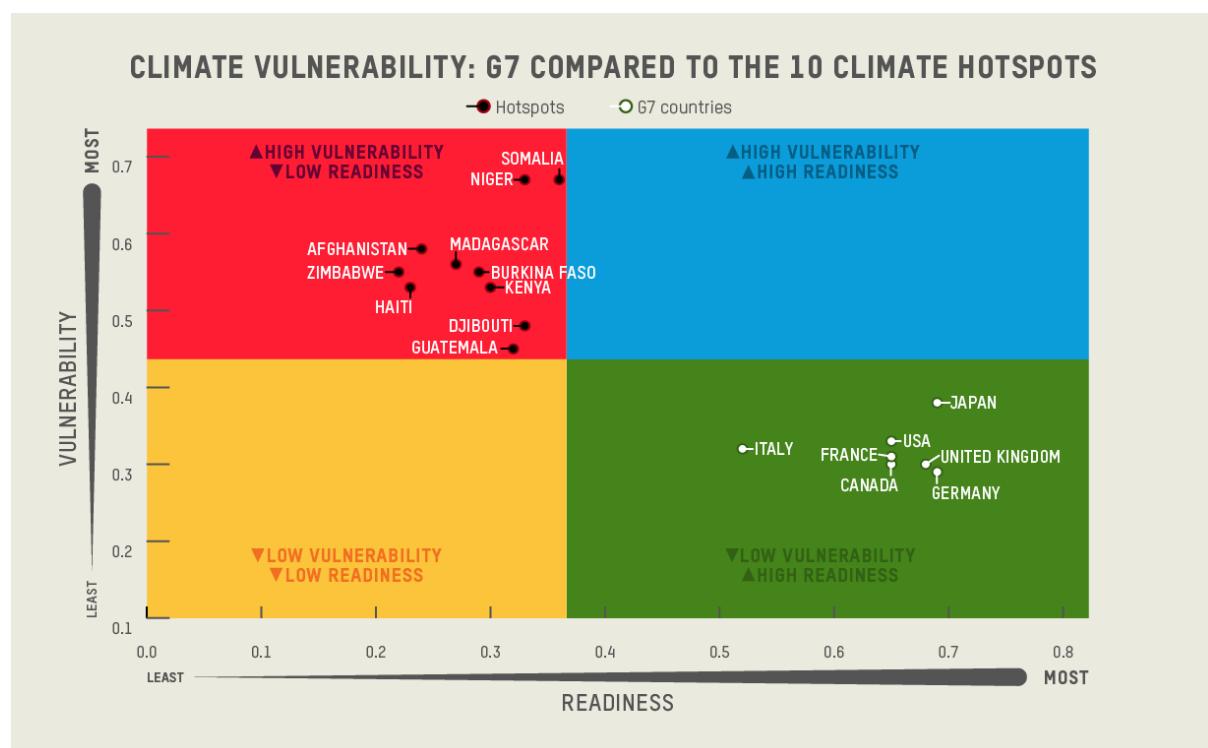
Similarly, the 2012-2016 drought in California, United States – the worst in the last 1200 years - has enormously impacted low-income farm workers, as over 40,000 small-scale farm workers – mostly Latino– lost their jobs.<sup>80</sup>

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.<sup>81</sup>

## 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**

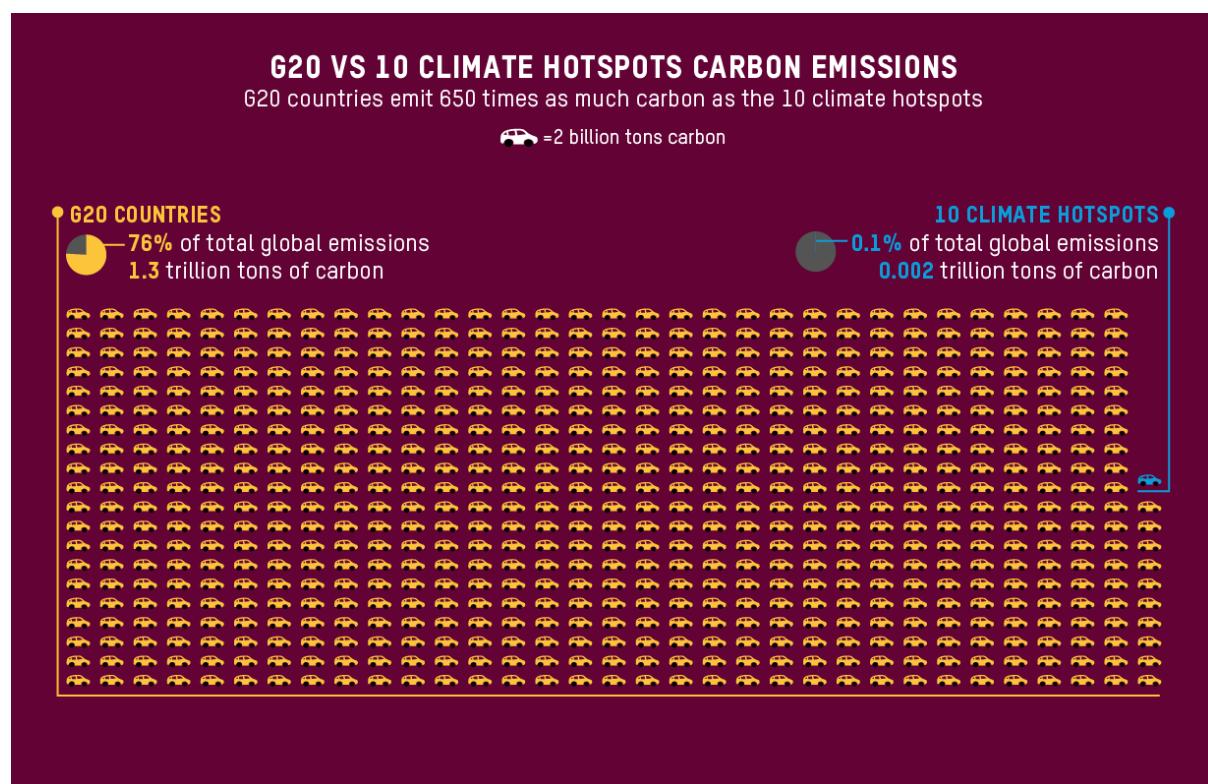


It is no surprise that the 10 top worst climate hotspots in the world are sitting in the bottom third of the world's countries in terms of preparedness for, and vulnerability to climate change<sup>82</sup>. In contrast, the G7 nations – largely responsible for the climate crisis - are quite ready to mitigate and adapt to climate risks – sitting in the top 20% of the world's countries most prepared for climate shocks<sup>83</sup>. (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 campaigns<sup>84</sup>.

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.<sup>85</sup> Less than 18 days of those profits would cover the entire \$48.82 billion UN humanitarian appeal for 2022.<sup>86</sup>

**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% 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.<sup>87</sup>

The G20 countries – controlling 80% of the world's economy<sup>88</sup> – together account for over three quarters of the world's emissions (76%)<sup>89</sup>. This dwarfs by 650 times emissions from the ten worst climate hotspots - which contribute a negligible 0.1%<sup>90</sup> of global carbon emissions.<sup>91</sup> (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.<sup>92</sup>

### 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.<sup>93</sup> Today, an estimated 64 percent of the US has been hit by extreme heat and water stress of different degrees.<sup>94</sup> Despite the severity of droughts –each costing nearly \$10 billion on average<sup>95</sup> - 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).<sup>96</sup> This enables the government to support impacted small-scale farmers and disadvantaged people to adapt and quickly recover.<sup>97</sup>

In contrast, Somalia ranks 172<sup>nd</sup> out of 182 countries in the world adaption index<sup>98</sup>. The worst drought in nearly half a century has pushed over 7 million Somalis to hunger<sup>99</sup>, 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.<sup>100</sup> This is equivalent to 30 percent of the country's GDP<sup>101</sup>. Years of economic fallout, ongoing conflict, and growing external debt<sup>102</sup> 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.<sup>103</sup> 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.<sup>104</sup>

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 hunger<sup>105</sup>. Poor families with dwindling incomes continue to alter their diets to choose cheaper, less nutritious foods just to have enough to eat.<sup>106</sup>

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 extremes<sup>107</sup>.

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 lives<sup>108</sup> and displaced over 4 million people in the Philippines<sup>109</sup> and another 880,000 in Vietnam<sup>110</sup>. 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 homes<sup>111</sup>.

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

Rising ocean temperatures extend their reach and impact inland, amplifying their destructive power.<sup>114</sup> 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.<sup>115</sup>

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.<sup>116</sup> South Asia will see a 30% reduction in its wheat and maize crop yields by the end of this century, further fueling food prices.<sup>117</sup> By 2030, 38 million more people in Asia and the Pacific are likely to be pushed to hunger<sup>118</sup>.

## 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.<sup>119</sup>

Today, Oxfam estimates that one person is likely dying of hunger every 48 seconds in drought-ravaged Ethiopia, Kenya and Somalia<sup>120</sup>. Over 21 million people across Ethiopia, Kenya and Somalia face acute hunger<sup>121</sup>. 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.<sup>122</sup>

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.<sup>123</sup>

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.<sup>124</sup> As the time between climate shocks increasingly shrink, preparing for the next shock becomes even more difficult.<sup>125</sup>

Recurrent droughts will continue to aggravate the region's fragility causing further crop failures, food instability, losses of livelihoods, and large-scale internal displacement.<sup>126</sup> Currently, up to 85 percent of cropland in Ethiopia had been affected<sup>127</sup>, and up to 60 percent of cereal production in Somalia is below average, as a result of this two year-drought.<sup>128</sup> 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.<sup>129</sup>

Weather extremes are also fuelling conflict as both higher and lower rainfall has been associated with increased communal conflict<sup>130</sup> in the region. In Somalia, water shortage was the cause of most disputes in 40% of assessed settlements.<sup>131</sup>

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.<sup>132</sup>

## 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.<sup>133</sup>

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.<sup>134</sup> While families face financial losses, they also cope with decreased savings because the price of products increases in Zimbabwe during droughts by 30-40%.<sup>135</sup>

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.<sup>136</sup>

Southern Africa suffers widespread food and nutrition insecurity. This year, in the ten SADC Member States<sup>137</sup> 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.<sup>138</sup>

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 average<sup>139</sup>. Climate change is expected to increase the frequency and intensity of floods<sup>140</sup>, 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.<sup>141</sup>

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.<sup>142</sup> 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.<sup>143</sup>

## 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.<sup>144</sup> 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.<sup>145</sup>

The Sahel countries<sup>146</sup> are the most affected, where 6.3 million global acute malnutrition<sup>147</sup> cases are expected, of which 1.4 million are severe acute malnutrition<sup>148</sup> 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.<sup>149</sup>

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%)<sup>150</sup>. 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.<sup>151</sup>

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<sup>152 153</sup>. 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.<sup>154</sup> Rising temperatures are expected to increase the frequency and intensity of droughts, and to affect the West African monsoon season.<sup>155</sup>

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.<sup>156</sup> Droughts are becoming more recurrent and severe, and rainfall is irregular and increasingly unpredictable.<sup>157</sup>

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.<sup>158</sup> 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.<sup>159</sup>

## 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.<sup>160</sup>

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.<sup>161</sup>

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.<sup>162</sup> 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.<sup>163</sup>

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.<sup>164</sup> Since 2012, the region has been affected more frequently by droughts and cyclones.<sup>165</sup> 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.<sup>166</sup>

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.<sup>167</sup> Similarly, indigenous people of the high Andean areas are especially impacted by the effects of global warming and the retreat of glaciers.<sup>168</sup>

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.<sup>169</sup> 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.<sup>170</sup>

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.<sup>171</sup> Even the most optimistic climate change scenario is expected to result in a reduction in yields of around 20% across Central America.<sup>172</sup>

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.<sup>173</sup>

## 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 urbanisation<sup>174</sup>.

Over one third of the 11 million people in the island-nations currently live in poverty<sup>175</sup> making them even more vulnerable to the hunger and climate crises.<sup>176</sup> 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.<sup>177</sup>

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 average<sup>178</sup>, and has made the ocean increasingly acidic<sup>179</sup>. 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.<sup>180</sup> Sea-level rise is also infiltrating people's gardens and eroding land, decimating their crops.<sup>181</sup>

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 consumption<sup>182</sup>, declining fisheries mean severely compromised diet and growing malnutrition.<sup>183</sup> 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.<sup>184</sup>

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 rivers<sup>185</sup>- the Euphrates and Tigris - and lush fertile land, which includes Syria, Iraq, and Turkey, is now facing its worst water scarcity crisis in decades.<sup>186</sup> 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 soar<sup>187</sup> and left 60% of the population in acute hunger.<sup>188</sup> Meanwhile, Iraq has been in political turmoil for more than four decades, which has destroyed its agriculture and irrigation systems<sup>189</sup> and dealt a blow to its economic health.<sup>190</sup>

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%<sup>191</sup> causing a bread crisis in the country<sup>192</sup>; and at least 50%<sup>193</sup> 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.<sup>194</sup>

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 2010<sup>195</sup>, posing serious threats to food security<sup>196</sup>. In Iraq, over the past year, water supply from both the Tigris and Euphrates rivers had decreased by 50% by May 2021.<sup>197</sup>

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.<sup>198</sup> 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.<sup>199</sup>

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.<sup>200</sup>

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 water<sup>201</sup>. In Turkey, water resources per capita are expected to decrease by 40% between 1998-2050.<sup>202</sup>

## 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 77<sup>th</sup> 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.<sup>203204</sup>

**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.<sup>205</sup> 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.

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- <sup>5</sup> The number of people at IPC 4 level of food insecurity and above in 2021, according to [the GRFC 2022](#), see Understanding [IPC classification](#)
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- <sup>82</sup> 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 19<sup>th</sup> (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.
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- <sup>84</sup> The Guardian (2022). [Revealed: oil sector's 'staggering' \\$3bn-a-day profits for last 50 years](#).
- <sup>85</sup> The Guardian (2022). [Revealed: oil sector's staggering \\$3bn-a day profits for last 50 years](#).
- <sup>86</sup> Calculated from [OCHA Financial Tracking Service](#) as of 31 August 2022.
- <sup>87</sup> 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

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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.

<sup>88</sup> See [About the G20](#)

<sup>89</sup> 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](#).

<sup>90</sup> 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](#).

<sup>91</sup> 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](#).

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

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

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

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

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

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

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

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

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

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

<sup>102</sup> 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](#).

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

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

<sup>105</sup> [Regional Overview of Food Security and Nutrition](#)

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

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<sup>109</sup> International Organization for Migration (2015). [Resolving Post-Disaster Displacement: Insights from the Philippines after Typhoon Haiyan \(Yolanda\)](#).

<sup>110</sup> TIME USA (2013). [Deadly Typhoon Haiyan Devastates the Philippines, Heads for Vietnam](#).

<sup>111</sup> See [State of the Climate in Asia 2020](#)

<sup>112</sup> See: [Tropical Cyclones in Asia could double in destructive power](#).

<sup>113</sup> See “[Intensification of landfalling typhoons over the northwest Pacific since the late 1970s](#).”

<sup>114</sup> World Economic Forum (December 2021). [Future of the Environment. Tropical cyclones in Asia could double in destructive power](#).

<sup>115</sup> 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.

<sup>116</sup> International Monetary Fund (2018). Finance and Development. [Boiling Point](#).

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<sup>118</sup> Asian Development Bank (October 2019). [Ending Hunger in Asia and the Pacific by 2020. An Assessment of Investment Requirements in Agriculture. Requirements in Agriculture](#).

<sup>119</sup> Williams and Funk (2011). [A westward extension of the warm pool leads to a westward extension of the Walker circulation, drying eastern Africa](#).

<sup>120</sup> Source: Oxfam report “[Dangerous Delay 2 : The Cost of Inaction](#)”, May 2022.

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- <sup>122</sup> 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](#).
- <sup>123</sup> [FAO and WFP warn of looming widespread food crisis as hunger threatens stability in dozens of countries](#) (June 2022)
- <sup>124</sup> Boko et al. (2007). [Climate Change 2007: Impacts, Adaptation and Vulnerability](#).
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