



THE UNITED REPUBLIC OF TANZANIA

Ministry of Agriculture



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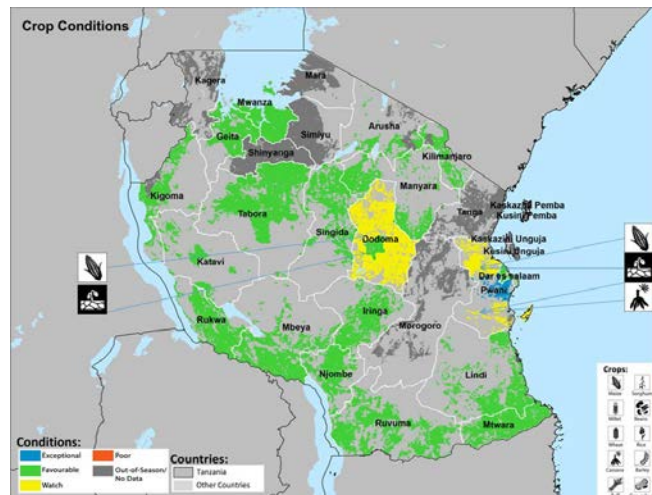


Figure 1: This Crop condition map synthesizes information for all crops as of 28th February, 2019. Crop conditions over the main growing areas based on combination of national and regional crop analyst inputs along with remote sensing data and rainfall data provided by Tanzania Meteorological Agency. Crops with conditions other than favorable are marked indicated on the map.

NATIONAL HIGHLIGHTS

- The maize crop is at different growth stages from vegetative to grain filling in most parts of Unimodal regions. Favorable conditions have been observed in most parts except for Dar es Salaam, Pwani and Dodoma where watch conditions were observed. In bimodal regions, land preparation activities are still on going.
- Favorable conditions for cassava have been observed at different growth stages all over the country except for Pwani region where watch conditions were observed.
- Lindi, Kinondoni, Songea, Temeke, Arusha, Mbeya and Njombe had the highest prices for rice while Shinyanga, Musoma, Sumbawanga and Morogoro had lowest market prices.
- Ilala, Kinondoni, Lindi, Mwanza, and Temeke had above average maize price while Iringa, Njombe, Mbeya and Songea had below average prices. The lowest maize prices were observed in Iringa, Njombe and Songea market. Highest prices for beans were observed in Kinondoni, Temeke, Shinyanga, Lindi and Ilala market while Bukoba, Iringa and Arusha, markets had the lowest prices.

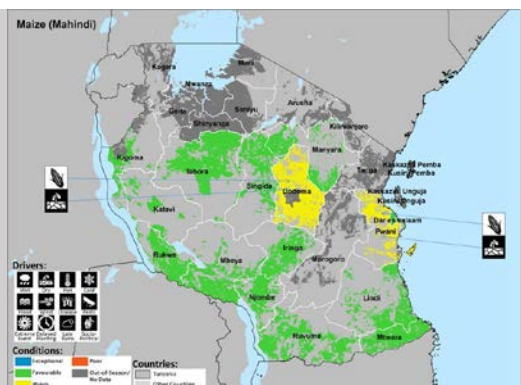
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Crop Conditions for Major Food Crops

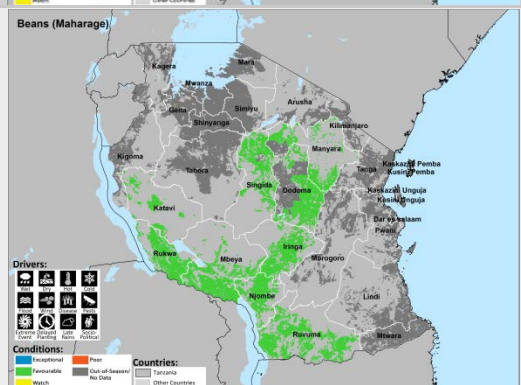
Maize

The maize crop is at different growth stages from vegetative to grain filling in most parts of Unimodal regions. Favorable conditions have been observed in most parts except for Dar es Salaam, Pwani and Dodoma where watch conditions were observed. In bimodal regions, land preparation activities are still on going.



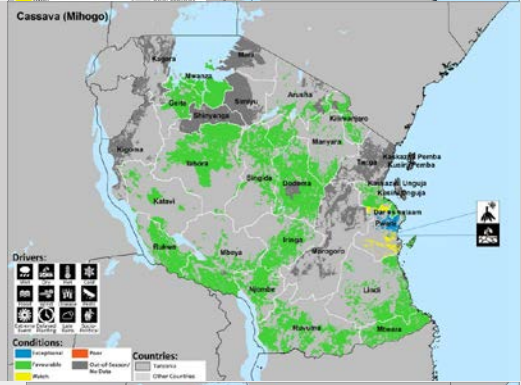
Beans

In most parts of Unimodal areas, the crop is at vegetative stage. In bimodal areas, bean harvesting activities are almost done and at the same time, land preparation activities are on ongoing ready for *Masika* rains which are expected on the second week of March.



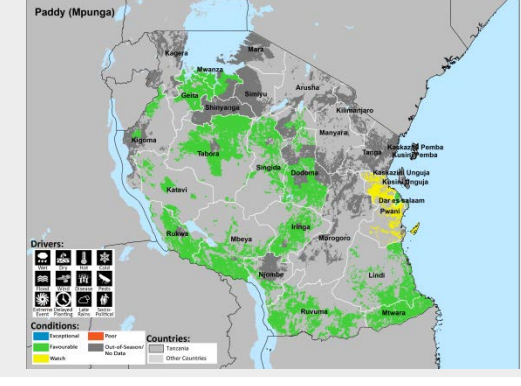
Cassava

Favorable conditions were experienced in most of the regions. A unique behavior has been experienced in Pwani region whereby both watch and exceptional conditions were observed.



Paddy

The crop is in favourable condition in most parts of both, unimodal and bimodal regions except for some parts of Dar es Salaam and Pwani Region where watch conditions were observed.



NOTE: Other important crops which are grown in wide range and contribute in the food basket include banana, sorghum, millets, sweet potatoes, round potatoes, wheat and other pulses.

Satellite-based crop Conditions

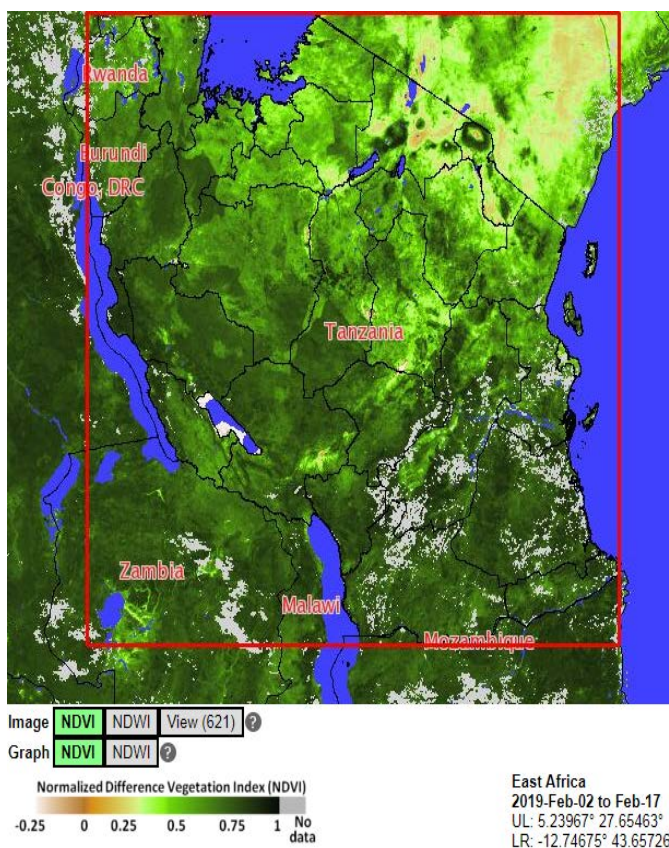


Figure .6: Normalised Difference Vegetation Index (NDVI) anomaly for 02-17 February, 2019

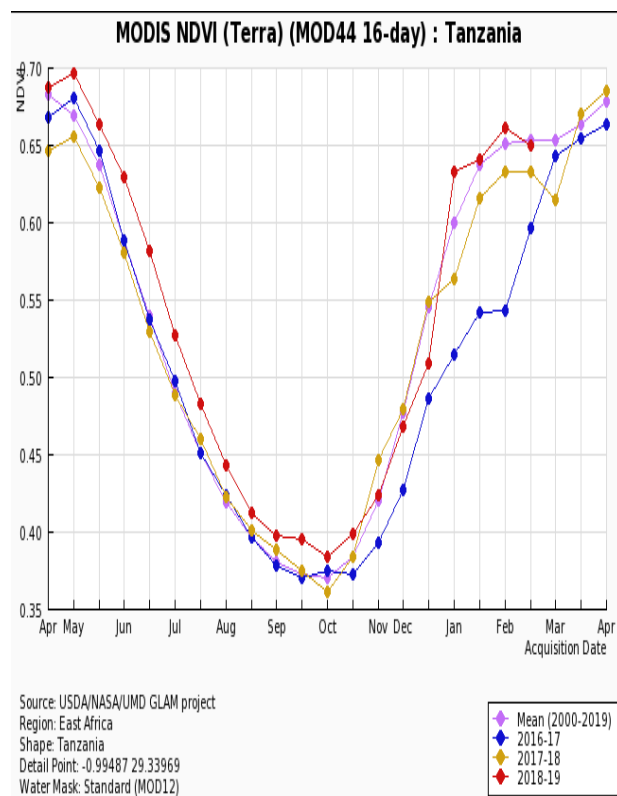


Figure 7: 16 days for February, 2019 as it compares to 2015,2016,2017,2018 and the long term mean. Data shows NDVI values bordering average for the whole country.

Compared to the long term mean NDVI and the NDVI anomaly for 2016, 2017 and 2018, the NDVI for February, 2019 was higher than that of 2016, 2017 and 2018 but it was lower than the mean NDVI (Fig. 7).

During the month of February, 2019, most areas of the unimodal regions continued to receive the '*Msimu*' rains. Bimodal areas, particularly Lake Victoria Basin, Northeastern Highlands and Northern Coast received wide spread off-seasonal rains. Satellite image shows a favourable vegetation condition in most part of the country.

Satellite-based crop Conditions

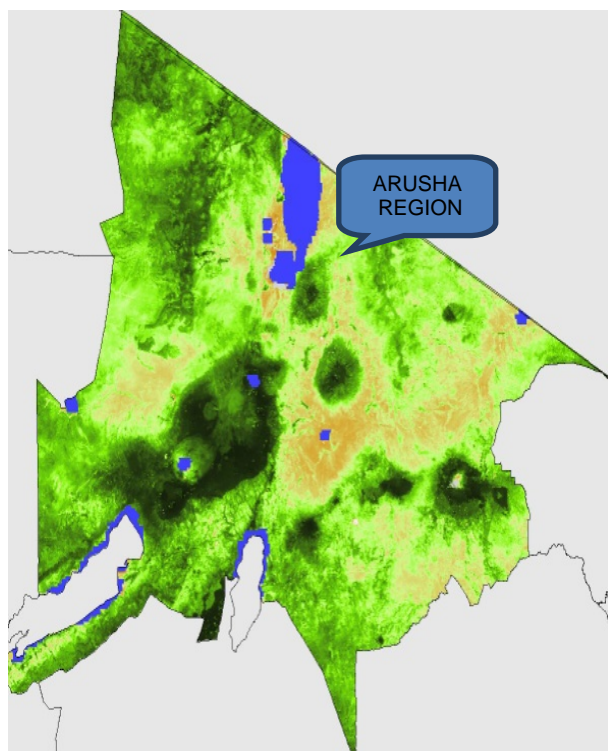


Figure 8: Normalized Difference Vegetation Index (NDVI) for Arusha anomaly for 02-17 February, 2019.

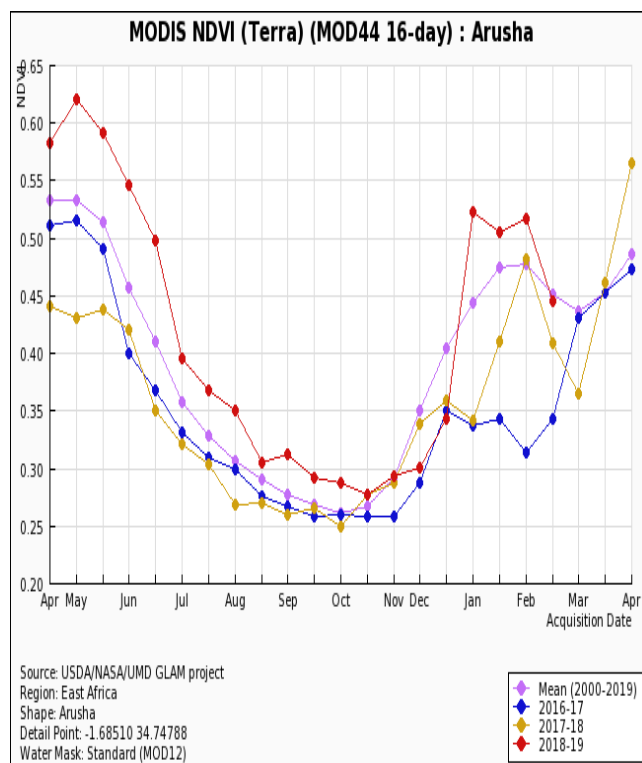


Figure 9. 16 days NDVI for February, 2019 as it compares to 2016, 2017, 2018, and the long-term.

During the month of February, the country was generally moist except few patches over Northern and Central parts of the country particularly Arusha and Dodoma.

Compared to the long term mean NDVI and the NDVI anomaly for 2016, 2017 and 2018, February 2019 NDVI for Arusha is higher than February, 2017 and 2018 but it is below 2016 and the long term mean (Fig.9). There is abundant water and pasture for livestock due to good moisture content in most parts of the country.

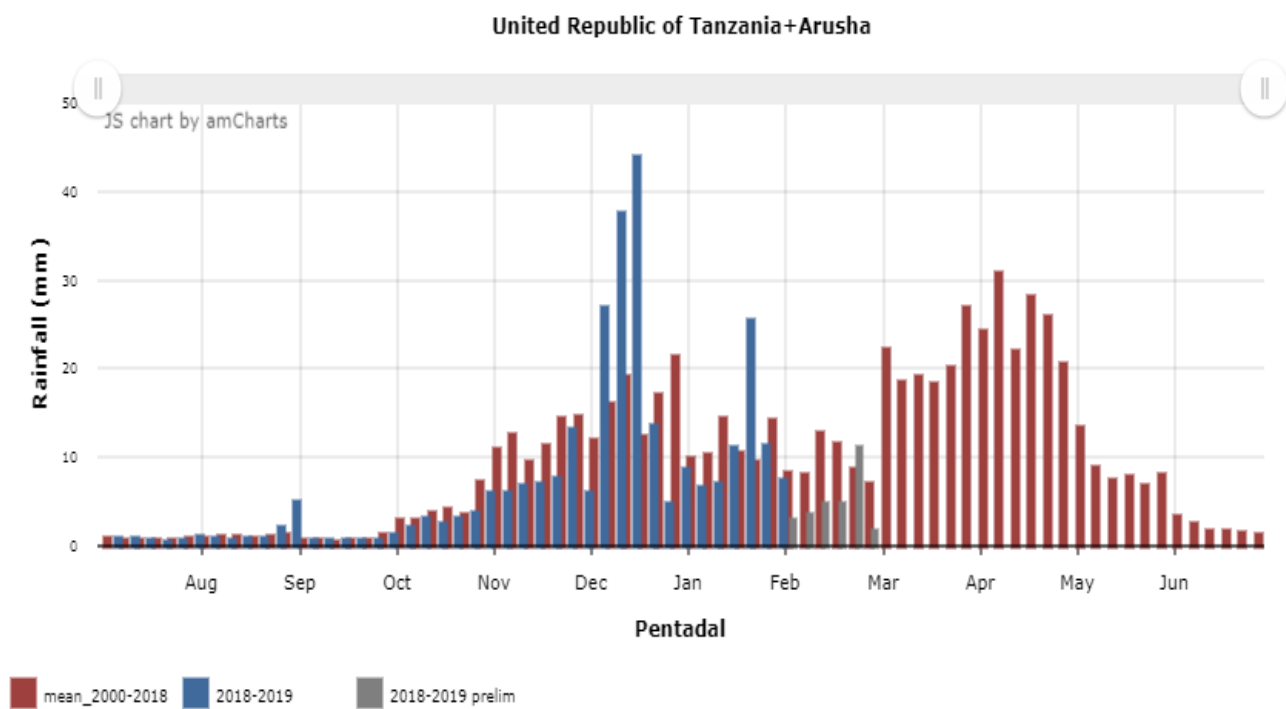


Figure 10 Climatology of Arusha

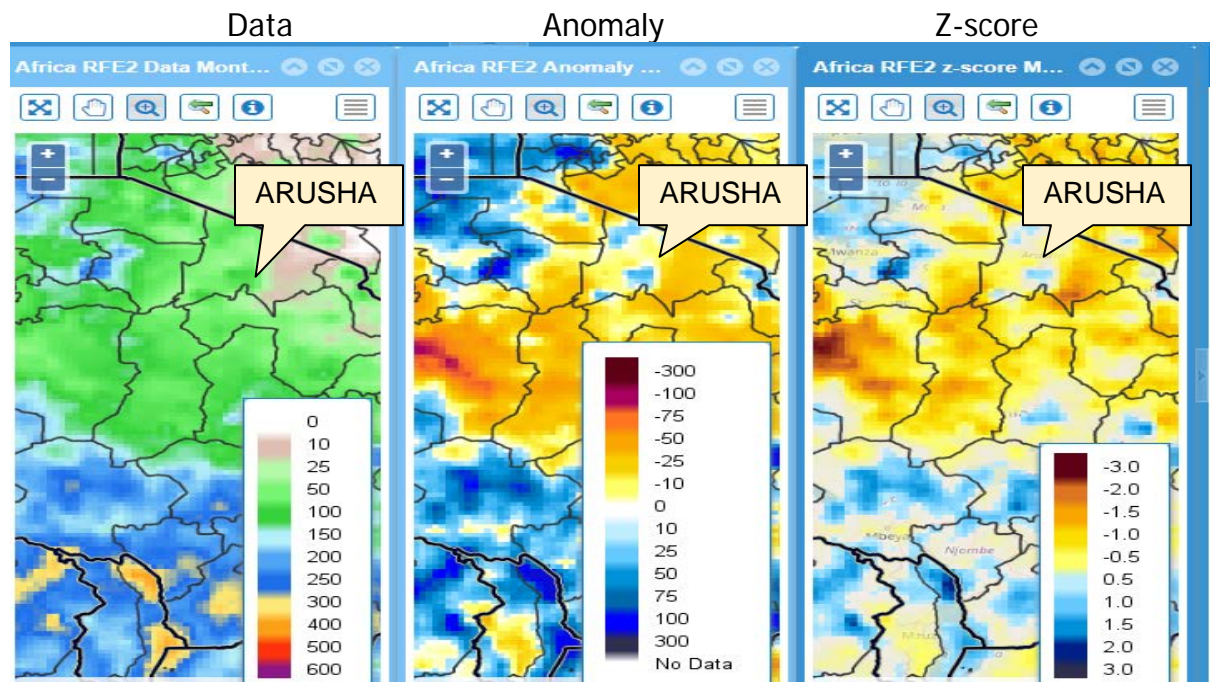


Figure 10 Significant reduction of rainfall during February over Arusha as compared to Climatology of an area. A clear reduction was seen during the first four pentads.

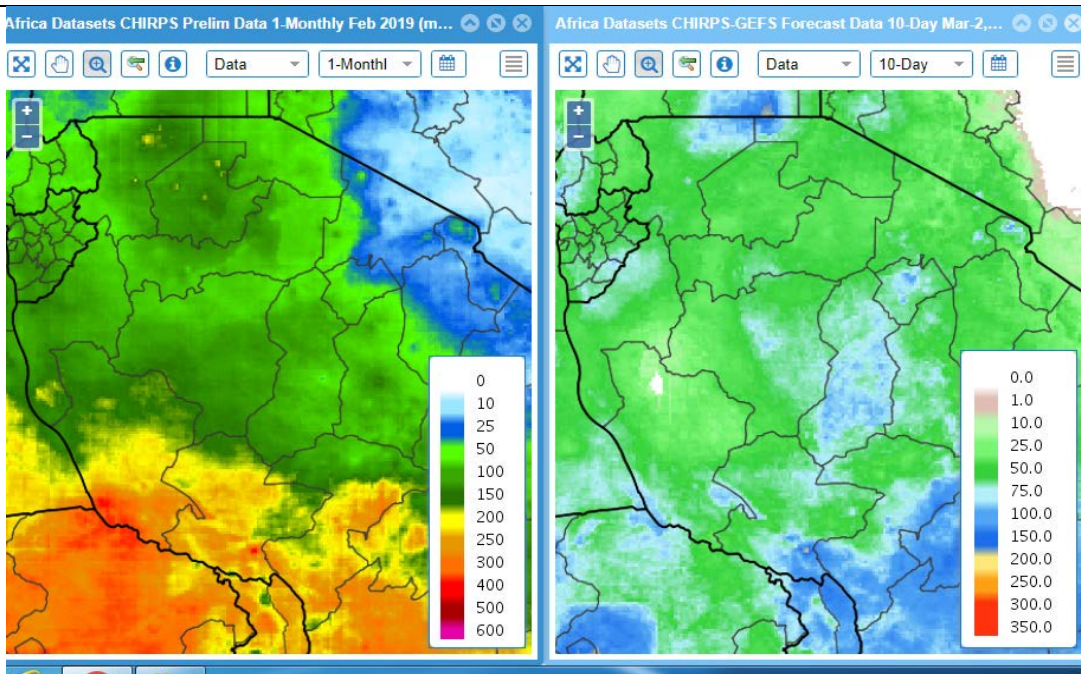


Figure 11. Data for February on the left and Forecast for March on the right.

Rainfall Performance during February, 2019

During the month of February, 2019, most areas of the unimodal regime (Western, Southwestern Highlands, Central, southern coast and Southern parts of the country) continued to enjoy the ‘*Msimu*’ rains. Significant rainfall amounted between 300 – 400mm was received over Ruvuma region as seen in Figure 1 (left). Momentous reduction of rainfall was observed over Kigoma and Tabora with 100mm less as compared to normal (Figure 1 (central and right)) accompanied with prolonged dry spells. Bimodal areas; Northeastern Highlands and Northern Coast in particular, received little off-seasonal rains. However, some areas of Lake Victoria Basin received significant amount of rains (Figure 1).

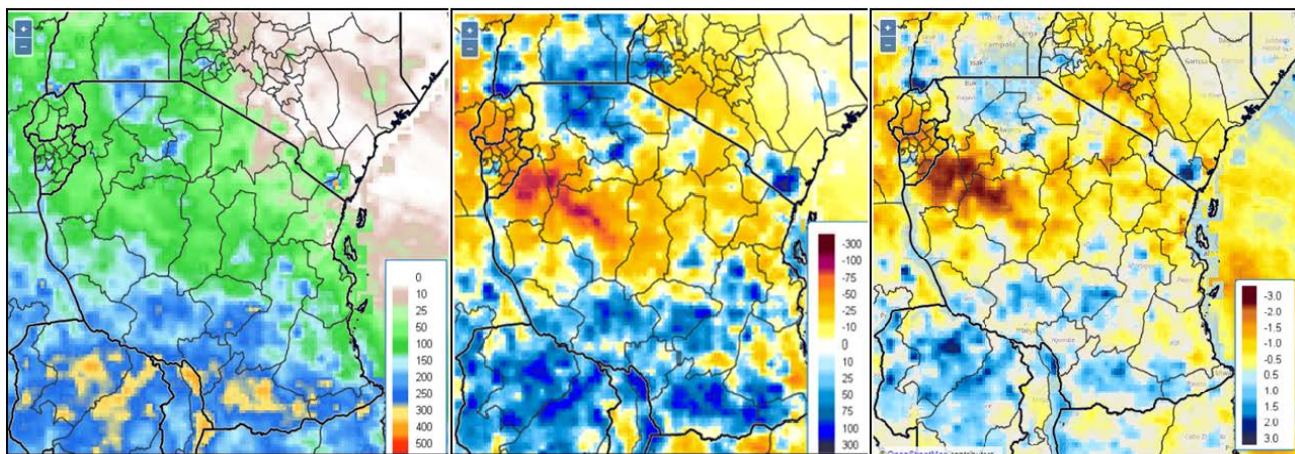


Figure 1: Tanzania Rainfall Distribution for 1 – 28 February, 2019; as total (left), deviation from long term monthly average (central) and (right).

Agrometeorological impact during February, 2019.

During the month, the observed rainfall provided favorable conditions for crops growth and development in most of the unimodal areas. Farmers over these areas were mostly engaged with weeding activities and fertilizer application. Maize crop were at vegetative stage and observed to be in a good condition. In most of bimodal areas crops were at full maturity stage. Farmers are mostly engaged with harvesting activities and preparation of field, and some started planting for coming Masika rains. The dry spell reportedly over some part of Northern Coast resulted in moisture stress which was potential for wilting of replanted cassava especially over Coast region. Water and pasture availability for livestock has improved in most parts of the country as a result of ongoing rainfall.

Climate outlook for March – May, 2019 Masika rainfall season.

The March to May (MAM) rainfall season (Masika) is more significant for the areas over the northeastern highlands, northern coast including the Isles of Unguja and Pemba, Lake Victoria Basin and the northern parts of Kigoma and Morogoro regions. The Masika 2019 rains are expected to be above normal to normal over some parts of Northeastern Highlands, and normal to above normal over the eastern and southeastern parts of the Lake Victoria Basin as well as southern parts of northeastern highlands. The northern coast (Dar es salaam, Pwani together with Unguja and Pemba isles) are expected to feature normal to above normal rainfall. However, northern Morogoro areas are likely to feature suppressed rainfall.

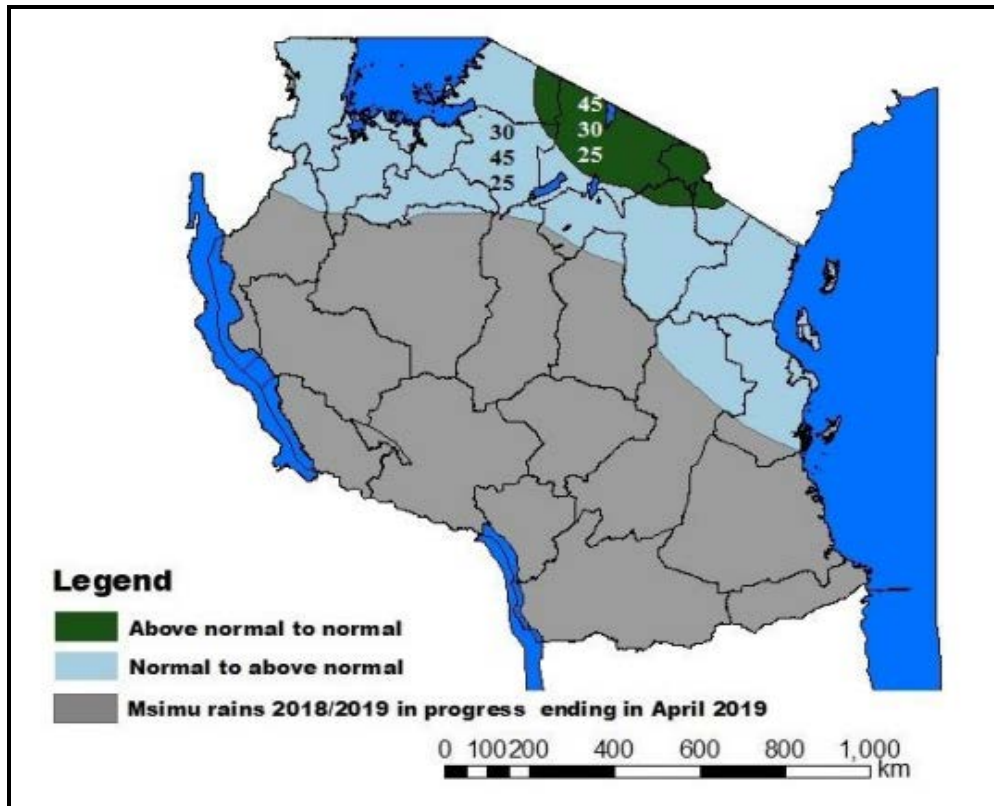


Figure2: Rainfall outlook for March – May, 2019 (masika rainfall) season.

Agrometeorological impact and Advisory during Masika rains (March – May), 2019:

In areas expected to receive normal to above normal rainfall, soil moisture is expected to meet plant requirements. Farmers are advised to continue with normal farming activities; by planting high-yielding seeds, expand the crop area of food crops and make good and timely use of inputs. In addition, Farmers are also advised to plant the seeds on time, to improve rainwater harvesting management, early detection and control of fungal and bacterial diseases, repair and construct river banks to reduce the impact of floods and rehabilitation of irrigation infrastructure. Farmers are advised to communicate closely and follow the advice of extension officers in their area. In areas that are expected to receive above normal to normal rainfall, especially in North-eastern highlands (Arusha and Kilimanjaro regions), rainfall is expected to favor water loving crop. However; with excessive rainfall, the soil moisture is expected to exceed crop requirement which might lead to water logging and flash floods. It might also lead to land degradation, agricultural infrastructure damage, increased incidence of pests and diseases for crops and human, delayed crop harvesting and damage and post-harvest losses. Farmers are advised to communicate closely and follow the advice of the extension officer in their localized area.

Weather Outlook for March, 2019:

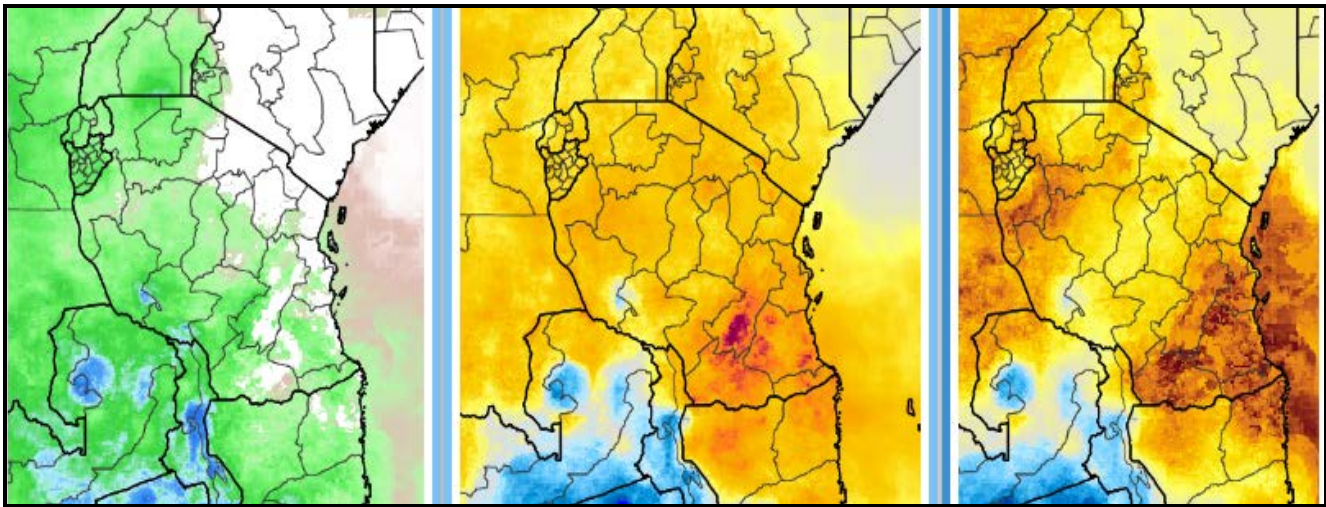


Figure 3: Tanzania Rainfall Distribution outlook for 1 – 10 March, 2019; as total (left), deviation from long term monthly average (central) and (right).

Masika rains are expected to continue spreading to remaining areas during the first and second weeks of March 2019 over few areas where rains have not started yet. Generally, the Masika rainfall is expected to progress well over most parts of the bimodal areas. Minimal reduction of rainfall is projected to feature over Northeastern Highland and Northern Coast areas, and significantly over Southern sector of the country especially during the first dekad of the month. (Figure 3). The monthly rainfall during the month of March, 2019 for each region is expected as given detailed in the following table1.

Table 1: The monthly rainfall during the month of March

No.	Regions	Likely Weather
1.	Kilimanjaro, Arusha, Manyara, Tanga, Pwani, Dar es Salaam, northern sector of Morogoro region, Unguja and Pemba Islands	Occasional periods of rains are expected over few areas during the first week of March, 2019 accompanied by periods of enhanced rainfall activities particularly during the second week of March, 2019 that could lead to various impacts associated with excessive rainfall. Slight rainfall reduction is likely towards the end of the month.
2.	Kagera, Geita, Shinyanga, Mwanza, Mara and Simiyu regions	Occasional periods of rains over few areas are expected during the month of March, 2019
3.	Kigoma, Katavi, Tabora, Dodoma and Singinda	Occasional periods of rain are expected during the first and second weeks of March, 2019, followed by reduced rainfall activities during the remainder of the month
4.	Rukwa, Njombe, Iringa, Mbeya region and Southern sector of Morogoro, Ruvuma, Mtwara and Lindi regions	The Masika Rainfall are expected during the first week of March, 2019, followed by gradual reduction towards the end of the month.

Agro-meteorological Outlook for March, 2019:

The expected rains will continue to improve soil moisture conditions over most of unimodal areas where crops are at vegetative stage. The expected episodes of seasonal rains during the month over bimodal areas can affect ready to be harvested crops (both at field and at drying management), but on the other hand will favor late grown crops. Farmers are therefore advised to continue with routine farm activities, make follow up of the 10-day forecasts and are highly encouraged to consult Agricultural Extension Officers on appropriate actions to be taken for proper utilization of the expected rains.

AVERAGE PRICES FOR FEBRUARY, 2019

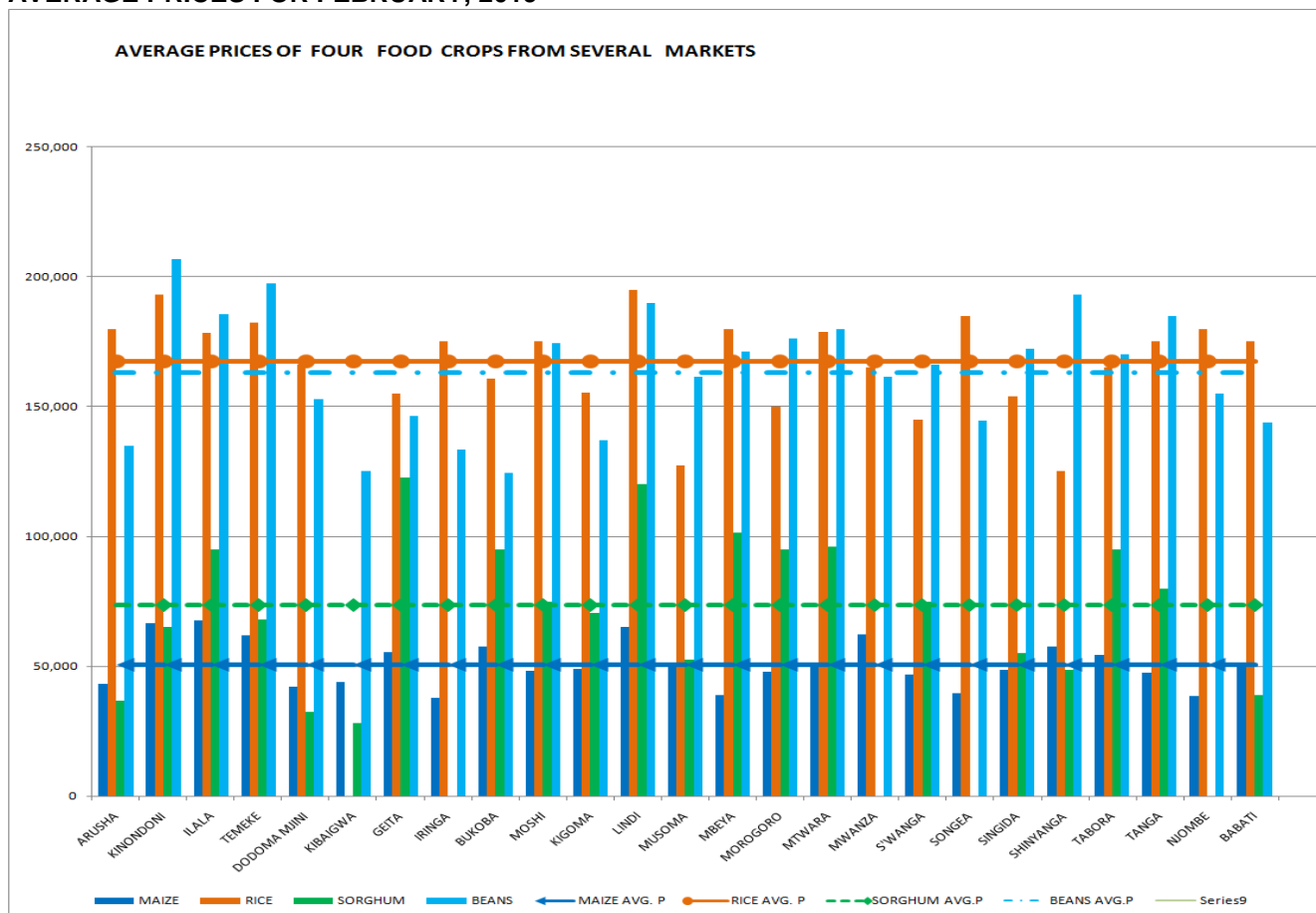


Figure 11: Major Food Prices at Selected Markets

The chart above depicts February, 2019 average market prices of major food crops in combination with Nation average price data for the selected markets. Lindi, Kinondoni, Songea, Temeke, Arusha, Mbeya and Njombe had the highest prices for rice ranging from 1,800/- to 1,950/- per kg while Shinyanga, Musoma, Sumbawanga and Morogoro had lowest market prices ranging from 1,250/- to 1,500/- per kg. Ilala, Kinondoni, Lindi, Mwanza, and Temeke had above average maize price while Iringa, Njombe, Mbeya and Songea were all below average maize prices. However, the lowest maize price was observed in Iringa market (377/- per kg), Njombe market (383/- per kg), Mbeya market (390/- per kg) and Songea market (395/- per kg). Kinondoni, Temeke Shinyanga, Lindi and Ilala had the highest prices for beans, ranging from 1,855/- to 2,066/- per kg while Bukoba, Iringa and Arusha, markets had the lowest prices of beans ranging from 1,244/- to 1,350/- per kg. Geita, Lindi, Mbeya Mtwara and Ilala had the highest prices of Sorghum ranging from 950/- to 1,225/- per kg while Kibagwa, Dodoma Arusha and Babati markets had the lowest prices of sorghum ranging from 280/- to 390/- per kg.

National Food Availability

The table below shows 2017/2018 Final Food Crop Production Forecast for 2018/2019 Food Security in Tanzania.

CEREALS	MAIZE	SORGHUM& MILLETS	RICE	WHEAT	TOTAL CEREALS
Production	6,273,150	988,428	2,219,628	56,651	9,537,857
Requirement	5,462,390	1,916,108	990,044	258,731	8,627,273
Deficit (-)/ Surplus (+)	810,760	-927,679	1,229,583	-202,080	910,584
SSR (%)	115	52	224	22	111
NON-CEREALS	PULSES	BANANA	CASSAVA	POTATOES	TOTAL NON CEREALS
Production	1,823,472	1,131,832	2,790,737	1,608,076	7,354,117
Requirement	788,122	910,523	2,273,332	970,034	4,942,012
Deficit (-)/ Surplus (+)	1,035,350	221,309	517,404	638,041	2,412,105
SSR (%)	231	124	123	166	149
TOTAL	CEREALS	NON- CEREALS	TOTAL FOOD		
PRODUCTION	9,537,857	7,354,117	16,891,974		
REQUIREMENT	8,627,273	4,942,012	13,569,285		
DEFICIT (-)/ SURPLUS(+)	910,584	2,412,105	3,322,689		
SSR (%)	111	149	124		

Source: The MoA 2017/2018 Final Food Crop Production Forecast for 2018/2019 Food Security.

Contribution of Different Crops for Food Security 2018/2019 Consumption Year

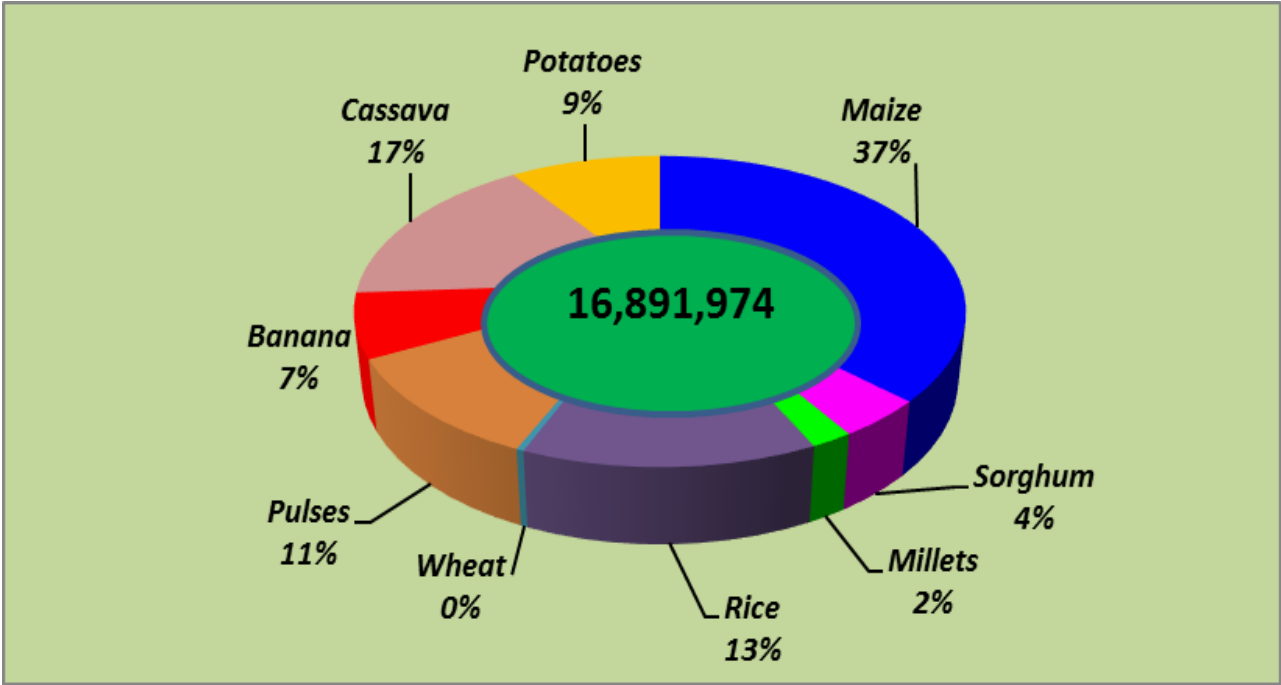


Figure 22: Crop wise proportional contribution

Source: The MoA 2017/2018 Final Food Crop Production Forecast for 2018/2019 Food Security.

PUBLIC AWARENESS

Tanzania Initiative for Preventing Aflatoxin Contamination (TANIPAC) Project

The Tanzania Initiative for Preventing Aflatoxin Contamination (TANIPAC) project is being designed within the context of Tanzania Development Vision 2025 (TDV 2025), which places a high priority on the agriculture sector. The TDV 2025 identifies the following three priority goals: (i) ensuring basic food security; (ii) improving income levels; and (ii) increasing export earnings. The National Five-Year Development Plan (2016/17 – 2020/21) also identifies the agriculture sector as a priority for the country, and in addition recognizes the need for scale up of nutrition specific interventions to prevent stunting. The specific agricultural sector strategies and programmes such as the Agriculture Sector Development Strategy (ASDS); the Agricultural Sector Development Programme (ASDP II); the Tanzania national multi-sectoral nutrition action plan 2016-2021; and the Tanzania Agriculture and Food Security Investment Plan (TAFSIP), among others, also emphasis the importance of nutrition and food security.

In Tanzania, a recent aflatoxicosis outbreak as reported in the central zone (Dodoma and Manyara regions) affected 65 people resulting in 19 deaths. Laboratory analyses indicated heavy contamination with aflatoxin occurrence as high as 300 ppb¹, more than 30 times than the recommended safe limit². A country situational assessment on the aflatoxin problem conducted with the support from Partnership for Aflatoxin Control in Africa (PACA) confirmed low level of awareness on aflatoxin issues, limited access to guidelines for good agricultural practices and poor storage were behind the prevalence of aflatoxin in maize and groundnuts grown and consumed in Tanzania. Also, policies and strategies are absent to combat this problem which creates health and nutritional problems.

In Tanzania, a recent aflatoxicosis outbreak as reported in the central zone (Dodoma and Manyara regions) affected 65 people resulting in 19 deaths. Laboratory analyses indicated heavy contamination with aflatoxin occurrence as high as 300 ppb³, more than 30 times than the recommended safe limit⁴. A country situational assessment on the aflatoxin problem conducted with the support from Partnership for Aflatoxin Control in Africa (PACA) confirmed low level of awareness on aflatoxin issues, limited access to guidelines for good agricultural practices and poor storage were behind the prevalence of aflatoxin in maize and groundnuts grown and consumed in Tanzania. Also, policies and strategies are absent to combat this problem which creates health and nutritional problems.

Aflatoxin contamination impacts every aspect of the affected value chain. Therefore, addressing the problem requires a holistic approach targeting on-farm production, harvest, storage, processing, and logistic practices, involving both the public and private sector to reduce food losses and increase the availability of safe and nutritious food. Following the evidence presented and the fact that the problem originated from agricultural sources, coupled with weak regulatory system and low awareness among key actors of the food value chain, the TANIPAC Project is proposed to intervene on key areas that contribute significantly to the spread of the problem. The project is expected to minimize aflatoxin occurrence in the food system attained through an integrated approach in maize and groundnuts food chains with the overall impact of improving food safety, food and nutrition security, hence improving the health of our communities, as well as agricultural productivity and trade.

¹ represents one microgram of something per liter of water (ug/l), or one microgram of something per kilogram of soil (ug/kg)

² Safe = that comply with maximum levels in standards. Range from 4 - 20 micrograms/kg of product

³ represents one microgram of something per liter of water (ug/l), or one microgram of something per kilogram of soil (ug/kg)

⁴ Safe = that comply with maximum levels in standards. Range from 4 - 20 micrograms/kg of product

Local knowledge on the importance of dietary diversity

Local people are very comfortable with the concept of dietary diversity: “eating different types of food” or “changing the diet/foods” (described in Swahili as “*kubadilisha mlo/vyakula*” or “*kukula aina aina ya vyakula mbalimbali*”, among others. “The benefit [of changing your diet] is that food should not bore you so that you don’t lose your appetite for eating. Because with one food, many people lose their appetite. That’s why human beings need to change food. Children get an appetite if today you have cooked cassava ugali, tomorrow let it be cassava ugali with good *mlenda*(*Corchorus* spp.). So tomorrow if you change to ugali [of maize] and beans it will be better than eating ugali and beans [for many days in a row]. [If you do not change] you will discover the children saying that they are not going to eat, they go to play outside, yet they are hungry.” Preference for diverse foods could motivate people to seek out a more diversified diet. The importance of a varied diet for improved appetite held across various timeframes: from meal to meal, day to day and season to season. The importance of dietary diversity pertained not only to the diet in general, but also across food groups, including carbohydrate staples, side dishes and fruit (i.e., one should consume different types of vegetables or staples). This concept is a salient part of local nutrition knowledge. “The benefit [of having many different foods] is because everything has got its own value. Every food crop has got its own value. We eat fruits because every fruit like pineapple helps the blood.

Factors enhancing and limiting dietary diversity

Agriculture and agrobiodiversity

When discussing factors needed to achieve and maintain a diverse diet, agrobiodiversity, as well as engaging in agricultural activities in general (maintaining agricultural activities even when there is an alternative source of income), are some of the most commonly mentioned factors. Links between dietary diversity and agrobiodiversity obvious. Wealth and available cash are reported to increase dietary diversity directly, as well as indirectly through an influence on agrobiodiversity. The importance of agrobiodiversity included not only the diversity of crops in the field, but also access to different types of fields and fields in diverse locations with different ecological characteristics.

Spatial and temporal availability of diverse foods

Availability of different foods (both seasonally and geographically) in general are reported as a limitation to dietary diversity; some foods simply are not available in some places or at some times. Even if one has enough money, if a food item is not available, it cannot contribute to dietary diversity.

Income, cash availability and socio-economic status

Wealth or income is reported as an important determinant of diet and dietary diversity. It was perceived to affect dietary diversity both directly (through purchasing power), as well as indirectly by modifying agrobiodiversity.

Livelihood diversity

In many cases, livelihood diversity is seen to support dietary diversity in the absence of wealth or agrobiodiversity. Certain livelihood activities, such as livestock keeping, consistently emerged as beneficial for dietary diversity.

Local knowledge that crop diversity is important for food security and resilience has been previously described by farmers around the world report that crop diversity and agrobiodiversity provide them with security in the face of environmental, climate, economic and social change.

Interventions

Nutrition Related interventions

On Going Nutrition Related interventions

- Promote production and consumption of high nutritive value crops from a variety of food crops including cereals and non- cereals such pulse, roots, tubers, fruits and vegetables so as to ensure availability of minerals, vitamins and proteins.
- Promote Bio fortification with the view of increasing nutritive value of a crop. Bio-fortification offers the most effective, sustainable and cost-effective delivery model to supply the micronutrients of nutritional importance, such as iron, zinc, vitamin A, and protein.
- Promote post-harvest management technologies that reduce post- harvest losses and hence ensure food and nutrients availability.
- Promote agro-processing with a view to preserve nutrients and ensure availability of food throughout the year.
- Disseminate agriculture related nutrition education among extension workers.

Medium to Long-Term Strategies:

- Provide training sessions on improved crop production, crop diversification as well as marketing in order to increase household income.
- Improve market linkages and accessibility through construction of roads, market infrastructures introduction of regulations for the transport of commodities, etc.
- Construction and rehabilitation of drainage systems and irrigation schemes as well as improved agricultural land management to avoid water logging.
- Promote a fully-fledged watershed management in order to reduce the associated risks of flooding of the agricultural land through - tree planting, land use management plans, riverbank maintenance, construction of dams, etc.

TERMS AND DEFINITIONS		
MOA	Ministry of Agriculture	
NFSD	National Food Security Division	
TMA	Tanzania Metrological Agency	
RAS	Regional Administrative Secretary	
NDVI	Normalized Difference Vegetative Index. The NDVI is used to measure and monitor plant growth, vegetative cover, and biomass production.	
MODIS	Moderate resolution Imaging Spectro-radiometer	
BIMODAL	Areas receiving rains twice a year. This means that the majority of precipitation falls in two distinct seasons a year i.e short rains Vuli-September to December, Long rains Masika - March to June.	
UNIMODAL	Areas receiving rains once a year Msimu rains i.e. from November to April	
Conditions	Exceptional	Conditions are much better than average at time of reporting
	Favorable	Conditions range from slightly below to slightly above average at reporting time
	Watch	Conditions are not far from average but there is a potential risk to production
	Poor	Crop conditions are well below average. Crop yields are likely to be 10% or more below
	Average	This is only used when conditions are not likely to be able to recover, and impact on production is likely
Drivers	Wet: Flooding	Wetter than Average due to flooding
	Wet: Water Logging	Wetter than Average due to water logging
	Dry	Dryer than Average
	Hot	Hotter than Average
	Cold	Cooler than average or risk of frost damage
	Extreme Event	This is a catch-all for all other climate risks (i.e. hurricane, typhoon, frost, hail, winterkill, wind damage, etc.)
	Delayed Planting	Postponement to the start of season
	Pests	Destructive insects or animals
	Disease	Impairment of the crop that causes abnormal functioning
	Wind Damage	Damage caused by high winds
	Flood	An excessive amount of water located beyond its normal boundaries
	Socio-political	Social or political factors that impact crop conditions (i.e. policy changes, agricultural subsidies, government intervention, etc.)
Trends	Late Rains	Delayed onset of rainy season
	Improving	Crop conditions are improving
	Stable	Crop conditions are stable
	Worsening	Crop conditions are worsening