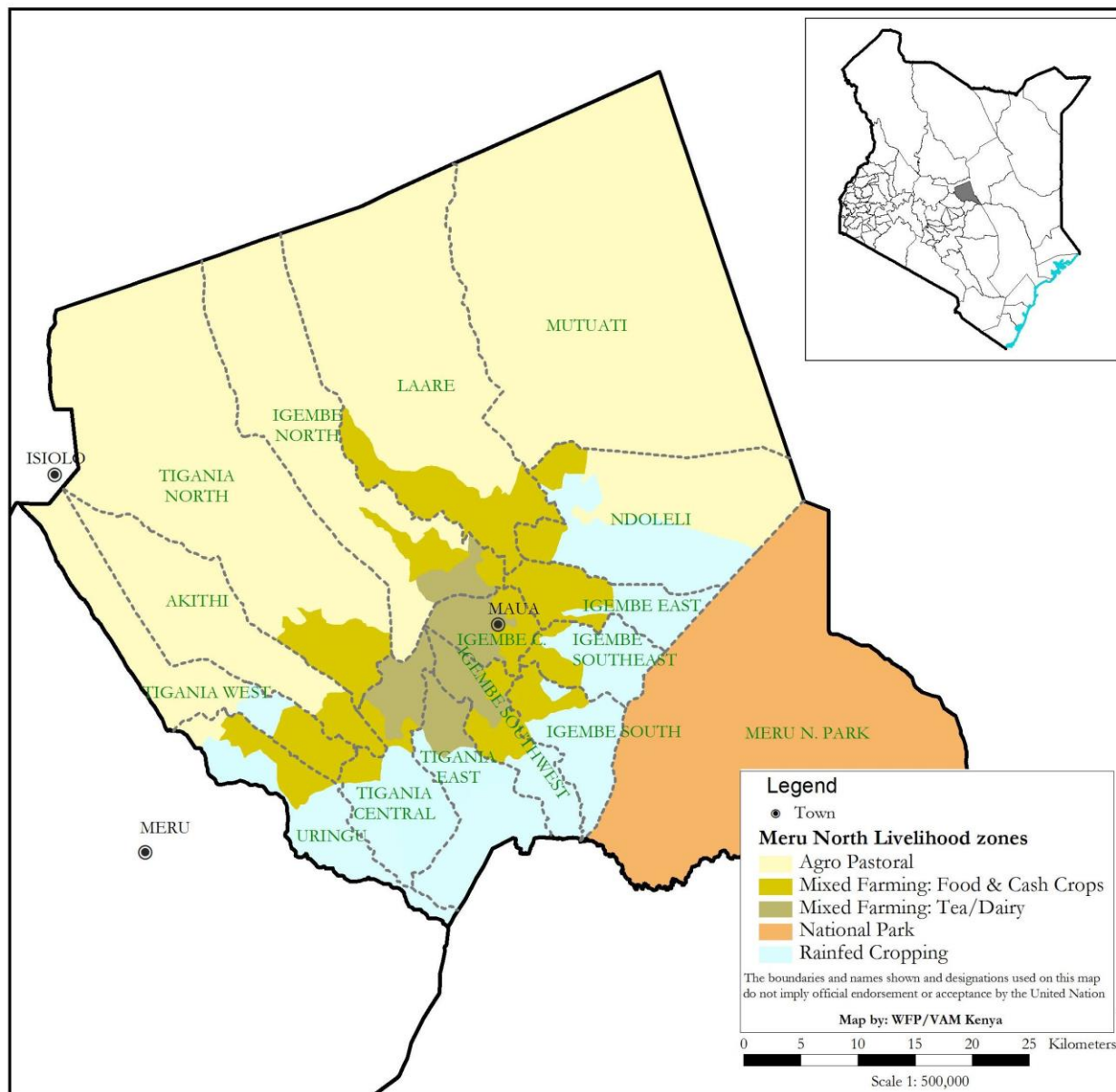


**MERU COUNTY (MERU NORTH)
2019 LONG RAINS FOOD AND NUTRITION SECURITY ASSESSMENT REPORT**



A Joint Report of Kenya Food Security Steering Group¹ and Meru County (Meru North) Steering Group

July, 2019

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EXECUTIVE SUMMARY

The long rains food security assessment was carried out in Meru County (Meru North) covering six semi-arid sub counties; Igembe North, Igembe Central, Igembe South, Tigania East, Tigania West, and Buuri. The assessment was done by the Kenya Food Security Steering group in conjunction with the County Steering group. The main objective of the long rains assessment was to develop an objective, evidence-based and transparent food and nutrition security situation analysis following the March-April- May (MAM) 2019 rains.

The below average 2019 long rains was the main driver of food insecurity in Meru North. The County received 50-75 percent of normal rains which was characterized by poor temporal and uneven spatial distribution, late onset and normal cessation. The rainfall received was not adequate for forage regeneration and good crop performance. Other drivers of food and nutrition insecurity were; resource-based conflicts; land conflict in the border of Igembe and neighbouring Tharaka Nithi County and presence of endemic pests and diseases for both crops and livestock. Livestock body condition was ranging from good to fair in rain-fed and agro-pastoral livelihood zones. Distance to water sources was above normal at 10-15 Kilometers compared to the long-term average of 10km and households water consumption was within normal 10- 15 litres of water per person per day in the agro-pastoral livelihood zones while in the mixed farming and the rain-fed cropping livelihood zones consumption was at 17-20 litres per person per day thus meeting the SPHERE standards.

All major markets were operational in the County and terms of trade were unfavourable compared to long term mean as evidenced by the sale of one goat which could be exchanged with 81 kilograms of maize in July compared to 106 during normal season.

Major illnesses among children under five years in the County included upper respiratory tract infections (URTI), diarrhoea and malaria. There was a decline of URTI by 10 percent due to the intensified health education promotion sessions at the community level. Fully immunized Children was at 65.5 percent while that of vitamin A coverage was at 58 percent which was below the national target of 80 percent. Latrine coverage was high at 95 percent.

The proportion of household with acceptable food consumption score (FCS) was about 29 and 97 percent in agro- pastoral and rain-fed livelihood zones. The mean county coping strategy index was 14.6 indicating that households are utilizing consumption based coping strategies more frequently than normal such as skipping meals, reduce portion of meal size, borrowing reliance and eating less preferred foods. Nutrition status was acceptable based on the trends of the mid upper arm circumference of children at risk of malnutrition which was 18.7 percent. Under five mortality rate was 0.07 per 10,000 live births while the crude mortality rate (CMR) are 0.13per 10,000 persons per day. The indicative food security phase classification in the Meru North is “stressed” (IPC Phase 2) with the agro pastoral livelihood zones in “Crisis” (IPC phase 3).

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1.0 INTRODUCTION

1.1 County Background

Meru County is situated in Eastern Kenya and it lies to the east of Mt. Kenya whose peak cuts through the southern boundary of the county. It shares borders with Thara-Nithi County to the east, Nyeri County to the south west, Laikipia County to the west and Isiolo County to the North. The county consists of nine (9) administrative units namely, Tigania West, Tigania East, Igembe Cental, Igembe South, Igembe North, South Imenti, North Imenti, Central

Imenti and Buuri sub-counties. The county covers an area of 6,936.2 square kilometers out of which 1,776.1 square kilometres is covered by gazette forest. The assessment covered Tigania West, Tigania East, Igembe Cental, Igembe South, Igembe North, South Imenti, and Buuri sub-counties, which is the semi-arid part of Meru County with a projected population of 775,982 (KNBS, 2016 projection). There are three main livelihood zones namely: Mixed Farming (food crops, tea, coffee and dairy) consisting 50 percent of the total population, Agro-pastoral and Rain-fed cropping livelihood zones comprising 27 and 23 percent of the total population respectively (figure 1). The lower parts which constitute about 60 percent of the total area are designated the northern grazing livelihood zones characterized by low rainfall.

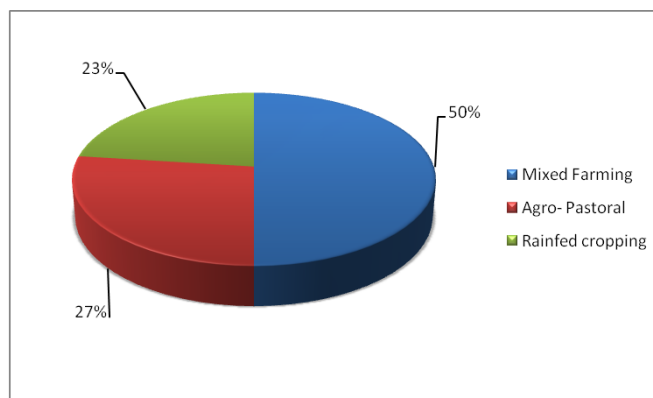


Figure 1: Livelihood Zones Meru (Meru North) County

1.2 Objectives and Approach

The main objective of Long Rains Food Security assessment was to develop an objective, evidence-based and transparent food security situation analysis following the short rains season of March to May (MAM) 2019, considering the cumulative effect of previous seasons and thereafter provide immediate and medium term recommendations for possible response options for stakeholders based on actual situation analysis. Primary data was collected during the field visits at the County through community and market interviews. The sectoral technical members at the County level provided technical reports for reference. More secondary data was collected from the drought early warning system and used to provide trends for the different food security indicators in the various sectors.

2.0 DRIVERS OF FOOD AND NUTRITION SECURITY IN THE COUNTY

2.1 Rainfall Performance

The onset of 2019 March to May (MAM) long rains season was late in third dekad of April compared to third dekad of March normally. Most parts of Meru North received 50-75 percent of normal rainfall as shown in figure 2. Temporal distribution was poor while spatial distribution was uneven across the livelihood zones. Cessation of long rains was late in second dekad of May compared to first dekad normally.

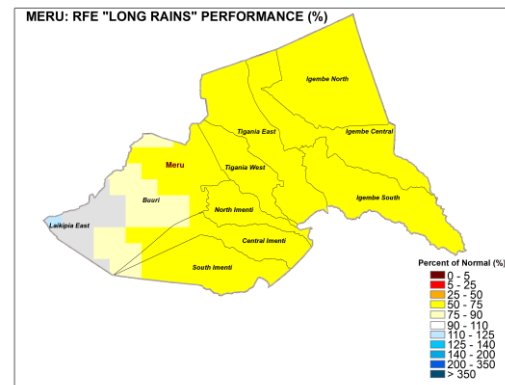


Figure 2: Rainfall Performance, Meru (Meru North) County

2.2 Current Shock and Hazards

There were cases of insecurity/ conflict reported in the County associated with the current influx of livestock from other counties in search of water and pasture in the Northern Grazing Area (NGA). Staple food prices have been on an increasing trend since March, 2019 across the livelihood zones. Similarly, prices have increased by five percent between May and June compared to long term average. This is attributed to a decrease in supplies due to declining stocks held by various actors in the county due to poor performance of MAM rains.

2.3 Conflicts and Insecurity

Resource-based conflicts over grazing areas and access to water for livestock in Mulika ward have occurred and limited access to dry season grazing areas, driven by livestock immigration from Isiolo County. Small Pockets of human conflicts were reported in Agro pastoral zone over water and food.

3.0 IMPACTS OF DRIVERS ON FOOD AND NUTRITION SECURITY

3.1 Availability

In this section, the presence of pastures and browse, stocks, crop harvests, food stocks in the county and in the markets are discussed.

3.1.1 Crop Production

Rain Fed Crop Production

Crop production contributes 63 percent to food and 37 percent to income for the households. The crops produced include: maize, beans, tomatoes, bananas and onions for food crops as well as tea, coffee and *miraa* for cash crops. Maize and beans constitute 70 percent of food in all livelihood zones. There has been an increased production of horticultural crops such as tomatoes, kales through irrigation have been increasing due to relatively high market prices. *Miraa* (khat) farming is the major agricultural cash crop in the Nyambene ranges area with most farmers specializing in it as the major source of income.

Area under maize and beans was within the long-term average (table 1), attributed to farmers carrying out land preparation activities on time. Other reasons include late onset of rainfall and that more farmers are adopting the production of sorghum and *miraa* in Tigania Central and absence of relief seeds provided by the government this season for Igembe South.

Table 1: Comparison of the Current Area Planted and Current Production with LTA

Crop	Area planted during 2019 long rains season (Ha)	Long Term Average (5 year) area planted during the long rains season (Ha)	2019 Long rains season production (90 kg bags) Projected	Long Term Average (5 year) production during the long rains season (90kg bags)
1.Maize	28513	26951	111050	382336
2.Beans	30947	30284	106925	160729
3.Green grams	4000	3100	40050	54600

The achieved production for beans, maize and green grams was 29, 67 and 73 percent of the long-term average respectively, attributed to late rainfall onset and failure when the maize crop was at booting stage, the beans and the green grams vegetative to flower setting stage. The crops reached permanent wilting point in early May which demoralized farmers, as this is the second season in a row that they are staring at a possible total crop failure in the lower agro-pastoral livelihood zone. However, mixed farming and rain-fed livelihood zones (Igembe south) will, register a fair harvest as they received better rains.

Irrigated Crop Production

Table 2: Comparison of the Current Area Planted and Current Production with LTA

Crop	Area planted during the 2019 Long rains season (ha)	Long Term Average (3 years) area planted during Long rains season (ha)	2019 Long rains season production (90 kg bags/MT) Projected	Long Term Average (3 years) production during 2019 Long rains season (90 kg bags/MT)
1. Tomatoes	112	302	1469	12075
2. Bananas	84	116	1415	2493
3.Kales	71	109	307.5	1041

The main crops produced through irrigation in order of priority are tomatoes, bananas and kales as illustrated in Table 2. The area under tomatoes, banana and kales was 37, 65 and 65 percent of the LTA. The reduction is attributed to low water levels in the rivers that occasioned water rationing, high cost of inputs. However, the area under onions was higher because farmers expected high market prices. For horticultural crops men are more involved than women at 60 percent and 40 percent. The expected production for tomatoes, kales and bananas was 12, 30 and 56 percent of the LTA respectively. The decrease in tomato, pawpaw and banana acreage was largely attributed to decrease in water levels leading to importation of vegetables. Decline in production of tomato was also due to high incidences of *Tuta absoluta* thus most farmers scaled down on production. The decrease in Banana acreage was further attributed to lack of planting materials and diseases such as fusarium wilt and increased damages by wildlife (elephants) from the Meru National Park in Igembe central ward, Agro-pastoral livelihood zone. Delayed onset and early cessation affected crop production with poor spatial and temporal distribution leading to water stress especially to lower agro- pastoral livelihood zone where the crop did poorly.

3.1.2 Cereal Stock

Table 3: Grain Stocks Held in the County

	Maize		Rice		Sorghum		Millet	
	Current	LTA	Current	LTA	Current	LTA	Current	LTA
Farmers	80338	126287	517	937	2973	5040	1353	1799
Traders	34968	67148	12605	13060	3636	3319	1480	1994
Millers	7400	3800	0	0	405	400	605	580
NCPB	3000	4220	0	0	0	0	0	0
Total	125706	201455	13122	13997	7014	8759	3438	4373

The total current cereal stocks held by all actors is 62 percent of the LTA. The current maize stocks held by the households were 64 percent of the LTA, whereas the traders are holding up to 52 percent of the LTA attributed to poor crop performance following the poor rainfall across all livelihood zones. Due to reduced harvests, households will continue to deplete their stocks. The stocks with the traders are expected to increase as farmers continue to sell the farm produce at household level. Most of the households are relying on the markets for food stuff and may sell the little farm produce from the long rains seasons to cater for other financial obligations thus further depleting food stocks. The current household maize stocks will last for 2 - 3 months, compared to six months in the rain-fed and mixed livelihood zone and for less than a month, compared to three months in the agro-pastoral livelihood zone.

3.1.3 Livestock Production

Livestock keeping is among the main economic activity in the county and it contributes 30 percent to household cash income. The main livestock species reared in the region include cattle, sheep, goats and poultry. Dairy cattle and goats (mainly cross breeds and few local breeds) are kept in mixed farming livelihood zone. Land sizes are small in mixed farming and rain-fed cropping livelihood zones which contributes to inadequate pastures and forage for livestock compared to agro-pastoral livelihood zone. Farmers in rain fed cropping livelihood zone keep dairy cattle and goats together with indigenous goats and sheep. The agro-pastoral livelihood zone is the main source of beef and local goats for the livestock markets.

Pasture and Browse Situation

The 2019 March to May long rains supported regeneration of pasture and browse mainly in mixed farming and parts of rain fed cropping livelihood zones. Conversely, the rains were unevenly distributed leading to uneven regeneration of pasture and browse. Pasture condition was good to fair in mixed farming livelihood zone and fair to poor in rain fed cropping in both quality and quantity. However, pasture was poor in agro-pastoral livelihood zone. Browse was good to fair in mixed farming and rain fed cropping livelihood zones in both quality and quantity. In agro-pastoral livelihood zone, browse was poor compared to good normally. The current situation of pasture and browse is below normal as shown in table 4. The available pasture is expected to last for 2-3 months in mixed farming and 1-2 months in rain fed cropping livelihood zones compared to 2-3 months normally and less than a month in agro-pastoral livelihood zone compared to two months normally. Conversely, browse will last for 1-2 months compared to 3-4 months normally in mixed farming and rain fed cropping livelihood zones and less than a month in agro-pastoral livelihood zone. This condition is attributed to progression of the dry spell. The current factors limiting access to pasture and browse include water scarcity, wildlife conflicts in Buuri sub county and insecurity in Igembe Central (Kinanduba) and Igembe North (Ndumuru) sub counties caused by pastoralists' from Isiolo County who are in search of pasture and water for their livestock.

Table 4: Pasture and Browse Condition

Livelihood zone	Pasture					Browse				
	Condition		How long to last (Months)		Factors limiting access	Condition		How long to last (Months)		Factors Limiting access
	Current	Normal	Current	Normal		Current	Normal	Current	Normal	
Mixed farming	Good to fair	Good	2-3	2-3	-None	Good	Good	1-2	3-4	-None
Rain-fed cropping	Fair to poor	Good	1-2	2-3	-Water scarcity -Wildlife conflicts (Buuri)	Good to fair	good	1-2	3-4	-Water scarcity -Wildlife conflicts (Buuri)
Agro-pastoral	Poor	Good	≤1	2	-Water scarcity -Insecurity (Kinanduba- Igembe Central) -Wildlife conflict (Buuri)	Fair-to poor	good	≤1	2	-Water scarcity -Insecurity (Kinanduba- Igembe Central) -Wildlife conflict (Buuri)

Livestock Productivity

Livestock Body Condition

The livestock body condition for all species was good to fair across the livelihood zone compared to good normally as shown in table 5. Crop residues supplemented the livestock feeds majorly in mixed farming and rain fed cropping livelihood zones. Body condition of cattle is likely to deteriorate in the following three months due to increasing trekking distances to water sources and diminishing pasture. This will likely reduce market value of cattle's hence lower household's income. Sheep and goats body condition is likely to remain stable in mixed farming and rain fed cropping livelihood zones during the same period due to availability of browse and crop residues.

Table 5: Livestock Body Condition

Livelihood zone	Cattle		Sheep		Goat		Camel	
	Current	Normally	Current	Normally	Current	Normally	Current	Normally
Mixed farming	Good	Good	Good	Good	Good	Good	Good	Good
Rain-fed cropping	Good to fair	Good	Good to fair	Good	Good to fair	Good	Good to fair	Good
Agro-pastoral	Good to fair	Good	Good to fair	Good	Good to fair	Good	Good to fair	Good

Tropical Livestock Units and Birth Rate

The tropical livestock units (TLUs) for poor income households were within the normal range of 1-2, 2-3 and 3 in mixed farming, rain fed cropping and agro-pastoral livelihood

zones respectively. On the other hand, the TLUs for medium income households remained within the normal range of 2-3, 3-5 and 10 in mixed farming, rain-fed cropping and agro-pastoral livelihood zones respectively (table 6). The TLUs remained stable across all livelihood zones. Livestock birth rates and calving intervals remained normal across the livelihood zones.

Table 6: Tropical Livestock Units (TLUs)

Livelihood zone	Poor income households		Medium income households	
	Current	Normal	Current	Normal
Mixed farming	1-2	1-2	2-3	2-3
Rain-fed cropping	2-3	2-3	3-5	3-5
Agro-pastoral	3	3	10	10

Milk Production and Consumption

Milk production was below normal in agro-pastoral livelihood zone at 1-2 litres per household per day compared to 2-3 litres normally and this was attributed to declining availability of water and forage. In mixed farming and rain fed cropping livelihood zone, milk production per household per day was within normal as shown in table 7. Conversely, milk consumption per household per day was below normal of one litre across the livelihood zones compared to two litres normally. The price of milk per litre was above long-term average of Ksh.50 compared to Ksh.40 normally across the livelihood zone due to high demand of milk by households and traders. Decision to sell milk was done by herders in agro-pastoral livelihood zone and family members (including women and youths) in mixed farming and rain fed cropping livelihood zones.

Table 7: Milk Production, Consumption and Prices

Livelihood zone	Milk Production (Litres) per Household		Milk consumption (Litres) per Household		Prices (Ksh.) per Litre	
	Current	LTA	Current	LTA	Current	LTA
Mixed farming	6-8	6-8	1-2	2	50	40
Rain-fed cropping	3	4-6	1	2	50	40
Agro-pastoral	1	2-3	1	1-2	50	40

Migration

The livestock migration patterns were not normal and this was mainly attributed to scarcity of water and inadequate pasture for livestock. About 40 percent of livestock migrated from Igembe Central (Kangeta area) to Tharaka Nithi County and Buuri sub county (Nchoroiboro and Rwarera areas) to Mount Kenya. The other migration routes were from Isiolo and Samburu counties to Mount Kenya. Moreover, in-migration of livestock from Isiolo County to Igembe North sub county (Inono area) and lower Imenti forest were reported. Livestock in-migration has contributed to destruction of trees and conflicts between farmers and pastoralists due to grazing on other people's crop farms.

Livestock Diseases and Mortalities

Anthrax disease outbreak was reported in Tigania East (Karama ward) and Igembe North (Tuuru area in Ntunene ward) sub counties and about two people and seven cows died in Karama ward besides seven livestock in Ntunene ward. Moreover, foot & mouth disease and

rabies outbreak were reported in Igembe North sub county (Mea area of Antuabui ward). The situation is currently under control following ring vaccination done by the County Government of Meru.

Water for Livestock

The main water sources for livestock were rivers, boreholes and piped water. In agro-pastoral livelihood zones, livestock were relying on rivers and boreholes compared to pans and dams, bore holes and rives normally while in mixed farming and rain fed cropping livelihood zones, livestock relied mainly on rivers, boreholes, piped water and roof water harvesting. The distance to water points was above normal in agro-pastoral and rain fed cropping livelihood zone (table 8). This was attributed to depletion of fodder around watering points and inadequate recharge of water resources. However, Distances to water sources from grazing areas was within normal in mixed farming livelihood zone. The watering frequency for all livestock species was on alternate days in agro-pastoral and daily in mixed farming and rain-fed cropping livelihood zones.

Table 8: Water for Livestock

Livelihood zone	Return trekking distances (Kms)		Expected duration to last (Months)		Watering frequency	
	Current	Normal	Current	Normal	Current	Normal
Mixed farming	1	1	3	3	Daily	Daily
Rain-fed cropping	4-5	2-3	2	3	Daily	Daily
Agro-pastoral	10-15	<10	≤1	2	Alternate days	Daily

3.2 Access

3.2.1 Market Operations

The main market for livestock is Ngundune while Maua market is mainly for food commodities. Other important markets include Kianjai, Laare, Mulika, Mikinduri and Timau which are for both food commodities and livestock. Market operations were normal across the livelihood zones. The main livestock traded in the market were goats, sheep and cattle which were mainly sourced from Isiolo county and some minimal local supply. Food commodities traded in the market are also largely supplied locally and from Tharaka Nithi and Nyandarua counties. Markets were well provisioned with a wide range of food commodities that included: green grams, pigeon peas, beans, maize, cassava, vegetables-kales, cabbages, tomatoes and onions. Beans prices was Ksh 80-100, green grams ranged between 100-120, millet was Ksh 40 and sorghum Ksh 40. Supplies for the main staple food commodities was normal across the markets in the livelihoods zone as harvesting was ongoing. Demand for maize in the markets is rising, and so are the prices.

Imports of maize from outside the county is expected to gradually increase to meet the demand largely in the agro-pastoral livelihood zone where there was total crop failure. Market supplies for livestock is low as livestock are feeding on the crop residues that are still available at the household level. Livestock prices are therefore high.

Maize Prices

The price of maize has increased for the fourth month in a row due to low stock of maize in the county. The average market maize price in the month of July 2019 is Ksh. 45 per

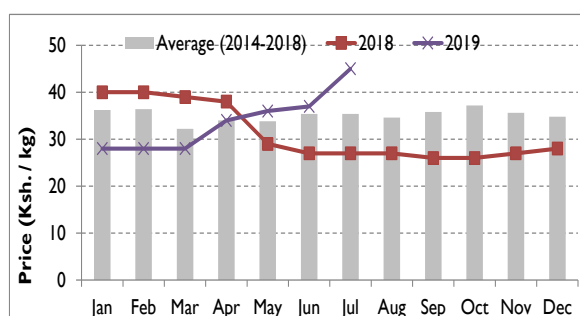


Figure 3: Maize Prices in Meru (Meru North) County

Kilogram, which is 27 percent higher compared to the long-term average (LTA) of Ksh. 35 per Kg as illustrated in Figure 3. The rise was due to delayed rains and uncertainty of the rainfall performance in all the livelihood zones, the farmers who have last season stock had to sell at high price due to demand in the market. The prices were Kshs Kshs50 in Kangeta market which is higher than the LTA., thus the current price was above normal and the trend is increasing.

Goat Prices

The average market price of a two year goat has been on a decline trend since January 2019 as illustrated in Figure 4. In the month of July, the price was Kshs 3,656 compared to Kshs 3,626 posted in the previous month. Compared to LTA, the average price was lower by 3 percent. The change in price could be attributed to reduction in browse quantity and quality and increasing return trekking distances for livestock in Agro pastoral livelihood zone.

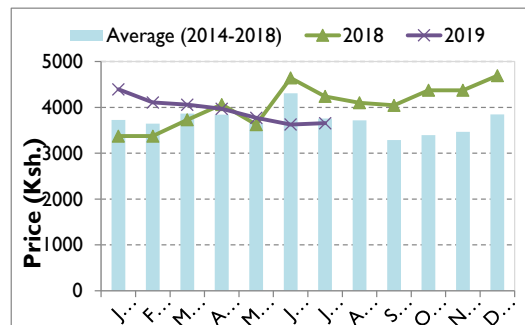


Figure 4: Goat Prices in Meru (Meru North) County

3.2.2 Terms of Trade

The terms of trade have been unstable from the month of January attributed to decrease in price of goats and increase in price of maize. The current average terms of trade is 23 percent below the long term average (Figure 5). Households are able to purchase 81 Kgs of maize with the sale of one medium-sized goat in July as compared to 106kg in normal season. Purchasing power of pastoral households is expected to deteriorate with declining animal body condition. Maize prices are expected to increase as stocks decline.

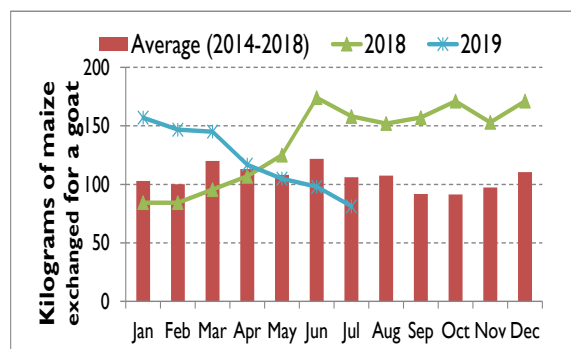


Figure 5: Terms of Trade in Meru (Meru North) County

3.2.3 Income Sources

The main sources of income in the Meru North included casual waged-labour income, food crop production and livestock production (meat, milk, hides, skins, and by-products) and Poultry Production (Table 9). The reduced agricultural production in the Agro-pastoral zones have lowered household income and constrained purchasing power. The majority of poor households are entirely dependent on market purchases to meet their minimum food needs following below-average production long rains production. Sale of livestock products and crops were on an upward trend compared to previous months. Casual labour opportunities were available in the *Miraa* plantations and town centres.

Most households in agro-pastoral livelihood were selling more livestock than usual as it was currently their main source of income. In this regard, the tropical livestock units have reduced to about 1-2 destabilising their livelihood assets which is likely to negatively impact on food

security. Other sources of income noted at the time of the assessment included sale of crop residues and charcoal.

Table 9: Income Sources

Livelihood Zone	Source of Income	Percentage Contribution
Agro-pastoral zone	Casual waged labour income	38
	Livestock production- meat, milk, hides, skins and by-products	26
	Food production	13
Rain fed	Food crop production	29
	Casual waged labour income	25
	Livestock production- meat, milk, hides, skins and by-products	15
	Poultry production- meat, egg	10
Mixed farming	Casual waged labour income	50
	Livestock production - meat, milk, hides, skins and by-products	15
	Poultry production - meat, egg	10
	Cash crop production	10

3.2.4 Water Access and Availability

Major Water Sources

The main water sources for domestic use were boreholes, rivers/springs and piped water. About 45 percent of households relied on rivers for domestic water use followed by piped water and boreholes at 25 and 20 percent respectively as shown in figure 6. Poor performance of 2019 long rains resulted to inadequate recharge of water resources mainly in agro-pastoral livelihood zone. The recharge levels to open water sources was low between 50-70 percent and no substantial recharge of pans and dams was experienced in agro-pastoral livelihood zone. All pans and dams in Igembe Central and Buuri sub counties had dried up forcing the households to rely on boreholes and rivers. However, there is an on-going conflict between downstream users of the rivers and upstream consumers due to inadequate flows resulting from abstractions for irrigation mainly at the lower parts bordering the Meru national park and northern grazing areas. In agro-pastoral areas, rivers are experiencing low volumes hence not flowing downstream. Currently, the main rivers are at 25-30 percent of normal flow and this is expected to reduce due to illegal abstractions for irrigation during dry spell. The intra migration of livestock and herders has led to over

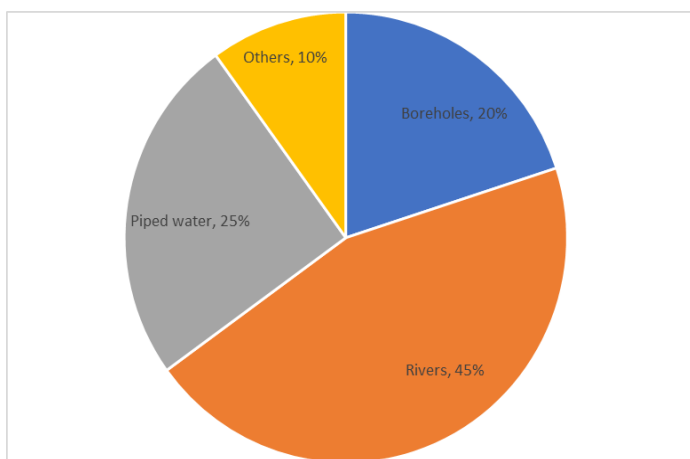


Figure 6: Water sources, Meru (Meru North) County

concentration of livestock and human in Ndumuru and Mariara boreholes in agro-pastoral livelihood zones.

Distance to Water Sources

Distances to water points were above long-term average in rain fed cropping and agro-pastoral livelihood zone at three (3) and eight (8) kilometres respectively compared to 1-2 and 9 kilometres normally and this was mainly attributed to drying up of pans and dams in addition to reduced flow of river water to downstream areas. However, households in mixed farming livelihood zone trekked a lower distance of less than one kilometre which is normal (table 10).

Table 10: Water Accessibility and Utilization

Livelihood zone	Return Distance to Water for Domestic Use (Km)		Cost of Water at Source (Ksh. Per 20litres)		Waiting Time at Water Source (Minutes)		Average Water Consumption (Litres/person/day)	
	Normal	Current	Normal	Current	Normal	Current	Normal	Current
Mixed farming	≤1	≤1	2.50	2.5	5	5	20	20
Rain fed cropping	1-2	3	2.50	2.5	5-10	5-10	17	17
Agro pastoral	9	8	2.5-5	2.5-5	30	30-45	10	10

Waiting Time at the Source

The waiting time was normal in mixed farming and rain fed cropping livelihood zones at five (5) and 5-10 minutes respectively compared to 30-45 minutes in agro-pastoral livelihood zones (table 10).

Cost of Water and Consumption

The cost of a 20 litre Jerri can at source was normal at 2.5 shillings in mixed farming and rain fed cropping livelihood zones and 2.5-5 shillings in agro-pastoral livelihood zone. However, in isolated areas of Igembe North sub county (Kachiuru) the cost of water at source was 10 shillings. Water sourced from vendors retailed at 10-30 shillings which is normal in-exception of Igembe North sub county (Kachiuru) where the cost was 50-70 shillings per 20 litre Jerri can and this was mainly attributed to drying up of Kashiuru water pan which serve majority of households in the area. Water consumption per person per day was normal at 20, 17 and 10 litres in mixed farming, rain-fed cropping and agro-pastoral livelihood zones respectively.

3.2.5 Food Consumption

The proportion of household in acceptable, borderline and poor food consumption category were 47, 41 and 13 percent respectively. The Agro-pastoral and rain-fed livelihood zones had a proportion of households with acceptable food consumption score of about 29.1 and 96.7, figure 7. While those in poor food

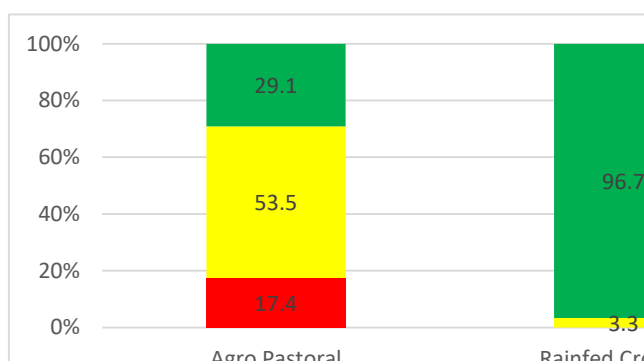


Figure 7: Food Consumption Score

consumption score were 17.4 in Agro-pastoral livelihood zones. The acceptable food consumption score implies that households are consuming staples, protein (milk and meat) and vegetables every day and frequently accompanied by pulses. Borderline implies that households are consuming staples and vegetables every day accompanied by oil and pulses a few times in a week. Most households consumed more than three food groups i.e. maize, vegetables and pulses.

3.2.6 Coping Mechanisms

The mean Coping Strategy Index for the county in July 2019 remained stable at 14.6. This implies that, majority of households in the county were employing consumption based coping strategies more frequently than normal to cope with lack of food or money to buy food. About 67.4 and 3.3 percent of households in agro-pastoral and rainfed cropping livelihood zones respectively were employing crisis coping mechanisms as shown in figure 8.

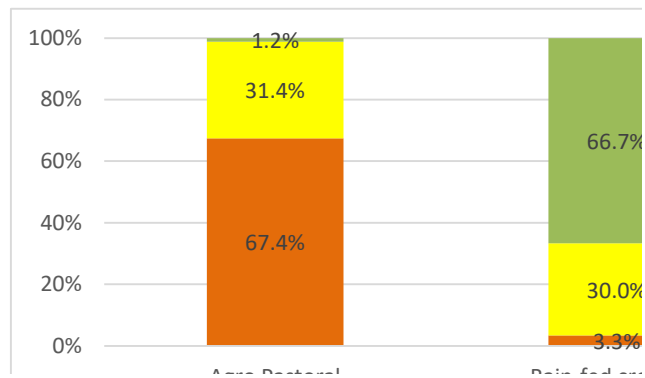


Figure 8: Reduced CSI, Meru (Meru North) County

The households are utilizing consumption based coping strategies such as skipping meals, reduce size of portion size, borrowing reliance on less preferred and or expensive food more frequently compared to normal attributed to increasing food prices and reducing food stocks especially in the agro-pastoral livelihood zones.

3.3 Utilization

3.3.1 Morbidity and Mortality Patterns

The major illnesses among children under five years in the County included Upper respiratory tract infections (URTI), Diarrhoea, Malaria among others. There was a decline of URTI by 10 percent from 82,555 cases in January- June 2018 to 74,139 cases January- June 2019. The decreasing trend in URTI was due to the intensified health education promotion sessions at the community level. attributed to warm weather throughout this half of the year. Decline in diarrhoea by three percent from 11,852 cases in January- June 2018 to 11,524 cases January- June 2019 attributed to extensive health promotion by community health volunteers especially on prevention measures. Other factors included increased use of hand washing at the household levels by use of locally made tippy taps and leaky tins. and deworming of school going pupils. Larger populations have access to clean water due to increase in number of boreholes in the county resulting to reduction in diarrhoea cases. Increase in malaria by 40 percent from 1,590 cases in January- June 2018 to 2,232 cases January- June 2019 was attributed to use of RDT kits for testing of malaria by use of the gene expert machine instead of the usual microscopy. This method is more accurate and leads to efficient treatment and control of the disease resulting to reduced cases.

Among the general population the leading causes of morbidity include URTI, diarrhoea and malaria. There was no disease outbreak reported in the county and therefore no significant difference in the morbidity patterns across the livelihood zones. There was a noted decline of URTI by 24 percent from 71,185 cases in January- June 2018 to 54,294 cases January- June 2019. The decreasing trend in URTI was due to the intensified health education promotion sessions at the community level and warm weather throughout this half of the year. Decline in diarrhoea by 13 percent from 10,019 cases in January- June 2018 to 8,724

cases January- June 2019 attributed to extensive health promotion by community health volunteers especially on prevention measures. Increase in malaria by 34 percent from 2,112 cases in January- June 2018 to 2,833 cases January- June 2019. Latrine coverage was at 95 percent for January-June 2019 as compared with 93.5 percent in January-June 2018.

3.3.2 Immunization and Vitamin A supplementation

The percentage of fully immunized children was 62, 73 and 74 percent in Igembe North, Igembe South and Tigania West respectively for January - June 2019 as compared to 53, 71 and 70 percent in January - June 2018 attributed to the ongoing universal health care coverage. However, the indicators have not yet reached the national target of 80 percent due to long distances to health facility and low integrated outreach interventions.

Vitamin A supplementation for children 6-11 months was 69.4 percent for January-June 2019 as compared with 76 percent in January-June 2018. Vitamin A supplementation for children 12-59 months was 63 percent for January-June 2019 as compared with 57 percent in January-June 2018. Thus, Immunization and Vitamin A supplementation are below 80 percent national target. Furthermore, there was one reported case and death due to rabies within the county, table 11.

Table 11: Trends of Epidemic and Water Borne Diseases

Disease	January to June 2018		January to June 2019	
	Cases	Deaths	Cases	Deaths
Measles	29		14	
Cholera	0		0	
Dysentery	690		379	
Diarrhoea	23600		24191	
Malaria	3402		2067	
Typhoid	2550		2278	
Rabies	0	0	1	1

3.3.3 Nutrition Status and Dietary Diversity

The proportion of children under five years 'at risk' of malnutrition is stable at 18.7 compared to a long term mean of 16, figure 6 indicating stable health status, however the situation is expected to worsen due to continued poor child care practices within the community. Meal frequency remains poor across the livelihood zones with most households consuming an average of two meals/ day as compared to a normal of three. This is common for both adults and children below five years. The main causes of malnutrition in the county include food insecurity, sub optimal young child feeding and care practices, poor dietary diversity, migration patterns and low access to essential nutrition services. There was no significant difference across the livelihood zones.

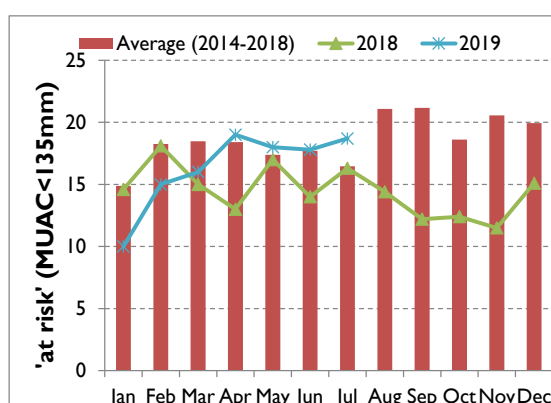


Figure 6: Proportion of children at risk of malnutrition

3.3.4. Hygiene and Sanitation

The main water source for domestic use in Meru North especially in Mixed farming and rain fed livelihood zones are rivers, springs, boreholes and piped water. However, in Agro pastoral livelihood zones, open water sources like water pans are also used as source of water. About 50 percent of the populations is drinking water from unprotected sources. From the community interviews, it was reported that the proportion of households treating water for domestic use was below 50 percent. The low treatment of water could be attributed to perception that water from the different sources was safe for drinking.

The latrine coverage for the Meru North for the period under review stood at 95 percent with Igembe North and Tigania East reporting the least proportions at 90 and 91 percent respectively. However, there has been campaigns for open defecation free zone with Buuri recording an improved 98.5 percent of latrine coverage. Less than 50 percent of population practices handwashing at the four critical times as reported due to water shortage. Due to the above, the community is predisposed to waterborne disease like diarrhoea and dysentery.

3.4 Trends of Key Food Security Indicators

The performance of food security indicators comparing the long rains and short rains seasons are shown in Table 12.

Table 12: Food Security Trends in Meru (Meru North) County

Indicator	Short rains assessment, February 2019	Long rains assessment, July 2019
Maize stocks held all actors		62 percent
Percent of maize held by households (agro pastoral)	85 percent above LTA	36 percent below LTA
Livestock body condition	Agro-pastoral= fair for all species	Good to fair for all species
	Mixed farming = good	Good for all species
	Rain fed = good	Good to fair
Water consumption (litres per person per day)	Agro-pastoral =10 Mixed farming =20-30 Rain fed =17	Agro-pastoral =10 Mixed farming =20 Rain fed =17
Waiting time at water source in minutes	Agro-pastoral = 30 Mixed farming = 5 Rain fed = 5-10	Agro-pastoral = 30-40 Mixed farming = 5 Rain fed = 5-10
Cost of water (20 L)	Ksh 1-2	Ksh 2.5-5
Price of maize (per kg)	Ksh 25-30	Ksh 45-50
Return trekking distances (Km)- domestic water	Agro-pastoral = 4-8 Mixed farming = 0.5-1 Rain fed = 1-1.2	Agro-pastoral = 8 Mixed farming = ≤1 Rain fed = 3
Terms of trade (pastoral zone)	171 kg	98 kg
Coping strategy index	Agro-pastoral =10.7 Mixed farming =0 Rain fed =5.3	County =14.6 Agro-Pastoral =25.1 Rain fed = 4
Food consumption score (Poor, Borderline, Acceptable)	Acceptable =77 Borderline=20 Poor=1	Acceptable = 46.6 Borderline = 40.5 Poor = 12.9
Distance to grazing	Agro-pastoral =5.5-10.5 Mixed farming =2.5 Rain fed =0.5-1	Agro-pastoral =10-15 Mixed farming =1 Rain fed =4.5

4.0 CROSS CUTTING ISSUES

4.1 Education

4.1.1 Enrolment

Enrolment in early child development education (ECDE) and secondary school levels increased by 1.1 and 0.2 percent respectively while in primary school level, enrolment dropped by 1.7 percent for both boys and girls from Term 1 2019 to Term 11 2019 (Table 13). The increase in ECDE was attributed to provision of milk by County Government of Meru while in secondary school, the increase was due to 100 percent Government transition policy and free secondary education. Enrolment in primary school declined due to lack of food in some schools and family labour responsibilities. In term 11 2019, more boys compared to girls were enrolled at ECDE and more girls compared to boys were enrolled at primary and secondary school levels.

Table 13: Enrolment in Term 1 2019 and Term 11 2019

Enrolment	Term I 2019			Term II 2019		
	Boys	Girls	Total	Boys	Girls	Total
ECD	17,686	17,820	35,506	18,114	17,765	35,879
Primary	83,084	85,880	168,964	81,660	84,373	166,033
Secondary	23,768	26,668	50,436	23,801	26,741	50,542

4.1.2 Participation

Participation was measured by the proportion of children out of enrolment who regularly attended school. The attendance rate was above 97 percent of the enrolment across the three levels of education for both boys and girls. The regular attendance was mainly attributed to availability of food in some schools. Normal school absenteeism due to illness and other domestic issues were noted as factors that marginally affected participation.

4.1.3 Retention/Drop out

Drop out was measured as the number of students who failed to complete the term due to continuous absenteeism. The drop out rate for both boys and girls was negligible (less than 0.09 percent of enrolment) for both term 1 2019 and term 11 2019. More students dropped out of school in term 1 2019 compared to term 11 2019. Lack of food in schools, family labour responsibilities, early pregnancy and parents working outside their locality were the main reasons for students dropping out of school.

4.1.4 School Meals Programmes

Community school meals programme (CSMP) was the only school feeding programme in Meru North region at public primary school level. The programme was targeting 23 schools in Tigania West sub county with a total beneficiary of 7,433 pupils (3,771 boys and 3,662 girls) as shown in table 14. In addition, the county government of Meru had initiated a milk programme at ECDE level. The availability of meals in schools impacted positively on enrollment and participation. About 195 schools (Igembe central – 74, Tigania West – 61 and Igembe South – 60) with a total of 101,437 beneficiaries (50,203 boys and 51,234 girls) had no school feeding programmes. Furthermore, most schools with feeding programmes lacked water and therefore parents were forced to contribute for water, firewood and cooks.

Table 14: School Meals Programmes in Meru County (Meru North).

Feeding Programme	No. of Schools with school feeding	Total Number of Beneficiaries		
		Boys	Girls	Total
CSMP	23	3,771	3,662	7,433

4.1.5 Inter Sectoral Links

Water, sanitation and hygiene in schools was fairly good with most schools having functional latrines. On the other hand, about 156 and 115 schools had no hand washing and no drinking water facilities respectively as shown in table 15. However, 41 and two (2) public primary schools had de-worming activity.

Table 15: Water, Sanitation and Hygiene in Schools

Name of sub-county	No schools with no handwashing facilities	No schools with no drinking water (functional source within 100m)
Tigania East	66	35
Tigania west	50	60
Igembe South	40	20
Total	156	115

5.0 FOOD SECURITY PROGNOSIS

5.1 Prognosis Assumptions

Food security prognosis in Meru County for the next six months will be based on the following assumptions:

- Based on the National Weather Service – Climate Prediction Center (NOAA/CPC) ensemble forecast, the October to December short rains season is forecast to be average. However, there is uncertainty associated with the likelihood of El Nino and positive Indian Ocean Dipole.
- According to Kenya Food Security Outlook published June, 2019, there is anticipated below average national crop production, anticipation depletion of national grain reserves and anticipated below average food commodity imports from usual sources like Uganda and Tanzania, maize prices are likely to remain slightly to moderate above average throughout the six-month period.
- Given declining forage and water resources in agro-pastoral livelihood zone and neighbouring county of Isiolo, livestock migration is expected to increase in the following months leading to resource based conflicts between pastoralists’ and farmers. In addition, to increased cases of human wildlife conflicts until the onset of the 2019 short rains.
- Availability of crop residues will sustain livestock productivity for the next two months in mixed farming and upper parts of rain fed cropping livelihood zones. However, in agro-pastoral livelihood zone, the livestock productivity is expected to deteriorate significantly up to the onset of the 2019 short rains.

5.2 Food Security Outlook

Food Security Outcomes for August, September and October

The food security situation is expected to deteriorate in an upward trend especially in agro-pastoral and lower parts of rain-fed cropping livelihood zones. This will mainly be driven by rising staple food prices and declining livestock productivity. Poor income households are expected to face difficulties in meeting their basic food needs hence engage more frequently than normal on consumption based coping mechanisms in order to meet their basic food needs. Moreover, households’ diet is likely to be less diversified hence increased cases of

malnutrition. Increased cases of resource-based conflicts and human wildlife conflicts will limit access to rangeland resources and lead to outbreak of livestock diseases hence reduced volumes in the markets.

Food Security Outcomes for November, December and January

The October to December short rains is expected to recharge water resources leading to an improvement in water availability and access for both human and livestock. Livestock productivity is expected to pick up following an improvement in fodder and water hence a boost in household purchasing power. Prices of staple food commodities is likely to remain above average until the next harvest is realized from January, 2020.

6.0 CONCLUSION AND INTERVENTIONS

6.1 Conclusion

6.1.1 Phase classification

The food security phase classification in the county is “stressed” (IPC Phase 2) with agro pastoral livelihood zone categorized in “Crisis” (IPC Phase 3).

6.1.2 Summary Findings

The performance of long rains was cumulatively below normal and was unevenly distributed spatially and had significant negative impact in the food security situation across all the livelihood zones. Food was available at both the household and markets; however, the price was rising above the long-term average and same period in 2018. Livestock productivity was normal across the livelihoods. The terms of trade were favourable, but declining. Majority of the households (93 percent) had acceptable food consumption patterns in the Rain-fed livelihood zone while 40 percent and 46.3 percent were in acceptable and borderline FCS in agro-pastoral livelihood zone. However, water treatment was being done by about 45 percent of the households while majority of the households had poor hygiene practices as evidenced by the poor hand washing practices.

6.1.3 Sub County Ranking

Table 16: Sub County Ranking

Sub County	Food security rank (1-6)	Main food security threat (if any)
Igembe North	1	<ul style="list-style-type: none"> • Depleted pastures • Water shortage /no rivers • Higher food prices • Low crop production • Poor food availability/milk availability • High malnutrition rates • Conflicts
Igembe Central	2	<ul style="list-style-type: none"> • Livestock diseases/Rabies • Livestock in migration/camels • High vulnerable population • Poor dietary diversity
Tigania East	3	<ul style="list-style-type: none"> • Water stress/dry river beds • Depleted pasture • Dry water pans • Livestock out migration
Tigania West	4	<ul style="list-style-type: none"> • Lower water flow • Low food production

Sub County	Food security rank (1-6)	Main food security threat (if any)
Buuri	5	<ul style="list-style-type: none"> • Human wildlife conflict • Long distances to water
Igembe South	6	<ul style="list-style-type: none"> • Better market access • Better household dietary diversity • Low realised harvests
Very Good (5-6) Good (4) Fair (3) Poor (1-2)		

Table 17: Population in Need of Food Assistance

Rank	Ward	Population - Projected, 2018	Percent in need LRA
1	Igembe North	173,165	30-35
2	Igembe Central	204,292	25-30
3	Tigania East	175,888	20-25
4	Tigania West	152,099	20-25
5	Buuri	150,615	15-20
6	Igembe South	162,525	10-15

6.2 Ongoing Interventions

6.2.1 Food Interventions

Intervention	Objective	Specific Location	Activity target	Cost	No. of beneficiaries	Implementation Time Frame	Implementation stakeholders
Education							
Milk programme for ECDE	Increase enrolment, Improve health and hygiene	Tigania East and Tigania South sub counties	101 primary schools	21.8 M	5,026 boys 4,711 girls	Continuous	Community and Meru County government
School feeding programme	Improve retention	Igembe Central sub county	Pupils in Kandubai and Rikiau primary schools	5.2 M	474 pupils	2016 to date	Charities through Meru Diocese
Relief food distribution	Enhance transition, retention of learner and Improve health	Tigania West and Buuri sub counties	Pupils and vulnerable community members	3.4 M		Periodic	National Government and Food for Hungry

6.2.2 Non-Food Interventions

Intervention	Objective	Specific Location	Activity target	Cost	No. of beneficiaries	Implementation Time Frame	Implementation stakeholders
Agriculture							
Provision of relief seeds and subsidized farm inputs	Increase farm production	All sub counties	1000 households	5M	10,500 females 8,000 males	1 year	NDMA, County Government of Meru and National Government
NARIGP	Increase productivity and profitability	All sub counties	5000 households	500 M	15,000 males 18,000 females	3 years	World Bank, National Government and County Government of Meru
Provision of drought tolerant planting material	Improve crop production	All sub counties	3000 households	60 M	7000 females 5000 males	3 months	National Government and County Government of Meru
Crop Insurance	Cushion farmers against vagaries of weather	Buuri, Igembe North, Igembe Central, Tigania west and Tigania Central sub counties	500 households	2M	2000 males 1000 females	3 months	National Government, County Government of Meru and community
Livestock							
Disease surveillance	Increase in	All sub counties	250,000 beef,	10 M	205,000 households	1 year	County Government

e and Disease control	livestock production, Improvement in livestock breeds. - Fast maturing breeds-A healthy herd/flock	s	191000 dairy cows 375,000 goats		ds		t of Meru and partners
Promotion of AI services	Improved dairy breeds. Increased livestock production.	All sub counties	90,000 dairy cows	15 m	150,000 households	Continuous	Livestock department
Construction of Livestock market	More livestock trade volumes. More food secure.	Tigania East (Mulika market)	1,500 animals	5m	15000 traders	Continuous	County Government of Meru
Training of farmers in fodder establishment and conservation	Improved livestock breeds. Increased livestock production. A healthy herd-Ideal calving	All sub counties	205,000 households	8.5 m	205,000 households	1 year	County Government of Meru and partners
Water							
Drilling and equipping of bore holes	Provision of clean adequate water for	All sub counties	Provision of water and shorten	250 M	10,000 households	6months	County Government of Meru

	domestic and livestock use and shorten distance		distances				
Construction of Ndumuuru dam	Provision of clean adequate water for domestic and livestock use	Ndumuuru Amwathi	Provision of water and shorten distances		1,500 households	Complete	GoK
Construction of Thangatha river dam	Provision of clean adequate water for domestic and livestock use	Tigania east	Provision of water and shorten distances		15,000 households	Complete	County Government of Meru
Construction of Urra dam	Provision of clean adequate water for domestic and livestock use	Igembe central	Provision of water and shorten distances		12,000 households	Ongoing	County Government of Meru

Health and Nutrition

Vitamin A supplementation	To reduce Vitamin A deficiency	ECDE and health facilities	All children below 5 years	5M	213,908 children	6 months	Ministry of Health and County Government of Meru
Zinc supplementation	To reduce mortality and morbidity	Health facilities	All children with diarrhoea	0.5 M	23,000 children	6 months	Ministry of Health and County Government of Meru

Management of Acute Malnutrition (IMAM)	To reduce mortality and morbidity and long-term effects	12 health facilities	Children below 5 years	6M	1,371 children	6 months	Ministry of Health and County Government of Meru
IYCN Interventions (EBF and Timely Intro of complementary Foods)	To reduce mortality and morbidity and long-term effects	Health facilities and community units	All children below 5 years	3M	213,908 children	6 months	Ministry of Health and County Government of Meru
Iron Folate Supplementation among Pregnant Women	To reduce mortality and morbidity and long-term effects	All ANC clinics	All pregnant mothers	1M	45,512 mothers	6 months	Ministry of Health and County Government of Me
Deworming	To reduce mortality and morbidity and long-term effects	ECDE, community and health facilities	All children 2-5 years	1M	172,978 children	6 months	Ministry of Health and County Government of Me
Food Fortification	Improve nutritional content of food	All sub counties	General population	6M	1,517,077 persons	continuous	Ministry of Health and County Government of Me
Household water treatment	To reduce mortality and morbidity and	All sub counties	General population	3M	1,517,077 persons	continuous	Ministry of Health and County Government of Me

	long-term effects						
Education							
Construction of water infrastructure	Increased access to water	Tigania East sub county	Students and teachers in Ntirutu and St. Angelas Secondary schools	4.1 M	70 boys: 556 girls	Continuous	County Government of Meru

6.3 Recommended Intervention

6.3.1 Food Intervention.

Intervention	Objective	Specific Location	Activity target	Cost	No. of beneficiaries	Implementation Time Frame	Implementation stakeholders
Agriculture							
Provision of relief food	To help combat hunger in vulnerable households and improve nutritional status.	All sub counties	6,000 households	12.5 M	14,000 females 1000 males	5 months	County Government of Meru, National Government, Caritas and other partners
Education							
Initiate Supplementary feeding programme	To increase transition and to curb drop out	Tigania East sub county	Pupils	9.5 M	Approximately 25 primary schools	Periodic	National Government, County Government of Meru, Development Partners,
Relief food distribution	To enable all learners to attend school	Ruiru, rwarera, Ntugi and Kiirua locations	pupils	2.8 M	4 schools	Periodic	National Government, County Government and partners
Feeding Programme	To enable all learners to attend	Igembe Central sub county	Kangeta, kiengu	9.5 M	68,430 pupils	Continuous	National Government and partners

	school						
School feeding programme	To enable all learners to attend school	Igembe North sub county	Akachi u and Maua zone	5.2 M	3,420 boys 3,580 girls	September to November	National Government, County Government and partners
Provision of school feeding	Enhance retention	Igembe South sub county	Akachi u and Maua zone	5.2 M	3,420 boys 3,580 girls	Periodic	National Government, County Government of Meru and partners

6.3.2 Non-Food Interventions.

Intervention	Objective	Specific Location	Activity target	Cost	No. of beneficiaries	Implementation Time Frame	Implementation stakeholders
Agriculture							
Provision of relief seed for the next season	Increase acreage under food crops and improve crop production	All sub counties	8000 households	80M	20000 females 10000 males	3 months	National Government, County Government of Meru and partners
Capacity building on Fall army worm surveillance and control	Reduce the effects of FAW infestations	All sub counties	8,000 households	1M	20000 females 1000 males	4 months	County Government of Meru and partners
Water harvesting for irrigation	Improve crop production	All sub counties	2,000 households	50M	5000 females 5000 males	3 years	County Government of Meru and partners
Capacity building on conservation agriculture	Improve Crop production	All sub counties	7,000 households	3M	15000 females 15000 males	2 years	County Government of Meru and partners
Promotion of Soil & water conservation structures	Improve crop production	All sub counties	7,000 households	3M	18000 females 12000 males	3 months	County Government of Meru and partners
Training on post-harvest handling and Aflatoxin	Improve food security	All sub counties	1,500 households	0.7M	4000 females 4000 males	3 months	County Government of Meru and partners

control							
Livestock							
Disease surveillance and Disease control Eg Vaccinations	Increase in livestock production, Improvement in livestock breeds. -Fast maturing breeds- A healthy herd/flock	All sub counties	To all livestock in the county	10M	20,500 households	1 year	County Government of Meru, National Government and partners
Provision of supplementary feeding of key livestock	To have healthy in calf cows and calves. Disease resistant young stock	All sub counties	Young stock and pregnant and lactating cows	5 M	20,000 livestock	3 months	National Government, County Government of Meru and partners
Water							
Emergency water trucking and provision of Water treatment chemicals	To forestal closure of schools and prevent outbreak of water	Affected institutions in all sub counties.	Schools and health institutions in affected areas	8M	15,000 households	4 months	County Government of Meru and partners

	borne diseases						
Provision of fuel/diesel subsidy to community high yielding and congested boreholes	To sustain existing water facilities	All sub counties	Strategic boreholes	20M	20,000 households 30,000 livestock	4 months	County government of Meru and partners
Purchase of a stand by genset for Ndumuuru strategic bore hole	Provision of adequate water for domestic and livestock use	Ndumuuru Amwathi	Purchase and installation of genset lister Petter model LPW4 Hp 32	1.2M	2000 households 15,000 livestock	3 months	County government of Meru and partners
Repair and servicing of Giankunyi strategic boreholes	Provision of adequate water for domestic and livestock use	Giankunyi Kanuni	Servicing of Non-operational Giankunyi strategic bore hole and repair the existing cattle trough	0.45 M	2,000 households 10,000 livestock	3 months	County government of Meru and partners
Rehabilitation of rising main for Mariara bore hole	Provision of adequate water for domestic and livestock	Mariara	Purchase and installation of 50mmØ G.I pipes	0.25 M	3,000 households 30,000 livestock	3 months	County Government of Meru

	ck use						
Repair of 100M ³ existing storage tank for Mariara strategic borehole	Provision of adequate water for domestic and livestock use	Mariara Njia	Repair the damaged tank floor and internal wall	0.45 M	1,500 households 20,000 livestock	3 months	County government of Meru and partners
Pipeline extension	To shorten distances and decongest site	Laikumuku Kangeta	Purchase and installation of pipes for Likiau borehole to Laikumuku 1200m	1.2M	4,000 households 10,000 livestock	2 months	County government of Meru
Desilting and rehabilitation of existing strategic non-functional pans	Provision of adequate water for domestic and livestock use	Laikumuku Njia and Njia Ruraya	Likiau and Rurayan	8.5M	4,000 households 25,000 livestock	3 months	County Government of Meru and partners
Bore hole replacement	Provision of adequate water for domestic and livestock use	Baibaariu Kwa BB	Drilling and equipping of a solar powered borehole	5M	1,500 human 8,000 livestock	4months	County government of Meru
Supply of water for human use and	Provision of adequate	Ngathu Luciuti Liliaba	Construction of dams for run	75 M	21,000 households	6 months	County government of Meru

livestock	water for domestic and livestock use		off harvesting at appropriate sites in the sub counties				
Health and Nutrition							
SMART survey	To determine the actual health status of population in Meru North	All sub counties	All under-fives, pregnant mothers, general population and all households	4m	1,517,077 persons	1 year	MOH UNICEF, ACF, FH APHIA KAMILI SHA
Vitamin a supplementation programs	To increase vitamin a coverage from 42% to 80%	All sub counties	All children 6-59 months fives,	0.3M	155,738 children	6 months	MOH UNICEF, ACF, FH APHIA KAMILI SHA
Monthly integrated outreaches	To eliminate communicable conditions	All sub counties	General population	1m	1,517,077 persons	6 months	MOH UNICEF, ACF, FH APHIA KAMILI SHA
Capacity building of new/untrained Health workers on IMAM, MIYCN, IMAM	Minimize exposure to sub-optimal feeding		Nurses, nutritionists and Cos working in CWC, IMAM	3m	100 health workers	6 months	MOH UNICEF, ACF, FH APHIA KAMILI SHA

programs	for under fives		sites and IMCI clinics				
Implement ECDE nutrition programme	Improve nutrition surveillance and reporting	All sub counties	All ECDE children and teachers	300,000	126,758 persons		County Government of Meru and partners
Strengthen nutrition advocacy to the community through CUS	To reduce the burden of malnutrition	All sub counties	CHVs	3M	2,595 CHVs		County Government of Meru and partners
Education							
Tree planting -Drilling of boreholes in schools	water for schools and community	Tigania West sub county	Kianjai Akithi Uringu	6.4M	Pupils and community	Periodic	National Government, County Government and partners