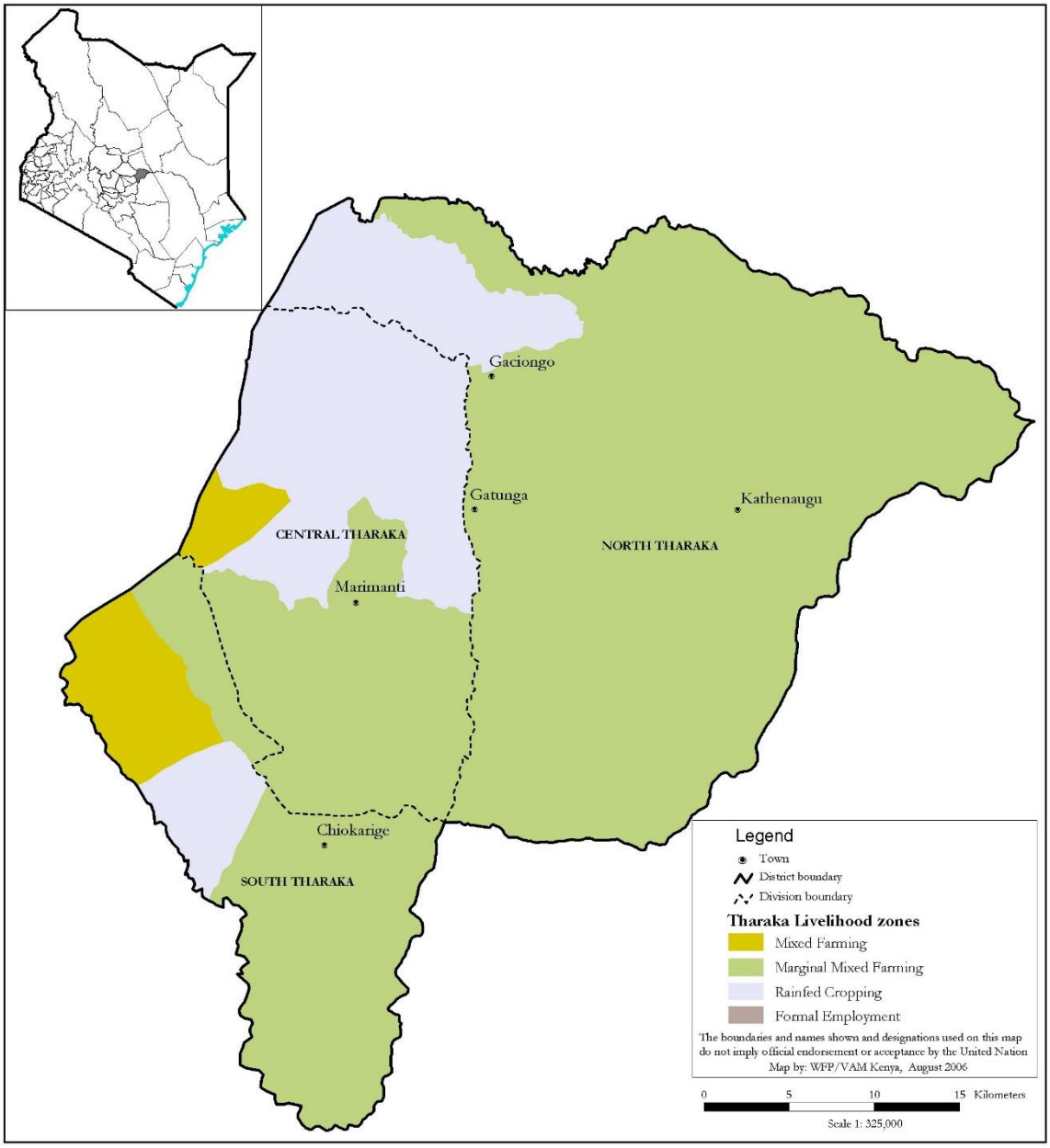
THARAKA NITHI COUNTY
2019 LONG RAINS FOOD AND NUTRITION SECURITY ASSESSMENT REPORT



A joint Report by the Kenya Food Security Steering Group (KFSSG) [1]and Tharaka Nithi County Steering Group
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EXECUTIVE SUMMARY

The Kenya Food Security Steering Group (KFSSG) in conjunction with the Tharaka Nithi County Steering Group (CSG) carried out a joint long-rains food security assessment whose overall aim was to develop an objective, evidence-based and transparent food security situation analysis following the long rains (March to May) season of 2019, taking into consideration the cumulative effects of previous seasons, and to provide actionable recommendations for possible response options based on the situation analysis. This assessment was carried out from 8th to 12th July.

The March to May long rains are typically erratic and are less dependable compared to the October to December short rains. The 2019 long rains were exceptionally below average, characterized by a late onset of 30 days and poor spatial and temporal distribution. Cumulative seasonal totals ranged between 50-75 percent of normal. The season was also characterized by atypically high land surface temperatures that ranged between 0.5-8 Degrees Celsius above average. Mealy bug infestations in Papaya trees was also caused considerable damage to the papaya fruits.

Crop performance was significantly below average, with yields of green grams, millet, and sorghum projected at 15 percent, 19 percent and 25 percent of the five-year averages. Household stocks held were considerably low due to lack of carry-over stocks from the below average 2019 short rains and the current poor crop performance. Maize stocks held by households are a mere five percent of the five-year average, expected to only last a month. Majority of households are relying on markets for their weekly supplies. Pastures range from fair to poor and are expected to only last a month. The body conditions of cattle range from fair to poor while those of small stock range from good to fair. However, given the rapidly depleting pastures and browse, and the lack of farm residues for fodder, body conditions will rapidly deteriorate. Most open water sources have dried up following poor recharge during the season, thereby increasing trekking distances and lowering watering frequencies.

Markets are well provisioned, but supplied from outside the county. Traders currently have below average stocks of food commodities due to the absence of local supplies and the high cost of imports. Currently, maize stocks held by traders are 30 percent of the long term average. Staple food prices are significantly above average, while livestock prices have declined to near-average levels. As a result, terms of trade, and by extension, household purchasing power has been considerably eroded. Food consumption has deteriorated compared to the short rains season. About 53.33, 42.5 and 4.2 percent of households had acceptable, borderline and poor food consumption scores respectively. Reduced Coping Strategy Index (rCSI) was high at an average of 11.9 indicative of increasing food gaps. Majority of households were consuming one meal a day compared to 2-3 meals a day normally. Risk of malnutrition among children under the age of five years was below the five-year average at 4 percent.

Currently, the Marginal Mixed Farming Livelihood Zone is classified as Crisis (IPC Phase 3) while Mixed Farming and Rain-fed Cropping Livelihood Zones are Stressed (IPC Phase 2).

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1.0 INTRODUCTION

1.1 County Background

Tharaka-Nithi County is located in the eastern parts of Kenya, bordering Meru County to the North East, Kitui County to South East, Embu County to the South West and Kirinyaga and Nyeri counties to the West. Administratively, Tharaka Nithi county has three sub counties namely; Chuka/ Igambang'ombe, Maara and Tharaka. The 2019 long rains assessment focused on Tharaka sub county which, agro-ecologically, is classified as semi-arid and whose residents are predisposed to persistent food insecurity. Tharaka sub county covers approximately 1,569 square kilometers, comprising of five wards and a population of 158,023 persons, according to the 2016 Kenya National Bureau of Statistics (KNBS) population projection.

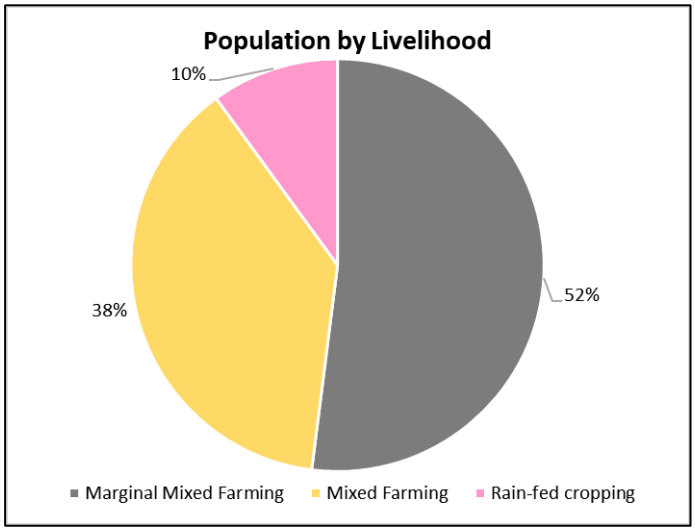

Figure 1: Population by Livelihood zone

The three main livelihoods are marginal Mixed Farming (MMF), Mixed Farming (MF) and Rain-fed Cropping (RF). In the three livelihood zones, crop and livestock production are the main activities that contribute to food and cash incomes. Majority of the residents are small scale farmers with an average of 2.9 hectares mostly used for food and cash crop farming. Livestock keeping, especially the indigenous breeds, is the main sources of livelihood for the residents in Marginal Mixed Farming while the population in Rain Fed Cropping rely almost entirely on crop production. Other economic activities include formal employment, casual labor, gemstones, sand harvesting and stone quarry.

1.2 Methodology and approach

The main objective of the assessment was to develop an objective, evidence–based and transparent food and nutrition security situation analysis following the 2019 March to May (MAM) long rains. The cumulative effect of previous seasons was also considered together with the response options that have been done in the previous seasons to address food and nutrition insecurity. The assessment thereafter provided enhanced cross-sectoral response options and projected food security needs for the county for the next six months. Primary data was collected from the community through semi structured focus group discussions, key informant interviews and market interviews that were carried out in the three livelihood zones. Sampling was done to ensure representation in the livelihood zones. The assessment exercise was multi-sectoral and multi-agency, comprising of a lead team from the Kenya Food Security Steering Group (KFSSG) and technical experts from the Departments of Agriculture, Livestock, Water, Education and Health and Nutrition from the National and County Steering Groups. The KFSSG team was provided with secondary data for the county which included satellite data for rainfall, information from SMART/ KAP surveys, routine DHIS data, prices and MUAC data and the National Drought Management Authority bulletins among others. The technical experts in each of the key sectors provided quantitative data through filled checklists and also gave sectoral briefs during the county steering

group meeting. The data was then collated, analyzed and triangulated together with the secondary data. The analysis unit was livelihood and the integrated food security phase classification (IPC) protocols were used to do the classification of the severity and identify the causes of food insecurity.

2.0 DRIVERS OF FOOD AND NUTRITION SECURITY

2.1 Rainfall Performance

The performance of the 2019 March to May long rains was generally poor across the county leading to anomalous moisture deficits throughout the season (Figure 1). Rainfall onset was late by nearly 30 days across the county, with the dry spell was broken by considerable rains which were 26 mm above average during the third dekad of April. Spatial and temporal distribution was also poor throughout the season. Despite the late seasonal rainfall in May, total cumulative amounts received ranged between 50-75 percent of normal across all areas. Cessation occurred normally during the third dekad of May resulting in a shortened season.

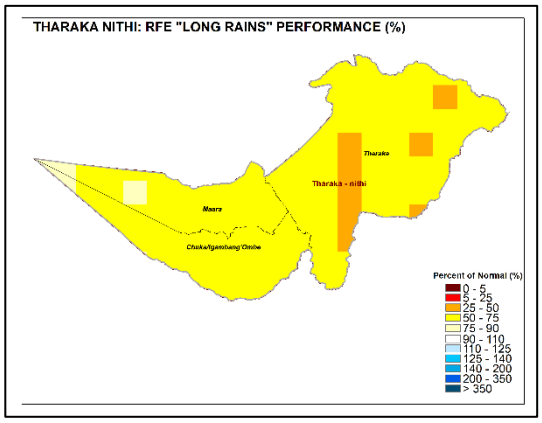

Figure 2: Rainfall Performance

2.2 High Land Surface Temperatures

Land surface temperatures were unusually high ranging from 0.5-8 degrees celsius above the long-term average between January and June, according to USGS/ FEWS NET (Figure 2). The above average temperatures accelerated the deterioration of pasture and browse and depletion of water resources.

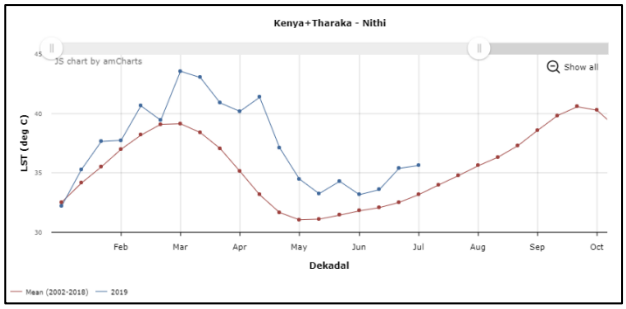

Figure 3: Temperature Anomalies

2.3 Other Shocks and Hazards

Papaya fruit trees in Rungu and Kithinu areas in the Rain-fed cropping livelihood zone were significantly affected by mealy bugs, lowering production. Further, a sizeable number of farmers were discouraged to plant papaya, opting to increase acreage under maize.

3.0 IMPACTS OF DRIVERS ON FOOD AND NUTRITION SECURITY

3.1 Availability

The availability of food in Tharaka Nithi county is driven by own crop and livestock production. In addition, food imports from neighboring counties and the high and medium agricultural potential areas of western Kenya and the Rift valet also contribute to food availability.

3.1.1 Crops Production

Crop production is mainly bi-annual, practiced during the March to May long rains and the October to December short rains. The typically erratic March to May long rains accounts for approximately 34 percent of total crop production. Food crop production contributes 45 percent to cash incomes

in the Rain-fed Cropping Livelihood Zone and 20 percent in the Marginal Mixed Farming and Mixed Farming livelihood zones respectively. The main food crops grown are maize, millet, pigeon peas, green grams, sorghum and cowpeas. Maize, millet, pigeon peas are most produced in the Rain-fed and Mixed Farming livelihood zones for food while green grams, sorghum and cowpeas are mainly grown in the Marginal Mixed Farming Livelihood Zone for both food and cash incomes. In the Marginal Mixed Farming and Mixed Farming livelihood zones, millet contributes 50 percent to food and cash incomes respectively while green grams contribute 40 percent and 50 percent respectively. Maize contributes 50 percent to cash in the Mixed Farming Livelihood Zone and 20 percent to food in the Marginal Mixed Farming Livelihood Zone. Currently, approximately 60 percent of potential land for rain-fed agriculture has been exploited whereas less than 10 percent of the irrigable land is under irrigation.

Rain-fed Cropping

The acreage achieved for the main crops planted during the 2019 long-rains season was significantly below the five-year average. The area under green grams, millet and sorghum was 48 percent, 36 percent and 25 percent below the five-year average respectively (Table 1). The decline in acreage achieved for the main crops resulted from a combination of several factors. The prediction of an average to above average normal rainfall by the Kenya Meteorological department triggered a rush in dry planting among farmers. However, a significant proportion of planted crop withered and drying up at germination stages following the false start of the season in Mid-March. A significant number of households were unable to replant after the resumption of rains.

Table 1: Rain fed Cropping

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 (90 kg bags)
Green grams	7,720	14,975	7,910	52,508
Millet	8,570	13,385	21,425	112,091
Sorghum	8,470	11,277	25,575	101,143

The production of green grams, millet, and sorghum reduced to 15 percent, 19 percent and 25 percent of the five-year average (Table 1). The significant reduction in production was mainly as a result of significantly below average area under crops and the dismal performance of the March to May long rains.

Irrigated Cropping

Irrigated crop production is mainly practiced along the river banks in the Rain-fed Cropping Livelihood Zone and the Mixed Farming Livelihood Zone in Tharaka South sub county. The area planted for banana and papaya was 12 percent and 44 percent below the three-year average while that under maize was 14 percent above average (Table 2). The area under papaya reduced due to progressive losses as a result of the mealy bug infestation. The land released was put under maize, sweet potatoes and Asian vegetables. Consequently, the production of both papaya and banana was 46 percent and 48 percent below the three-year average while maize production increased to 34 percent above the three-year average.

Table 2: Irrigated Cropping

Crop	Area planted during the 2018Long 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)
Banana	380	430	4,180	7,975
Papaya	195	349	780	1,450
Maize	205	180	3,075	2,293

3.1.2 Cereals stock

Currently, maize stocks held by farmers are only five percent of the five-year average while traders hold 30 percent (Table 3). Households do not have any carry-over stocks from the below average 2018 October to December short rains harvests, while the poor performance of the crop during the 2019 March to May season will only replenish stocks held marginally. Although the majority of households are mainly relying on weekly market supplies by traders, stocks held are anticipated to last one month. In the Marginal Mixed Farming Livelihood Zone however, stocks are projected to only last until early August. Normally, stocks would to early October in the Marginal Mixed Farming Livelihood Zone and up to late October in the Mixed Farming and Rain-fed Cropping livelihood zones. While maize stocks held by traders are mainly sourced from the neighboring counties including Meru and Embu, supply continues to decline. Tharaka has no established millers nor National Cereals and Produce (NCPB) stores.

Table 3: Cereal Stocks

Commodity	Maize		Rice		Sorghum		Green gram	
	Current	LTA	Current	LTA	Current	LTA	Current	LTA
Farmers	1,620	15,200	0	0	2,657	55,480	7,910	52,508
Traders	850	2,840	0	0	200	4,000	300	4,000
Millers	-	-	-	-	-	-	-	-
Food Aid/NCPB	-	-	-	-	-	-	-	-

3.1.3 Livestock Production

Livestock production is a significant economic activity in Tharaka. The main livestock species reared are cattle, sheep, goats, chicken, and donkeys. Livestock production including poultry contributes 60 percent to cash income in the Marginal Mixed Farming Livelihood Zone, 20 percent in the Rain-fed Cropping Livelihood Zone and 15 percent in the Mixed Farming Livelihood Zone. Donkeys are mostly used for transportation, especially, water. Typically, women herd livestock and are assisted by children during the school holidays.

Pasture and browse situation

Pastures and browse conditions range from fair to poor having progressively degenerated following the poor performance of the March to May rains (Table 4). Pastures and browse are poor in the Marginal Mixed Farming, especially in Ciakariga, Kamarandi, Kamarenge, Kamasavi and Kamayanki areas. In the Rain-fed Cropping and Mixed Farming livelihoods, pastures and browse range between fair to poor. Current pastures and browse are expected to last until late August in the Mixed Farming Livelihood Zone and until mid-Augustin the Rain-fed Cropping and Marginal

Mixed Farming livelihoods compared to late September and early October two months normally. So far, there have been no restrictions limiting pasture access.

Table 4: Pasture and Browse condition

Livelihood zone	Pasture				Browse			
	Condition		How long to last (Months)		Condition		How long to last (Months)	
	Current	Normal	Current	Normal	Current	Normal	Current	Normal
Marginal Mixed Farming	Poor	Good	3 weeks	2.5 months	None	Fair	Good	1 month
Rain-fed cropping	Fair to poor	Good	1 month	3 months	None	Fair to poor	Good	1 month
Mixed farming	Fair to poor	Good	1 month	3 months	None	Fair to poor	Good	1 month

Livestock Productivity

Livestock body condition

The body condition of all livestock species has deteriorated driven by decreased pasture and browse availability. Goats and sheep in all livelihood zones are exhibiting good to fair body condition compared to good conditions normally (Table 5). Cattle, on the other hand, are of fair to poor conditions across all livelihood zones compared to good conditions normally. With accelerated pasture and browse deterioration, coupled with the lack of crop residue as a substitute, livestock body conditions are likely to deteriorate rapidly over the next one month.

Table 5: Livestock body condition

Livelihood zone	Cattle		Sheep		Goat	
	Current	Normal	Current	Normal	Current	Normal
Marginal Mixed Farming	Fair to poor	Good	Fair to poor	Good	Good to fair	Good
Rain-fed cropping	Good	Good to fair	Good	Good to fair	Good	Good
Mixed farming	Fair to poor	Good	Fair to poor	Good	Good to fair	Good

Tropical livestock units (Tropical Livestock Units)

Currently, poor households in the Rain-fed Cropping and Marginal Mixed Farming livelihoods hold two Tropical Livestock Units (TLU) each compared to three and four normally. Medium income households in the Marginal Mixed Farming Livelihood Zone are currently holding 10 TLUs compared to 15 normally. In the Rain-fed Cropping Livelihood Zone, medium income households are holding five TLUs against the normal of 10 (Table 6). Given the below average performance of the last two consecutive seasons, households have progressively sold livestock in order to meet their food and non-food needs. As a result, households in both income categories have not been able to improve their herd sizes.

Table 6: Tropical Livestock Units (TLUs) by household income groups

Livelihood zone	Poor income households		Medium income households	
	Current	Normal	Current	Normal
Marginal Mixed Farming	2	4	10	15
Rain-fed cropping	2	3	5	10
Mixed farming	2	4	10	15

Birth rates

The current birth rate is at 10-15 per cent compared to 20 percent normally. The anticipated average calving and lambing which normally occurs from March was not achieved following below average conception rates during the below average 2018 October to December short rains.

Milk Production and Consumption

Goats are the major sources of milk in the majority of households in the Marginal Mixed Farming and Rain-fed Cropping livelihood zones. Typically, women are responsible for milking and selling their milk at the household level, while male youth vend milk with motorcycles in the markets and urban areas. Milk production has considerably decreased as a result of deteriorating livestock body conditions. In the Marginal Mixed Farming Livelihood Zone, the average milk production per household per day was 0.25 litres compared to 1.5 litres normally. Milk production in the Rain-fed Cropping Livelihood Zone is curently at 0.5 litres compared to 2 litres normally (Table 7). Currently, all milk produced is consumed within the households as it is too little to sell. With decreased milk availability, prices have increased to Ksh 60-70 per litre from Ksh 40-50. Most of the milk sold is sourced from neighboring Meru county.

Table 7: Milk production, consumption and prices

Livelihood zone	Milk Production (Litres)/Household		Milk consumption (Litres) per Household		Prices (Ksh)/Litre	
	Current	LTA	Current	LTA	Current	LTA
Marginal Mixed Farming	≤ 0.25	1	≤ 0.25	0.5	60	40
Rain-fed cropping	0.25-0.5	1.5-2.0	0.25-0.5	2	60	50
Mixed farming	2	3	2	2	60	50

Livestock diseases and mortality rates

There have been no outbreaks of notifiable disease outbreaks. However, a few cases of Contagious Caprine Pleuro-pneumonia (CCPP) and Goat and Sheep Pox disease were reported the Marginal Mixed Farming Livelihood Zone areas of Tharaka North sub county and in Kamanyaki areas in Tharaka South sub county. In an attempt to control the situation, farmers buy drugs and treat their animals. At least eight cows were reported to have died from Prussic acid poisoning after consuming immature sorghum stovers. The risk is likely to be sustained for at least two months given than sorghum stovers are the only farm residues remaining to substitute diminishing pastures.

Livestock migration

Following the accelerated depletion of pasture, browse and water resources, internal livestock movements begun earlier than normal, in late June. Livestock movement routes include Kamanyaki, Chiakariga to Nkariini, Kamarandi to Njuguni, Gituma to Ntugi and Gakurungu

locations and from Marimanti to Karocho location. Livestock from Shauri and Kamacavi areas in Tharaka North sub county are currently grazing in the Meru National Park. In-migration of livestock from neighboring counties is expected, especially into the Meru National Park, as pastures and browse deplete increasing the possibility of resource-based conflicts.

Water for livestock

The current water sources for livestock are; permanent rivers, boreholes, piped water and traditional river wells. The water levels in the open water sources have significantly declined following the below average recharge during the season, and are likely to last until mid-August All water pans and earth dams dried earlier than normal. Consequently, livestock watering distances to watering points in marginal mixed farming and rain-fed cropping livelihood zones have increased from a normal of 4-10 kilometers to 5-14 kilometers (Table 8). The watering frequency has reduced to once in every two days for all livestock species in the Marginal Mixed Farming and Rain-fed Cropping livelihood zones compared to once daily normally.

Table 8: Water for Livestock

Livelihood zone	Return trekking distances (Kms)		Expected duration to last (Months)		Watering frequency	
	Current	Normal	Current	Normal	Current	Normal
Marginal Mixed Farming	5-14	4-10	≤1≤	2	Once daily to once in 2 days	Once daily
Rain-fed cropping	3-10	2-8	1	3	Once daily to once in 2 days	Once to twice daily
Mixed farming	2-8	1-6	1	4	Once daily	Twice daily

3.1.4 Impact on availability

Household food availability has been severely eroded. The two consecutive below average crop yields have significantly lowered household food availability. Stocks held currently are barely enough to sustain households for more than a month. Households are likely to increase market reliance and become exposed to market forces. In face of deteriorating livestock body conditions, and to cover food deficits, households are likely to increase livestock sales lowering their herd numbers. The threat of livestock losses through prussic acid poisoning is likely to remain for the next two months. Water availability is likely to decrease further as the lean season progresses.

3.2 Access

3.2.1 Markets operations

The main markets for both livestock and food commodities are Kathangachini, Marimanti, Tunyai, Gatunga, Kibunga, Shauri, Mukothima, Chiakariga and Kathwana. The livestock traded was supplied locally while food commodities were both local and external from Meru and Embu counties. During the long rains season, the market supplies and traded volumes for livestock were atypically high attributed to more farmers selling off their animals due to a shortage of pasture and browse. Supplies for the main staple food commodities were normal across the markets in all the livelihoods. Demand for maize in the markets was high due to lower stocks at the household level. Low supply of alternatives to maize, such as millet, pigeon peas and green grams also contributed to the high demand for maize and subsequent price increases.

3.2.2 Market Prices and Terms of Trade

Maize price

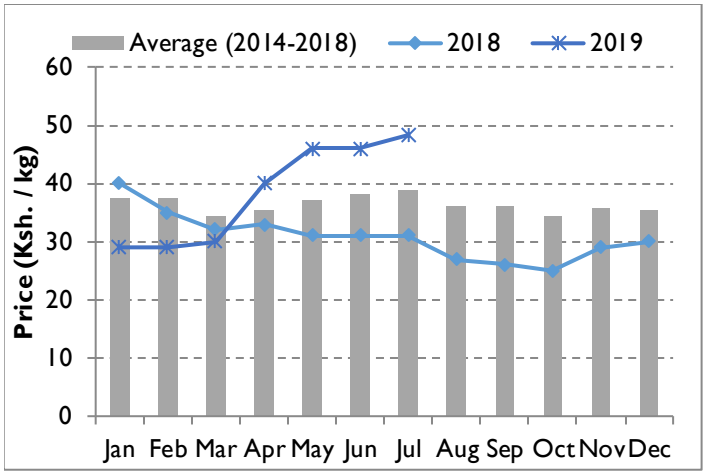

Figure 4: Maize Prices in Tharaka

The prices of maize grain increased unusually from March through to July, driven by increased demand for the commodity in the markets due to depleted household stocks following the below average 2018 short rains season and the poor performance of the 2019 long rains (Figure 4). The increased demand was also driven by reduced availability of substitutes especially green grams and millet and their above average prices. In July, a kilogram of maize grain was retailing at Ksh. 48 which was 25 percent above the five-year average and 56 percent above those of 2018. Field visits revealed that prices were as high as Ksh 50 in Kathwana, Kathangacini and Kamacavi markets in the Marginal Mixed Farming Livelihood Zone.

Goat price

The price of a mature medium sized goat declined atypically between March and July. Due to depleted household food stocks, the sale of goats provided households with incomes to purchase food and meet other nonfood needs. As a result, the number of goats offered for sale in the markets increased significantly lowering prices. In addition, the declining body conditions persistently attracted low prices. In July, prices were Ksh 2,806 which was 12 percent below the five-year average compared to 29 percent above average in March (Figure 5). The prices in July were also 39 percent below those of the same month in 2018.

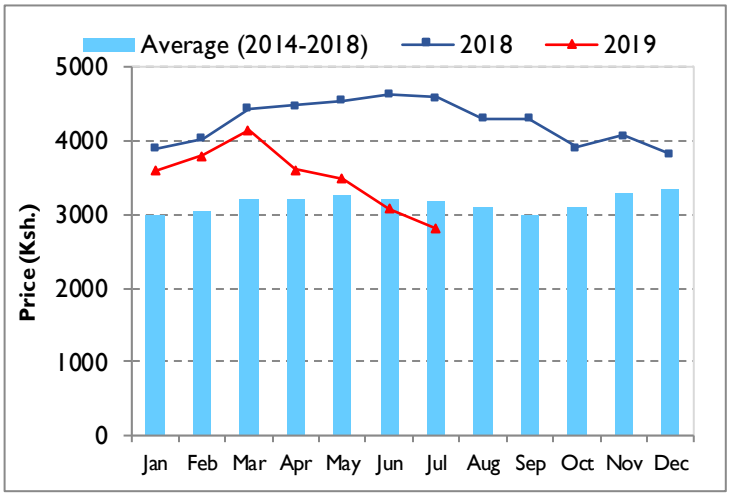

Figure 5: Goat Prices in Tharaka

Terms of trade

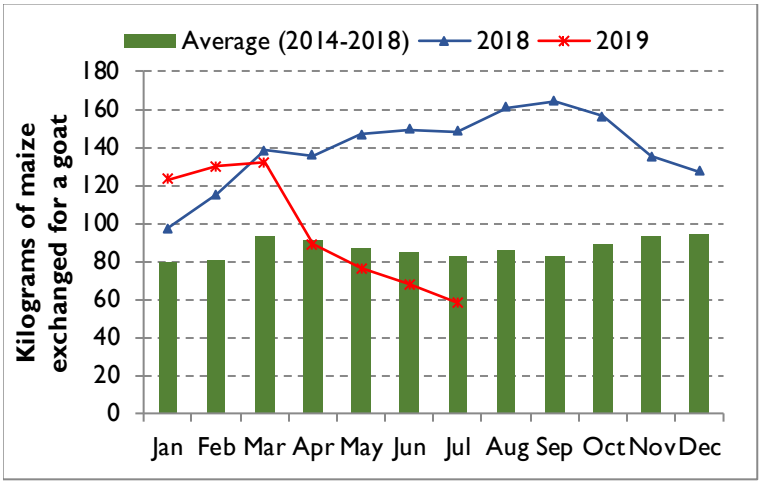

Figure 6: Terms of Trade in Tharaka

The number of kilograms that could be exchanged with a mature goat (Terms of Trade) decreased significantly beginning March through to July as cereal prices increased and goat prices plummeted (Figure 6). In July, proceeds from the sale of a mature goat would afford a household 58 kg of maize compared to the five-year average of 82 kg and 148 kg in 2018.

3.2.3 Income sources

The typical income sources across the three livelihoods are food crop production, livestock production including poultry, cash crop production and casual waged labor although at various proportions. In the Marginal Mixed Farming Livelihood Zone, livestock production, including poultry, contribute 60 percent to cash incomes while food crop production contributes 20 percent. Livestock production contributes 20 percent to incomes while food crop production contributes 45 percent in the Rain-fed Cropping Livelihood Zone. On the other hand, in the Mixed Farming Livelihood Zone, cash crop production contributes 32 percent to cash incomes, food crop production contributes 20 percent, while livestock production and casual waged labor contribute 15 percent and 10 percent respectively. In June however, income sources were limited to livestock sales, casual labor, remittances and petty trading especially weaving mats and hats. Livestock sales were also limited due to low numbers held by households. Similarly, casual labor opportunities were limited to odd menial jobs.

3.2.4 Water access and availability

Major water sources

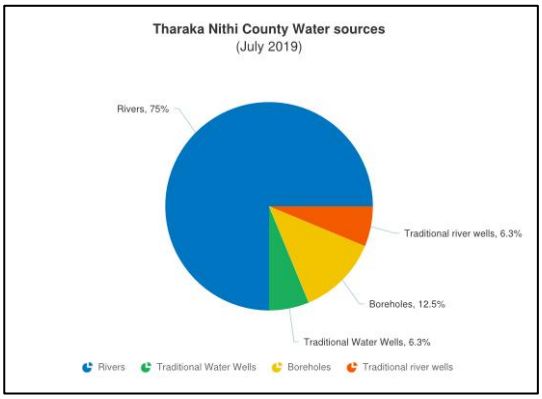

Figure 7: Domestic water sources

The major water sources for human consumption were rivers, boreholes and traditional river wells. Other typical sources such as springs, dams/pans, sand dams and water harvested from roof and rock catchments depleted earlier than normal (Figure 7). Recharge of open water sources was below average following the below average rains. Water pans and dams, which are significant sources in the Marginal Mixed Farming and Rain-fed Cropping livelihood zones, recharged to 40 percent of their capacity and are currently dry. Although rivers in all livelihood zones recharged to 80 percent of their capacities during the rains, the dry spell that followed coupled with abstraction upstream has significantly reduced their current capacities

(Table 9). River Ura and Thingithu are currently dry, an unusual situation. Consequently, and in addition to river sand harvesting, yields of the traditional river wells have significantly reduced, forcing households to dig deeper and wait longer. The two consecutive below average rain season have significantly reduced yields from boreholes as a result of below average recharge of underground aquifers. The following is a table showing operational and non-operational water sources:

Table 9: Operational and non-operational water sources

Ward/ Livelihood zone	Water Source (Three (3) major sources)	No. of Normal Operational	No. of Current Operational Sources	Projected Duration (Operational Sources)	Normal Duration that water last in months	% of full Capacity Recharged by the Rains	Locality of Non-operational Water Sources
Rain fed cropping.	Rivers	3	3	Perennial	12	80	
	Borehole	56	37	2 months	3	50	Thiiti and Gikingo
	Piped water	3	2	Perennial	12	80	
Marginal mixed farming	Rivers	4	4	Perennial	12	60	
	Borehole	59	30	1-2 months	3	50	Gatue, Maragwa and Kathangachini
	Pans/dams	28	2	2weeks	4	40	Kanjoro, Gatunga, Kathangachini, Maragwa, Gituma, Chiakariga, Karocho and Turima locations

Distances to water sources, waiting time, cost of water and consumption

Water consumption decreased substantially due to the reduction in available sources and subsequent increases in distances to watering points. In both the Rain-fed Cropping and Marginal Mixed Farming livelihood zones, consumption decreased by 5-10 litres while in the Mixed Farming Livelihood Zone, consumption decreased by 5 litres (Table 10). Crowding at source increased waiting time especially in the Marginal Mixed Farming Livelihood Zone where a household would wait for up to two hours. In Kamacabi, Kiamiramba and Kamaguna, Gituma, Gakurungu areas of the Marginal Mixed Farming Livelihood Zone, households waited for more than half a day for traditional river wells to recharge.

Table 10: Distances, cost and consumption

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
Rain fed	0.5-2	2-5	5-10	5-10	5-10	10-30	20-40	15-20
Mixed Farming	1-4	2-4	5-10	5-10	5-10	10-30	15-20	10-15
Marginal Mixed Farming	1-5	5-8	5-10	5-10	10-30	30-120	20-40	15-20

3.3 Utilization

3.3.1 Morbidity and mortality patterns

The trends for the Upper Respiratory Tract Infections (URTIs) from January to June 2019 have been similar to those of 2018 for both children under the age of five years and the general population. However, caseloads for under-fives were significantly below those of January to June

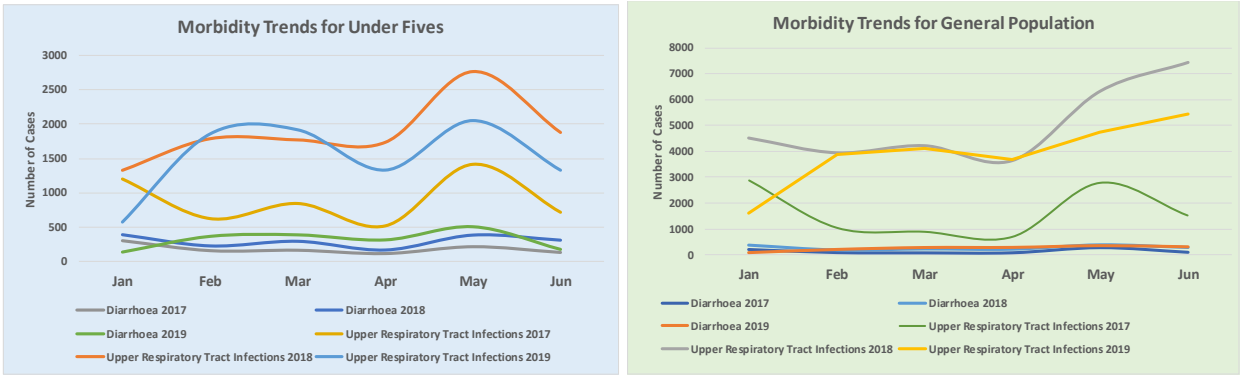

Figure 8: Morbidity Trends for the General population and Under Fives

2018 (Figure 8). Among the general population, caseloads of URTIs increased significantly between April and June due to increased dusty conditions. However, they were lower than those of 2018 due to slightly higher temperatures. Diarrhea cases among the under-fives, on the other hand, followed the same trends as 2018 between January and June although caseloads were higher than in 2018 due to poor hygiene and reduced access to clean water. During the same time, diarrhea cases were within the seasonal levels among the general population. There were no disease outbreaks during the period of review.

3.3.2 Immunization and Vitamin A supplementation

The proportion of fully immunized children was 70.8 percent between January and June compared to 79.7 percent during a similar period in 2018 (Table 11). In both periods, the national target of 80 percent was not achieved. Comparatively, immunization coverage was 74.6 percent compared to Tharaka South at 67 percent. The proportion of children that received measles antigen was 75.3 percent between January and June 2019 compared to 81.6 percent in a similar period in 2018. The decline resulted from a nationwide measles antigen stock out that prevailed for most of 2019. Those that received OPV 3 antigen were 72.3 percent compared to 91.9 percent in 2018. The proportion of fully immunized children was higher in Tharaka North compared to Tharaka South, although both sub counties did not meet the national target of 91 percent.

Table 11: Immunization Coverage

Sub County	Fully Immunized Child (Percentage)		Measles (Percentage)		OPV 3(Percentage)	
	January to June 2019	January to June 2018	January to June 2019	January to June 2018	January to June 2019	January to June 2018
Tharaka North	74.6	87.4	79.6	89.2	75.6	109.8
Tharaka South	67	72	71	74	69	74
Tharaka	**70.8**	**79.7**	**75.3**	**81.6**	**72.3**	**91.9**

The proportion of children aged 6-11 months that received Vitamin A supplementation were 66 percent between January to April compared to 41 percent within a similar period in 2018 (Table 12).

Table 12: Vitamin A supplementation

	January - June 2019	January-June 2018
6-11 months	66	41
12-59 months	113	53

The proportion of children aged 12-59 months who received Vitamin A supplementation were 113 percent between January and April compared to 53 percent during a similar period in 2018. The improvement was attributed to a 'Malezi Bora' campaign that was held during the month of May 2019.

3.3.3 Food Consumption

The proportion of households with poor, borderline and acceptable food consumption scores were 4.2 percent, 42.5 percent and 53.3 percent respectively, in July, according to the National Drought Management Authority (NDMA) monthly sentinel site data (Table 13). Due to declining food availability and access, household food consumption has deteriorated compared to January 2019 when the proportion of households with poor, borderline and acceptable scores were seven percent, 27 percent and 66 percent respectively. There were more households having poor and borderline food consumption scores in the Rain-fed Cropping and Marginal Mixed Farming livelihood zones compared to the Mixed Farming Livelihood Zone (Figure 9).

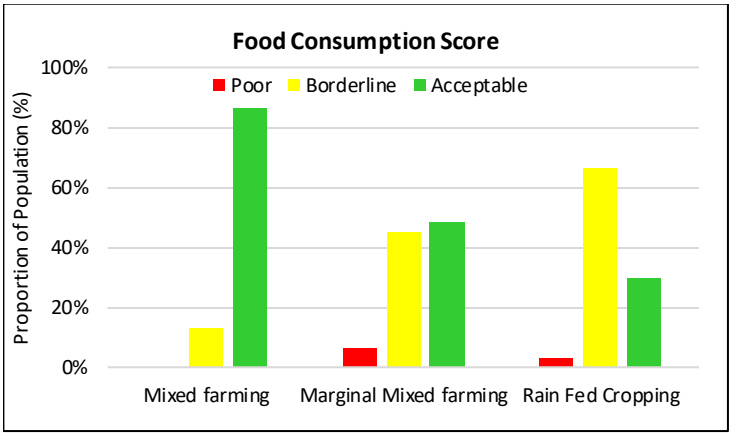

Figure 9: Food Consumption Score

Table 13: Total Food Consumption Scores

	Food Consumption Scores(Percentage of Households)		
	Poor	Borderline	Acceptable
July2019	4.1	42.5	53.33
January 2019	7	27	66

Coping strategy

The mean coping strategy index (rCSI) for July was 11.9 compared to 11.6 in June and 7.5 in May.

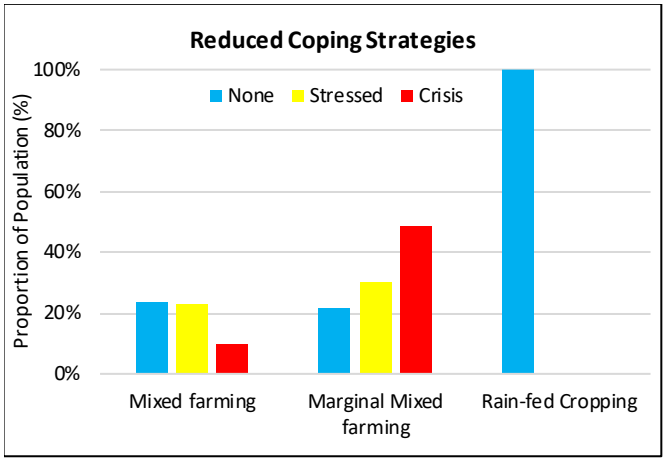

Figure 10: Food Consumption Score

The increase in the adoption of consumption based coping strategies indicated notable deterioration of food availability and access. Majority of poor households relied on less preferred/less expensive food and reduced portion size of meals. Comparatively, there were more poor households employing Crisis consumption based coping strategies in the Marginal Mixed Farming Livelihood zone compared to the Mixed Farming Livelihood Zone (Figure 10). Poor households in the Rain-fed Cropping Livelihood zone were not adopting any consumption coping strategies.

3.3.4 Nutritional status and dietary diversity

According to NDMA monthly sentinel site data, the proportion of children under five years of age considered at risk of malnutrition, measured by Middle Upper Arm Circumference (MUAC) <135mm, was 6 in July compared to 4 percent in June (Figure 9). The proportion in July was 13 percent below the five-year average. However, there was an unseasonal gradual increase in the proportion of children at risk of malnutrition between March and July attributed to a reduction in the number of meals per day and reduced dietary diversity. From community interviews, most households consumed one meal a day (mostly dinner) which comprised of maize and beans or pure maize meal porridge including children under five years. Normally, households consumed 2-3 meals a day.

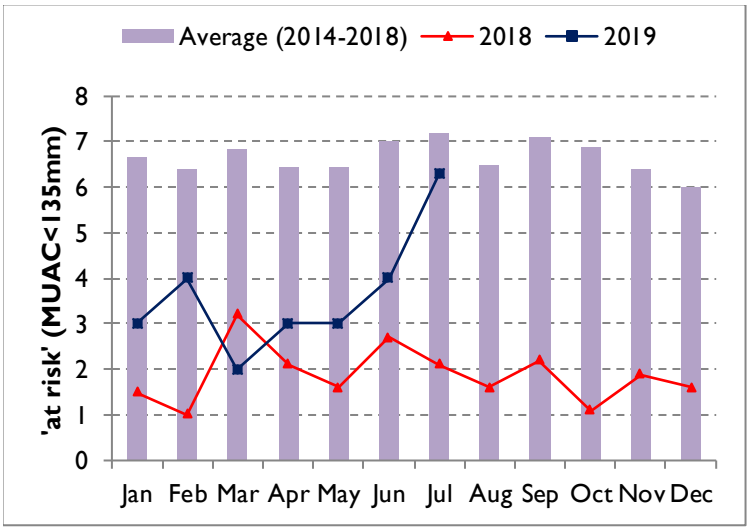

Figure 10: Children 'at risk' of malnutrition based on MUAC <135mm

3.4 Trends of key food security indicators

Table 4: Food security trends

Indicator	Short rains assessment, Feb 2019		Long rains assessment, July 2019	
% of maize stocks held by households	59% of LTA		5% of LTA	
Livestock body condition	Marginal Mixed Farming	Fair	Fair to Poor	
	Mixed Farming	Good to Fair	Fair to Poor	
	Rain-Fed Cropping	Good to Fair	Good	
Water consumption (litres per person per day)	Marginal Mixed Farming	10-15lpppd	20-40 lpppd	
	Mixed Farming	15-20 lpppd	15-20 lpppd	
	Rain-Fed Cropping	20-25 lpppd	20-40 lpppd	
Price of maize (per kg)	Ksh 29		Ksh 48	
Distance to grazing	Marginal Mixed Farming	8 km	5-14 km	
	Mixed Farming	1 km	2-8 km	
	Rain-Fed Cropping	4 km	3-10 km	
Terms of trade ()	127.2 kg		58 kg	
Coping strategy index	Marginal Mixed Farming	6.6	26.2	
	Mixed Farming	2.25	7.9	
	Rain-Fed Cropping	0	0.7	
Food consumption score(Poor)	Acceptable	77%	Acceptable	53.3
	Borderline	22%	Borderline	42.5
	Poor	1%	Poor	4.2

4.0 CROSS – CUTTING ISSUES

4.1 Education

Enrollment

There was a slight decrease in the enrollment of pupils, especially boys, in ECD in second term of 2019 compared to first term 2019. The boys dropped out at the rate of one percent while girls

reduced by 0.2 percent as shown in the table. This was attributed to inadequate food at home occasionally and in schools. On the contrary, primary and secondary school's enrollment increased by 1 percent and three percent respectively. This could be attributed to the government's policy which compels parents to take their children to school and which calls for 100% transition. The presence of food in schools covered by feeding programs offered by International Aid Services (IAS) and Tunyai Child Fund has also motivated learners to attend school. Increase in girls' enrollment was due to an emphasis towards girls' child education, giving much attention to vice versa.

Table 15: Enrolment

TERM 1 2019				TERM 11 2019			
	NO.OF BOYS	NO. OF GIRLS	TOTAL	NO. OF BOYS	NO OF GIRLS	TOTAL	Comment (reasons for increase or decrease)
ECDE	3,943	3,698	7,641	3,896	3,692	7,588	Inadequate food at homes and schools
PRIMARY	19,020	19,743	38,763	19,311	19,906	39,217	Transfer
SECONDARY	3,747	3,854	7,601	3,839	3,969	7,808	100% transition

Participation

School attendance among both the boys and girls in ECD consistently increased during the first term as opposed to the current second term by three percent and two percent respectively due to the feeding programs availed in various school, households having old stocks derived from the short rain harvest and county government employed more ECDE teachers hence reducing parental obligation to pay salaries. Considerable increase in attendance among the primary and secondary school going children from January,2019 to June,2019 was also notable. A case in point is the increase in the number of girls in secondary schools by 19% (643) from 3308 in January to 3951 in June while boys increased by 12% (401) during the same period. Increase in the secondary school attendance could be attributed to free secondary school education.

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Table 16: Attendance

	Term 1 2019						Term 11 2019			
	Jan. 2018		Feb 2019		March 2019		May 2019		June 2019	
School Attendance	No. boys	No. girls	No boys	No girls	No boys	No girls	No boys	No girls	No boys	No girls
ECD	3,819	3,618	3,836	3,628	3,913	3,686	3,844	3,649	3,882	3,674
Primary	18,640	18,979	18,649	18,968	18,979	19,721	18,972	19,175	19,319	19,880
Secondary	3,418	3,308	3,419	3,319	3,732	3,849	3,751	4,013	3,819	3,951

Retention (Dropout rate)

The occasional drop out cases stand at 1.8 % for girls and 1.01% for boys. The drop out among the ECD, primary and secondary school going-children is due to family labor responsibilities and lack of food. Early childhood pregnancy and marriage also contributes to children dropping out of school.

Table 17: Retention

Indicator	End term 1 2019		End term 2 2019	
Students dropouts from school	No. of boys	No. of girls	No .of boys	No. of girls
ECD	12	15	15	21
Primary	24	30	33	42
Secondary	13	19	20	26

School Feeding Program

School meals programs are benefiting 92 public schools in the county drawn from both the sub counties. In this regard, increased enrolment and improved academic and co-curricular activities are notable in schools which are implementing the respective programs. Occasionally children miss meals due to delayed disbursement of funds and delayed supply of IAS food.

Table 18: School feeding

Sub-county	№ of schools with school feeding (plate for plate International Aid Services)	HGSM		RSMP		ESMP		CSMP		Other type of school feeding (Please specify below.)		ECD Feeding Program		None		Total number of beneficiaries	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Tharaka south	37	6,601	6,822			4,483	3,525									4,483	3,525
Tharaka North	55	1,120	1,500													6,601	6,822

Occasionally, pupils miss food even where school feeding is available. Due to allergies, or illnesses, food delivery delays and lack of water and firewood for cooking, for instance, in Tharaka North.

Table 19: Students missing meals

Name of sub-county	№ schools	№ boys	№ girls
Tharaka North	7	1,017	1,030
Tharaka South	37	1,120	1,500

Inter-sector Links

Given that not every school is endowed with a feeding program, children from schools without the programs are demotivated and tend to transfer to schools where food is given as shown in the table below. It was reported that 112 boys and 86 girls transferred to different schools in the two sub counties. More boys than girls are more likely to shift to other schools because they can easily be accommodated by their relatives than girls. In regard to school closure, ten schools in Tharaka South were reported to have closed for more than a day since the start of second term because of infrastructural damages, whereby class room roofs were blown off by strong winds.

Table 110: Children Transferred

Name of sub- county of department	Name of sub county of arrival	No. boys transferred	No. of girls transferred
Tharaka south and north	Maara, Meru, Kitui	112	86

Water, sanitation and hygiene

Hygiene and sanitation in schools has not been adequately embraced as evident by the low number of functional latrines, hand washing and insignificant number of functional water drinking sources within a radius of 100 metres (Table 20). Some development partners such as Plan International, NDMA and other stakeholders have provided assistance to schools by donating plastic water tanks and hand washing accessories. Deworming of under 5 years is done in the entire county.

Table 11: School hygiene

Name of sub- county	No of school with functional latrine	No. of schools with no. of handwashing facilities	No. schools with no of drinking water functional source with 100m
Tharaka North and South	63	12	40

Name of sub county	No. of schools with deworming	No. schools with communicable disease precautions programme
Tharaka north		39
Tharaka south	6	50

5.0 FOOD SECURITY PROGNOSIS

5.1 Prognosis Assumptions

- According to the National Oceanic and Atmospheric Administration Climate Prediction Centre (NOAA/CPC) forecast, 2019 October to December short rains are expected to be average, although there are uncertainties associated with the likelihood of El Niño and positive Indian Ocean Dipole.
- According to NOAA/CPC, monthly land surface temperatures are forecast to be 0.5 Degrees Celsius above average between July and September.
- Accelerated depletion of pasture, browse and water resources between July and September will drive continue atypical livestock migrations and increased risk of resource-based conflicts between livestock keepers and farmers until the onset of the short rains in October.
- Driven by below average long rains harvests are expected in July and August resulting in lower supplies, staple prices are expected to remain significantly above average through to late October and decline to near average levels beginning November when harvests from the unimodal high and medium potential areas of western Kenya and the Rift Valley become available.
- Livestock body conditions are likely to progressively deteriorate from August to mid-October consequently livestock prices are likely to decrease to below average levels during the period and later increase to above average levels from late October through December.

- Agricultural waged labor opportunities are likely to remain below average between July and September. The onset of the October to December short rains will increase demand for agricultural labor to average to above average levels between October and December.

5.1 Food security Outlook

Food Security Outcomes: July to September

The significantly below average long rains harvests available from July will reduce agricultural waged labor opportunities and barely improve the already depleted household food stocks. The stocks are likely to sustain households in July only, forcing households to rely heavily on markets. The lack of substitutes such as green grams, sorghum and millet, coupled with an increase in market demand, will maintain above average staple prices. The anticipated above average land surface temperatures during the lean period of July to September, will accelerate the depletion of rangeland resources and quicken the deterioration of livestock body conditions and productivity. Internal livestock movements to atypical grazing areas including the farmland areas of the mixed farming livelihood zone, the Meru National Park and forests are expected to increase resulting in resource based conflicts among livestock keepers and farmers.

Livestock prices are expected to decrease to below average levels between August and September due to increased sales as farmers reduce herd sizes to manageable levels and reduce possible losses. Coupled with above average staple food prices, the terms of trade are expected to decline to below average levels, eroding household purchasing power. Consequently, more poor households are likely to rely more on remittances and petty trade to bridge income deficits. Limited household milk availability, reduced meal frequency and poor dietary diversity will likely increase the risk of malnutrition among children below five years. More poor households are likely to increase the frequency of consumption based coping strategies. Stressed (IPC Phase 2) outcomes are expected to prevail between July to September.

Food Security Outcomes: October to December

The onset of the projected average 2019 October to December short rains will increase demand for agricultural waged labor to average to above average levels, improving household incomes. Livestock are likely to return to wet season grazing areas, minimizing resource-based conflicts. The rains will likely recharge open water sources, rejuvenate pastures and browse and drive improvements in livestock body conditions and productivity. Staple prices are expected to remain above average in October, but will decline to near average levels driven by the availability of maize from the unimodal high and medium potential areas. Livestock prices will increase to above average levels through to December. Terms of trade are anticipated to improve to average levels. Improvements in household dietary diversity, milk availability and green harvests in December will drive improvements in nutrition status of children under the age of five years. Unable to recover from two consecutive below average seasons, poor households will continue facing Stressed IPC Phase 2) outcomes through to December.

6.0 CONCLUSION AND INTERVENTIONS

6.1 Conclusion

6.1.1 Phase classification

Overall, the Marginal Mixed Farming Livelihood Zone is classified as Crisis (IPC Phase 3) while Mixed Farming Livelihood Zone and Rain-fed cropping Livelihood zone are Stressed (IPC Phase 2).

6.1.2 Summary of Findings

The poor performance of the March to May long rains significantly reduced crop and livestock production, thereby limiting household milk and food availability. Staple food prices increased to above average levels while livestock prices plummeted to below average, lowering household food access. As a result, household food consumption has deteriorated in the marginal mixed farming and rain-fed cropping livelihood zones compared to the previous season. Currently, the marginal mixed farming livelihood zone, the proportion of households with poor and borderline food consumption scores were at 6.7 and 45 percent respectively, while in the rain-fed cropping livelihood zone, the proportion of households with poor and borderline food consumption scores were 3.3 and 66.7 percent. To bridge food gaps, more households in the marginal mixed farming livelihood zone engaged in consumption-based coping strategies at a higher frequency compared to the previous season. Although the county average coping strategy index was11.9, in the marginal mixed farming livelihood zone was 25. The proportion of children at risk of malnutrition by MUAC<135mm was 6.3 percent compared to 2.6 percent in January 2019.

6.1.3 Sub-county ranking

Table 12: Sub county Ranking

Sub County		Food Security Rank (1-10 from worst to best)	Main Food Security Threat (if any)
Tharaka South	Chiakariga	1	Two consecutive below average rains, 80-90 percent crop failure, limited pasture and water availability
	Marimanti	2	Two consecutive below average rains, 80-90 percent crop failure, limited water availability
	Nkondi	3	Two consecutive below average rains, 80-90 percent crop failure, limited water availability
Tharaka North	Gatunga	4	Two consecutive below average rains, 80-90 percent crop failure, limited pasture and water availability
	Mukothima	5	Limited water availability, below average rains, poor harvests

6.2 Interventions

6.2.1 Ongoing Interventions

Non-food interventions

Agriculture						
Sub County	**Intervention**	**No. of beneficiaries**	**Implementers**	**Impacts in terms of food security**	**Cost**	**Time Frame**

Tharaka North	Gikingo Grain Storage Structure	6200	MOA	This will curb down the rampant selling of produce during harvest time	2.0M	2yrs
Tharaka North	Conservation agriculture	1800	FAO/MOA	Improved crop productivity and improved crop profitability	20M	4yrs
Tharaka North	cereals enhancement through provision of inputs e.g. fertilizer, seeds, chemicals, post-harvest mgmt.	1200	KCEP/MOA	Improved crop productivity and improved crop profitability	6.0M	3yrs
Tharaka North	Natural resources management	2400	UTANRMP	Reduction of poverty through promotion of agriculture production	6.0m	4yrs
Tharaka south	Cereal enhancement program		KCEP-CRAL	Increased productivity	20M	Dec, 2019
Tharaka south	Promotion of conservation agriculture		FAO, SIVAP	Increased productivity	10M	Dec, 2019
Tharaka south	Rehabilitation of Nkondi store		KCEP-CRAL	Reduced post-harvest losses,	2M	Dec, 2019
Tharaka south	Construction and development of Ruungu Irrigation scheme	1089 HH	ADB,GOK, MOALF	To increase water use efficiency from furrow to sprinkler irrigation	200million	June, 2022
Tharaka south	Muungano Irrigation scheme	400HH	MOALF,GOK	Increase production by reducing reliance to rain fed agriculture	120 million	Dec, 2019
Livestock						
Sub County	**Intervention**	**Ward**	**No. of beneficiaries**	**Implementers**	**Cost**	**Time Frame**
Tharaka South and North	(Rural livelihood) Dairy farming Goats and cow and local poultry rearing	Nkondi, Mukothima and Gatue	1090	Upper-Tana and Livestock Production Office	9.6m	Continuous
Tharaka North	(Rural livelihood) Pig production	Mukothima	25	Upper-Tana and Livestock Production Office	400,000	Continuous

Tharaka South and North	Vector control (tsetse fly/ticks)	All	4,600	KENTTEC and Veterinary department	15m	Continuous
Water						
Sub County/ Ward	**Intervention**	**Location**	**No. of beneficiaries**	**Implementers**	**Cost**	**Time Frame**
Tharaka North and South	Upgrading of 14no. shallow wells from hand to solar pumping	Mukothima Maragwa Gituma Marimanti Karocho Ruungu	4200	National government through UTaNRMP	11.2 million	April –June 2019
	Construction of Nthungu rock catchment	Kathangachini	1000	National government through UTaNRMP	1.3 million	May – July 2019
	Construction of Karangare rock catchments	Maragwa	1000	TNCG	4.0 million	May – August 2019
	Assessment of 30 no. hand pumps for rehabilitation	All locations	450HH	Partners (carbon zero)	100,000	May – June 2019
Education						
Sub county	**Intervention/ activity (please be detailed if possible**	**No. of schools**	**No. of beneficiaries**	**Implementers**	**Please detail any impact(positive and negative of each interventions**	**Time Frame**
Tharaka north	Red cross Food programme	62	14581	Red cross	Improved school attendance	Once in may 2019
Tharaka south	ESMP	Turima Nkondi Ntugi	8008	IAS	Retention	3 years
Tharaka North	cereals enhancement through provision of inputs e.g. fertilizer, seeds, chemicals, post-harvest mgmt.	1200	KCEP/MOA	Improved crop productivity and improved crop profitability	6.0M	3yrs

6.2.2 Recommended Interventions

6.2.3 Food Interventions

Sub County	Population	Population Targeted (%)	Mode of Intervention	Proposed Implementers
Tharaka South	80,122	20-25	Unconditional Cash Transfer	County Government and GoK
Tharaka North	49,976	20-25	Unconditional Cash Transfer	County Government and GoK

6.2.4 Non-Food Interventions

Agriculture				
Sub County	**Intervention**	**No. of beneficiaries** (Households)	**Proposed Implementers**	**Time Frame(Years)**
Tharaka North	Construction of a NCPB store	9845	MOA, Stakeholders	2
Tharaka North	Setting of an irrigation	4590	MOA, Stakeholders	2
Tharaka South	Ruungu Irrigation scheme	600	ADB,GOK,MOALF	2
Tharaka South	Muungano Irrigation scheme	400	GOK,MOALF	2

Livestock

Sub County	Intervention	Ward	No. of beneficiaries	Proposed Implementers	Cost	Time Frame
Tharaka South and North	Community sensitization on Livestock feed supplementation	All	6,000 farmers	NDMA, County government, National Government and livestock department	361,200	2months
Tharaka South and North	Community sensitization on prussic acid poisoning	All	6,000 farmers	NDMA, County government, National Government and livestock department	361,200	2months
Tharaka South and North	Provision of feed supplements and minerals	All	7,000 Farmers	NDMA, County Government, CARITAS of Meru and National government	56,000,000	3months
Tharaka South and North	Mass Vaccination of Goats against CCPP	All	6,000 Farmers	County Government, Veterinary and Caritas of Meru	469,000	2months

Water

Immediate recommended Interventions							
Sub County / Ward	**Intervention**	**Location**	**No. of beneficiaries**	**Proposed Implementers**	**Required Resources**	**Available Resources**	**Time Frame**
Tharaka North & South	Repair of 124 no. non-functional shallow wells	All locations	2720HH	TNCG GoK Partners	2.4 million	Skilled labor	July – September 2019
Medium and Long Term recommended Interventions							
	Construction of small dams / weirs across rivers: Ura Thangatha Thanantu Kathita Thingithu Kithino Kereria	Mukothima Gatunga Marimanti Nkondi Chiakariga	60,000	GoK TNCG Partners	175 M		
	Desilting of dams and pans	Gatunga Maragwa Kathangachini Gituma Chiakariga Turima Nkarini	20,000 people	GoK TNCG Partners	28 M		
	Upgrading of wells with high yields to solar pumps	Mukothima Gatunga Maragwa Kathangachini Gituma Chiakariga Turima Nkarini Marimanti	250HH	GoK TNCG Partners	21.6 M		

Education

Sub county	Intervention / activity	Justification/ reasons/ need for this activity	location	No. Beneficiaries targeted	Proposed implementers	Required resources	Timeframe

Tharaka south	ESMP	Food security	20	11000	WFP/GoK	20M	July-October 2019
	Water tanks	Clean water	15	8050	Plan, NDMA	15M	
	Food for fees	Food insecurity	56		NDMA	30M	
	food	Delayed implementation of HGSMP funds	all	9000	GoK NGOs NDMA	18M	July 2019

Health and Nutrition

Immediate Recommended Interventions							
Sub County /Ward	**Intervention**	**Location**	**No. Of Beneficiaries**	**Proposed Implementers**	**Cost**	**Available Resources**	**Time Frame**
Tharaka South	Support Supervision	Sub County	All Health Facilities	Sub County Health management Team	80,000	Man Power	Continuous
	Mass Screening	Sub County	<5yrs 15724	Sub County Health Management Team	650,000	Human Resource	Before September
	Targeted Outreaches	Sub County	<5yrs 15724	Sub County Health Management Team	100,000	Human Resource	Before September
Medium And Long Term Recommended Interventions							
Sub County /Ward	**Intervention**	**Location**	**No. Of Beneficiaries**	**Proposed Implementers**	**Cost**	**Available Resources**	**Time Frame**
Tharaka South	Provision Of Water Tanks	Nkondi Ward Chiakariga Ward	Kereria Dispensary Rukurini Disp Tumbura Disp Gakirwe Disp Gaceraaka Disp Nkarini Disp	NDMA	300,000	None	Before Short Rains Commences