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SPECIAL REPORT

FAO/WFP CROP AND FOOD SECURITY ASSESSMENT MISSION TO MOZAMBIQUE

9 September 2019



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ACRONYMS AND ABBREVIATIONS

CFSAM	Crop and Food Security Assessment Mission
CGAP	Consultative Group to Assist the Poor
EU-JRC	European Union-Joint Research Centre
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	Data programme of FAO Statistics Division
FAW	Fall Armyworm
FCS	Food Consumption Score
FEWS NET	Famine Early Warning Systems Network
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ICRM	Integrated Climate Risk Management
IMF	International Monetary Fund
IPC	Integrated Food Security Phase Classification
kg	kilogramme
LTA	Long Term Average
MASA	Ministry of Agriculture and Food Security
MIC	Ministry of Industry and Commerce
MZN	Metical
NDVI	Normalized Difference Vegetation Index
NGOs	Non-Government Organizations
NOAA	National Oceanic and Atmospheric Administration
PEDSA	Strategic Plan for Agricultural Development
PROSUL	Projecto de Promoção de Cadeias de Valor na Região Sul
SAMS	Smallholder Agriculture Market Support
SETSAN	Technical Secretariat for Food Security
SIMA	Agricultural Market Information System
UN	United Nations
UN-OCHA	United Nations Office for the Coordination of Humanitarian Assistance
USD	US Dollar
VCI	Vegetation Condition Index
WFP	World Food Programme

HIGHLIGHTS

- Two intense tropical cyclones struck central and northern provinces in March and April 2019, while extreme rainfall deficits affected southern provinces, causing extensive crop losses.
- The 2019 cereal production is estimated at 2.8 million tonnes, about 16 percent lower than the bumper output gathered in 2018 but still above the previous five-year average. Most of the reduction concerns a sharp decline in maize production, estimated at 2.1 million tonnes, and a decrease in the paddy output, with the harvest estimated at 350 000 tonnes, due to the cyclone-induced crop losses.
- Production of sorghum and millet is estimated at an above-average level in 2019, on account of the crops' greater resilience to water stress and given that they are normally planted in higher altitude areas that are less affected by flooding.
- Widespread Fall Armyworm (FAW) outbreaks adversely affected crop yields, particularly impacting the maize crops. Dry weather conditions in some southern and central areas, prior to the cyclones, facilitated the spread of the pest, increasing its damage and impact on crop productivity.
- At the national level, a drawdown in cereal stocks and an increase in imports are expected in order to maintain adequate supplies to meet domestic consumption requirements in the 2019/20 marketing year (April/March). For households affected by the adverse weather events and consequent production declines, stocks are expected to be well below average, negatively affecting food availability.
- Retail prices of maize grain spiked following Cyclone Idai, and despite declining seasonally during the harvest period, remained well above the two-year average in the major provincial markets.
- Due to the combined impacts of the cyclones, extreme rainfall deficits and conflict in localized areas in the northern province of Cabo Delgado, an estimated 1.65 million people were assessed to be severely food insecure between the period of June and September 2019. This figure is projected to increase to 1.99 million people during the period October 2019 to February 2020, according to the latest Integrated Food Security Phase Classification (IPC) analysis.
- According to district-level food security surveys conducted between April and June, in 14 districts, more than 1 in 5 households were already consuming a diet considered to be inadequate.
- Considering the extensive crop losses and damage to agricultural livelihoods, it is expected that a substantial proportion of households will continue to depend on relief assistance (and negative coping strategies) to bridge the food deficit gap until the next harvest season in 2020.

OVERVIEW

In response to the impact of two intense tropical cyclones¹ in central and northern provinces and substantial rainfall deficits in southern provinces, the Government of Mozambique requested an FAO/WFP Crop and Food Security Assessment Mission (CFSAM). The Mission visited the country from 13 to 26 May 2019, with the remit to evaluate cereal production in the 2019 agricultural season², assess the overall food security situation, estimate the cereal import requirements in the 2019/20 marketing year (April/March) and determine any food assistance needs. The Mission received the full support from the Ministry of Agriculture and Food Security (MASA), which provided technical staff to accompany the Mission on its field visits. Prior to departure to the field, the Mission was briefed on the current situation by officials from MASA, the Agricultural Market Information System (SIMA), the Ministry of Industry and Commerce (MIC), the Technical Secretariat for Food Security (SETSAN) and FEWS NET, as well as by representatives from FAO and WFP.

The Mission divided into six teams and travelled to all ten provinces, covering 28 districts over a one-week period. At the provincial level, the teams were briefed by the local administrative authorities, including representatives from central ministries. After these meetings, each team conducted structured interviews on the agriculture and food security situations with farming households and carried out market assessments.

Data obtained from the provincial authorities on crop production (which were based on assessments conducted by agricultural extension services earlier in the season), were analysed by the Mission and cross-checked against field observations, information gathered from farm level interviews and analyses of satellite-derived rainfall data and remote sensing information on vegetation conditions. Based on these assessments, the Mission adjusted the provincial authorities' estimates to generate the final cereal production figures. The Mission held a final meeting with all members of the field evaluation teams to validate the preliminary results. Regarding the food security analysis, the assessment was predominantly based on data collected from a district level household food security survey, conducted between April and June 2019 by SETSAN in collaboration with partners. This information was supplemented with data derived from the Mission's household interviews on food security.

Damage caused by the cyclones, mainly manifested in large-scale crop losses due to flooding, was the primary factor affecting cereal production in 2019. In addition, substantial rainfall deficits in southern provinces adversely affected crop productivity. The four central provinces of Manica, Sofala, Tete and Zambezia, which are the country's main cereal-producing areas, were the worst affected by the cyclones, where about 440 000 hectares of cereal crops were destroyed. A smaller area of crops was also lost in the southern provinces of Gaza and Maputo, due to precipitation deficits and overall erratic rainfall distribution. As rainfall conditions prior to the cyclones were generally conducive for crop development in most central and northern provinces, cereal yields in the areas not affected by the floods or persistent dry periods were average to above average, helping to avert a larger decline in the national cereal output.

National cereal production (maize, sorghum, millet, paddy rice and wheat) for the 2019 agricultural season is estimated at 2.8 million tonnes (rice in paddy terms), 16 percent down from the bumper harvest gathered in 2018. Despite the yearly decline, production remained above the previous five-year average, which had been pulled sharply higher following two consecutive bumper outputs in 2017 and 2018³. The yearly decrease largely concerns a decline in maize production, which is estimated at about 2.1 million tonnes, an above-average outturn although well below the large harvests of the previous two years. Paddy production is estimated to have decreased by 31 percent to a below-average 350 000 tonnes, while outputs for sorghum and millet were estimated to have increased slightly, as these crops have a greater tolerance to water stress and are normally planted in higher altitudes, lessening their susceptibility to floods.

Import requirements in the 2019/20 marketing year (April/March) are estimated to have risen to a slightly above-average level of 1.5 million tonnes, compared to an estimated 1.3 million tonnes imported in 2018/19. Most of this volume is comprised of wheat, which is produced in small quantities and, therefore, domestic consumption is almost entirely satisfied with external supplies and rice. Imports of maize are expected to rise

¹ According to the classification used by Meteo France's, which monitors cyclones in the South West Indian Ocean, cyclones Idai and Kenneth were placed in the second strongest category (intense tropical cyclone) out of a scale of seven.

² The main agricultural season for cereal crops is generally defined as the period between October (start of the planting period) and July (end of the harvest period), traversing two calendar years. In this report, the 2018/19 agricultural season will be referred to as 2019, the year when the cereal crops were harvested.

³ The comparison of current cereal outputs in relation to averages can produce misleading interpretations in the context of Mozambique. This arises from changes in the methodological approach that have been adopted by MASA to assess crop production over the preceding years. Consequently, the time series data on production appears to have 'structural breaks' which reflect, to a greater extent, a change in the assessment methodology rather than variations in actual production levels that would have been driven by factors affecting crop productivity and/or the area harvested.

to an above-average level of 208 000 tonnes to compensate for the lower 2019 harvest. A drawdown in maize stocks, which have been built up in the previous two years following successive bumper outputs in 2017 and 2018, is also expected to contribute to offset the impact of the reduced outturn.

Immediately following the landfall of Cyclone Idai, prices of staple cereal foods spiked in central provinces, reflecting short-term supply shortfalls, as normal trade patterns were impeded and stocks were lost due to flooding. The arrival of the 2019 harvested crops in the subsequent months alleviated some of the supply pressure, stabilizing prices or resulting in seasonal declines. However, the cyclone-induced crop losses and overall reduced harvest, combined with higher transportation costs, are expected to keep prices elevated.

Although the national supply outlook is assessed to be mostly adequate, losses sustained by subsistence farmers and the destruction to rural livelihoods due to the impact of the adverse weather conditions, pushed an estimated 1.65 million people into severe acute food insecurity between June and September 2019, nearly double the number in the corresponding period in 2018. This figure is projected to increase to 1.99 million people during the period October 2019 to February 2020, according to the latest IPC analysis.

Immediate assistance in this context should prioritize food assistance and distribution of agricultural inputs. Support to fishing livelihoods is also a priority along the coastal areas where important assets, including boats and fishing gear, were lost during the cyclones.

The impact on livelihoods, especially given the limited ability to replant in many areas, will be especially acute. In the rural non-agriculture sector, including charcoal production, construction and petty trade, there is already an oversupply of workers and, therefore, an additional influx of subsistence farmers into these spaces could put additional downward pressure on income levels. A substantial proportion of households are already relying on market purchases and, therefore, lower incomes coupled with elevated prices are expected to further strain food insecurity conditions.

There is a need to monitor the food security situation in heavily impacted areas throughout the relief and recovery period to ensure that assistance reaches those most in need.

ECONOMY AND AGRICULTURE

Economic growth

Economic growth decelerated in 2018, mostly reflecting a subdued performance in the mining sector and for 2019 growth is forecast to slow further, having shown signs of improving earlier in the year. The more restrained outlook for 2019 is largely based on the losses suffered in the agricultural sector, following the landfall of two major tropical cyclones, which also disrupted other economic sectors, such as services and telecommunications in the central provinces. The slowdown in economic growth is forecast to result in a wider current account deficit, owing to reduced tax revenues from the cyclone-affected areas and higher spending by the Government on relief and recovery operations, which was estimated at USD 1.5 billion (about 10 percent of the GDP)⁴. Moreover, the anticipated increase in food imports, to compensate for the lower domestic harvest, will further contribute to widening the deficit, particularly amid expectations that export revenues will decline in 2019.

Table 1: Mozambique - Key economic indicators, 2016-2019

	2016	2017	2018	2019 (forecast)
GDP per capita (USD)	379	426	475	484
Real GDP growth (percent)	3.8	3.7	3.3	3.1
Agricultural GDP growth rate (percent)	22.6	21.3	21.4	-
Consumer price inflation (percent)	23.7	5.6	3.5	8.5
Exchange rate USD/MZN (annual average)	62.8	63.6	60.3	62.9
Current account balance (USD billion)	-4 247	-2 512	-4 371	-8 748

Source: IMF.

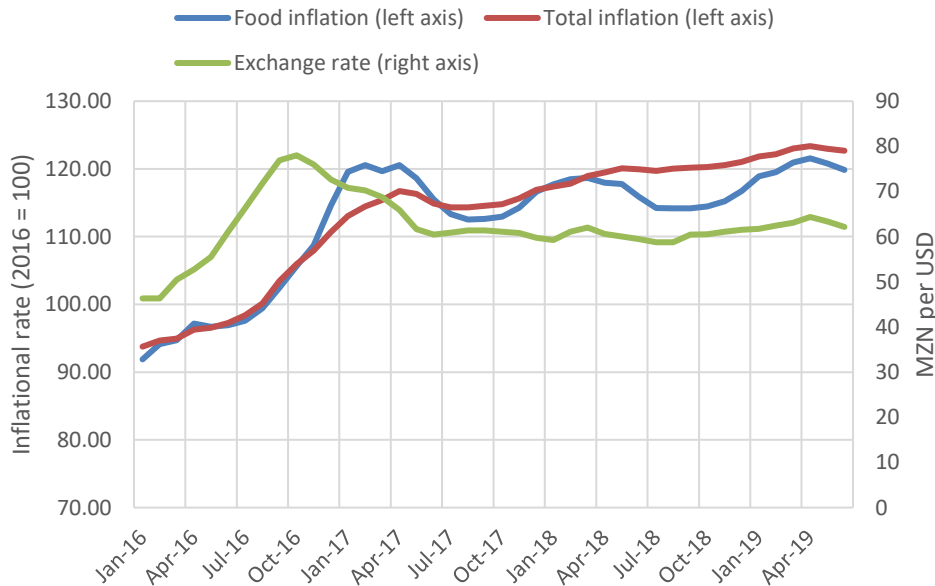
⁴ IMF, 2019, *Country Report No. 19/166*.

Inflation and exchange rate

Food prices have a weight of about 30 percent in the national Consumer Price Index (CPI) and, reflecting cyclone-induced crop losses and the consequent effects on food supplies, the annual inflation rate is forecast to accelerate and more than double in 2019 compared to the previous year. Immediately following the cyclones, prices of key staple cereal products spiked, as the cyclone damage hindered the internal movement of goods and resulted in localized supply shortages. However, prices moderated soon after as supplies from the 2019 harvest (beginning in April), as well as recovery efforts that improved road access, helped to boost market availabilities, easing the supply pressure on prices.

Price increases are expected to pick up later in the year, as food supplies tighten. In addition, higher international cereal prices and maize prices in particular in neighbouring South Africa, a key source of imports, are also expected to sustain upward pressure on domestic prices, particularly given the anticipated increase in the share of cereal imports in relation to total national supplies. Countering some of this pressure and helping to contain imported inflation is the more stable national currency (Metical), especially when compared to the rapid depreciation that occurred in 2016. Given the high proportion of a household’s income allocated to food purchases, averaging about 30 percent, the elevated food prices have and are expected to continue to have an adverse impact on welfare and poverty levels, as households adopt negative coping strategies⁵. Furthermore, the localized production shortfalls in central and southern provinces are expected to necessitate households to access increased quantities of food from markets, which could lead to a further deterioration in households’ welfare as they forgo consumption of other products and services to sustain food consumption.

Figure 1: Mozambique - National inflation and exchange rates, January 2016-June 2019



Source: National Institute of Statistics and IMF.

The agricultural sector

Forty-five percent of the country’s total land area, 78.6 million hectares, is suitable for agriculture, but less than 15 percent of this area is estimated to be under cultivation each year. The last agricultural census conducted by MASA indicates that there were 4 million farming households, of which almost all were categorized as small and medium-scale farmers, who cultivated an average area of 1.1 hectares each. A small proportion of farmers, estimated at 728, were categorized as large-scale producers, with an average cultivated area of nearly 200 hectares⁶. The primary crops grown in the country are: maize, paddy (rice), cassava, groundnuts, beans, sweet potatoes and sugarcane, which are almost entirely produced under rainfed conditions.

Production of the primary food staples is dominated by smallholder farmers. Two of the main food crops, maize and cassava, are grown by nearly 90 percent and 55 percent of smallholder farmers, respectively⁷. The vast majority of smallholders grow staple foods for consumption, particularly maize, which supplies about

⁵ World Bank, 2018, *Mozambique Economic Update: Shifting To More Inclusive Growth*.

⁶ MASA, 2016, *Anuario de Estatísticas Agrárias. Mozambique*.

⁷ CGAP, 2016, *National Survey and Segmentation of Smallholder Households in Mozambique*.

20 percent of the average person's calories per year. The sale of maize is also a key source of income and over half of farmers sell their maize produce. Beans, cassava, and rice also register as important income-generating crops, but are still predominantly produced for consumption. Maize is produced throughout the country, while paddy production is mostly concentrated in two provinces: central Zambezia and southern Gaza. Cassava production is produced throughout the country, although the bulk of the national output is concentrated in the northern provinces of Cabo Delgado and Nampula, where it is the main food staple. Cassava production is also being promoted in the drought-prone southern provinces, along with sweet potatoes, under a Government initiative⁸ that seeks to improve households' food availability, given these crops' greater tolerance to water stress.

Cotton, tobacco and sesame are the main cash crops grown by small-scale farmers and are predominantly grown in the central and northern regions. Of these, tobacco is also an important export earning commodity. Sugarcane is grown by smallholders, albeit in small quantities, with most of the national output produced by large scale enterprises located in Sofala and Maputo provinces and under irrigated conditions. Horticultural crops, particularly tomatoes, are also an important source of both income and food, and are grown throughout the country, but with a higher concentration of producers in the central provinces of Manica and Tete.

Smallholders' crop productivity is generally low and crop losses in the field and in storage are high. The use of purchased agricultural inputs is limited to a small number of modern farm enterprises growing cash crops and vegetables, and to out-growers of tobacco and cotton, who engage in contract farming. On account of households' small plot sizes and with recent surveys indicating that farm-related expenses tend to outweigh incomes⁹, investment capacities of the majority of agricultural households remains very small, if not negligible. This is one critical factor that limits farmers' ability to strengthen their resilience against the impact of adverse weather and extreme climatic events, such as those experienced in 2019.

The majority of farmers use seeds retained from the previous years and/or access supplies through farmer-to-farmer exchanges or local grain markets. MASA estimates that approximately 70 percent of the farmers use seeds saved from previous harvests, while less than 10 percent of the farming households' access improved varieties through formal markets. The application of fertilizers, both organic and inorganic, is minimal and only an estimated 5 percent of the farmers utilize pesticides. Given the limited use of improved seed varieties and the application of fertilizers, crop yields are generally low, both in comparison to the regional levels and to the country's agricultural potential. The five-year average maize yield (2014-2018), estimated at about 1 tonne per hectare, is below the levels of neighbouring Zambia and Malawi. Regarding extension services, according to official agricultural statistics from 2015, about 4 percent of the farmers received information or technical advice from extension services, while a larger proportion, approximately 14 percent, obtained information on crop prices.

In regard to livestock production, pigs and poultry are the key sources of animal protein and, secondarily, income, reflected in the fact that about 60 percent of the farming households raise these animals. Also of importance to small scale farming households is the production of small ruminants and cattle; about 22 percent of the households raise small ruminants and just 6 percent keep cattle.

Poultry production is largely concentrated in southern and central provinces, where about 75 percent of the national poultry stock are located. One main reason for the high concentration in the centre and south is the location of the feed industry, which supports intensive systems of poultry production. Three of the largest feed factories are based in the southern province of Maputo and combined account for more than three-quarters of the national production of compound feed for poultry¹⁰.

Cattle breeding is predominantly concentrated in the southern provinces, where 60 percent of the national population is located. The River Save, located along the border between the central provinces of Manica and Sofala, and the southern provinces of Gaza and Inhambane acts as a natural barrier against the spread of the tsetse fly, a biological vector for the trypanosomiasis disease, which poses a significant risk to livestock production and partly explains the high concentration of cattle in the south. The central provinces, by contrast, are the main breeding centres for small ruminants, accounting for more than 50 percent of the national population. Tete is the main producing province, followed by Manica and Sofala. Pig farming is distributed more equitably throughout the country, although there are notably large populations in the provinces of Nampula, Tete and Inhambane.

In consideration of the country's significant waterways, lakes and dams, and extensive coastline, fisheries also play an important role both as a source of animal protein but also as employment with many coastal fishing

⁸ Projecto de Promoção de Cadeias de Valor na Região Sul (PROSUL).

⁹ CGAP, 2016, *National Survey and Segmentation of Smallholder Households in Mozambique*.

¹⁰ FAO, 2013, *Livestock country reviews – Poultry Sector Mozambique*.

methods requiring the formation of cooperative groups of collaborative stakeholders such as traditional beach seine methods. Almost all fisher households hybridise their income in some way, typically undertaking other agricultural activities, while fishing also plays an important role as a source of nutrition in non-fisher households. Consumption of marine products is estimated at 7.5 kg per capita and as high as 18.5 kg in coastal regions. The fisheries industry also provides employment for 90 000 people, which does not include those involved in trading and processing.

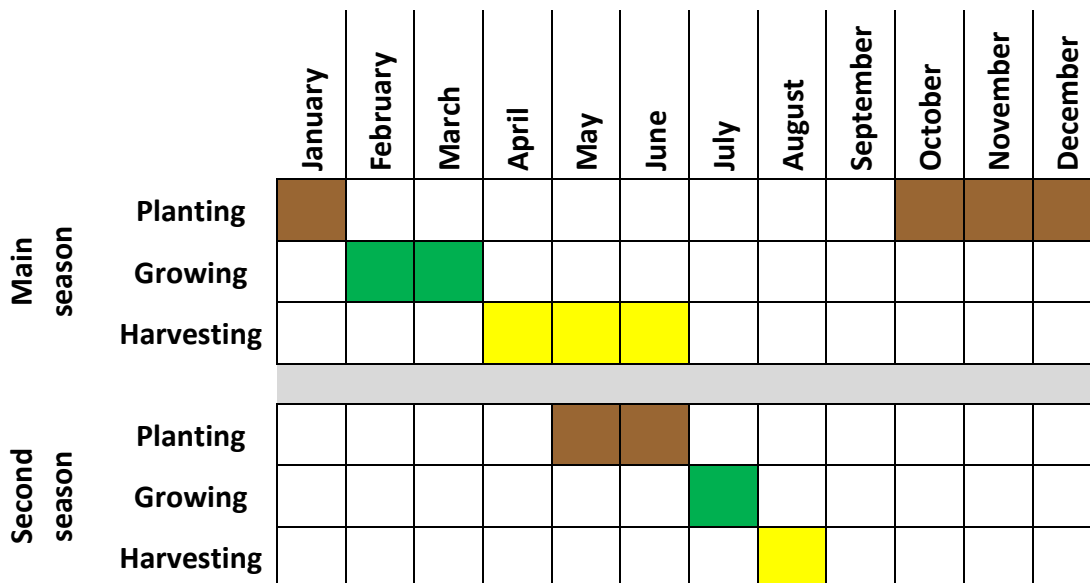
Coastal small scale and artisanal fisheries play an important role in food security with coastal lowlands comprising of about 44 percent of the country’s area along a coastline of approximately 2 770 km. This coastline is continuously populated with communities where resilient coastal fishing culture facilitates trade and value chains using boats where road access is limited typically due to the many delta river systems which transect coastal regions. Much of the catch is consumed locally in part due to demand, however, also because of lack of access to ice which limits value chain access to aggregators and exporters. Small scale and artisanal capture fisheries thus play a significant role in food supply to a broader population and household food security of fishers themselves.

To address the low levels of productivity, develop agricultural value chains and reduce rural poverty rates, several public initiatives are being implemented, including the Government’s 10-year Strategic Plan for Agricultural Development (PEDSA). PEDSA was designed to target improvements in four areas: (i) agricultural production, productivity and competitiveness; (ii) infrastructure and services for an increase in access to agricultural markets and investment in the agricultural sector; (iii) sustainable and integral use of natural resources such as land, water, forestry and wildlife; and (iv) agricultural institutions improvement. In addition, there are multiple projects implemented by international organizations and NGOs, which promote the use of improved farming practices, through for example, the provision of subsidized inputs, or the promotion of participatory approaches to demonstration or field training (such as farmer field schools).

FACTORS AFFECTING CEREAL PRODUCTION IN THE 2018/19 CROPPING SEASON

The main 2018/19 cropping season, which stretches from October to June (Figure 2), was affected by two intense tropical cyclones and extreme seasonal rainfall deficits. These factors were the main drivers of a decline in cereal production in 2019. More generally, extreme weather conditions were regularly cited by farming households as the principal risk to agricultural production. This reflects both the country’s exposure to extreme weather events and farmers’ limited capacity to mitigate the impact on agricultural production. In addition, but with a more limited impact, infestations of FAW also contributed to reducing crop productivity in 2019.

Figure 2: Mozambique - Seasonal cropping calendar for cereals



Source: FAO/GIEWS.

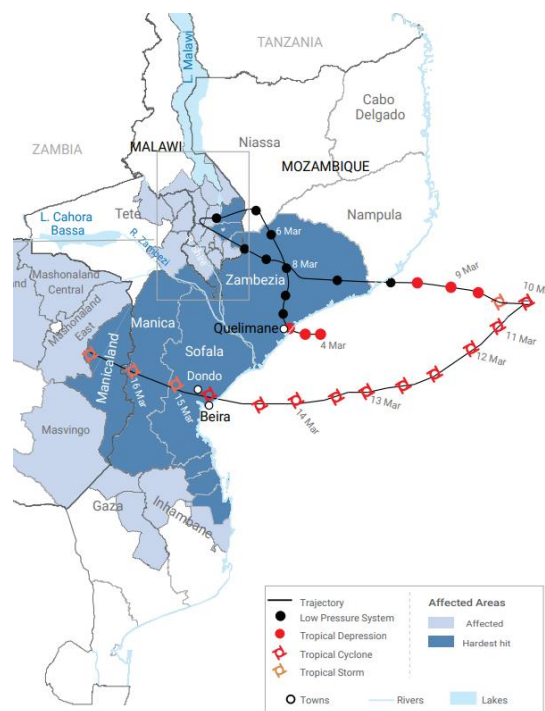
Weather

The 2018/19 rainy season was marked by two extreme weather events: Cyclone Idai that struck central regions in March and Cyclone Kenneth that made landfall in April in the northern region of Cabo Delgado. In addition, substantial rainfall deficits were registered in southern provinces of Gaza, Inhambane and Maputo throughout the season.

Impact of extreme weather events

The two tropical cyclones had an extensive impact on the agricultural sector over a six-week period, which coincided with the grain filling stage of the maize crop, the main food staple, and the harvest period. Tropical Cyclone Idai made landfall on 14 March near Beira City, in central Sofala Province. Cyclone Idai brought strong winds, which peaked at about 200 km per hour, and heavy rainfall; more than 600 mm were recorded in Chimoi over a two-week period, compared to the average (1996-2015) monthly rainfall volume for March of 135 mm for Sofala Province. The weather system's impact was particularly devastating as it came in three waves: in early March, the low pressure system caused flooding in Zambezia and Tete; in mid-March, Cyclone Idai made landfall near the port City of Beira; and finally, over the weekend of 16-17 March, the weather system brought torrential rains across significant swathes of land, causing rivers to overflow, with flood waters reportedly rising above 10 metres. The path of the storm cut through Sofala and Manica provinces, with most of the flood waters concentrated in Sofala and Zambezia provinces, while high winds impacted Manica Province. Cyclone Idai also brought a large storm surge that reached up to 4.5 metres, particularly concentrated in the coastal city of Beira.

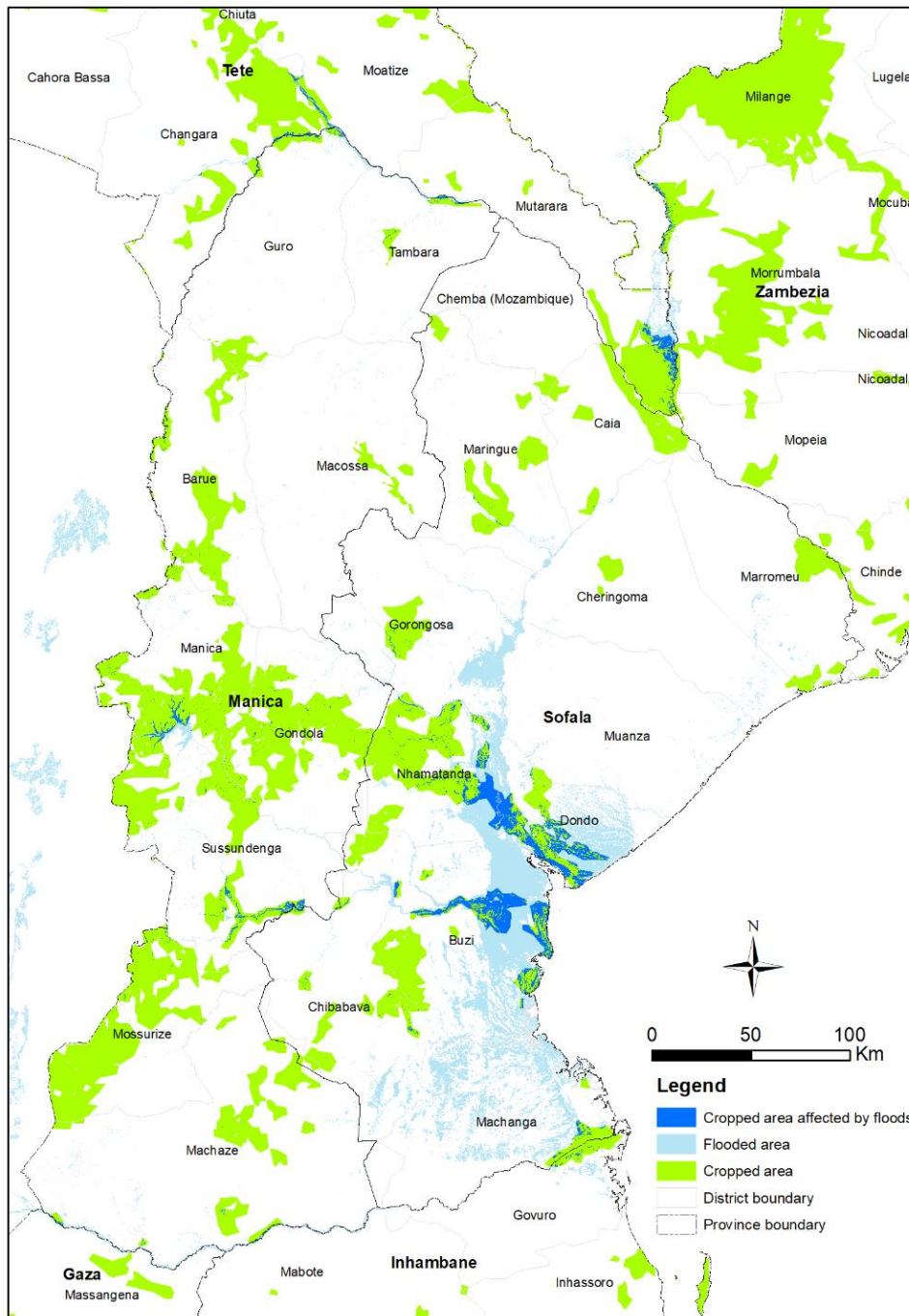
Map 1: Mozambique - Path of Cyclone Idai



Source: UN-OCHA

On 25 April, tropical Cyclone Kenneth made landfall in the districts of Macomia and Quissanga in the northern province of Cabo Delgado. In terms of wind strength, Cyclone Kenneth was one of the strongest cyclones to make landfall on the African continent, with wind speeds of around 220 km per hour. It struck the country at the end of the rainy season, when river levels were already high and near full capacity, resulting in flash flooding in riverine areas and intensifying crop losses.

Map 2: Mozambique – Flooded cropped area following landfall of Cyclone Idai



Source: FAO Global Land Cover-SHARE and EU-JRC.

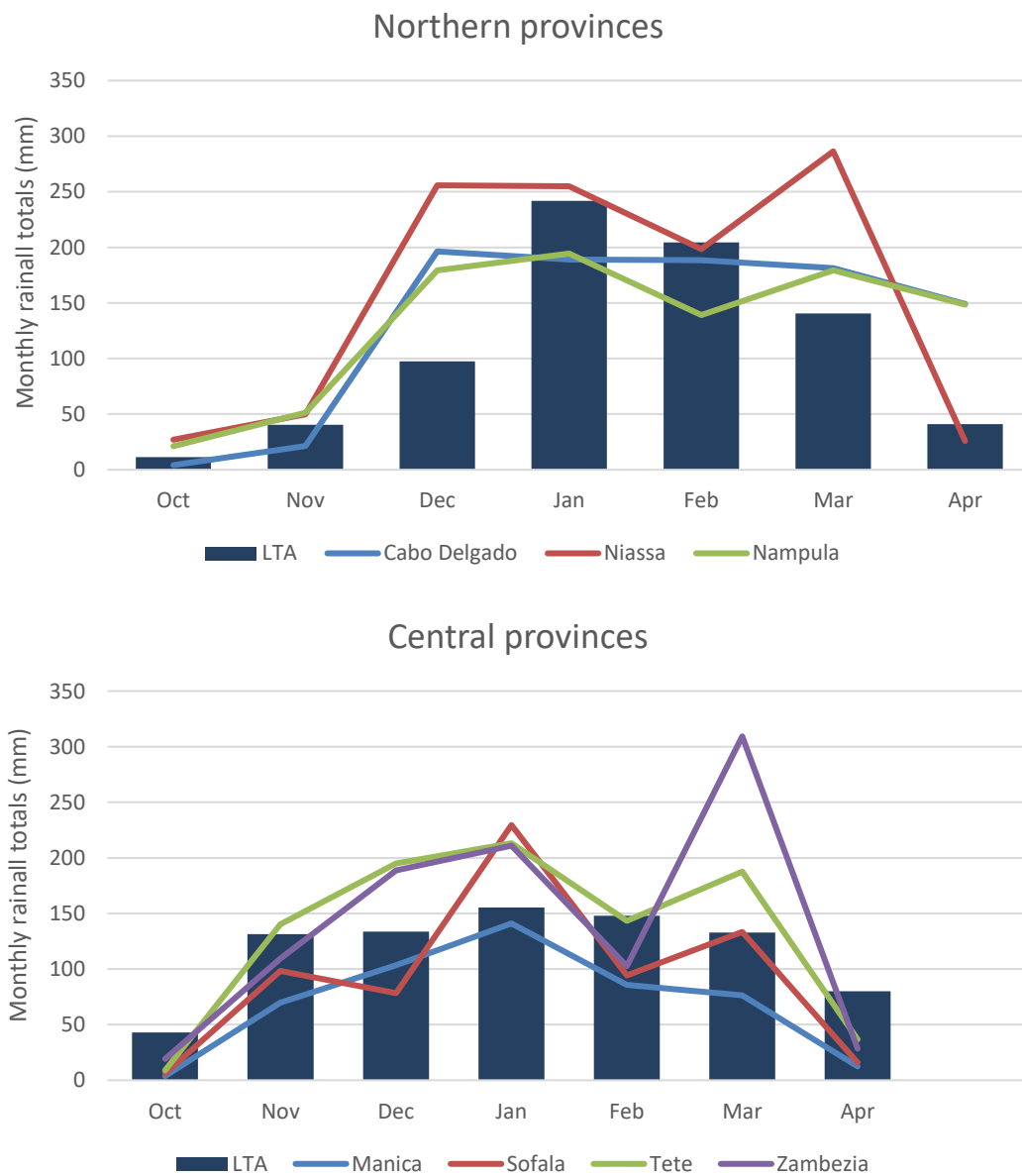
The main impact of the cyclones was the loss of standing crops, in addition to damage and losses of plantations, livestock and fisheries infrastructures and fishing equipment. In total, an estimated 480 000 hectares of cropped land were flooded, with near-total loss of crops. The most affected provinces were Sofala, Manica, Zambezia and Cabo Delgado, which are some of the highly productive agricultural areas in the country. At the national level, the area flooded represents about 10 percent of the total area cultivated.

In the areas unaffected by floods, the strong winds and excessive rainfall also caused the reduction of yields. Some farmers also reported a decline in the quality of the grain due to high soil moisture content at the yield formation stage and as a result of stalk breakage, caused by the strong winds, which resulted in maize ears lying in overly saturated soils, promoting premature sprouting. The higher moisture content also increases the grains' susceptibility to damages and losses by biotic factors, such as fungi and insects, whilst in storage.

Rainfall

In northern provinces, the temporal rainfall distribution and absolute seasonal volumes were mostly beneficial for crop development between October 2018 and most of April 2019, despite some periods of below-average rainfall in Niassa and Nampula during February. In the central provinces of Manica and Sofala, precipitation was conducive for crop growth in most areas and, prior to the impact of the cyclones, yields were expected to be average to above average. In Tete and Zambezia provinces, seasonal rainfall amounts were close to average levels until March, when Cyclone Idai struck, which resulted in a surge in seasonal rainfall totals. Most areas affected by flooding were located along the banks of the Zambezi River and in areas adjacent to the Buzi and Pungwe rivers. In areas not affected by floodwaters, the abundant rains and increased water reserves positively impacted the production outlook for the minor secondary cropping season, allowing farmers to expand plantings.

Figure 3: Mozambique - Seasonal rainfall patterns in northern and central provinces

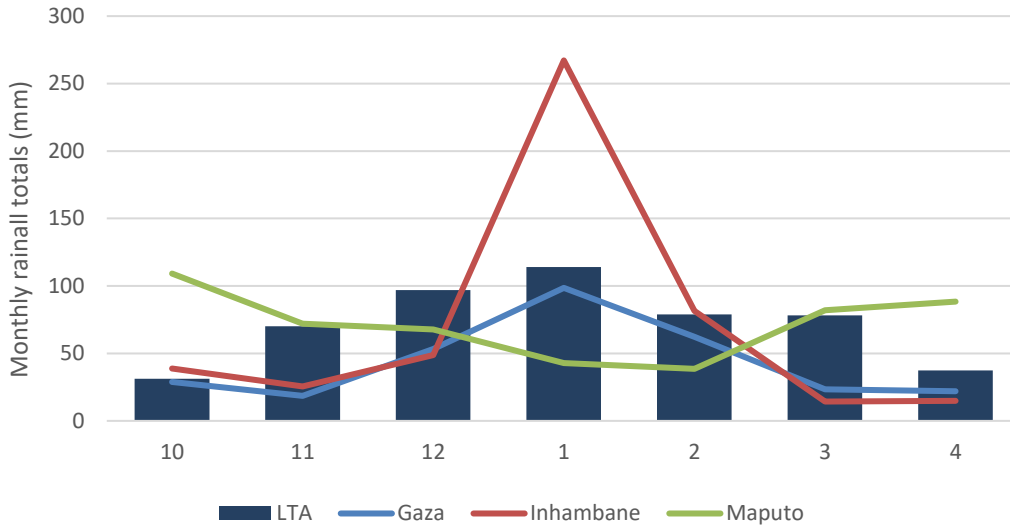


Source: NOAA/FEWS NET.

Note: LTA refers to the Long Term Average (1989-2015).

In the southern provinces of Inhambane, Maputo and Gaza, where seasonal rainfall totals are usually low compared to the water requirements for the cereal crops, precipitation in 2018/19 was poorly distributed temporally and total amounts were below the 1996-2015 average, a fact corroborated by farmers during the Mission's field visits. Seasonal rainfall deficits were particularly pronounced in Gaza Province, where cumulative rainfall was 36 percent below average. Given the negligible use of irrigation systems in these areas, yields were significantly affected by rainfall deficits. Moreover, a delayed onset of seasonal rains, which was followed by a period of erratic and often negligible rainfall, accompanied by unseasonably high temperatures, delayed and impeded land preparation and sowing activities. These conditions caused a contraction in the area sown, which further contributed to the reduced harvest.

Figure 4: Mozambique – Seasonal rainfall patterns in southern provinces

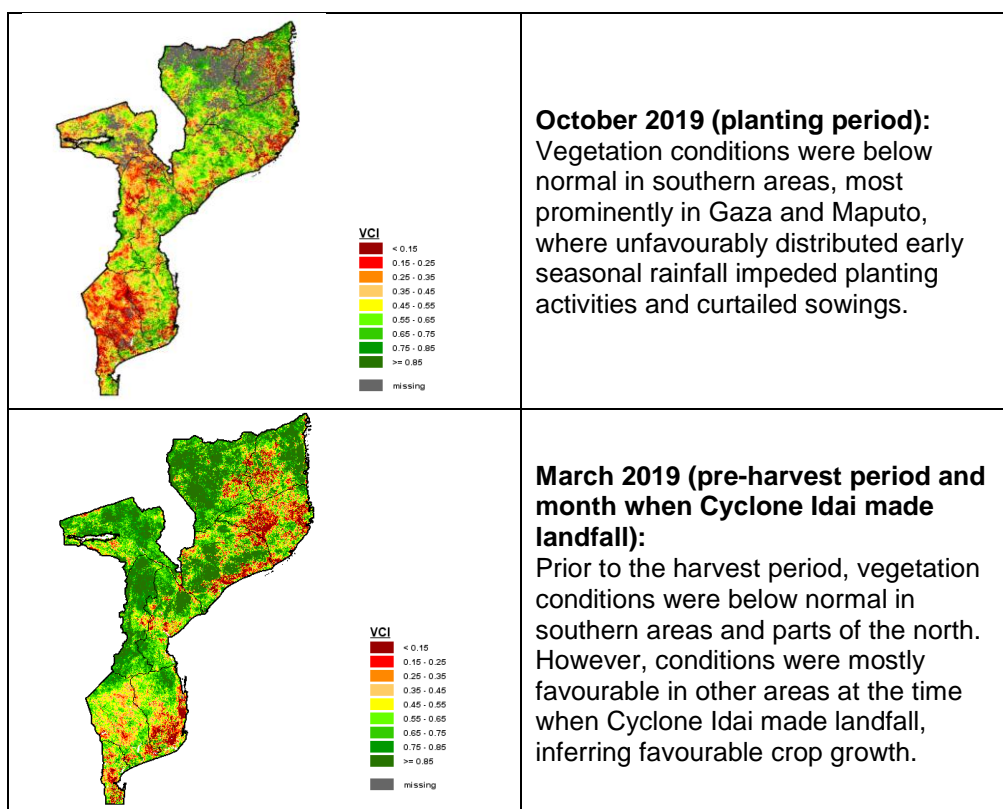


Source: NOAA/FEWS NET.

Note: LTA refers to the Long Term Average (1989-2015).

Reflecting these rainfall patterns, remote sensing data indicated generally satisfactory vegetation conditions in central and northern provinces, except for pockets in Nampula Province, up to early March, prior to the cyclones (see Map 3). These conditions inferred favourable crop growth and implied a high likelihood of average to above average yields. However, the cyclones caused a reduction in crop yields in central provinces compared to earlier prospects. In the southern provinces, by contrast, remote sensed vegetation indices depicted stressed conditions due to rainfall deficits throughout most of the season, which were evident and corroborated by farmers during the field evaluations carried out by the Mission. As a result, crop yields were significantly constrained and were estimated at a below-average level in 2019.

Map 3: Mozambique - Vegetation Condition Index¹, October and March 2019



Source: FAO Earth Observation: <http://www.fao.org/giews/earthobservation/index.jsp?lang=en>.
1/ The Vegetation Condition Index (VCI) evaluates the current vegetation health in comparison to the historical trends. The VCI relates current dekadal Normalized Difference Vegetation Index (NDVI) to its long-term minimum and maximum, normalized by the historical range of NDVI values for the same dekad. The VCI was designed to separate the weather-related component of the NDVI from the ecological element.

Pests and diseases

The widespread FAW infestations, which were first identified in the country in early 2017, continued to affect crop productivity in 2019. The Mission's field assessments confirmed the presence of FAW in all districts visited, reaffirming earlier Government reports. Although farmers were unable to accurately discern the impact of FAW on yields compared to other factors, they perceived that the FAW is an important cause of crop damage and yield losses. In the southern provinces, the dry conditions facilitated the spread and impact of FAW. In addition, the FAW was found to have had a greater effect on later planted maize, as crops sown in January were reported to have suffered more severe damage compared to those planted in November and December. FAO is promoting the application of mechanical control measures, in conjunction with other techniques, as a means to control the spread of FAW and minimize its impact. Additionally, in cooperation with the Government, FAO is closely monitoring the infestations and prevalence of FAW to help guide response interventions. More generally, farmers do not have sufficient financial resources to access the appropriate and recommended pesticides that could also help to limit the spread of FAW and its effects. In the north, farmers also reported localized attacks by rats and locusts.

Farmers reported no other significant outbreaks of pests or diseases that impacted crop production in 2019.

Agricultural inputs

Based on the Mission's farm-level interviews, seed availability for the principal cereal crops was reported to be generally adequate for the main 2019 cropping season, although the use of improved seed varieties continues to be low. For the second cropping season, there was a supply shortage reflecting the cyclone-induced crop losses incurred and in consideration of the high proportion of farmers using retained seeds. In response, the Government, donor countries, FAO and NGOs initiated several seed distribution programmes to bridge the supply gap. During April and May 2019, FAO distributed about 150 000 kg of short-cycle maize seed in Manica and Sofala provinces, which based on the average seeding rate of 20 kg per hectare, would have been sufficient to cover nearly 7 500 hectares.

Similarly, fertilizer use in the country is negligible, with minimal application of organic and inorganic fertilizers, and it was confirmed during Mission’s field visits. The low use of fertilizers and other productivity-enhancing technology largely reflect households’ inadequate financial resources.

CEREAL PRODUCTION IN 2019

Planted and harvested area

Overall, the planted area to cereals in the 2019 cropping was estimated to be above average and similar to the previous year. This mostly reflected the timely start and the generally favourable distribution of seasonal rains in the main cereal producing areas in the centre and north. By contrast, in southern parts, erratic early seasonal rains inhibited planting activities and resulted in a reduced sown area both compared to the average as well as preliminary planting intentions for the 2019 season. Farmers in the south also stated that they planted multiple times. According to assessments conducted by MASA’s extension services, only 76 percent of the intended planted area was sown in southern provinces, compared to 89 percent in central provinces and 94 percent in northern provinces.

The area harvested, however, was estimated to be down on a yearly basis, but still close to the five-year average. The reduction is mostly on account of the cyclone-induced crop losses in central provinces, while a smaller area of crops in southern provinces were unharvested on account of the effects of the seasonal rainfall deficits. In total, approximately 480 000 hectares of crops were destroyed (Table 2) by the cyclones, of which nearly 90 percent were located in the central provinces of Sofala, Manica and Zambezia.

Table 2: Mozambique – Cropped area affected by extreme weather

Province	Extreme weather events	Crops destroyed (hectares)
Maputo	Seasonal rainfall deficits	59 000
Gaza		66 855
Inhambane	Cyclones	9 430
Manica		111 583
Sofala		237 361
Tete		13 609
Zambézia		73 213
Nampula		6 614
Cabo Delgado		28 445
Niassa		105
NATIONAL		606 215

Source: MASA, 2019.

Deducting the area of destroyed crops, an estimated 2.53 million hectares of cereal crops were harvested in 2019, down 12 percent from the previous year’s above average level. By crop, most of the decline concerns contractions in the area harvested with maize and, secondarily, paddy. The harvested areas for millet and sorghum were estimated to have increased in 2019, reflecting both above average plantings and the more limited impact of the unfavourable weather conditions on these crops.

Cereal yields

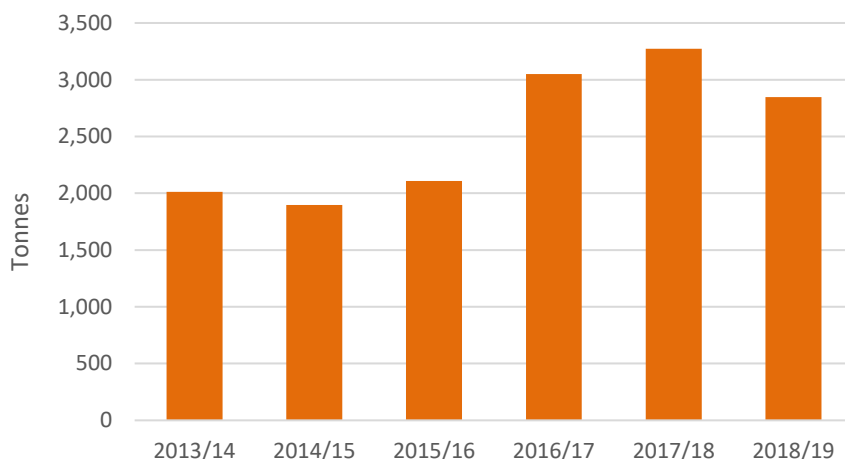
The national maize yield in 2019 is estimated at a near-average level of 1.1 tonnes per hectare, marking a decrease compared to the level registered in 2018. The unfavourable weather conditions, primarily water deficits, were the main driving factors that caused the decline in yields. The largest yield decreases were estimated in southern provinces, where maize yields declined to lows of around 0.5 tonnes per hectare. The heavy rains and floods in central and northern provinces also led to yield reductions, although decreases were not as significant as those registered in the south. The impact of FAW was an additional factor contributing to the lower productivity of maize crops.

The national paddy yield was estimated at a slightly above-average level of 1.7 tonnes per hectare and mostly unchanged on a yearly basis. Sorghum and millet yields were also estimated to have remained at an average level of 0.9 tonnes per hectare.

Cereal production

Cereal production (rice in paddy terms) is estimated at 2.8 million tonnes in 2019, 16 percent below the 2018 bumper output, but still above the average (see Figure 5). The yearly decrease was mostly driven by reduced maize and paddy outputs, which more than outweighed a moderate upturn in millet and sorghum production.

Figure 5: Mozambique - Cereal production, 2013/14-2018/19



Source: CFSAM and MASA.

Maize production

The national maize harvest is estimated at about 2.1 million tonnes in 2019, 17 percent above the five-year average but 16 percent (411 000 tonnes) below 2018's outturn. Geographically, the largest production decreases were in central provinces, which combined accounted for about 50 percent of the national output. In relative terms, there were also significant declines in southern provinces, by between 32 percent and 44 percent compared to the above-average levels of the previous year.

Table 3: Mozambique - Maize production, area harvested and yield

Province	2018			2019		
	Area harvested ('000 ha)	Yield (t/ha)	Production ('000 tonnes)	Area harvested ('000 ha)	Yield (t/ha)	Production ('000 tonnes)
Niassa	267	1.3	351	267	1.3	347
Cabo Delgado	261	1.3	340	233	1.3	298
Nampula	283	1.3	380	277	1.4	374
North	811	1.3	1 071	776	1.3	1 018
Zambezia	315	1.3	423	242	1.3	320
Tete	180	1.3	225	167	1.1	180
Manica	220	1.2	264	191	1.2	220
Sofala	196	1.2	225	148	1.1	167
Centre	912	1.2	1 137	748	1.2	887
Inhambane	120	0.7	79	83	0.5	44
Gaza	207	0.6	130	189	0.5	89
Maputo	108	0.7	79	74	0.6	47
South	434	0.7	288	346	0.5	180
NATIONAL	2 157	1.2	2 496	1 870	1.1	2 085

Source: CFSAM and MASA.

Almost the entire national output comes from the main season, while a minor proportion is produced during the secondary season, with crops planted in May/June and harvested in July/August (see Figure 2). The 2019 second season maize output is forecast at about 42 000 tonnes. Despite its small volume in absolute terms, the second season harvest represents an important livelihood strategy for farming households that suffered production shortfalls in the main season. In the cyclone-affected central and northern provinces, nearly 50 percent of the households were estimated to have planted short-cycle maize seeds for the second cropping season, slightly higher than average, reflecting farmers' efforts to compensate for earlier crop losses. However,

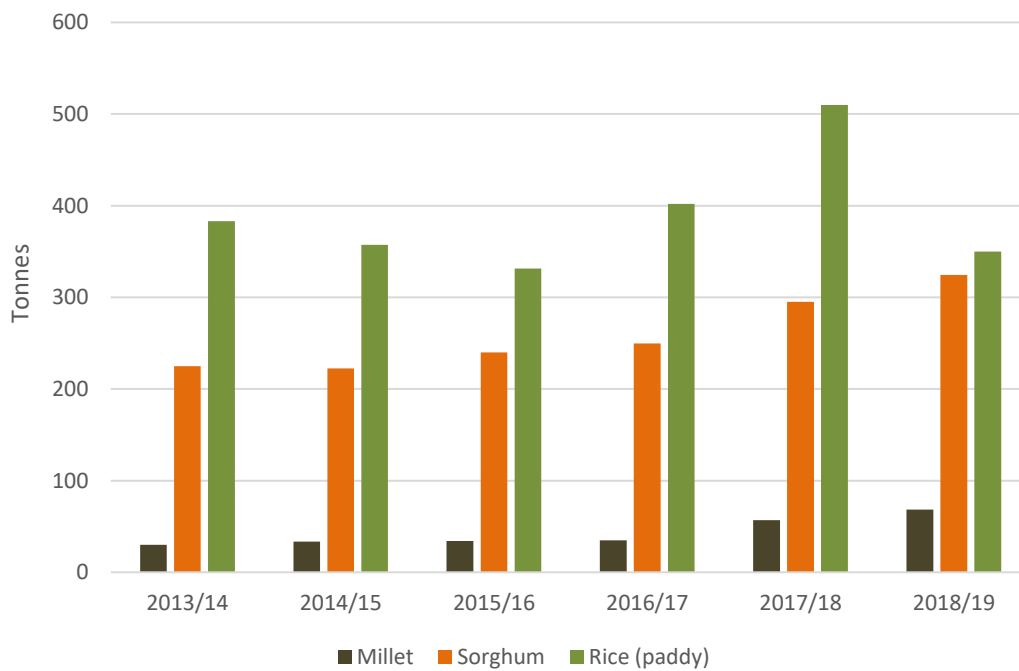
in the semi-arid southern areas, plantings for the second season are estimated to be significantly below average, on account of the reduced seed supplies due to multiple replanting attempts made by the farmers during the main season.

Sorghum, millet and paddy production

Rice production (in paddy terms) was estimated at a below-average 350 000 tonnes in 2019, a significant decline from last year's above-average output.

By contrast, production of sorghum and millet is estimated to have increased to above average levels. The sorghum output is estimated at 325 000 tonnes, 10 percent higher on a yearly basis, while millet production grew by nearly 20 percent to about 68 000 tonnes. The increases for these crops mostly reflects the limited damage caused by adverse weather and expansions in the area harvested.

Figure 6: Mozambique - Paddy, sorghum and millet production, 2013/14-2018/19



Source: CFSAM and MASA.

FISHERIES

Artisanal fisheries plays a critical role in the country, particularly in terms of the nutritional value as a large proportion of the production is consumed locally, due to both logistical aspects of supply chains and the limited availability of ice, salt and processing facilities that limits the national capacity to export. Preliminary data on production pointed to an increase in fish production from catch fisheries and aquaculture between 2017 and 2018, and early indications implied a continued expansion in 2019. However, the impact of the cyclones is expected to have restrained production this year.

The resilience capacity of fishers and coastal communities in the region was significantly challenged by Cyclone Idai. This, in part, reflects the unique formation of the weather system over the Zambezia Province and Mozambique Channel, conditions which amplified the strength of the cyclone and, therefore, intensified the impact on fisher households and the fisheries sector in general. Table 4 outlines the estimated losses to the catch fisheries and aquaculture sectors in Inhambane, Manica Sofala and Tete provinces. The data is sourced from the rapid assessment undertaken in March 2019 by FAO's Fisheries and Aquaculture Policy and Resources Division on environmental, capacity, trade, food security and livelihoods, and should be considered as an underestimate due to factors such as logistical limitations. Besides these losses, damage in the fisheries and aquaculture sector to public infrastructure is estimated at MZN 81.9 million and private infrastructure at MZN 334 million.

Table 4: Mozambique - Cyclone Idai damage to artisanal fisheries in Inhambane, Manica Sofala and Tete provinces

	Quantity	Total monetary value (MZN '000)
Boats (fibre 7m)	2 199	1 385 160
Fishing gears	150 000	1 385 160
Fishing motors	2 053	509 250

Source: Fisheries and Aquaculture Policy and Resources Division, FAO.

The damage caused to the aquaculture sector would cost an estimated MZN 55.6 million to restore (see final column in Table 5). Most of this cost would be related to the need to rehabilitate infrastructure such as markets and storage facilities, alongside regional administration offices and extensive damage to the homes and offices of fisheries extension officers.

Table 5: Mozambique - Cyclone Idai damage to aquaculture ('000)

Number of aquaculture sites	Tanks	Cages	Fingerlings	Area (m ²)	Lost fish production (tonnes)	Restorative budget (MZN)
342	589	198	1 939	181	357	55 606

Source: Fisheries and Aquaculture Policy and Resources Division, FAO.

Cyclone Kenneth presented a more regular scenario of a cyclone building over an ocean basin, however, in terms of magnitude it was abnormally intense. The northern coastline is fringed by low-lying islands where the impact of the surge wave caused extensive damage to communities. As with Idai, this was exacerbated by hydrological overcapacity of estuarine and delta systems resulting in severe flooding compounded by heavy inland rainfall in the weeks prior to this event. Aerial survey data indicates that in many regions directly in the landfall path of the cyclone more than 95 percent of homes were destroyed along with fishing gears, boats and other infrastructures.

It is important to note that fisheries data may not capture all information on production, particularly regarding large-scale industrial fleets operating within the fishery. As such, the cyclones' impact on the fisheries sector, in relation to the total production, may not accurately reflect the extent of the damage and losses.

LIVESTOCK

Over the last decade (2010-2019), the livestock population increased by an average rate of 10 percent per year. In 2019, based on data from MASA's annual census in 2018 and incorporating the estimated number of animals lost due to the impact of the two cyclones, the national livestock population (chicken, cattle, small ruminants and pigs) is estimated at approximately 30 million, still marking a small increase compared to the previous year. The two cyclones caused the loss of nearly 19 000 cattle, small ruminants and pigs. Most of the animal deaths occurred in the central province of Sofala. Estimates from the Government also indicate that approximately 22 000 chickens were lost due to the impact of the floods. Although, the number of animal deaths is relatively small in comparison to the total population, the impact on the households' food security and livelihoods is expected to be considerable.

Table 6: Mozambique - Livestock numbers by province 2015-2019 ('000)

Province	Cattle			Small ruminants			Pigs			Chickens		
	2015	2018	2019	2015	2018	2019	2015	2018	2019	2015	2018	2019
Cabo Delgado	10	12	12	112	137	141	10	12	12	481	589	608
Niassa	23	25	25	207	254	269	87	106	112	1 180	1 446	1 558
Nampula	100	105	110	497	609	698	335	411	497	2 107	2 581	2 938
Zambezia	47	53	54	166	203	213	92	113	120	1 948	2 386	2 691
Tete	302	321	372	613	751	886	297	364	432	1 174	1 438	1 549
Manica	213	218	242	464	570	648	92	113	120	2 363	2 895	3 345
Sofala	89	98	97	488	598	684	126	154	163	1 387	1 699	1 843
Inhambane	353	362	427	340	416	457	235	288	330	1 093	1 338	1 434
Gaza	474	480	594	338	415	456	138	169	184	963	1 180	1 254
Maputo	339	347	407	181	222	234	183	224	250	2 503	3 066	3 570
NATIONAL	1 950	2 021	2 340	3 406	4 175	4 686	1 595	1 954	2 219	15 199	18 618	20 794

Source: Animal Production Department, MASA.

Notwithstanding the loss of animals, livestock body conditions were generally satisfactory and mostly stable in 2018/19, based on the Mission's interviews with farmers. These conditions, in part, reflect the positive impact of the heavy rains during the latter part of the season that sustained the availability of pasture in central and northern provinces. However, in southern provinces, the rainfall shortages resulted in reduced quality and availability of pasture, particularly in the districts of Chibuto, Chicualacuala, Chigubo, Guijá (Gaza Province) and Funhalouro (Inhambane Province), stressing livestock body conditions.

CEREAL BALANCE SHEET FOR 2019/20 MARKETING YEAR (APRIL/MARCH)

The national cereal supply/demand balance for the 2019/20 marketing year (April/March) is summarized in Table 7, and is disaggregated by cereal crop. The following assumptions were used:

- **Population** - According to the Population Division of the UN Department of Economic and Social Affairs, the population for the 2019/20 marketing year (April/March) is estimated at 31.4 million.
- **Stock variation** - National cereal stocks are forecast to decline by 201 000 tonnes in 2019/20, mostly reflecting an expected drawdown in maize reserves to compensate for the reduced 2019 harvest. Although official data on stocks is limited, particularly for the private sector, it is likely that the country has built up grain inventories following two bumper cereal outputs in 2017 and 2018 and closing stocks are, therefore, forecast to remain at an average level in 2019/20. However, in areas affected by extreme weather conditions, households' cereal stocks are expected to be significantly tighter and below average. Stocks of sorghum and millet are expected to increase in 2019/20, reflecting the moderately larger outputs in 2019.
- **Production** - Cereal production is estimated at 2.64 million tonnes (rice in milled terms). Maize production accounts for the bulk of the output, while paddy production represents about 9 percent of the cereal harvest. The output of millet and sorghum are estimated at 68 000 and 325 000 tonnes, respectively.
- **Food use** - The annual per capita cereal consumption for 2019/20 is estimated at 112 kg¹¹. Maize consumption represents the largest share of total food use in the cereal balance sheet, with an average consumption of 54 kg per person per year, followed by rice at 26 kg, wheat at 20 kg and sorghum and millet at 10 kg and 2 kg, respectively. Combined, cereal consumption, based on the aforementioned rates, would supply about 740 calories per day per person, while the rest of the calories are provided by starchy roots (mostly cassava), vegetable oils, pulses, sugars and animal products.
- **Feed use** - Feed use is forecast at 320 000 tonnes, almost entirely maize.
- **Seed use** - Seed requirements for 2020 plantings are estimated at 72 000 tonnes on the basis of the recommended seed rate in the country and expectations that the planted area for the 2020 crops will be above average. The following seed rates have been used: 20 kg/hectare for maize, 80 kg/hectare for paddy and 10 kg/hectare for sorghum and millet.

¹¹ The per capita consumption figure is aligned to FAOSTAT and MASA estimates.

- Post-harvest losses - Post-harvest losses are estimated at 460 000 tonnes, with rates ranging from 20 percent for maize, 10 percent for rice and 6 percent for sorghum and millet.
- Exports - Exports are estimated at an average volume of 20 000 tonnes. Most of this volume is expected to be exported from central provinces, despite the large crop losses incurred this year. This reflects the competitive prices of Mozambican maize relative to Zimbabwe, where the inflation rate has surged, and the significant production shortfalls in Zimbabwe and parts of southern Malawi, which have increased the import requirements.

Table 7: Mozambique – Cereal balance sheet, 2019/20 (April/March)

	Maize	Rice (milled)	Sorghum	Millet	Wheat	Total cereals
Domestic supply	2 285	243	321	63	11	2 923
Production	2 085	233	325	68	11	2 722
Stock variation	200	10	-4	-5	0	201
Total Utilization	2 493	899	320	63	628	4 405
Food use	1 696	848	298	63	628	3 534
Feed use	320	0	0	0	0	320
Seed use	40	28	3	1	0	72
Post-harvest losses	417	23	19	0	0	460
Exports	20	0	0	0	0	20
Estimated import requirement	208	656	0	0	617	1 483

Source: CFSAM.

Based on the above parameters, national cereal import requirements are estimated at 1.48 million tonnes in 2019/20, mostly consisting of rice and wheat.

Almost the entire quantity of domestic wheat consumed in the country is met with imports, as the country is structurally deficit, whilst for rice, import needs are estimated above the average in 2019/20 reflecting the lower harvest in 2019. Regarding maize, import requirements are estimated at 208 000 tonnes in 2019/20, about 30 percent more than the previous year and an above average volume. Although in recent years the country has produced more than sufficient quantities to cover domestic utilization, imports of maize still average about 133 000 tonnes annually. This reflects the prohibitive cost of transporting maize from the surplus producing north and centre to the structurally deficit southern provinces, which are in close proximity to South Africa, a more competitive market in terms of price.

MARKET SITUATION

The majority of rural households rely on agriculture as their main source of livelihood and selling crops is a primary source of income for most smallholder households. The bulk of farmers sell their excess produce to small and medium-scale assemblers, who travel to surplus producing regions and sell the products in structurally deficit markets.¹² This, in general, reflects farmers' limited capacity to travel to market centres.¹³ Access to markets is particularly poor in the central and northern provinces. Approximately half of all households in these areas live more than 30 minutes walking distance from the nearest market.¹⁴ Road access is especially limited in these areas as well. These factors combine to produce a situation in normal times (absent of supply shocks) of poorly integrated markets, volatile prices and a narrow range of foods available for purchase.¹⁵

Set against this context, a review of the available food price data shows that seasonal retail price trends were materially impacted by the cyclones, manifested in sharp spikes immediately following the cyclones, as normal trade patterns were disrupted by floods, as well as the destruction to market infrastructure and the loss of stocks. These price increases moderated in May as newly harvested crops augmented market availabilities and eased supply pressure, also prompting seasonal declines.¹⁶ Maize prices, however, remained well above their two-year average, as of June, in the major markets of Chimoio, Chokwe, Pemba and Nampula. In some cases, prices of maize were nearly double the two-year average. The elevated levels mainly reflect the impact of the reduced maize harvest in 2019 compared to the previous two years. Notably in southern provinces,

¹² FEWS NET. 2018. Staple Food Market Fundamentals.

¹³ [Fill the Nutrient Gap](#), 2017. WFP.

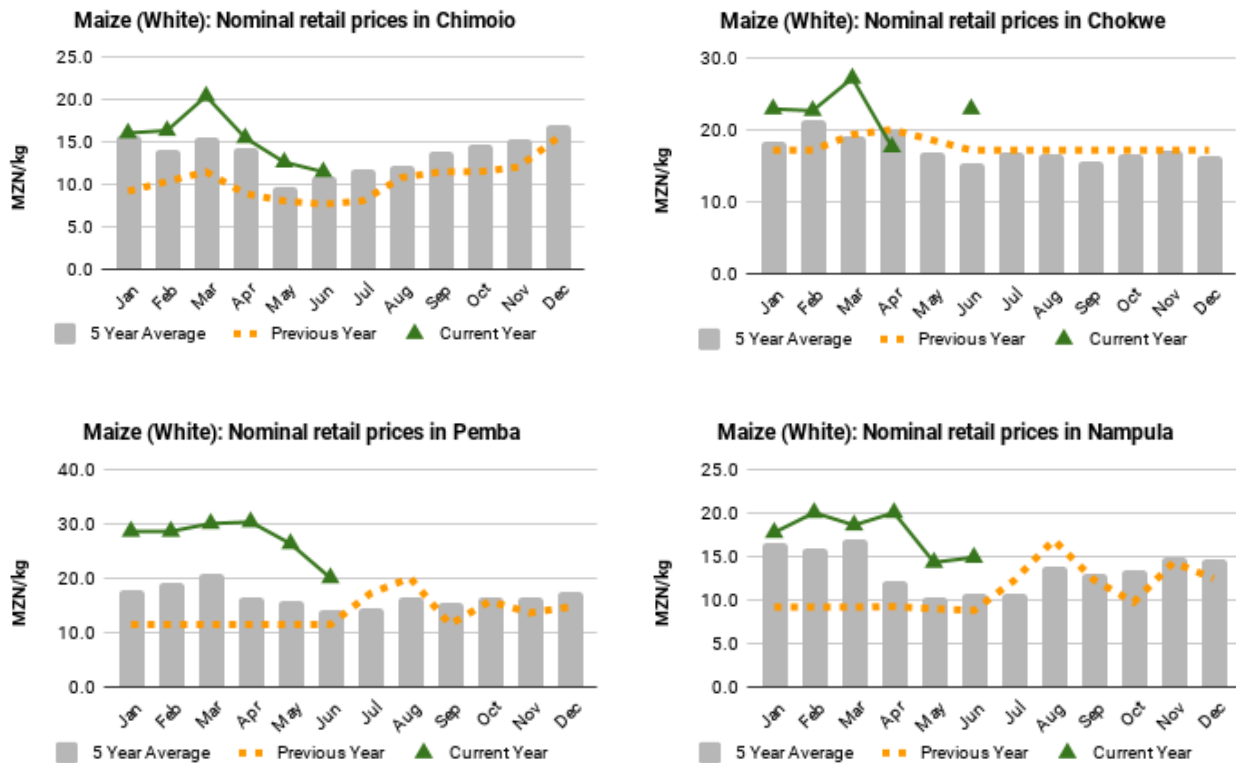
¹⁴ Ibid.

¹⁵ According to an unpublished assessment of markets in Tete Province conducted by WFP in 2018.

¹⁶ Price data provided by FEWS NET Mozambique. Charts created by WFP.

traders affirmed that maize supplies were abnormally low in May and cited the impact of the cyclones as the primary cause. The high retail prices, combined with the loss of crops and consequently an important source of income, is expected to constrain rural households' capacity to access market supplies.

Figure 7: Mozambique - Trends in maize prices (nominal) for select markets



Source: SIMA.

The Mission also gauged traders' perceptions about the trajectory of prices in the aftermath of the cyclones. According to traders' outlook, prices are likely to remain elevated compared to previous years, mostly related to the impact of crop losses and reduced supplies in the rural markets. In Cabo Delgado, prices are further elevated due to increased transportation costs, as a result of damage to the road infrastructure caused by Cyclone Kenneth and the ongoing conflict in localized areas.

HOUSEHOLD FOOD SECURITY SITUATION

The food security situation of a region or household is assessed along a set of underlying factors: availability, accessibility, utilization and stability. Gaps or deficiencies in any one of these conditions can precipitate short-term or, for those households already experiencing marginal situations, longer-term (chronic) food insecurity that negatively impacts a household's well-being and ability to thrive. Especially following acute or rapid onset shocks, e.g., floods and cyclones, which may cause unexpected losses in agricultural production, it is important to explore these elements of food security to understand any disruptions that have occurred and to identify the implications for recovery options for the affected population.

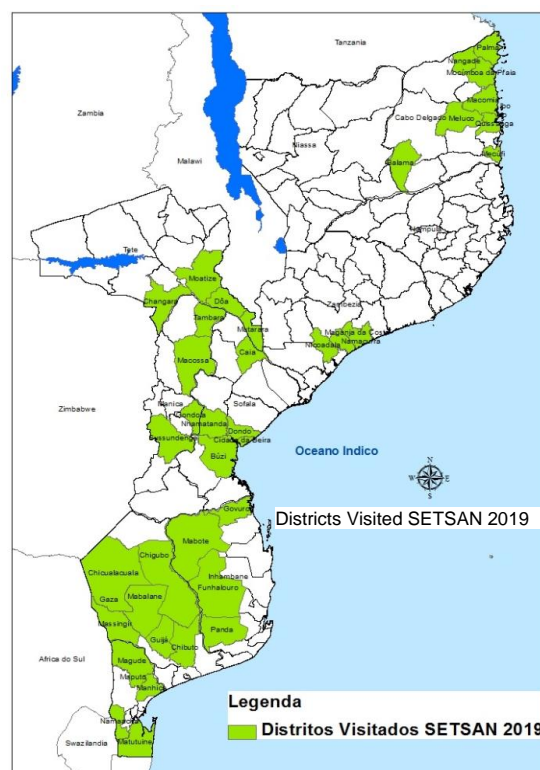
The analysis of household food security for the 2019 Mozambique CFSAM draws largely from a series of district-level food security surveys performed between April and June 2019 by SETSAN in collaboration with partners.¹⁷ The results of these surveys were used to guide the current IPC classification for Mozambique.^{18,19}

Food security

The effects of cyclones Idai (March) and Kenneth (April), including widespread wind damage and flooding, negatively impacted the agricultural and livelihood systems throughout the central and northern regions of the country. In addition, periods of drought, as well as the conflict in Cabo Delgado, further worsened the food security situation. As a result, an estimated 1.6 million people will face severe acute food insecurity between the period of June and September 2019 (and 1.9 million people between October and February 2020) according to the latest IPC released in July.

Government and humanitarian partners responded to these impacts with relief efforts to save lives and minimize suffering, including the provision of food, shelter and medical services to those affected. However, the overall devastation created by these disasters have only added to the already significant

Map 4: Mozambique -Districts covered, April/May 2019



Source: SETSAN.

challenges and shocks that households in Mozambique were facing. The adverse weather conditions and, to a lesser extent, pests have reduced the harvests, and attacks in the north prevent households from gaining access to their land for farming. These factors have combined to create a very difficult situation for the households seeking to achieve adequate food security through the next cropping season.

Food consumption

The Food Consumption Score (FCS) combines food diversity, food frequency (the number of days each food group is consumed) and the relative nutritional importance of each food group. For each food group the frequency represents the number of days an item was consumed the previous week, with a range from 0 (never) to 7 (every day). A weight is assigned to each food group, representing its relative nutritional importance. The FCS uses standardized thresholds that divide households into three groups.

The findings of the district-level survey reveal that the proportion of households consuming an adequate diet varied across the districts.²⁰ The districts where more than 20 percent of households were consuming inadequate diets include:

- **Cabo Delgado:** Mocimboa da Praia, Nangade, Palma and Quissanga
- **Zambezia:** Maganja da Costa and Nicoadala
- **Tete:** Changara and Mutarara
- **Manica:** Tambara
- **Inhambane:** Funhalouro and Panda
- **Gaza:** Chigubo, Mabalane and Massingir

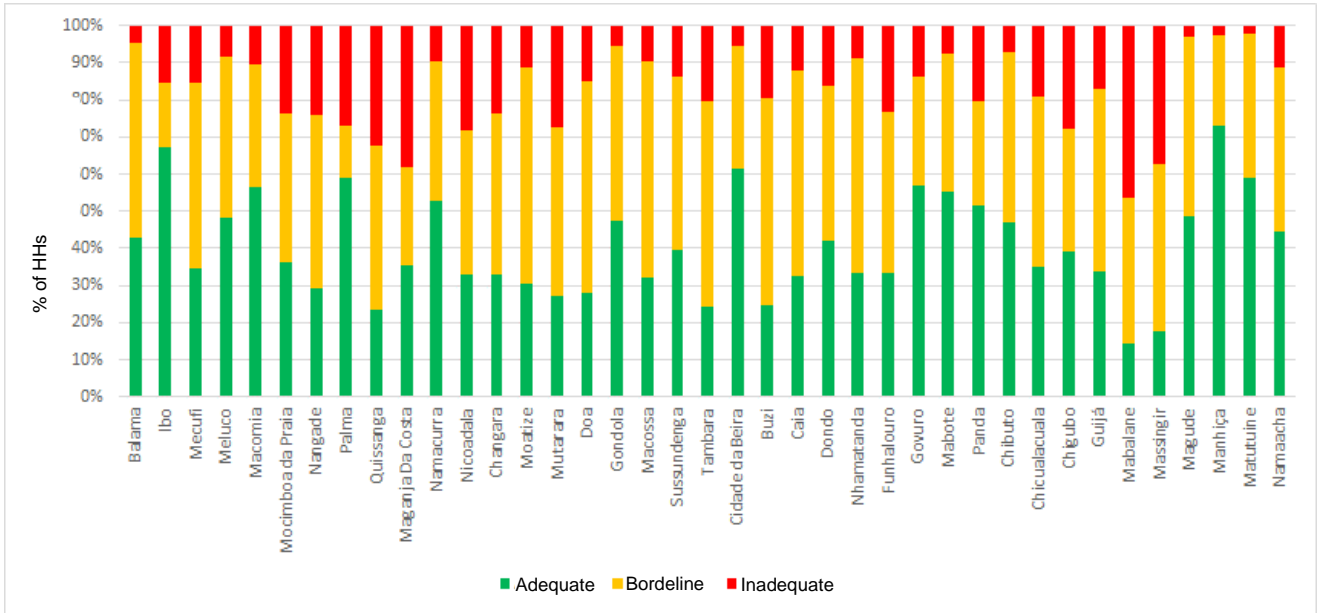
¹⁷ The surveys conducted in April-June 2019 covered 39 districts and collected households' food security and nutrition information.

¹⁸ See http://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_AFI_AMN_Mozambique_2019April2020Feb_English.pdf

¹⁹ See http://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_AFI_AMN_Mozambique_2019April2020Feb_English.pdf

²⁰ The data presented in the following sections was analyzed and presented in an unpublished report by SETSAN: "Relatório da Avaliação da Situação de Insegurança Alimentar e Nutricional Aguda Pós-choque de Abril-Maio de 2019." July 2019.

Figure 8: Mozambique - Percentage of households by diet quality

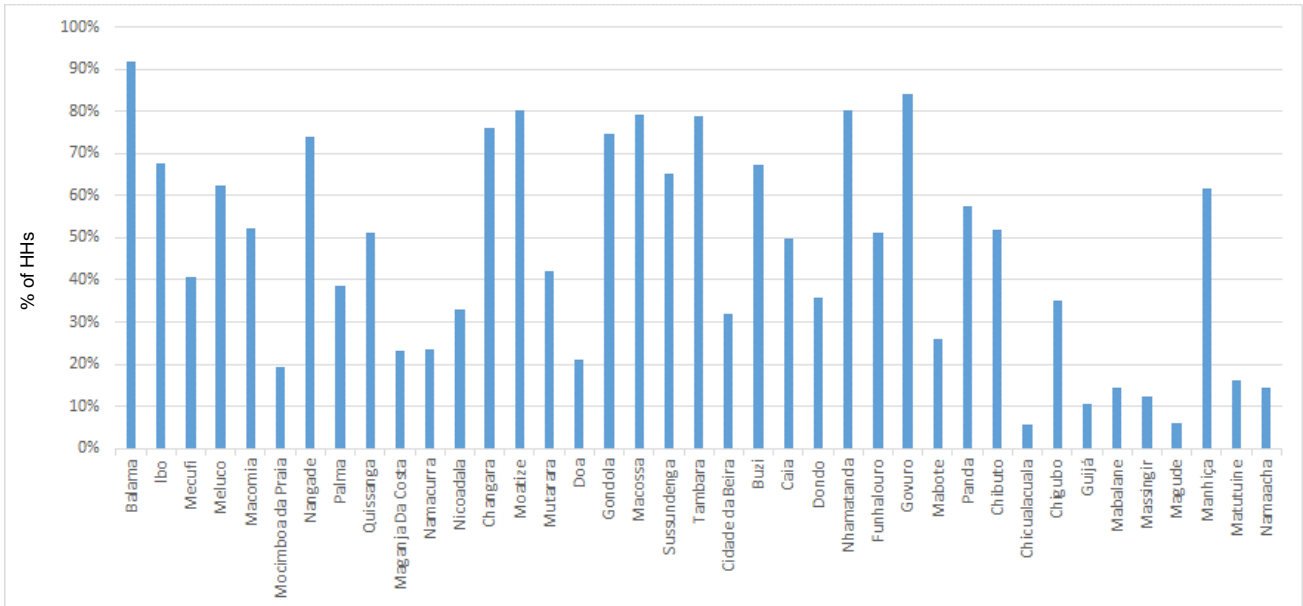


Source: SETSAN.

Food availability

One indication of food availability is whether subsistence farmers have food supplies from their own harvest. The main harvesting period in Mozambique is March to May in southern and central regions and April to June in northern regions. The surveys assessed whether households growing maize had harvested (or started harvesting) their crops at the time of the interviews.

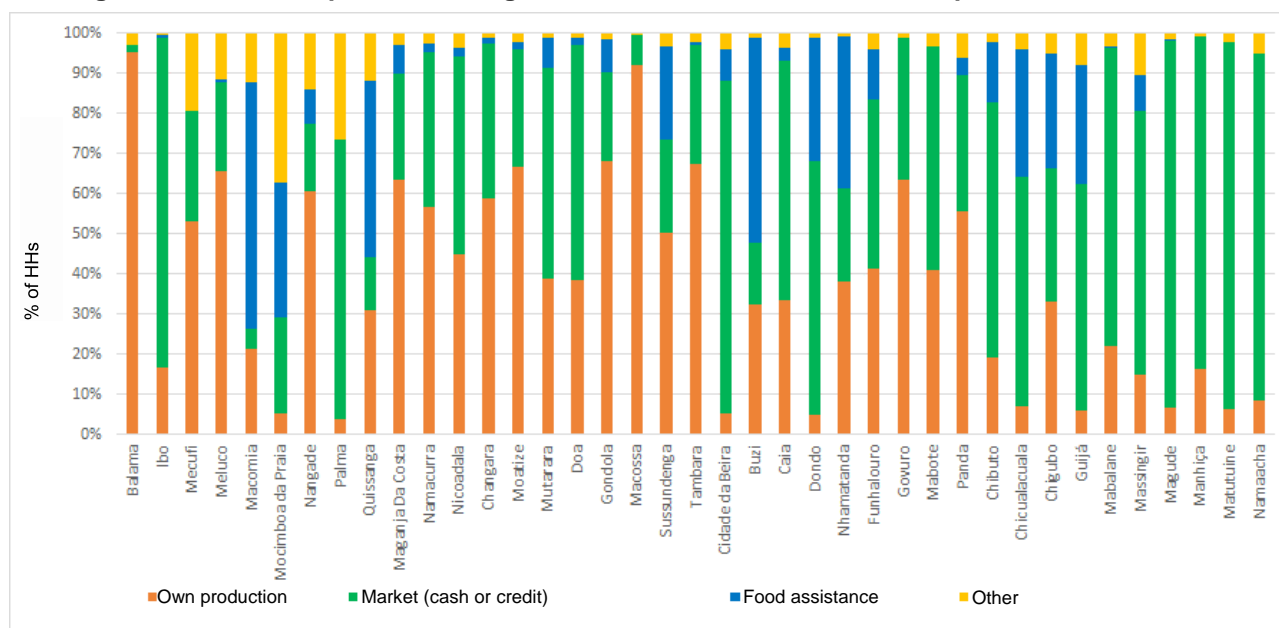
Figure 9: Mozambique - Percentage of households harvested or starting to harvest maize



Source: SETSAN.

Another measure which provides insight into food availability is the main source of cereals consumed in the household. Subsistence farming households consuming their own production are generally considered to be more resilient than those relying on purchases from the market or food assistance. Figure 9 and Figure 10 indicate an approximate correlation between these measures of availability as expected. Of particular note is the heavy reliance on food assistance in districts of Cabo Delgado and Zambezia, suggesting that households in these areas may have harvested at rates that are atypically low for this time of the year.

Figure 10: Mozambique - Percentage of tubers consumed in the week prior to the interviews



Source: SETSAN.

Anecdotally, the Mission spoke with households about their food security situation. The proximity to the disasters and their experience with crop losses seemed to dictate their outlook. In Macate District (Manica Province), those interviewed generally indicated that crop losses, combined with the inability to replant, would require the households to implement various negative coping strategies over the coming months, including reducing the number of overall meals eaten during the day to stretch food and financial resources. In Malema District (Nampula Province), which was relatively less impacted during the cyclones, those interviewed indicated that seasonal production was acceptable and there was less expressed concern about food security conditions in the coming year.

In Mecufi District (Cabo Delgado Province), farmers and fishermen reported that incomes from both the agriculture and fishing sectors were dramatically impacted by the cyclones and associated flooding. By comparison, in Namuno District (Cabo Delgado Province), those interviewed by the Mission indicated that the agriculture sector was heavily impacted, but some farmers' access to seeds had enabled them to replant; however, access to seeds was not universal. Those areas with cyclone and flooding damage without replanting were identified as areas where pockets of hunger are likely to materialize.

Livelihoods security

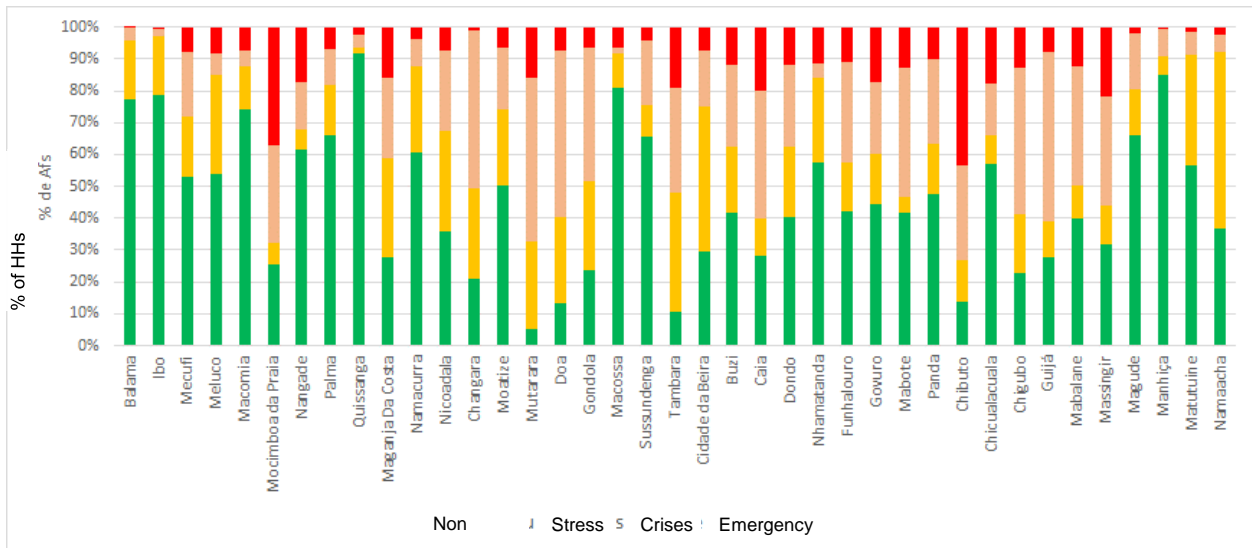
In addition to disrupting the functioning of markets, the cyclones, floods and drought had the potential to disrupt the livelihoods and income-earning potential of households in the affected areas, thereby negatively impacting their ability to purchase food from the markets and/or consume their own crops. The Mission spoke with farmers and day labourers to better assess their current ability to access sufficient food for their families and to understand how they anticipate the situation to evolve in the coming year.

Agriculture and fishing livelihoods were particularly impacted by the cyclones. As a means of coping, the district surveys identified that the households were resorting to a range of strategies, including borrowing or buying food on credit, harvesting immature crops and reducing health and education expenditures. More than 1 in 3 households in Mocimboa da Praia and Chibuto were using livelihood coping strategies that are considered "emergency" actions.²¹ In Cabo Delgado Province, farmers relying primarily on subsistence agriculture and fishing reported severe impacts on these sources of income; in contrast, those farming cash crops (e.g., cotton) are expected to be less affected due to increased area under planting and improved yields.

²¹ These include, among others, selling house/land and selling last of female animals. See the indicator guide for more information: https://resources.vam.wfp.org/sites/default/files/CARI_Final_0.pdf

Households in one community of Changara District (Tete Province) had exclusively shifted to small-scale trading activities, including production of charcoal. Such a large-scale shift is likely to drive down the opportunities and available income from these livelihood sources over the intermediate period, further stressing households.

Figure 11: Mozambique - Percentage of households using livelihood coping strategies



Source: SETSAN.

RECOMMENDATIONS

Crops

Short and medium-term measures to respond to the current needs of farming households, promote a recovery and strengthen the resilience of the agriculture over the next two years:

- Provision of seeds and other agricultural inputs, targeting the most vulnerable smallholder farmers, to strengthen productive capacity for the 2019/20 cropping season.
- Provision of vegetable seeds, particularly targeting households that have access to residual water sources and wetlands, to promote a diversification of crop production and income.
- Promotion of the diversification of agricultural and farming systems to build resilience against extreme weather events.
- Support of the reconstruction and rehabilitation of agricultural infrastructure, including irrigation systems.

Fisheries

Both of the severe weather events caused considerable damage and losses to artisanal boats, namely moma, chuabo, chata, lancha and dug out canoes. The number of canoes lost is considerable and the majority of repairs to those damaged present a considerable risk in terms of safety at sea. All repairs require forestry resources, typically of Madeira and other hardwoods, and since the Idai and Kenneth cyclones hit the country, timber prices have risen prohibitively, increasing non-compliant trade and thus putting additional pressure on the forestry sector, which is critical to mitigate, particularly considering the role of deforestation in the creation of Cyclone Idai. Consequently, as is currently being integrated into an FAO/TCP to respond to the impact of Cyclone Idai, capacity building, materials and workshops to train fishers and boat builders to use alternative cost effective methods are vital. Methods utilizing plywood, resin, fiberglass and limited hardwood components are aimed at reducing the costs of fiberglass boats, while reducing weight and preventing ingress of seawater and deterioration. Small vessels as an alternative for canoes are a key point of entry for this method and the light-weight design saves fuel, effort and also enables the vessels to be moved to safety easily as an approach to greater resilience. Fishers and boat builders affected by Cyclone Idai are already enthusiastic to integrate these methods in current pilot activities.

Agricultural statistics

Agricultural statistics that are accurate, reliable and timely, are critical for providing an evidence base for the formulation of policies and development programmes in the agriculture sector. The availability of annual data, in addition, facilitates the monitoring of programmes and projects to ensure effectiveness of interventions. To this end, it is recommended that national institutions seek to streamline and coordinate agricultural assessments and data, to ensure coherence between a unified and integrated agricultural statistical system and policies. Currently there exist three main sources of crop production data, which exhibit differences and, therefore, can produce varying results in terms of drawing conclusions and determining the appropriate policy decision.

Food security

Maintain food and non-food assistance to the most affected households during the early recovery period

The exceptional dependence on subsistence agriculture, combined with the devastating crop losses experienced (the cyclones and flooding struck, in some instances, during peak maturity of the maize crops), mean that the affected households have to largely depend on food assistance until the next cropping season. As such, during the initial recovery period, continued food, including nutrition programmes, and non-food support should be provided, as and where appropriate.

Promote and protect local food security

During the medium-term recovery period, measures should include promoting and protecting local means of food and nutrition security, as a transition to recovery, and to establish a foothold for longer-term resilience building. This includes supporting local livelihoods, local markets, local infrastructure and local social protection programmes, while fostering linkages to the non-affected areas through national systems and programmes.

Design and integrate for the future

Food security and nutrition gains achieved during the initial relief and early recovery periods should be consolidated and expanded, as emergency interventions are developed into multi-year initiatives designed to rebuild livelihoods and strengthen the capacity of households, communities and institutions to adapt to climate change and withstand future climate shocks.

Programme components of this integrated approach include: general food distributions using cash, vouchers, or in-kind modalities; cash payments through the Government's social protection system; school feeding; malnutrition prevention and treatment for children under five and pregnant and lactating women, including those with HIV; and landscape rehabilitation and livelihood recovery through food assistance for assets/trainings and Integrated Climate Risk Management (ICRM) with Smallholder Agriculture Market Support (SAMS).

