THE GREAT FLOOD

Rising waters and food security





OCTOBER 2022



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The data contained in this report is only up-to-date as at Thursday, 29 September 2022. Some of it is subject to change during the natural course of events. SB Morgen cannot accept liability in respect of any errors or omissions that may follow such events that may invalidate data contained herein.

Our researchers employed methods such as one-on-one interviews and desk research to collate the available data. Our editors sifted through the data and prepared the report, using various proprietary tools to fact-check and copy edit the information gathered.

Our publicly released reports are formatted for easy and quick reading, and may not necessarily contain all the data that SB Morgen gathered during a given survey. Complete datasets can be made available on request.

All forecasts were built using data from a variety of sources. A baseline of accurate and comprehensive historic data is collected from respondents and publicly-available information, including from regulators, trade associations, research partners, newspapers and government agencies.

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The world at large is facing an unprecedented level of climate change. As human activities such as industrialisation increase, carbon dioxide and other greenhouse emissions that raise the Earth's temperature get released at higher levels. As a result, glaciers across the globe are rapidly melting.

The Kilimanjaro – Africa's highest point is not left out[1]. The pockets of air above the Kilimanjaro summit are warming and the snow needed to replace its icy top is reducing. Notable of the impact of these melting glaciers is the rise of sea level. When water level rises, coastal areas get eroded, storm surges occur and hurricanes as well as irregular weather patterns become the norm.

From monsoons in Southeast Asia, to hurricanes in America and droughts in Africa, receding and surging water flows have become the cycle of people's lives. Ironically, water which should be people's friend has turned out to be the enemy of many communities and countries, washing away food crops, roads and even houses while also determining if the people will have electricity to power their businesses.

In September the African Development Bank said[2] that Africa has been hit disproportionately hard by the fallout from climate change, which has aggravated droughts, flooding and cyclones across the continent in recent years. According to the bank, the continent is losing 5% to 15% of its per capita economic growth due to the effects of climate change and is facing a gaping climate finance shortfall.



African countries received around $18.3 billion[3] in climate finance between 2016 and 2019, but they are staring down a nearly $1.3 trillion climate finance gap for the 2020 to 2030 period.

In the Sahel region, floods and poor harvest worsened food security for popula-

[1]Revealed: the real cause of Kilimanjaro's melting ice cap
[2]As COP27 Looms, Africa Receives a 10th of Climate Financing It Needs.
[3]ibid

tions losing their cattle, meager finances and lives to terrorists, who have turned to small and light weapons to survive the times.

Already overstretched by conflict, the Lake Chad/Sahel region lost no fewer than 469 lives to floods. The deaths were recorded in Chad, Niger Republic and Nigeria. Niger had not recovered from poor harvests triggered by internal displacements and poor rains, before these year's floods happened.

The most destructive water surges occurred in Kwazulu Natal, in Africa's most industrialised economy, South Africa[4]. The province is one of the turbines powering South Africa's GDP.

More than 435 people were killed in the floods that swept into warehouses, sunk cars, damaged homes and eroded roads, causing a loss of about $1.57 billion. .

Across the entire continent, 1,466 deaths have been recorded since the year started, amounting to 21.22% of the total number of flood-related casualties recorded in the period.

At the time of writing, Hurricane Fiona made landfall in America and the Caribbean[5]. It has travelled through Bahamas, Belize, Bermuda, Trinidad and Tobago, Turks and Caicos, the US and British Virgin Islands, Guyana, Dominican Republic as well as Canada, destroying power lines, roads, houses and telecommunication infrastructure. At least six deaths were confirmed in the week leading up to 25th September.

In the first half of the year, floods swept through Rio De Janeiro, Recife and Pernambuco in Brazil, killing 365 people. Rivers burst their banks, forcing people to seek out public shelters. In July the rains continued, killing a further six people in Alagoas State and Rio Grande Do Norte[6].

In total, 423 people were killed across Brazil, Haiti, Suriname and the USA prior to Hurricane Fiona, accounting for 6.12% of the 6914 deaths captured from media reports since January 2022.



Flood patterns in South-East Asia are governed by the volume of rain that comes with the summer Monsoon season. When the rains carried by humid winds from the Indian Ocean are favourable, wells and aquifers are replenished without collateral damage to infrastructure and crops. There has always been excessive damage in recent memory. In the state of Himachal Pradesh in India, annual Monsoon floods killed over 1,550 people in five years[7] and based on SBM's findings, seven of the Asian countries were affected by Monsoon rains. Using fragmented data, SBM calculated 5,011 reported deaths across Southeast Asia and the Middle East, a whopping 72.47% of the 6,914 flood-related deaths found this year.

[4] South Africa: Floods and Landslides - Apr 2022 | ReliefWeb
[5] ReliefWeb - Disasters | Relief News Updates
[6] Brazil - Floods (Floodlist, National Civil Defense, INMET) (ECHO Daily Flash of 06 July 2022)
[7] Himachal: 1,553 people died in last five years during monsoon, highest in 2021 | Mint



In Iran where a recurring drought has devastated parts of the country since 2021, Monsoon rains send light showers to its arid regions annually. These splashes turned into murderous flash floods this year. The Monsoon this year was predicted to be above intense but meteorologists did not expect it to travel to Iran with such intensity. The force of the rains has been driven by dust from the Middle-East and high temperatures. Temperatures in Iran were as high as 50 Celsius in the south of the country before the floods arrived[8].

Although Afghanistan had the highest number of recorded deaths, Pakistan may be the country with the most disastrous damage to food crops. Sindh is where Pakistan, a large food producers harvests much of its crops. The country was the fourth largest exporter of rice last year and a study by the Nepalese-based International Centre for Integrated Mountain Development, said Sindh where at least 42% of that rice was produced, lost 1.7 to 1.9 million tons of the grain to the flood. That volume amounts to 80% of rice production in the province. Sindh has also lost 88% of its sugar cane cultivation and 61% of its cotton farm. Pakistan has now turned to Afghanistan and Iran, equally flood-ravaged, for purchase of tomatoes and onions, which it produces[9].

Existing forecasts[10] for Asia sound bleak. Water needs on the continent are expected to exceed supply by 40%. About 80% of the water demand goes into agriculture. So, despite the floods, usable water would continue to decline.

Europe endured a hot sum-

[8] Southwestern Iran Scorched As Temperature Hits Over 52°C
[9] Flood-hit Pakistan gets 50 trucks of vegetables from Iran, Afghanistan
[10] Short and Long-Term Actions Needed to Help Asia and the Pacific Beat the Global Food Crisis

mer and a drop in river levels on the Rhine, preventing the shipment of essential products like coal, only to suffer water surges soon after. There are nine countries that featured on SBM's flood list during the period with 13 deaths recorded. The continent appears to be getting better with early warning systems and rescue operations. In one instance in Eastern Belgium last year, 35 people were killed[11] but the numbers may increase before the year ends, if there are more devastating floods.

There was widespread flood-induced destruction in New South Wales, Australia. Australia's Insurance Council estimates the cost of the flood to be at $4.3 billion[12], making it the fourth most devastating disaster in the country's history with one life lost.

Climate change has direct impacts on food systems and food security as a whole. As such, the 2022 floods which have affected at least 40 countries is bad news for food security. According to the January 2022 Hunger Hotspots Report from the World Food Programme and Food and Agriculture Organisation, Ethiopia, Nigeria, South Sudan and Yemen remain the countries of highest concern. Food prices which have been rising since May 2020 as a result of the rupture of productivity that came with the coronavirus pandemic lockdowns have continued to soar well into 2022, exacerbated by the war in Ukraine. The war which began in late February ushered in a period of protectionism around the world that saw export ban of important commodities, thus worsening the situation for other countries.

While countries like Argentina, China and Vietnam had engaged in protectionist measures before the war, the war tipped China and India to do the same[13]. The two countries who produce more wheat than Ukraine and Russia added the commodity to the export ban list to shore up domestic demand. While the UN brokered deal in July which saw grain shipments leave Ukrainian ports did its bit to cushion the effects of food prices, the flood in many food producing areas of the world has rolled back gains made.

The floods have submerged hectares of arable land in several countries. This has a big impact on food production. In Nigeria, the South South, North West and North Eastern states have witnessed some of the worst flooding and in the latter case, opened Cameroonian dams have worsened the problem. Parts of Jigawa in the North West are under water with foods like cassava, corn and yam being likely affected. Production of these items under the present circumstances will be severely hampered given Nigeria's place in the global market for these commodities. The production of cassava in Nigeria increased from 9.17 million tonnes in 1971 to 60 million tonnes in 2020 growing at an average annual rate of 4.25; according to data from the US Department of Agriculture, Nigeria produced 11.6 million metric tons of maize in 2021, the highest quantity made in the last six decades. The figure when compared to the 10 million metric tonnes recorded in 2020 shows a 16 percent increase;Nigeria's Federal Ministry of Agriculture, in July 2021 stated that Nigeria accounts for 47 million metric tonnes, of the 73 million metric tonnes of yam production globally. Most of the yam production is done in states in the North Central and East (Benue, Adamawa and Taraba), with others in the South producing enough to make up the numbers.

According to the National Emergency Management Agency, 33 of 36 states in Nigeria have so far experienced floods. Many of the affected states are also food producing ones, with some of them (especially Benue and Taraba) experiencing worsening attacks from armed groups. These twin challenges have a potential

[11] Germany, Belgium floods toll passes 120, with many missing: Live
[12] Insurance Council says cost of northern NSW and south-east Queensland floods now at $4.3 billion - ABC News
[13] Argentina's surprise beef export ban leaves huge void in China market - Beef Central

of crippling livelihoods in Nigeria and plunging the country into instability. The silver lining is that the rainy season in the country is in its last throes–the season runs from March through September and sometimes ends earlier in the North–which may prove some respite in relatively better off areas.

SBM asked respondents how the flood has affected farmers in Bayelsa state. One of them said:

"The flood has really affected farmers. It carries their cassava farms and they are not able to salvage anything. Those that their cassavas are due for harvesting are affected most because of the time and resources they have invested in the farm. By the time the flood is over, the cassava will be rotten."

Another respondent in Igbogene, Bayelsa said the flood has prevented farmers from having access to their crops. According to the respondent, ''the entire cassava and potato farm is usually lost to the flood especially those in the villages. Their crops get rotten during the flood season".

A farmer in Benue said that this could be his worst year. "After spending ₦1.25 million ($1696) on my rice farm, thinking this year would be one of my best years, the farm is now 99% submerged by water."

Outside agriculture, the flood also affects education as the government is forced to close schools earlier than the normal vacation time to prevent children from being carried away by the flood.

A fairly common theme among the countries experiencing terrible floods is the kind of crops or food affected which are mostly millet, sugar and wheat. While the first two are essential commodities, the third–wheat–has the most potential to cause disruptions to food security just as we have seen earlier with the crisis in Eastern Europe. It is our forecast that even when the waters recede, countries will continue to hold on export ban policies on most of these crops, especially grains because not only will the damage done to farms require scarce money to repair, it will also take quite





Rice farm in Lower Benue, near Makurdi before and after the flooding. Pictures taken by Olikita Ekani on 28 September 2022.

[8] Southwestern Iran Scorched As Temperature Hits Over 52°C
[9] Flood-hit Pakistan gets 50 trucks of vegetables from Iran, Afghanistan
[10] Short and Long-Term Actions Needed to Help Asia and the Pacific Beat the Global Food Crisis

some time for production to return to optimal levels.

When statisticians and climate experts say Africa is disproportionately affected by climate change despite emitting less, food shortage brings that claim to life. One-third of all droughts occurring globally happen in the largely humid climate of the continent.

The Food and Agricultural Organisation (FAO), publishes a Global Information Early Warning System (GIEWS), which predicts crop prospects across the globe. In Q2 2022, it said 33 of Africa's 54 countries, that is 61.11% of all countries in the continent, would require or already require food assistance this year with 46 states on that list being labelled as Low Income Food Deficit Countries (LIFDCs)[14]. As a result of droughts, floods and cyclones, African countries make up 71.74% of the world's food-deficit nations.

Using cereal projections, the FAO reckons that Africa will produce 4% less cereals than it did last year. The low pro-



[14] Crop Prospects and Food Situation #2, July 2022



duction is catalysed by recurrent low rainfalls in Kenya's northern and eastern pastoral, agropastoral and marginal agricultural areas. The weak rains have shrivelled crops and killed animals. Drought has dried out hectares of land in Somalia and Ethiopia and many lives in these territories have been lost to militancy and a civil war. Niger is dealing with crop failure owing to last year's poor rainfall coupled with a refugee crisis within and outside its borders. The displacement is propelled by insurgency in the Lake Chad region. It has 265,000 people forced out of their homes by militants and is playing host to 290,000 more, majority of whom are from Nigeria. All these people rely on food aid which aid workers have found more expensive to deliver due to the rise in energy bills and insufficient donor funds. Between Kenya, Niger and Somalia, 13.7 million have been identified as needing food assistance since March while regionally, 38.2 million people across West and Central Africa are projected to be food insecure. Nigeria contributes about half or more than 19 million of that number. What would happen next year would be largely dependent on reduced fertiliser prices, better rains that don't wash away crops and proper planning to channel flood water.

Asia has it better though. So far, 10 of the 48 Asian nations recognised by the UN are food-deficit. Forecasts made by the FAO in June before some of the flooding incidents occurred showed that high yields were expected for wheat, rice and maize across China, Pakistan, India and Bangladesh. Last year, Asia recorded bumper rice paddy production and a near-repeat performance of about 699 million tons is projected this year. There was high wheat and maize planting across some of the countries covered by the FAO with maize demand driven by China's need for feed.

High prices of inputs like fuel and fertiliser affected crop production in Myanmar and Nepal. Contrastingly, India had enough fertiliser to meet the needs of its farmers. However, the gains will be erased as over 110,000 hectares of crops were washed away between May and August. Likewise, in Pakistan with an expected high maize yield, more than 1.46 million hectares of planted food has been submerged in flood water since June while Bangladesh has lost over 53,000 hectares of cropland to floods. The continent is projected to produce 0.5% more cereals than it did last year. However, when Q3 forecasts and existing scenarios emerge, Asia could be worse off than Q2 projections.

As the effects of climate change continue to worsen around the world, it will have a major impact on food production and far-reaching implications for food security. This will further complicate fragile food security systems that are already impacted by local conflicts such as the Boko Haram insurgency and the Pastoral Conflicts in Nigeria, and regional conflicts such as the multi-faceted insurgencies and wars in the Horn of Africa.

Agriculture is simultaneously a major contributor to climate change, and a victim of it, as flooding around the world shows. Recent events should make clear the need for urgent and concerted actions by countries to reverse climate change and build in climate resilience.

Floods in 2022

Country	Most Affected Areas	Deaths
Afghanistan	Badghis; Baghlan; Faryab	2028
Austria	Carinthia	1
Australia	New South wales	1
Bangladesh	Kurigram; Lalmonirhat; Sumamganj; Sylhet	32
Brazil	Alagoas; Pernambuco; Recife; Rio De Janeiro; Rio Grande Do Norte	371
Bulgaria	Plovidv	0
Chad	Djamena	22
China	Qinghai Province	16
Congo DR	Bukavu	57
France	Eure-et-Loir; Paris; Seine-Maritime; Yvelines Eure	1
Haiti	Nippes; North; North-East; North-West; Ouest	9
India	Assam; Gujarat; Himachal Pradesh; Jamu and Kashmir; Kerala; Madhya Pradesh; Maharashtra	1,374
Iran	Mazandaran; Sistan and Balochistan; Yazd	95
Italy	Marche	7
Madagascar	Antananarivo	191
Malasia	Kelantan; Sabah; Negeri Sembilan; Pahang; Selangor	54
Malawi		44
Mozambique		83
Niger		75
Nigeria	Adamawa; Anambra; Bauchi; Benue; Ebonyi; Jigawa; Kano; Kogi; Niger; Taraba	372
Pakistan	Azad Kashmir; Balochistan; Gilgit-Baltistan; Khyber Pakhtunkhwa; Punjab; Sindh	1,396
Portugal	Braga; Cetúbal; Guarda; Lisbon	0
Russia	Krasnodar Krai; Sochi	3
Rwanda		15
Senegal	Dakar	4
Sierra Leone	Freetown	6
South africa	Eastern Cape; Kwazulu Natal	435
South Korea	Seoul	9
Spain	Catalonia; Valencia	1
Sudan		112
Suriname	Brokopondo; Coronie; Marowijne; Nickerie; Para; Saramacca; Sipaliwini	0
Tanzania		5
The Gambia	Kanifing Municipal; West Coast	11
Turkey	Bartın; Düzce Ankara; Karabük; Karaman; Kastamonu; Sinop; Yozgat; Zonguldak	0
UAE	Fujairah; Kalba; Ras Al Khaimah	7
Uganda	Eastern Region; Kasese; Kisoro	34
UK	Cornwall; Devon; Leicestershire; Lincolnshire; London; Nottinghamshire; Port Talbot	0
USA	Arizona; California; Illinois; Kentucky; Misissippi; Nevada; Texas; Utah; Virginia	43

About SBM

SBM Intelligence is an Africa focused geopolitical research and strategic communications consulting firm focused on addressing the critical need for political, social, economic and market data, and big data analytics. We employ various methods of data collection. Our Data Collection Methodology team advises on data collection methods for all ONS social and business surveys. With clients both within the business and the wider government community, we aim to provide expert advice on data collection procedures and carry out research leading to improvements in survey quality.

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