

BARINGO SMART SURVEY REPORT JULY 2019



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ACCROYNM AND ABBREVIATIONS

ANC:	Antenatal Care
BCG:	Bacillus Calmette–Guérin
BSFP:	Blanket Supplementary Feeding Program
CI:	Confidence Interval
CHMT:	County Health Management Team
CLTs:	Community Led Total Sanitation
CSI:	Coping Strategy Index
DEFF:	Design Effect
DHIS:	District Health Information System
ECD:	Early Childhood Development
ENA:	Emergency Nutrition Assessment
FAO:	Food and Agricultural Organization
FCS:	Food consumption Score
FHK:	Food for the Hungry Kenya
GAM:	Global Acute Malnutrition
HAZ:	Weight-for-Age Z score
HH:	Household
HDDS:	Household Dietary Diversity Score
HiNi:	High Impact Nutrition Intervention
IFAS:	Iron Folic Acid Supplementation
KABP:	Knowledge, Attitude, Behavior and Practice
KII:	Key Informant Interview
MAM:	Moderate Acute Malnutrition
MNP:	Micro Nutrient Powder
MIYCN:	Maternal Infant Young Child Nutrition
MoH:	Ministry of Health

MUAC:	Mid Upper Arm Circumference
NDMA:	National Draught Management Authority
NGO:	Non-Governmental Organization
NIWG:	Nutrition Information Working Group
OPV:	Oral Poliovirus Vaccines
ORS:	Oral Rehydration Salts
P&G:	Procter & Gamble
PPS:	Probability Proportional to Population Size
SAM:	Severe Acute Malnutrition
SCHMT:	Sub-County Health Management Team
SMART:	Standardized Monitoring and Assessment in Relief and Transition
SPSS:	Statistical Packages for social Sciences
UN:	United Nations
UNICEF:	United Nation Children Fund
WDDS:	Women Dietary Diversity Score
WHO:	World Health Organization
WAZ:	Weight-for-Age Z score
WFA:	Weight-for-Age
WHZ:	Weight-for-Height Z score
WRA:	Women of Reproductive age
VIP:	Ventilated Improved Pit

1.0 EXECUTIVE SUMMARY

The County Department of health services with support of National Nutrition unit and in collaboration with WVK, UNICEF and WFP has been implementing IMAM Program in Baringo County and more so in larger Tiaty Sub-County.

Methodology

Sampling design

The target geographical area was Baringo County that targeted the three sub-counties of Baringo north, Marigat and Tiaty Sub Counties. The county did two surveys one targeting the larger Tiaty and Baringo North/ Marigat Sub counties. The survey applied a two-stage cluster sampling using the SMART methodology. First, the clusters to be visited were selected using the probability proportional to population size (PPS), second the households to administer the interview within the selected clusters were selected through simple random sampling.

Study Population

The target population for this survey was the children 6-59 months of age and women of reproductive age 15-49 years.

Objectives of the Survey

Main Objective

To determine the nutrition status of children aged 6- 59 months old and Women of reproductive age 15-49 Years.

Specific Objectives

- To estimate the current prevalence of acute malnutrition in children aged 6 – 59 months
- To compare the overall nutritional changes with the previous GAM and SAM
- To determine the morbidity rates amongst children aged 6-59 months over a two week recall period.
- To estimate the immunization coverage of Measles, BCG and Oral polio vaccines (OPV1 and 3)
- To determine the coverage for deworming, zinc supplementation for diarrhoea, MNP's supplementation and vitamin A supplementation among children 6-59 months.
- To estimate the nutritional status of women of reproductive age 15-49 years using MUAC measurements
- To collect information on household food security, water, sanitation, and hygiene practices

Summary of finding were as shown in the table below

INDICATOR	BARINGO NORTH SUB COUNTY	TIATY SUB COUNTY
ANTHROPOMETRIC		
Clusters	45	36
HHs Targeted	630	504
HHs Reached	623	500
Total People Reached	3167	2824

Prevalence of global malnutrition	(49) 9.3 % (6.9 – 12.3 95% C.I.)	(130) 20.9 % (17.0 - 25.4 95% C.I.)
Prevalence of severe malnutrition	(12) 2.3 % (1.3 – 4.1 95% C.I.)	(22) 3.5 % (1.9 - 6.6 95% C.I.)
Prevalence of global malnutrition by MUAC	(18) 3.4 % (2.2 - 5.3 95% C.I.)	(51) 8.1 % (5.8 - 11.2 95% C.I.)
Prevalence of severe malnutrition by MUAC	(6) 1.1 % (0.5 - 2.4 95% C.I.)	(5) 0.8 % (0.2 - 2.6 95% C.I.)
Global underweight	(113) 21.4 % (17.9 - 25.5 95% C.I.)	(251) 40.4 % (36.0 - 44.9 95% C.I.)
Severe Underweight	(25) 4.7 % (3.1 - 7.3 95% C.I.)	(80) 12.9 % (10.8 - 15.3 95% C.I.)
Global Stunting	(146) 28.1 % (23.4 - 33.2 95% C.I.)	(246) 40.1 % (35.5 - 45.0 95% C.I.)
Severe Stunting	(46) 8.8 % (6.5 - 11.9 95% C.I.)	(79) 12.9 % (10.1 - 16.3 95% C.I.)
IMMUNIZATION		
Measles Coverage at 9 Months by Card	67.6%	26.5%
Measles Coverage at 9 Months by Recall	28.2%	48.1
Measles Coverage at 18 Months by Card	63.7%	7.1%
Measles Coverage at 18 Months by Recall	29.2	15.7%
BCG by scar	97.9%	93.7%
OPV 1 by Card	69.7%	33.5%
OPV 1 by Recall	27.5%	58.1%
OPV 3 by Card	69.3%	30.2%
OPV 3 by Recall	27.7%	53.8%
Zinc Supplementation	82.4%	68.6%
Vitamin A Supplementation (6-11 Months)- Once	69.2%	43.4%
Vitamin A Supplementation (12-59 Months) - Once	69.7%	41.2%
Vitamin A Supplementation (12-59 Months) - Twice	50.9%	8.3%
Vitamin A (6 – 59 months) – once	69.7%	43.9%
Deworming (12-59 months)	68.3%	35.2%
CHILD MORBIDITY		
Sickness two weeks prior to survey	25.9%	29.4%
Fever	12.8%	39.0%
Acute Respiratory Infection	82.1%	58%
Watery diarrhoea	10.9%	31.2%
Bloody diarrhoea	1.3%	2.4%
MATERNAL NUTRITION		
MUAC <21cm for WRA	2%	8.2%
MUAC (21 < 23 cm) For WRA		
MUAC <21cm for PLW	1.5%	6.8%
Iron Folate Supplementation	86.3%	68%
W-MDD <5 food groups	70.9%	84.7%
FOOD SECURITY		
Poor FCS	12.4%	2.7%

Border FCS	12.4%	17.7%
Good FCS	84.9%	69.9%
HDD < 3 food groups	3.2%	34.1%
HDD 3-5 food groups	43%	43.2%
HDD > 5 food groups	53.8%	22.7%
CSI	15.2%	16.7%
WASH		
Piped water system	8.8%	5.4%
Tube well / borehole	12.5%	15.6%
Dug well	0%	0.8%
Spring	16.7%	0.2%
Rainwater	3.9%	0%
Tanker-truck	0.5%	0%
Cart with small tank	0.6%	0.2%
Water kiosk	3.9%	2.4%
Surface water	52.3%	76.2%
Pit latrine	72.6%	6.6%
Hanging toilet / hanging latrine	0.0%	0.6%
No facility / bush / field	27.4%	93.4%
Aware of handwashing	82.2%	88.2%
Hand washing at 4 critical times	10.1%	2.2%
Water treatment	28.6%	4.4%

2.0 INTRODUCTION

2.1 Back ground Information

Baringo County is situated in the Rift Valley Region and shares borders with 8 counties namely, West Pokot to the North West, Turkana to the North, Samburu to the North East, Laikipia to the East, Nakuru to the South, Kericho and Uasin-Gishu Counties to the South West, and Elgeyo-Marakwet to the West. The County consist of seven Sub-Counties, namely Baringo South, Mogotio, Eldama Ravine, Baringo Central, Baringo North East Pokot and Tiaty East. It has 30 Wards and 116 Locations. The County occupies an area of 11,015 square kilometers with a population of 555,561 people in 2009. The population was projected to be 723,411, 853, 515 in 2017 and 2022 respectively. The county has five livelihood zones: Pastoral 33%, Agro-Pastoral 9%, Marginal mixed farming 39%, Mixed Farming 14% and Irrigated Cropping 4%.

Figure 1: East Pokot sub-county Livelihood Zones



Legend	Livelihood zone
	Pastoral
	Agro-Pastoral

2.2 Timing of the Survey

Baringo County has two rainfall seasons; long rains (April-June) and short rains; (October-December) season. The seasonal calendar also characterizes dry season into short (January-March) and long; July-September dry season. The county inhabitants depend on long rains season rather than the short rains season. The nutrition SMART survey was conducted in line with Long Rains seasonal assessment and survey findings were used to classify and inform on outcome indicators (nutrition status) during long rains assessment in August 2019.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Short Dry Season			Long Rain			Long dry spell			Short Rains		

2.3 Objective of the Survey

The overall objective

To determine the nutrition status of children aged 6- 59 months old and Women of reproductive age 15-49 Years.

Specific objectives

- To estimate the current prevalence of acute malnutrition in children aged 6 – 59 months
- To compare the overall nutritional changes with the previous GAM and SAM.
- To determine the morbidity rates amongst children aged 0-59 months over a two-week recall period.
- To estimate the immunization coverage of Measles, BCG and Oral polio vaccines (OPVI and 3).
- To determine the coverage for deworming, zinc supplementation for diarrhea and vitamin A supplementation among children 6-59 months.
- To estimate the nutritional status of women of reproductive age 15-49 years using MUAC measurements
- To collect information on possible underlying causes of malnutrition such as household food security, water, sanitation, and hygiene practices

2.4 SURVEY METHODOLOGY

2.4.1 Survey Area

The target geographical area was Baringo County and the survey covered three Sub Counties: Baringo North, Marigat and larger Tiaty Sub counties.

2.4.1 Survey Design

The survey applied a two stage stratified cluster sampling using the SMART methodology with the clusters being selected using the probability proportional to population size (PPS). Stage one sampling involved the sampling of the clusters to be included in the survey while the second stage sampling involved the selection of the households from the sampled clusters.

2.4.2 Study Population

The target population for the survey was children aged 6 – 59 months for the anthropometric component and women of reproductive age between 15 – 49 years for the maternal nutrition component.

2.4.3 Sample Size

The anthropometric survey sample size was calculated using the SMART survey calculator. The parameters of interest were captured in the ENA 9th July 2015 software and the respective number of children and households required for the survey computed. The sampling frame for this survey was the updated list of villages (with current projected population) from the survey area.

2.4.4 Data Collected

Quantitative data collection method was used to collect the survey data; the following data was collected:

1. Anthropometry (weight, height, oedema, MUAC, age, sex) for children aged 6-59 months and MUAC for women of reproductive age.
2. Vaccination information (OPV1 and 3, measles, BCG, and Vitamin A supplementation)
3. Incidences of childhood illnesses in the last 2 weeks prior to the survey
4. Food security information (Household Dietary Diversity Score, Women dietary Diversity Score, Food consumption Score , Food consumption Score-Nutrition and Coping strategy Index)
5. Water and sanitation Hygiene (Latrine access and coverage, water treatment and hand washing)

The survey adopted the data collection tools recommended in the nutrition survey guidelines with a few modifications to cater for all the objectives of the survey.

2.5 Survey Organisation

- **Coordination/Collaboration:** Before the survey was conducted, meetings were held with the respective authorities and key stakeholders briefed them about the purpose, objectives and methods for the survey. The survey details were discussed with the County Health office, key partners on the ground. The authorities were requested to officially inform the communities (villages) that were involved in the assessment.
- **Recruiting the Survey Team:** Recruitment was done in collaboration with the Ministry of Health office at the County level in order to give ownership and participation in the assessment.
- **Training of the Survey Team:** The teams were given 4-days training prior to fieldwork, including a standardization test to ensure standardization of measurement and recording practice. All data collectors were trained on taking anthropometric measurements, completion of questionnaires and sampling methodology. The data collection forms and questionnaires were pilot tested in clusters not selected to be part of the larger survey, to ensure that the interviewers and respondents understand the questions and that interviewers follow correct protocols.

Questionnaire

The survey adopted the data collection tools recommended in the Nutrition Information Working Group.

Data Analysis and Report Writing

- **Data Analysis:** the data downloading and analysis was done using ENA for SMART, Excel and SPSS Statistical software version 22. Results are presented using the new WHO reference levels.

Indicators, Guidelines and Formulas used in determining Acute Malnutrition Weight for height (WFH) index

This was estimated from a combination of the weight for height (WFH) index values (and/or edema) and by sex based on WHO standards 2006. This index was expressed in WFH indices in Z-scores, according to WHO 2006 reference standards.

Z-Score:

- Severe acute malnutrition is defined by WFH < -3 SD and/or existing bilateral edema,
- Moderate acute malnutrition is defined by WFH < -2 SD and >-3 SD and no edema
- Global acute malnutrition is defined by WFH < -2 SD and/or existing bilateral edema.

Mid upper arm circumference (MUAC) MUAC analysis was also undertaken to determine the nutrition status of sampled children and women of reproductive age (15-49 years). The following MUAC criteria were applied.

MUAC guidelines:	Interpretation
Children 6-59 Months	
MUAC < 115mm and /or Bilateral Edema	Severe Acute Malnutrition
MUAC ≥ 115mm and < 125mm (no bilateral Edema)	Moderate acute Malnutrition
MUAC ≥ 125mm and < 135mm (No bilateral Edema)	Risk of Malnutrition
MUAC > 135mm (No bilateral Edema)	Adequate Nutritional Status
Women of reproductive age (15-49 Years)	
MUAC > 21-23cm	At risk of malnutrition
MUAC < 21cm	Maternal Acute Malnutrition

2.6 Referrals

During the survey, all severe and moderately malnourished children as per MUAC and Weight-for-Height cut offs referred to the nearby health service delivery points offering IMAM services. Pregnant and lactating women with MUAC less than 21 cm were referred to the nearer by health facility.

2.7 Ethical consideration

Sufficient information was provided to the local authorities about the survey including the purpose and objectives of the survey, the nature of the data collection procedures, the target group, and survey procedures. Verbal consent was obtained from all adult participants and parents/caregivers of all eligible children in the survey. The decision of the caregiver to participate or withdrawal was respected. Privacy and confidentiality of survey respondent and data was adhered to.

3.0 SURVEY FINDINGS

3.1 General characteristics of study population and households

3.1.1 Demographics

In Baringo North/ Marigat Sub County, the total number of households surveyed were 623 out of planned 630. From the total number of households reached 531 were children aged between 6 and 59 months were reached for anthropometric measurements out of the planned 521. The average number of persons per household in Baringo North/ Marigat was 5.08 while the proportion of children under five was 16.8%.

In Tiaty Sub County, the total number of households surveyed were 500 out of planned 504. From the total number of household reached 628 children aged between 6 and 59 months were reached for anthropometric measurements out of the planned 361. The average number of persons per household in Tiaty was 5.63 while the proportion of children under five was 22.4% form the survey.

Survey Zone	Target per the survey plan			Actual No Reached		
	No. of HH	No. of Children	Number of Clusters	No. of HH Assessed	No. of Children	Total Household Members
Baringo North and Marigat	630	521	45	623	531	3167
Tiaty	504	361	36	500	628	2824

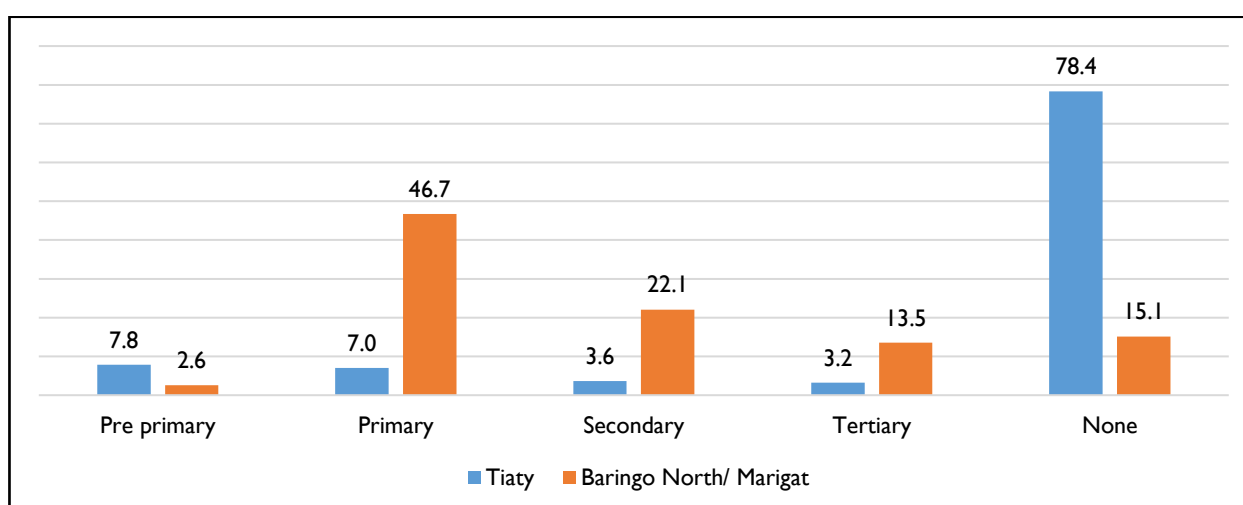
3.1.2 Residency and Caregiver's Marital Status of the respondent

Majority of the respondent at 98.4% in Baringo North/ Marigat and 99.8% in Tiaty were residence of these Sub counties.

3.2 Socio-economic characteristics of households

3.2.1 Highest Education level attained by head of household

Majority of the Household head at 58% in Baringo North/ Marigat had attained primary level education while in Tiaty 62.8% confirmed to have no education. Illiteracy level is very high in Tiaty Sub County as shown by the figure below.

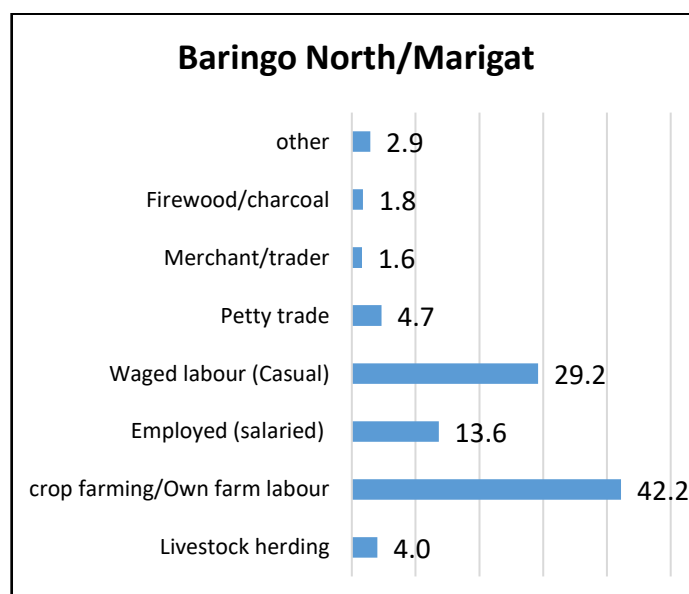
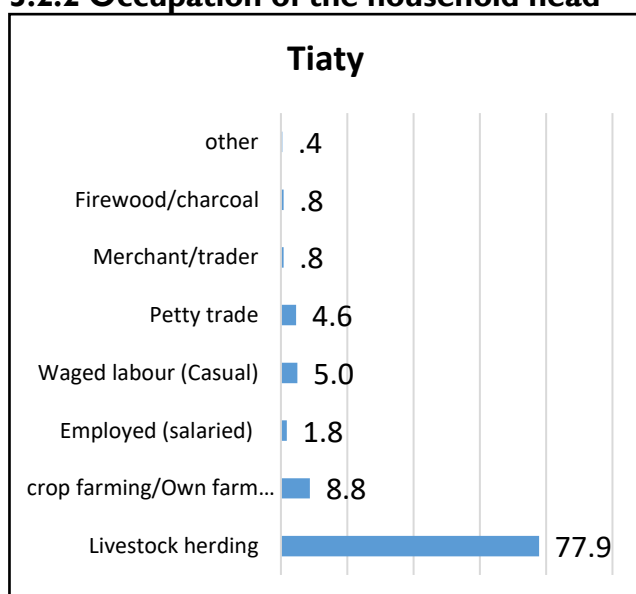


3.2.2 School Enrolment for 3-18 years

In Tiaty 54.8 percent of the school going children were enrolled in school while In Baringo North/ Marigat 94.7 percent of the school going children in were enrolled in school. Tiaty had the biggest proportion of children not enrolled in school due to various reasons, family responsibilities at 31.1%, household not valuing schooling at 21.1% and there were no schools in the area as confirmed by 20.4 % of the respondent.

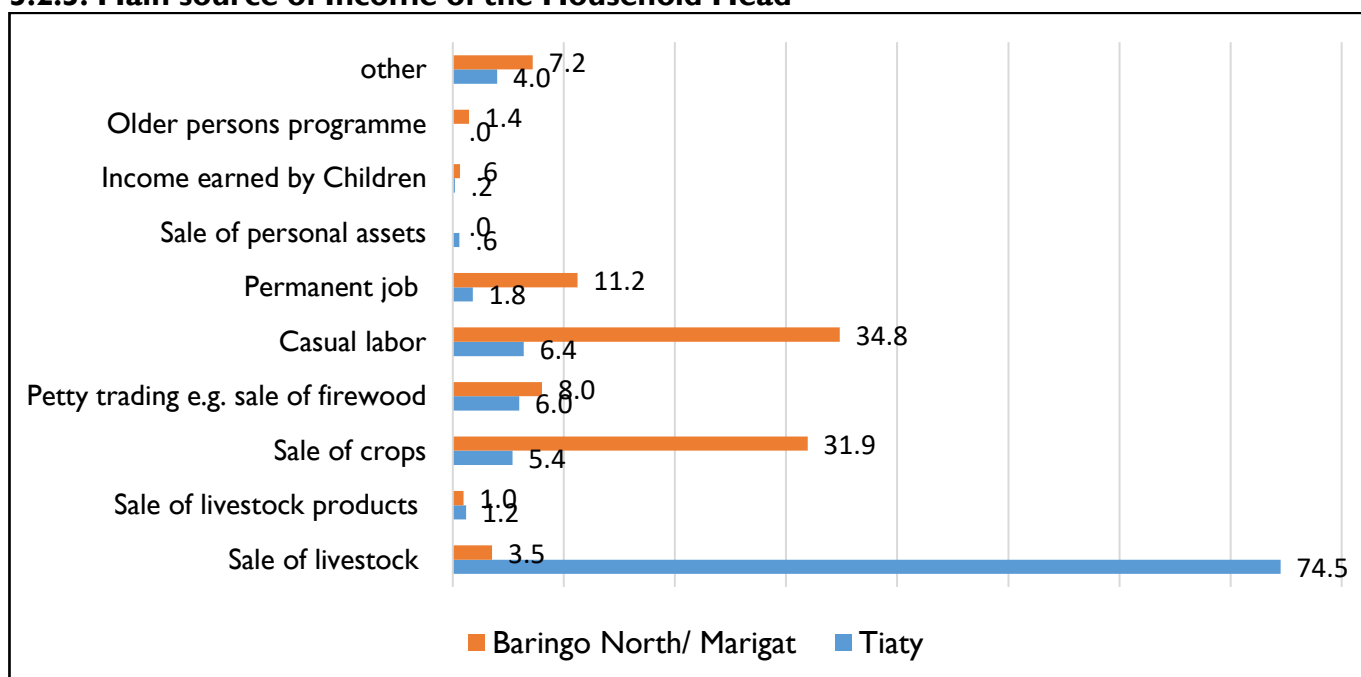
Reason for not enrolled	Tiaty	Baringo North/Marigat
Chronic sickness	0.5%	1.4%
Family labour responsibilities	31.1%	
working outside home	0.5%	
Teacher absenteeism	0.8%	
Too poor to buy school items	2.6%	4.1%
HH does not value schooling	21.1%	1.4%
No food in the school	0.2%	
Migrated from school area	0.2%	
No school in the area	20.4%	4.1%
Married	3.3%	1.4%
Other (parent consider them still young)	19.2%	87.8%

3.2.2 Occupation of the household head



In Tiaty majority of the households were doing livestock herding as their main occupation. In Baringo North/Marigat the household head had various occupation, for instance 42.2% were doing crop farming/own farm labour, 29.2% did waged labour (casual) and 13.6% were employed (salaried).

3.2.3. Main source of Income of the Household Head



In Tiaty, survey results indicated that 74.5% of the household were selling livestock as a source of income. Baringo North had various sources of income, 34.8% were doing casual labour as their main a source of income, 31.9% were selling crops as a as their main source of income and 11.2% had permanent job as their main source of income.

3.3 NUTRITION STATUS OF CHILDREN

3.3.1 Prevalence of acute malnutrition (weight-for-height z-score)

Global Acute Malnutrition (GAM) is defined as the proportion of children with a z-score of less than -2 z-scores weight-for-height and/or presence of oedema. GAM has two categories where severe acute malnutrition (SAM) is defined as the proportion of children with less than -3 z-scores weight-for-height and/or presence of oedema and Moderate acute malnutrition (MAM) is defined as the proportion of children with < -2 and >-3 z-scores weight-for-height.

Further, based on MUAC, GAM was defined as the proportion of children with a MUAC of less 125 mm and/or presence of oedema. SAM based on MUAC was defined as the proportion of children with a MUAC of less than 115 mm and/or presence of oedema. MAM based on MUAC was defined as the proportion of children with a MUAC ≥ 115 mm – <125 mm

Malnutrition by Z-Score: WHO (2006) Standard

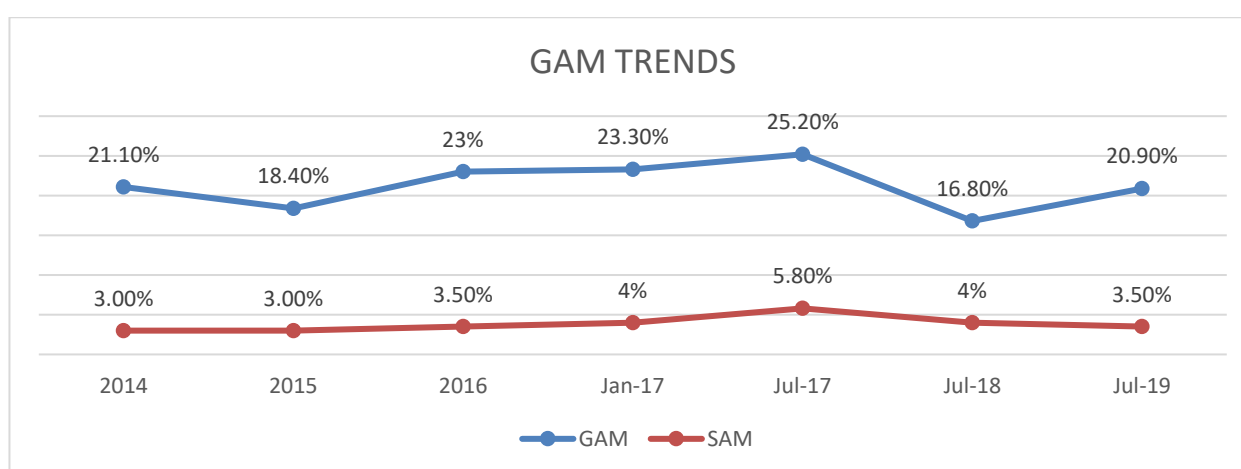
- Severe acute malnutrition is defined by WFH < -3 SD and/or existing bilateral edema on the lower limbs
- Moderate acute malnutrition is defined by WFH < -2 SD and >-3 SD and no edema
- Global acute malnutrition is defined by WFH < -2 SD and/or existing bilateral edema

Malnutrition by MUAC

- Severe malnutrition is defined by MUAC < 115 mm and/or presence of bilateral edema
- Moderate malnutrition is defined by MUAC < 125 mm and ≥ 115 mm and no edema
- Global acute malnutrition is defined by MUAC < 125 mm and/or existing bilateral edema

The results indicated that GAM for Baringo North/Marigat 9.3% (6.9 -12.3 95% C.I.) which is at **Alert**. Compare to 2018, it was also at **Alert** 7.8 % (5.2 - 11.5 95% C.I.) showing no significant difference, a P. value= 0.4487. GAM for Tiaty was 20.9 % (17.0 - 25.4 95% C.I.) which is **Critical**. Compared to 2018 the GAM was **Critical**, for Tiaty which was at 16.8 % (13.9 - 20.2 95% C.I.) showing no Significant difference, P. value= 0.1148.

	Baringo North/ Marigat 2019	Tiaty 2019
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(49) 9.3 % (6.9 – 12.3 95% C.I.)	(130) 20.9 % (17.0 - 25.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(12) 2.3 % (1.3 – 4.1 95% C.I.)	(22) 3.5 % (1.9 - 6.6 95% C.I.)



3.3.2. Prevalence of acute malnutrition based on MUAC

The mid-upper arm circumference (MUAC) is a low sensitive indicator of acute malnutrition compared to weight for height Z-scores. Prevalence of GAM by MUAC is usually lower compared to WFH z-scores. MUAC used as a rapid screening tool for admission into nutrition intervention program.

The survey showed that GAM by MUAC for Baringo North/Marigat was 3.4 % (2.2 - 5.3 95% C.I.) which was at **ALERT** compared to 2.6 % (1.5 - 4.3 95% C.I.) in 2018 that was also at **ALERT**. GAM By MUAC for Tiaty was 8.1 % (5.8 - 11.2 95% C.I.) which was **Critical** Compared to 3.4 % (2.0 - 5.7 95% C.I.) in 2018 which was at **ALERT** showing a significantly different, a P value of 0.0028.

	Baringo North/Marigat 2019 All n = 531	Tiaty 2019 All n = 633
Prevalence of global malnutrition (< 125 mm and/or oedema)	(18) 3.4 % (2.2 - 5.3 95% C.I.)	(51) 8.1 % (5.8 - 11.2 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(6) 1.1 % (0.5 - 2.4 95% C.I.)	(5) 0.8 % (0.2 - 2.6 95% C.I.)

3.3.3. Prevalence of Underweight

The weight-for-age (WFA) index provides a composite measure of wasting and stunting and is commonly used to monitor the growth of individual children in Mother-child booklet since it enables mothers to easily visualize the trend of their children's increase in weight against age. A low WFA is referred to as underweight.

	Baringo North/Marigat 2019 All n = 527	Tiaty 2019 All n = 622
Prevalence of underweight (<-2 z-score)	(113) 21.4 % (17.9 - 25.5 95% C.I.)	(251) 40.4 % (36.0 - 44.9 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(25) 4.7 % (3.1 - 7.3 95% C.I.)	(80) 12.9 % (10.8 - 15.3 95% C.I.)

3.3.4 Prevalence of stunting

Height for age (stunting) is an indicator of chronic (long-term) malnutrition arising from deprivation related to persistent/chronic poor food security situation, micronutrient deficiencies, recurrent illnesses and other factors, which interrupt normal growth. Unlike wasting, it is not affected by seasonality but is rather related to the long-term effects of socio-economic development and long-standing food insecurity situation. A low height-for-age reflects deficits in linear growth and is referred to as stunting.

The findings indicated that stunting for Tiaty was **40.1 % (35.5 - 45.0 95% C.I.)** which was **Very High** compared to 30.0 % (24.3 - 36.4 95% C.I.) in 2018, which was **high**. Stunting for Baringo north/ Marigat was 28.1 % (23.4 - 33.2 95% C.I.) which was **Medium** compared to 28.5 % (23.7 - 33.7 95% C.I.) in 2018 which was also **classified as Medium**

	Baringo North/Marigat 2019 All n = 520	Tiaty 2019 All n = 613
Prevalence of stunting (<-2 z-score)	(146) 28.1 % (23.4 - 33.2 95% C.I.)	(246) 40.1 % (35.5 - 45.0 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(46) 8.8 % (6.5 - 11.9 95% C.I.)	(79) 12.9 % (10.1 - 16.3 95% C.I.)

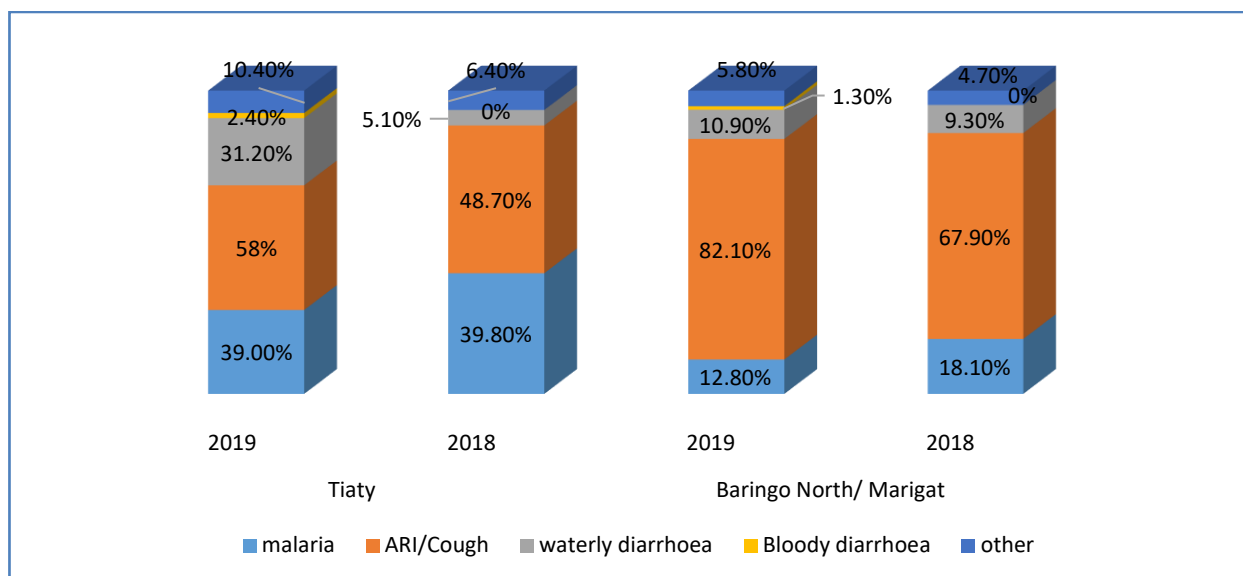
3.4 CHILDREN'S MORBIDITY AND HEALTH SEEKING BEHAVIOR

Disease are categorized as immediate causes of malnutrition in the UNICEF conceptual framework. Disease can affects food intake and nutrient absorption within human body thus jeopardize immunity and further worsening the disease that leads to malnutrition.

3.4.1 Child morbidity

The survey findings showed that 25.9% and 29.4% of household in Tiaty and Baringo north/ Marigat respectively reported that their children under five were ill in the past two week prior to the survey. Fever/Malaria and ARI/Cough had the highest prevalence across the two sub counties as shown in the

figure below



3.4.1.1 Therapeutic Zinc Supplementation during Watery Diarrhoea Episodes

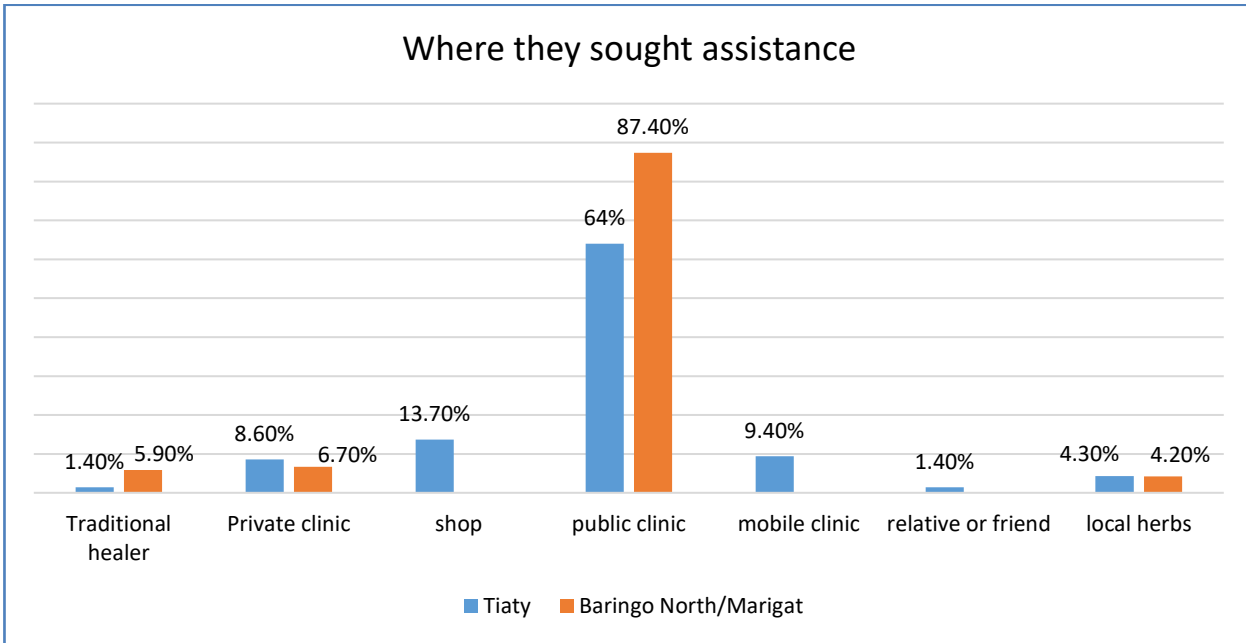
Zinc supplementation reduces the duration and severity of diarrhoea. In 2004 WHO and UNICEF recommended incorporating zinc supplementation (20 mg/day for 10-14 days for children 6 months and older, 10 mg/day for children under 6 months of age) as an adjunct treatment to low osmolality oral rehydration salts (ORS), and continuing child feeding for managing acute diarrhoea. Kenya has adopted these recommendations and enshrined this in the Kenyan policy guideline on control and management of diarrhoea diseases in children below five years where all under-fives with diarrhoea should be given zinc supplements as soon as possible.

Indicator		Baringo North/Marigat			Tiaty		
		n	N	%	n	N	%
Zinc Supplementation	2019	14	17	82.40%	35	51	68.60%
	2018	16	18	88.90%	3	12	25%

Majority of the children who had diarrhoea in Baringo North/ Marigat were supplemented with zinc. There was improvement in zinc supplementation for Tiaty Sub County from 25% in 2018 to 68.6% in 2019, this can be attributed to improved health system in the sub county.

3.4.2. Health Seeking Behavior

Among the children who were ill in the past two weeks prior to the survey, 84.8%, 76.3% in Tiaty and Baringo North/Marigat respectively sought assistance



Among those who sought assistance, 64% sought assistance in public clinic, 9.4% in mobile clinic and 8.6% in private clinic in Tiaty Sub County. In Baringo/ Marigat 87.4% sought assistance from public clinic and 6.7% in private clinics.

3.5 CHILDHOOD IMMUNIZATION, VITAMIN A SUPPLEMENTATION AND DEWORMING

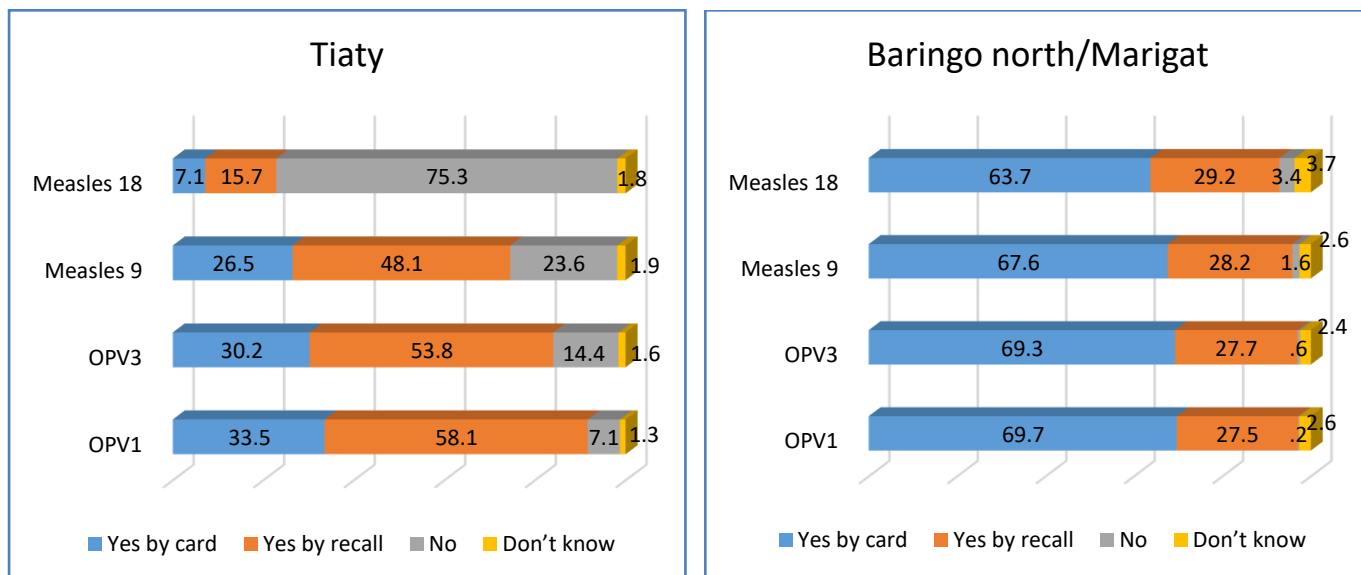
3.5.1. Childhood Immunization

Kenya aims to achieve 90% under one immunization coverage by the end of second medium term plan (2013- 2017). The Kenya guideline on immunization defines a fully immunized child as one who has received all the prescribed antigens and at least one Vitamin A dose under the national immunization schedule before the first birthday. Immunization is a simple and effective way of protecting children from serious diseases. It not only helps protect individuals, it also protects the broader community by minimizing the spread of disease. Vaccines work by triggering the immune system to fight against certain diseases. If a vaccinated person comes in contact with these diseases, their immune system is able to respond more effectively, preventing the disease from developing or greatly reducing its severity. High immunization rates in the community have led to many of diseases becoming rare. However, they still exist and the risks of side-effects or complications from these diseases are far greater than the very small risks of side effects from vaccination.

This survey assessed the coverage of 4 vaccines namely, BCG, OPV1, OPV3, and measles at 9 and 18 months. The BCG vaccine has variable efficacy or protection against tuberculosis (TB) ranging from 60-80% for a period ranging from 10-15 years. It is known to be effective in reducing the likelihood and severity of military TB and TB meningitis especially in infants and young children. This is especially important in Kenya where TB is highly prevalent, and the chances of an infant or young child being exposed to an infectious case are high.

From the survey the results indicated that 93.7%, 97.9% of the children under five in Tiaty and Baringo North/Marigat respectively had a BCG scar. Baringo North/Marigat had good performance in terms of immunization. From the finding 95.8%, 92.9% had been immunized with measles antigen at 9 months and

18 months respectively. Also 97.2%, 97% had been immunized with OPV1 and OPV 3 antigen respectively. In Tiaty 74.6%, 22.8% of the under-five had been immunized against measles at 9 months and 18 months respectively. A proportion of 91.6%, 84% of the under-five had been immunized of OPV1 and OPV3 respectively.



3.5.2 Vitamin A supplementation

Over 140 million children are at greater risk of illness, hearing loss, blindness and even death if urgent action is not taken to provide them with life-saving vitamin A supplements. Two doses of vitamin A every year can save thousands of children’s lives. According to the new UNICEF report; “Coverage at a crossroads: New directions for vitamin A supplementation programmes”¹, global coverage of vitamin A supplementation (VAS) has dropped to a six-year low, leaving more than one third of children unprotected from the devastating impacts of vitamin A deficiency. As the world mobilizes towards the 2030 Agenda for Sustainable Development – and particularly the target of ending preventable deaths in children under age 5, there has never been a more urgent time to reprioritize this safe, cost-effective and evidence-based intervention.

According to Kenya’s national nutrition action plan 2012-2017, the third priority objective is to reduce the prevalence of micro nutrient deficiencies especially through awareness, food fortification and supplementation. In these interventions, Vitamin A deficiency has been identified as a key micronutrient of concern (NNAP, 2012-2017). Furthermore, The Lancet medical journal lists vitamin A large-scale supplementation has proven potential to reduce the number of preventable child deaths each year (Jones et al, 2003). Improving the vitamin A status of deficient children enhances their resistance to disease and can reduce mortality from all causes by approximately 23 per cent (UNICEF, 2007). During much of early childhood – from 6 months to 5 years of age – two high-dose supplements of vitamin A per year, spaced four to six months apart, can strengthen the immune systems and improve chances of survival (WHO, 2018). Vitamin A supplementation among children below the age of 5 years offers

¹ UNICEF. Coverage at a Crossroads: New directions for vitamin A supplementation programmes, New York, 2018.

protection against common childhood infections and substantially reduces mortality hence improving the child's survival.

The survey results indicated that Vitamin A supplementation was below national target for both Baringo north/Marigat. According to the survey, 69.2%, 43.4% of the children aged 6- 11 months in Baringo North/ Marigat and Tiaty Sub County were supplemented with vitamin A at least once, and 69.7%, 41.2% of children aged 12 to 59 months in Baringo North/ Marigat and Tiaty Sub County had been at least supplemented once. Further analysis showed that 50.9%, 8.3% of children in Baringo North/ Marigat and Tiaty Sub County aged 12-59 months had been supplement with VIT A twice compared to the ministry of health national target of 80%.

The table below show supplementation for different age category of under five years

Age-category	Baringo North/Marigat	Tiaty	Frequency category	Baringo North/Marigat	Tiaty
6-59months	531	628	6-59months (once)	69.7%(n=370)	43.9%(n=276)
6-11 months	65	76	6-11 months (once)	69.2%(n=45)	43.4%(n=33)
12-59 months	466	554	12-59months (once)	69.7%(n=325)	41.2%(n=228)
			12-59months (twice)	50.9%(n=237)	8.3%(46)

3.5.3. De-worming

De-worming is an essential intervention in controlling parasites including helminthes, schistosomiasis (bilharzias) and prevention of anemia. WHO recommends that children in developing countries exposed to poor sanitation and poor availability of clean safe water to be de-wormed once every 6 months. In this survey, de-worming was assessed for children aged 12-59 months old.

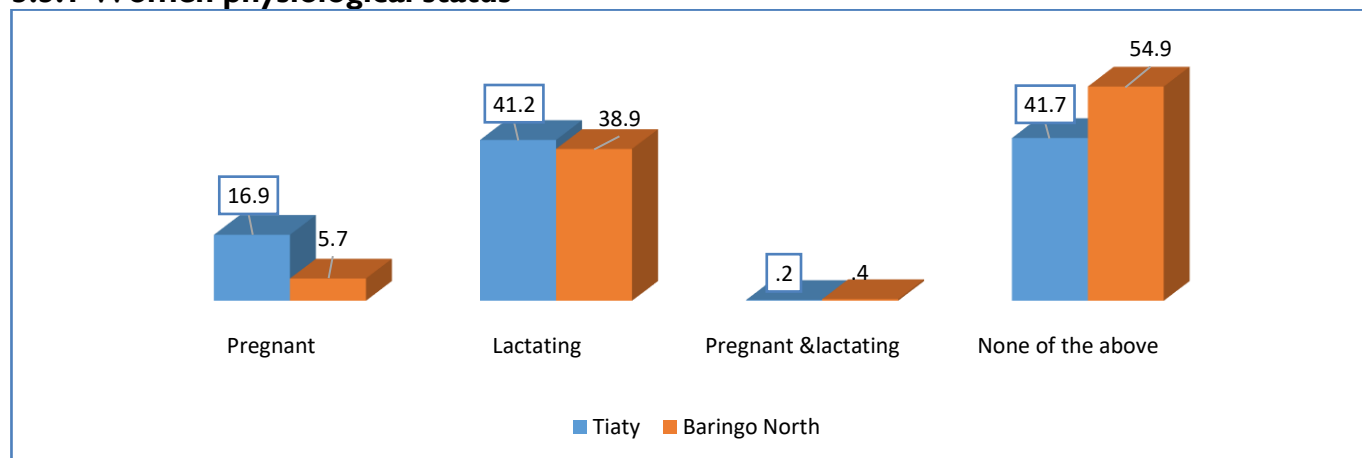
In Tiaty 35.2% of children, aged 12-59 months had been dewormed once and 2.2% had dewormed twice. In Baringo North/ Marigat 68.3% of children aged 12-59 had been dewormed once and 13.8% had dewormed twice.

3.5 MATERNAL NUTRITION

Evidence shows that the current total deaths in children younger than five years can be reduced by 15% if populations can access ten evidence-based interventions when implemented at scale with a coverage of 90% (Bhutta, et.al. 2013). One of these strategies, has a positive effect on child survival during 'the window of opportunity' which is also referred to as the 1st 1000 days (from conception to two years of age). One of them is optimal maternal nutrition during pregnancy, an enhanced nutrition package for the infant and young child focusing on promotion of exclusive breastfeeding. Pregnancy and lactation imposes a big nutrient-need load on mothers, which in the absence of adequate extra nutrients leads to utilization of body nutrient reserves leading to malnutrition. Gestational malnutrition leads to low birth weights and may ultimately culminate in poor child growth and development, thus there is an urgent need to address high rates of malnutrition among pregnant women. Household food insecurity is a key indicator/determinant for poor adult nutritional status. A high number of malnourished PLWs increase

the risk of growth retardation of the fetus and consequently an increase in low birth weight and malnutrition burden spreads to both U5 children and caretakers from the same household faced with food insecurity and related vulnerabilities, a common scenario during nutrition emergency episodes.

3.5.1 Women physiological status



The survey indicated that in Tiaty 41.7% of the women were neither pregnant nor lactating, 41.2% of the women were lactating, 16.9% of the women were pregnant. In Baringo North/ Marigat 54.9% were neither pregnant nor lactating, 38.9% were lactating and 5.7 of the women were pregnant.

3.5.2 Iron and Folic Acid Supplementation (IFAS)

During pregnancy, women have increased need for additional iron to ensure they have sufficient iron stores to prevent iron deficiency. Iron supplementation is recommended in resource limited settings as strategy to prevent and correct iron deficiency and anemia among pregnant women WHO recommends daily consumption of 60mg elemental iron and 0.4mg folic acid throughout the pregnancy². These recommendations have since been adopted by Kenya government in its 2013 policy guidelines on supplementation of iron folic acid supplementation (IFAS) during pregnancy.

Survey results indicates that 68% of women in Tiaty who had a child less than two year had received IFAS in their last pregnancy period, while in Baringo north/Marigat 86.3% of the women received IFAS

Days	Tiaty		Baringo North/Marigat	
	Percent	n	Percent	n
0 to 90 days	84.7%	155	70.9%	139
91 to 180 days	13.7%	25	27.6%	54
181 to 270 days	1.6%	3	1.5%	3

Majority of the women in Tiaty and Baringo North/Marigat consumed IFAS for 90 days and below during their last pregnancy.

² WHO. Guideline: Daily iron and folic acid supplementation in pregnant women. Geneva, World Health Organization, 2012.

3.5.3 Maternal Nutrition

Maternal malnutrition is usually associated with high risk of low birth weights and it is recommended that before, during and after birth, the maternal nutrition status should be adequate. Maternal nutrition was assessed by measuring MUAC of all women of reproductive age (15 to 49) in all sampled households. Analysis was further focused on pregnant and lactating women.

The maternal malnutrition was defined as women whose MUAC measurements were < 21.0cm while women whose MUAC measurements were between 21.0 <23.0cm were classified as at risk of malnutrition.

Indicator	Tiaty		Baringo North/Marigat	
	percent	n	percent	n
MUAC <21.0 cm for all women	8.20%	33	2%	9
MUAC <21.0 cm for PLW	6.80%	18	1.50%	3

A bigger proportion of women were malnourished in Tiaty than in Baringo North/Marigat. In Tiaty 6.8% of the PLW had MUAC < 210MM and 1.5% in PLW in Baringo North had MUAC < 210MM.

3.6 WATER SANITATION & HYGIENE

International human rights consider access to water and sanitation as a human right.³ This means that all individuals are entitled to have access to an essential amount of safe drinking water and to basic sanitation facilities. The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use. Water and sanitation are deeply interrelated. Sanitation is essential for the conservation and sustainable use of water resources, while access to water is required for sanitation and hygiene practices.

Furthermore, the realization of other human rights, such as the right to the highest attainable standard of health, the right to food, right to education and the right to adequate housing, depends very substantially upon the implementation of the right to water and sanitation. Research has shown that poor WASH indicators are linked to under nutrition and more so on High Stunting levels. Diarrhoea, the leading killer of young children is closely linked to poor/inadequate WASH (Pruss-Ustun et al, 2014), which often causes under nutrition, which in turn reduces a child's resistance to subsequent infections, thus creating a vicious circle. An estimated 25% of stunting is attributable to five or more episodes of diarrhoea before 24 months of age (Checkley et al, 2008).

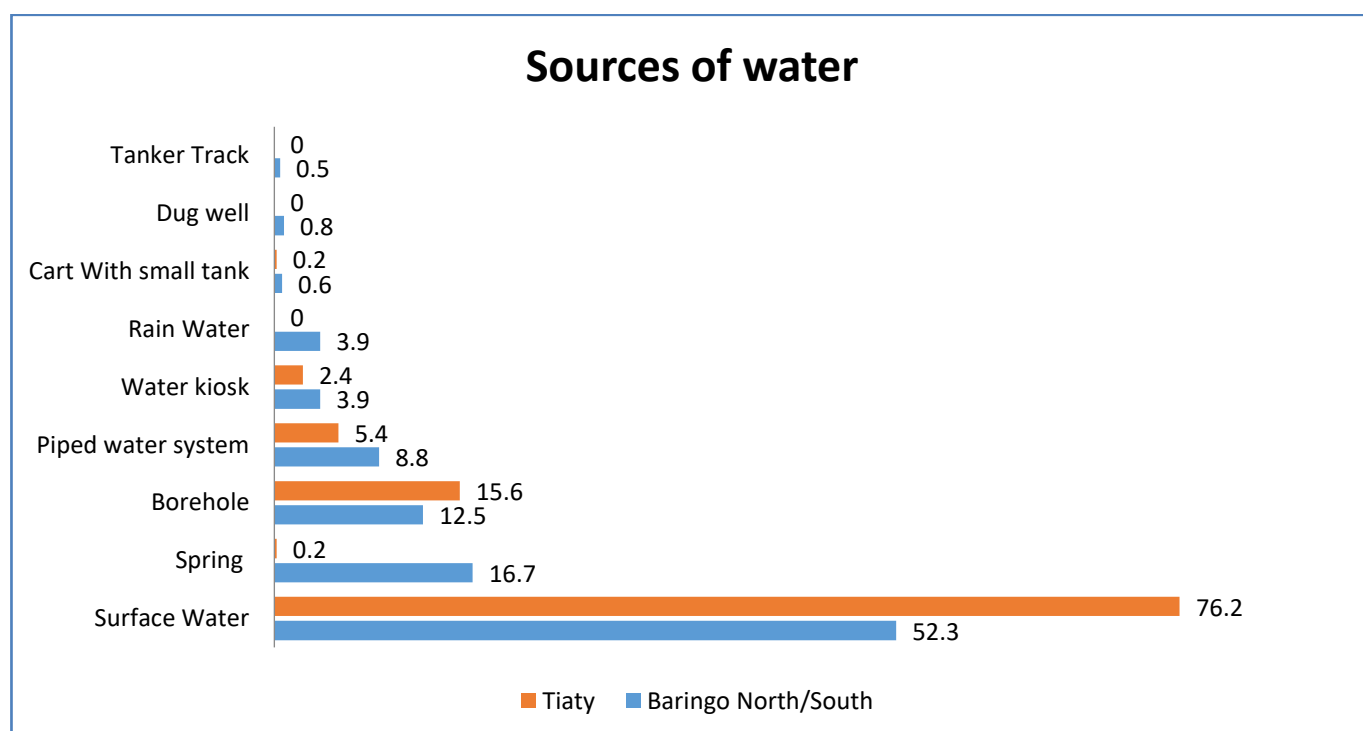
3.6.1 Main Source of Water

Accessibility to improved water sources is of fundamental significance to lowering the fiscal risk and frequency of associated diseases. Its association with other socioeconomic characteristics, including education and income, makes it a good universal indicator of human development. Drinking water coverage is presented as a two-step ladder that includes the proportion of the population using:

³ The UN committee on economic, Cultural and Social rights states in its General Comment of November 2002

- Unimproved drinking water sources which include: Unprotected dug well, unprotected spring, cart with small tank/drum, tanker truck, and surface water (river, dam, lake, pond, stream, canal, irrigation channels), bottled water
- Improved drinking water sources also piped water which include: Public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs and rainwater collection, Piped household water connection located inside the user’s dwelling, plot or yard.

From the survey result it indicated that in Baringo North / Marigat 52.3%, get water from surface water, 16.7% from spring and 12.5% from Borehole. In Tiaty 76.2%, get water from surface water and 15.6% from boreholes

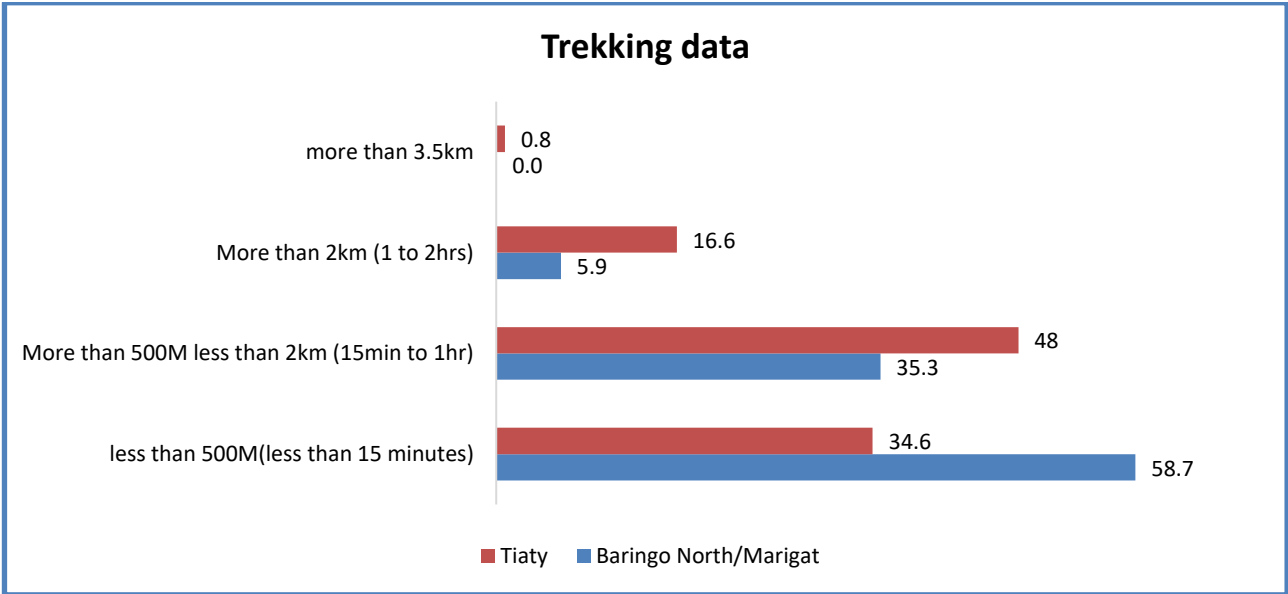


3.6.2 Distance to Water Source and Queuing Time

According to SPHERE handbook for minimum standards for WASH, the maximum distance from any household to the nearest water point should be 500 meters. It also gives the maximum queuing time at a water source, which should be not more than 15 minutes, and it should not take more than three minutes to fill a 20-litre container.

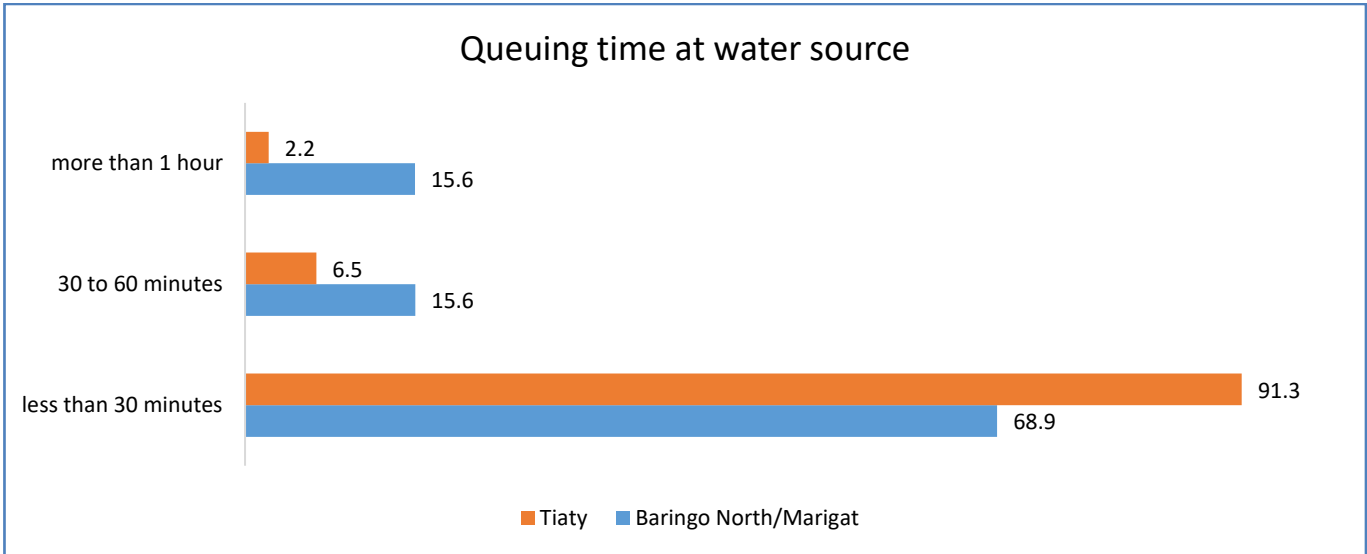
3.6.2.1 Distance to water sources

In Tiaty Sub County majority at 65.4% trek for > 500M to the water source while 34.6 trek for < 500m. In Baringo North/Marigat 58.7% trek for < 500M to water source while 41.3% trek for > 500M

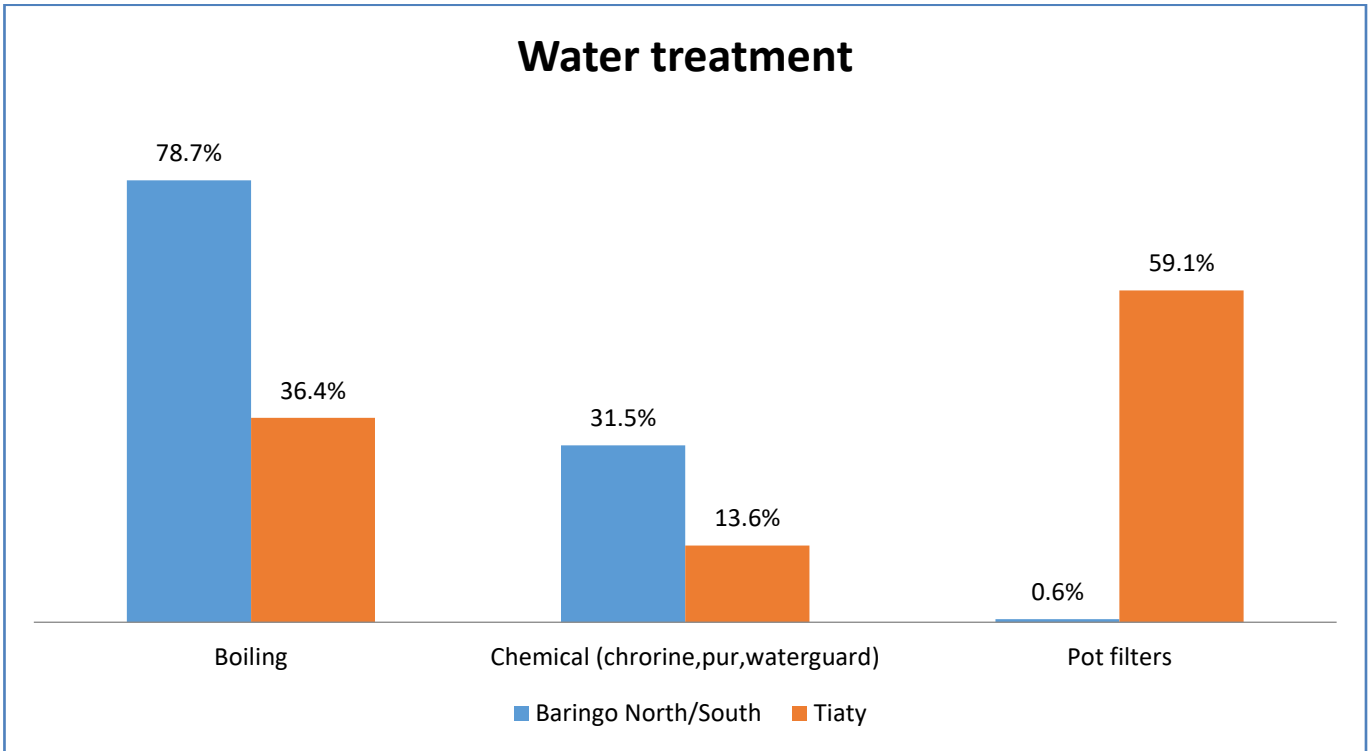


3.6.2.2 Queuing time to water sources

In Tiaty a bigger proportion queue for water in < 30 Minutes. This can be attributed to that majority get water from surface water source. In Baringo North/ Marigat 68.9 queue for < 30 Minutes while 31.2% queue for > 30 Minutes



Majority at of Baringo North/Marigat and Tiaty do not treat their water before use this stands at 71.4%, 95.6% respectively. Among those who treat water in Tiaty, they use pot filters and boiling to treat water while in Baringo North/Marigat they boil and also use chemical (chlorine and water guard)



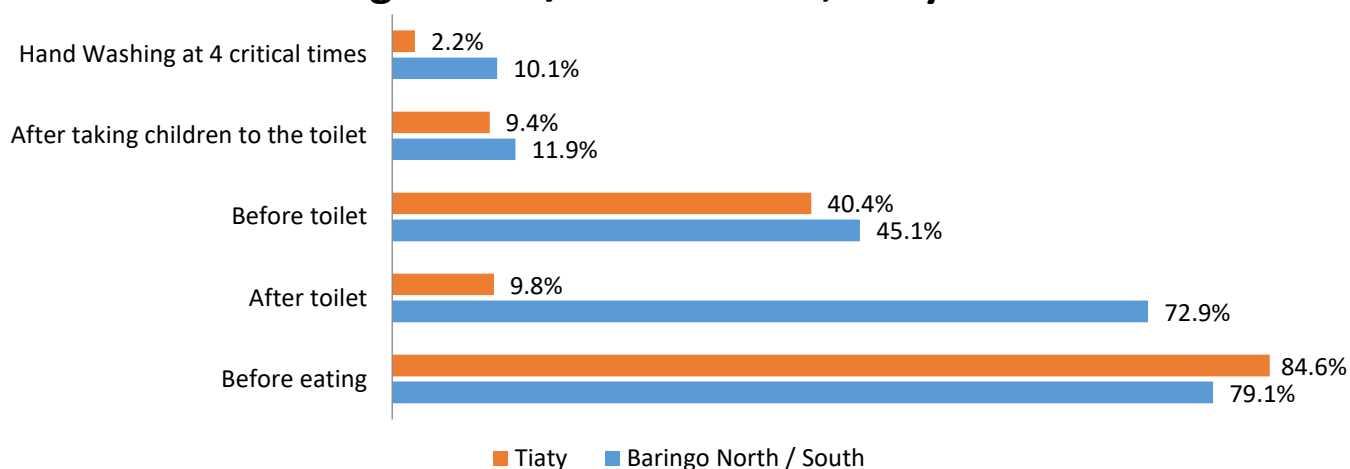
3.7 Hygiene and sanitation

3.7.1 Hand washing

Hand washing with soap is one of the most effective and inexpensive interventions for preventing diarrhoeal diseases and pneumonia, which together account for 3.5 million child deaths annually worldwide.⁴ Hand washing is important for good health. Effective washing can be practiced with alternatives to soap and using a variety of different hygienic facilities. Overall, interventions to promote hand washing might save a million lives a year. Each person should be able to wash hands with water and soap after toilet use, before food preparation, before eating and after cleaning babies. From the survey result 88.2% and 82.2% of the respondent were not aware of hand washing In Tiaty and Baringo North/Marigat respectively. Hand washing four critical times was at 2.2% in Tiaty and 10.1% in Baringo North/Marigat.

⁴ Cairncross, S. and Valdmanis V. (2006) Chapter 41: Water Supply, Sanitation, and Hygiene Promotion. In D.T. Jamison, J.G. Breman, A.R. Measham, et al. (Editors), Disease Control Priorities in Developing Countries, 2nd edition (771-792). Washington (DC): World Bank.

Baringo North/South N=623, Tiaty N=500

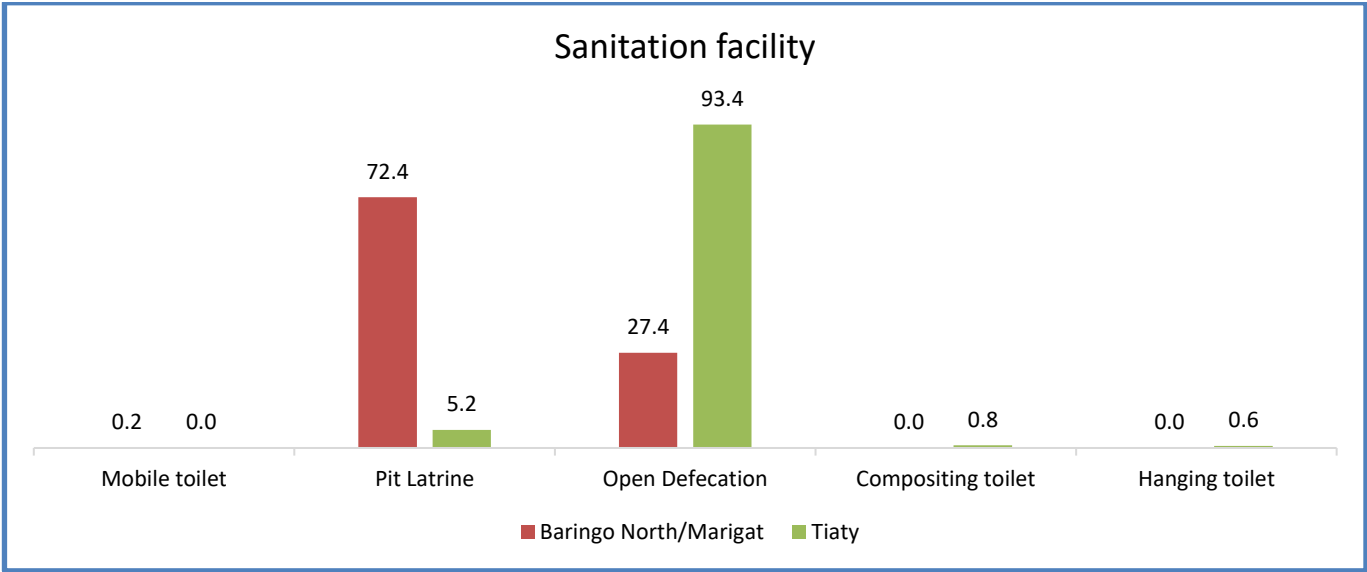


3.7.2 Sanitation Facilities

People with at least basic sanitation services are considered to have safely managed sanitation services if the excreta from their homes is transported through sewers and treated off-site. Poor management of excreta is linked to transmission of diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid and polio, and also contributes to malnutrition. Inadequate sanitation is estimated to cause 280 000 diarrhoeal deaths annually and is a major factor in several neglected tropical diseases, including intestinal worms, schistosomiasis, and trachoma. Proper sanitation facilities (for example, toilets and latrines) promote health because they allow people to dispose of their waste appropriately. Sanitation Facilities are classified as:

- Improved sanitation, which include:
 - ✓ Flush toilet
 - ✓ Connection to a piped sewer system
 - ✓ Connection to a septic system
 - ✓ Flush / pour-flush to a pit latrine
 - ✓ Pit latrine with slab
 - ✓ Ventilated improved pit latrine (abbreviated as VIP latrine)
 - ✓ Composting toilet
- Unimproved Sanitation which include:
 - ✓ Public or shared latrine (meaning a toilet that is used by more than one household)
 - ✓ Flush/pour flush to elsewhere (not into a pit, septic tank, or sewer)
 - ✓ Pit latrine without slab
 - ✓ Bucket latrines
 - ✓ Hanging toilet / latrine
 - ✓ No facilities / bush / field (open defecation)

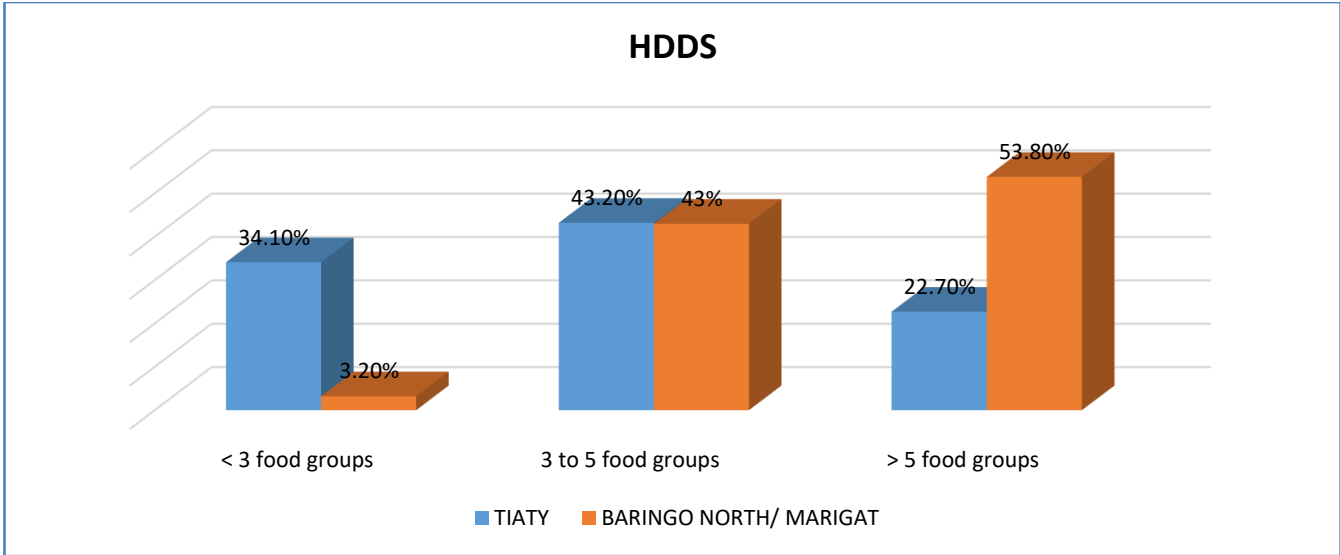
The finding indicated latrine coverage in Baringo North/Marigat was at 72.6% and 6.6% in Tiaty Sub County. Household practicing open defecation were 93.4% in Tiaty and 27.4% in Baringo North/Marigat.



3.5 FOOD SECURITY

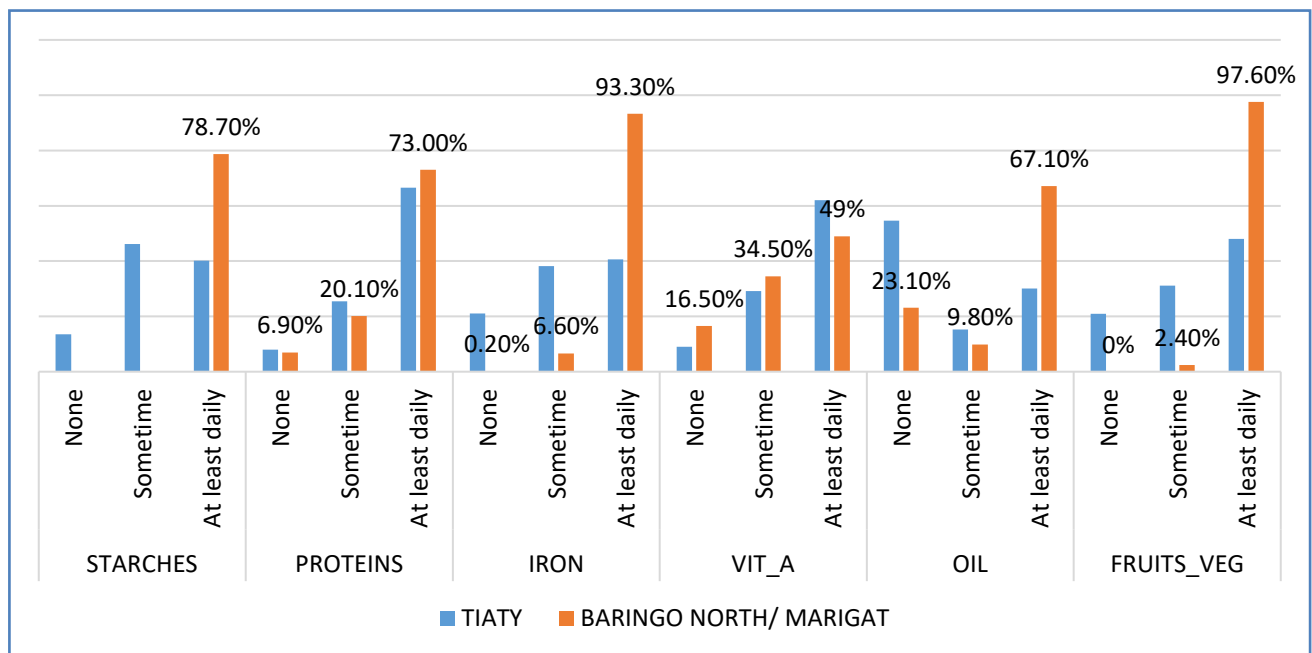
3.5.1 Household Dietary Diversity (HDD)

Household dietary diversity Score (HDDS) is a measure of food consumption that reflects household access to a variety of foods. It is not meant to be used in accessing dietary diversity at individual level (FAO, 2010). Minimum Household Dietary Diversity is an indicator of whether or not a household has consumed at least three out of twelve defined food groups within the last 7 days. Survey findings shows 53.8%, 22.7% of the household surveyed had consumed more than 5 food groups in Baringo North and Tiaty Sub County respectively.



Micronutrient malnutrition is a global problem much bigger than hunger and imposes enormous costs on societies in terms of ill health, lives lost, reduced economic productivity and poor quality of life. Addressing the global challenge of micronutrient malnutrition requires the need for many strategies – both short- and intermediate-term and long-term sustainable approaches. In addition to the conventional approaches of micronutrient supplementation and fortification, promoting sustainable food based approaches to enable adequate intakes of micronutrients by much of the population includes dietary

diversification strategies and agriculture-based approaches. Dietary diversification is possible by the promotion of homestead food production, which includes home gardening, small livestock rearing and fishing as well as the processing and preservation of food. Analysis on iron rich foods shows that less iron rich foods were consumed in Tiaty Sub County as shown in the table below. Protein rich food were highly consumed in both Baringo north and Tiaty Sub County. These results reflects the ones recorded during SMART survey 2019 which illustrated similar trends in 2018.

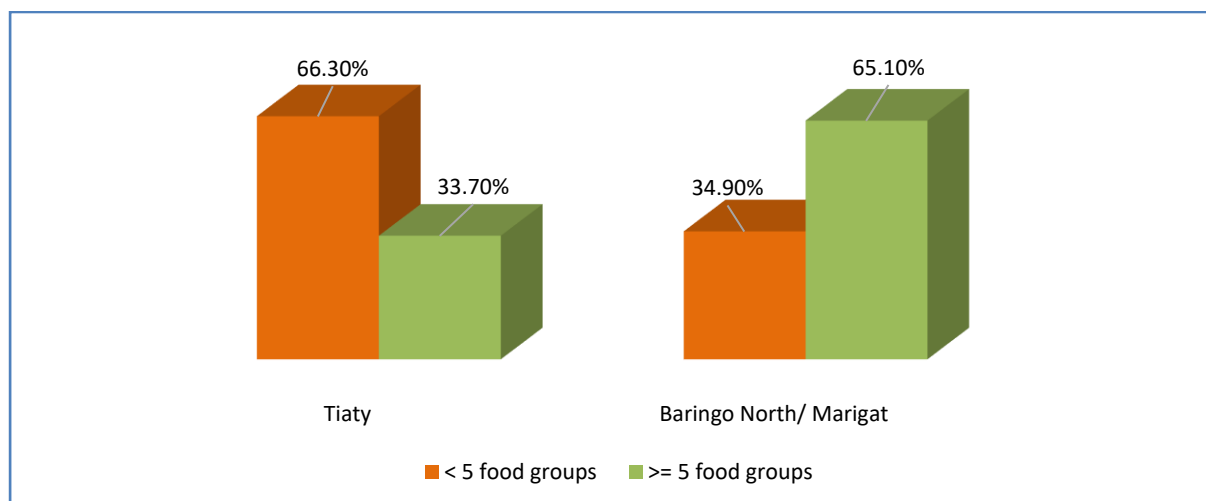


3.5.2 Women Dietary diversity score

Women of reproductive age (WRA) are often nutritionally vulnerable because of the physiological demands of pregnancy and lactation. Requirements for most nutrients are higher for pregnant and lactating women than for adult men (National Research Council, 2006), World Health Organization [WHO]/ Food and Agriculture Organization of the United Nations (FAO, 2016). Outside of pregnancy and lactation, other than for iron, requirements for WRA may be similar to or lower than those of adult men, but because women may be smaller and eat less (fewer calories), they require a more nutrient-dense diet (Torheim and Arimond, 2013). Insufficient nutrient intakes before and during pregnancy and lactation can affect both women and their infants. Yet in many resource-poor environments, diet quality for WRA is very poor, and there are gaps between intakes and requirements for a range of micronutrients (Arimond et al., 2010; Kavle, 2017).

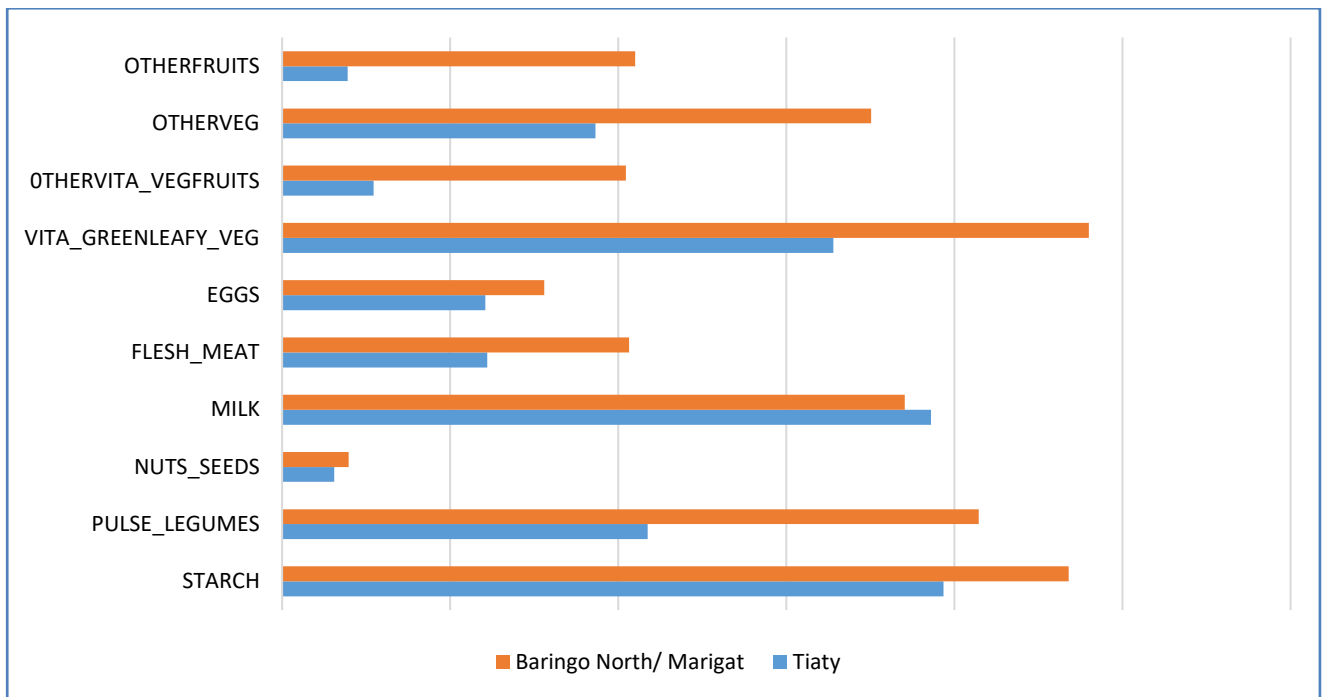
MDD-W6 is a dichotomous indicator of whether or not women 15-49 years of age have consumed at least five out of ten defined food groups the previous day or night. The proportion of women 15–49 years of age who reach this minimum in a population can be used as a proxy indicator for higher micronutrient adequacy, one important dimension of diet quality. The indicator constitutes an important step towards filling the need for indicators for use in national and subnational assessments. It is a population-level indicator based on a recall period of a single day and night, so although data are collected from individual women, the Indicator cannot be used to describe diet quality for an individual woman. This is because of normal day-to-day variability in individual intakes.

The results below indicated that in Tiaty majority of the women at 66.3% consumed less than 5 food groups, 33.7% consumed 5 or more food groups. In Baringo North/ Marigat majority at 65.1% consumed 5 or more food groups and 34.9% consumed less than 5 food groups.



Further analysis on women of reproductive age 24 hours recall showed that women in Tiaty consumed less good groups as compared to Baringo North. Only the consumption of milk was higher in Tiaty as compared to Baringo North/Marigat

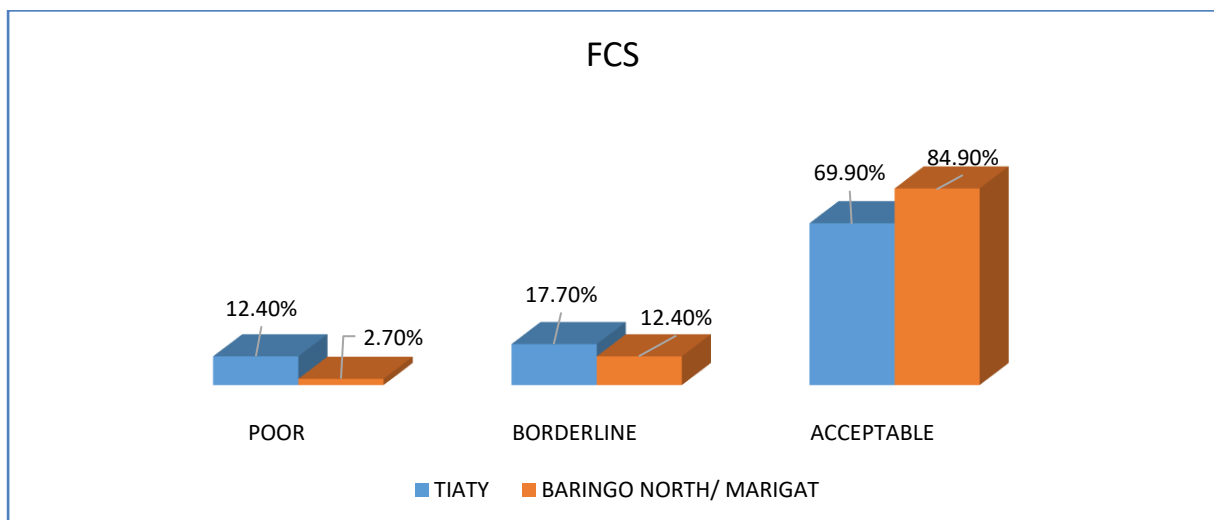
Food Groups consumed by women of reproductive age



3.5.3 Food Consumption Score Classification

The food consumption score is an acceptable proxy indicator to measure caloric intake and diet quality at household level, giving an indication of food security status of the household. It's a composite score based on dietary diversity, food frequency and relative nutritional importance of different food groups.

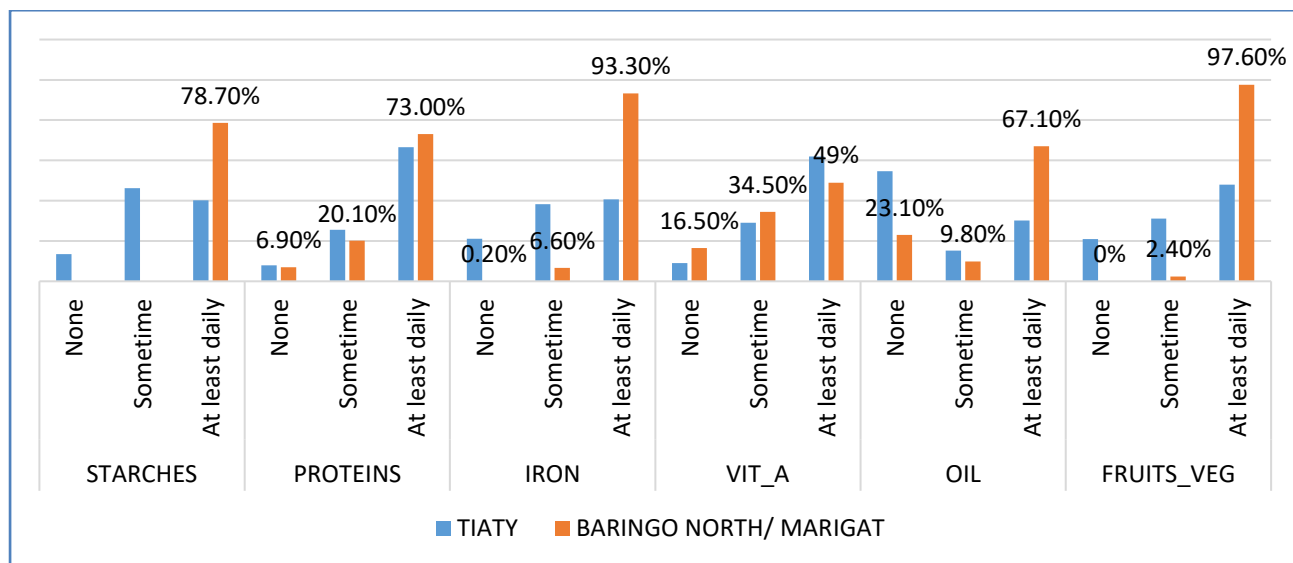
Food consumption score classifies households in to 3 categories namely, poor, borderline and acceptable (FAO 2010). Food security situation in Baringo North and Tiaty had improved where most of the household their FCS was acceptable 69.9% Tiaty and 84.9% Baringo North. However a significant 12.4% (2019) compared to 1.5% (2018) in Tiaty had a poor FCS while it remained unchanged (2018 and 2019) at 2.7 percent in Baringo North.



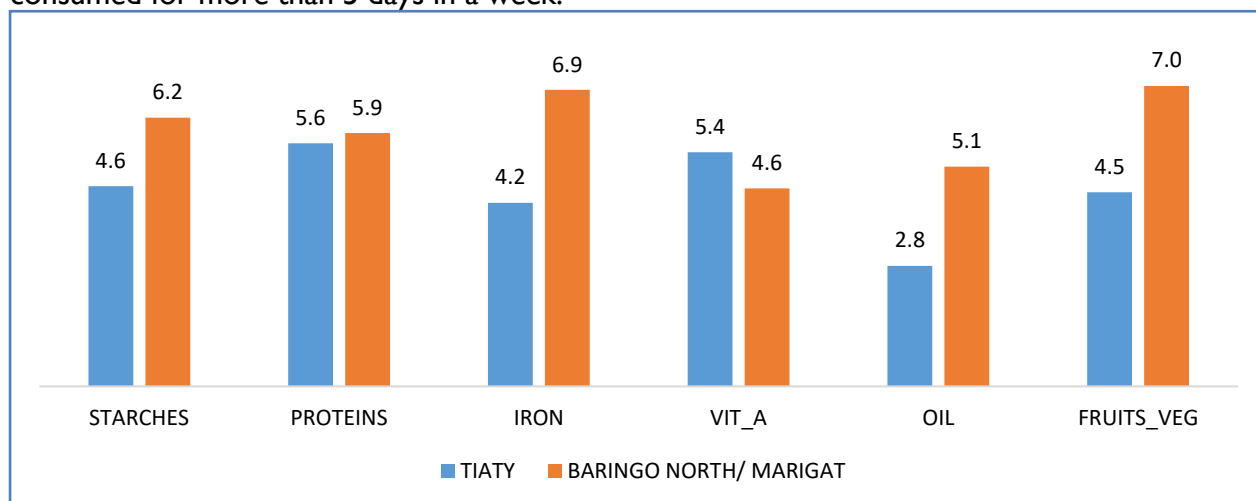
3.5.4 Food Consumption Score –Nutrition

Deficiencies in micronutrients, such as vitamin A and iron, over a long period, lead to chronic undernutrition. Iron deficiency leads to anemia and Vitamin A deficiency leads to blindness and interferes with the normal functioning of the immune system, growth and development as well as reproduction.

Among the household who had acceptable FCS in Baringo North and Tiaty, majority consumed on daily basis the protein rich foods, Vitamin A rich foods and iron rich foods. This is well illustrated in the tables below.



Further analysis on average number of days micronutrient were consumed in a household showed that, in Baringo North Protein, iron, Fruits and vegetables, starches and Oil were consumed over 5 days in a week. In Tiaty Sub County only proteins, Vitamin A were consumed for more than 5 days in a week.



3.6 Coping strategy Index

The Coping Strategy Index (CSI), is a proxy indicator for access to food and change in the consumption patterns of a given household. For each coping strategy, the frequency score (0 to 7) is multiplied by the universal severity weight. A weighted score allows one to measure the frequency and severity of coping strategies.

Data is collected on the number of days in the last seven days a household used a specific coping strategy due to a shortage of food and/or income. The average CSI for Tiaty Sub County for SMART 2019 was 16.72 compared to 18.17 (2018) while for Baringo North was 15.17 (2019) as compared to 18.28 (2018). The CSI for Tiaty has continued to reduce compared to the last three years showing either better adaptation or a shift in livelihoods.

	Baringo North/Marigat				Tiaty			
	N	Av. CSI/ Days	Weight of CSI	Total Weight CSI	n	Av. CSI/ Days	Weight of CSI	Total Weight CSI
Rely on less preferred and less expensive foods?	235	2.48	1	2.48	330	2.27	1	2.27
Borrow food, or rely on help from a friend or relative?	181	1.8	2	3.6	254	1.63	2	3.26
Limit portion size at mealtimes?	218	2.1	1	2.1	275	2.17	1	2.17
Restrict consumption by adults in order for small children to eat?	141	2.02	3	6.06	233	1.74	3	5.22
Reduce number of meals eaten in a day?	219	2.48	1	2.48	256	2.25	1	2.25
Total Weighted CSI				16.72				15.17

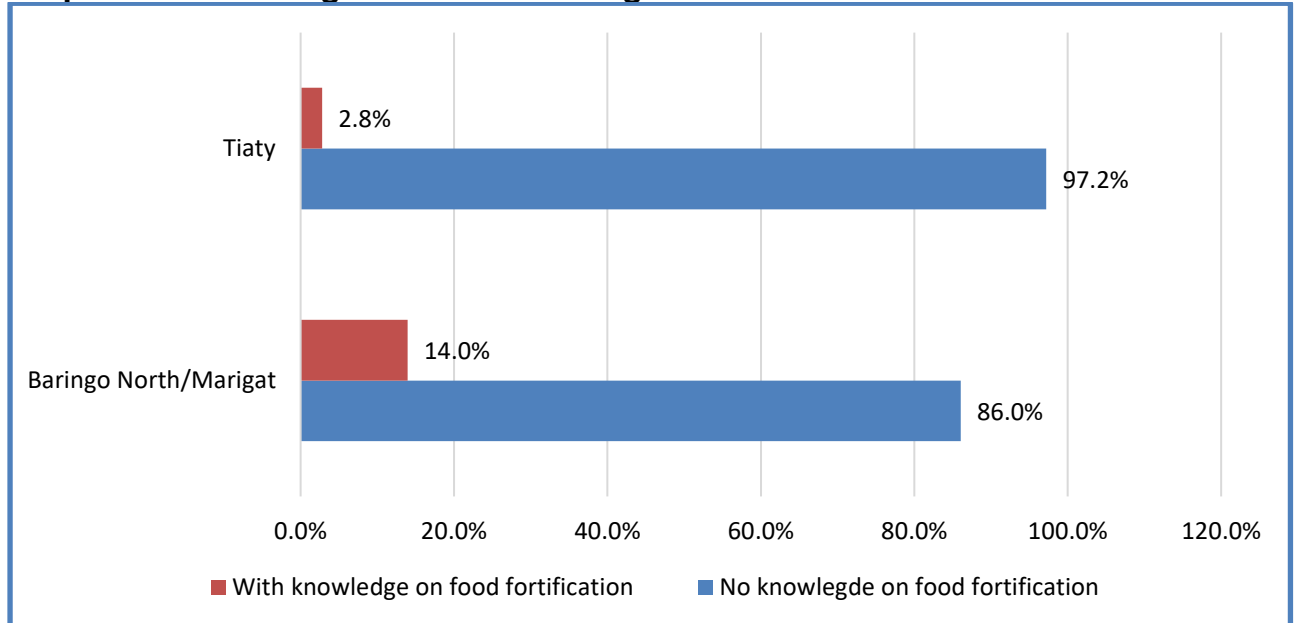
3.7 Food Fortification

Fortification is adding vitamins and minerals to foods to prevent nutritional deficiencies. The nutrients regularly used in grain fortification prevent diseases, strengthen immune systems, and improve productivity and cognitive development. Wheat flour, maize flour, and rice are primarily fortified to:

- Prevent nutritional anemia
- Prevent birth defects of the brain and spine
- Increase productivity
- Improve economic progress

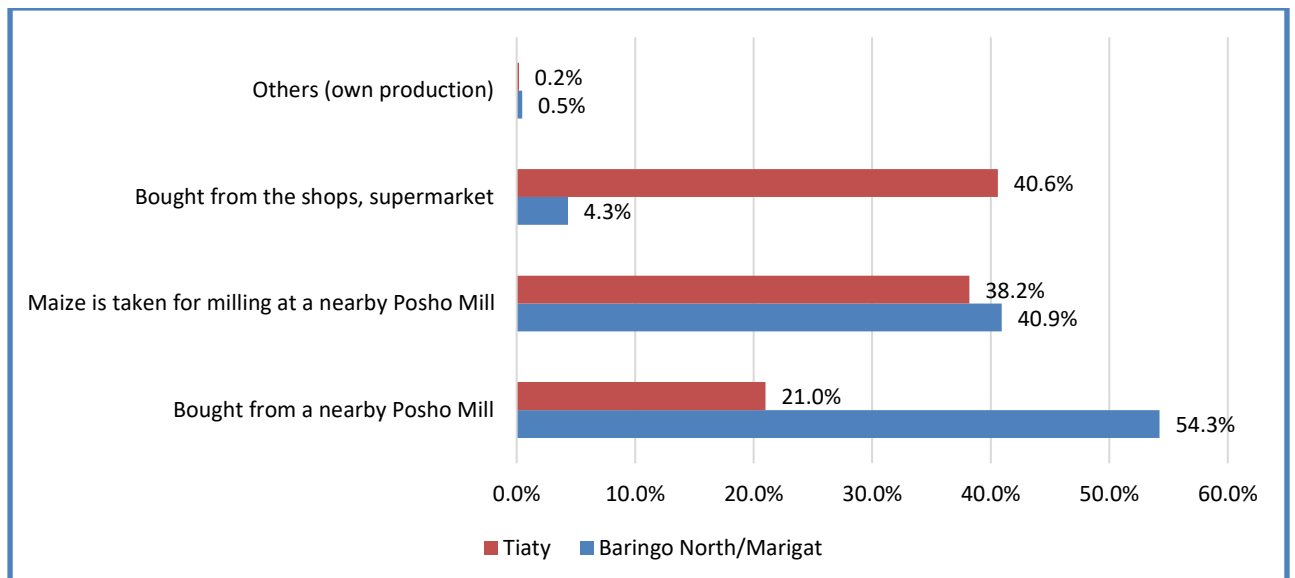
Food fortification was identified as the second strategy of four by the WHO and FAO to begin decreasing the incidence of nutrient deficiencies at the global level. As outlined by the FAO, the most common fortified foods are cereals (and cereal based products), milk (and milk products), fats and oils, accessory food items, tea and other beverages, and infant formulas. Undernutrition and nutrient deficiency is estimated globally to cause between 3 and 5 million deaths per year. Food fortification was assessed and only 2.8% and 14% in Tiaty and Baringo North respectively reported to have seen the Food fortification Logo.

Respondent knowledge on fortification logo



From the survey results, 54.3% of the respondent from Baringo North/Marigat confirmed their main source of flour was bought from a nearby Posho mill and 40.6 of the respondent from Tiaty confirmed to buy flour from the shops.

Main Source of flour in Baringo



4.0 CONCLUSION AND RECOMMENDATIONS

FINDINGS	RECOMMENDATIONS	ACTOR(WHO)	BY WHEN
<ul style="list-style-type: none"> - GAM Tiaty 20.9 SAM (3.5%) WRA & PLW (8.2% and 7.1%) - GAM B. North/South 9.3% SAM 2.3%, WRA & PLW (2.0% and 1.5%) 	<ul style="list-style-type: none"> - IMAM Surge Scale up in Tiaty and upscale facilities to offer IMAM in North/South - Cluster IMAM training in Baringo North/South - Support Scale-up integrated outreaches-Tiaty. - Strengthen HINI Service delivery in all health facilities in the county - Active Mass screening and Case finding for WRA -Tiaty • BSFP for Tiaty Sub County 	<p>MOH/WVK/NDMA/KRCS</p> <p>MOH/WFP</p>	<p>Ongoing</p> <p>Sep-19</p> <p>BSFP-SEPT 2019-2020</p>
<ul style="list-style-type: none"> - Prevalence of stunting and underweight at 28.1% and 21.4% in Baringo North/South & 40.1% and 40.4% in Tiaty 	<ul style="list-style-type: none"> - Promote multi-sectoral collaboration engagement and mapping to ensure strong coordination mechanism - Upscale Establishment of BFCI in all established community units 	<p>MOH/NUTRITION SENSITIVE SECTORS/NDMA/WFP</p>	<p>Ongoing</p> <p>2020</p>
<ul style="list-style-type: none"> - Prevalence of stunting and underweight at 28.1% and 21.4% in Baringo North/South & 40.1% and 40.4% in Tiaty 	<ul style="list-style-type: none"> - Strengthen defaulter tracing mechanism for malnourished children - Strengthen active case finding and referral systems at community units - Strengthen growth monitoring in all Healt 	<p>MOH/UNICEF/KRCS/WVK</p>	<p>2020</p>

<ul style="list-style-type: none"> - Vitamin A supplementation among children 	<ul style="list-style-type: none"> - Routine Vitamin A supplementation at the facility level, during outreaches and malezi bora week. - Conduct vitamin A sensitization training for all health workers - Conduct bi-annually vitamin A Data Quality Audit. - Strengthen Vitamin A supply chain management 	MOH/UNICEF/KRCS/WVK	Ongoing OCT 2019-2020 May
<ul style="list-style-type: none"> - Deworming coverage of 35.2% Tiaty and 68.3% Baringo North / South, below target of 80%. 	<ul style="list-style-type: none"> - Routine Deworming at the facility level and during malezi bora week. - Strengthening the dewormers supply chain management 	MOH	Ongoing Sep-19
<ul style="list-style-type: none"> - Pregnant mothers who received IFAS was 68.0% in Tiaty and 86.3% in Baringo North/South 	<ul style="list-style-type: none"> - Routine supplementation of IFAS at the facility level during ANC Visits and at outreaches. - Support training of HCW on MIYCN and Micronutrient. - IFAS Refresher training for all health workers 	MOH/UNICEF/WVK	Scale to 2020
<ul style="list-style-type: none"> - Immunization/vaccination coverage of BCG vaccine, OPV1, OPV3 and measles (1st & 2nd dose) above 80%. 	<ul style="list-style-type: none"> - Strengthen Documentation of Reports of the children immunized. - Upscale and support integrated outreaches where not accessible to health care services 	MOH	Ongoing OCT 2019
<ul style="list-style-type: none"> - Zinc supplementation 82.4% in Baringo North/South and 68.6% in Tiaty 	<ul style="list-style-type: none"> - Scale-up IMCI and ICCM(Provide ORT guidelines for all facilities - strengthen supply chain for Zn 	MOH	Ongoing and to be upscale OCT 2019-2020

<ul style="list-style-type: none"> - Main source at water for drinking was from unsafe sources. 	<ul style="list-style-type: none"> - Community sensitization on treatment of water at household level 	MOH/KRCS /WVI	Ongoing AUG 2019
<ul style="list-style-type: none"> - Only 10.1% Baringo North and 2.2% Tiaty of respondents at household practice the 4 handwashing practices at a given point. 	<ul style="list-style-type: none"> - Community sensitization on hand washing practices - Train CHV'S ON BFCI modules 	MOH/KRCS /WVI/UNIC EF	OCT 2019-2020 OCT
<ul style="list-style-type: none"> - High rate of Open defecation - Tiaty 93.4 vs 27.4 B/North 	<ul style="list-style-type: none"> - Scale up implementation of WASH-CLTS-Nutrition activities at community level and schools. 	MOH/UNIC EF/WVI	JUL- DEC 2019
<ul style="list-style-type: none"> - Poor dietary diversity 	<ul style="list-style-type: none"> - Up scaling baby friendly Community Initiatives in community units - Health education on dietary diversity <ul style="list-style-type: none"> - Formation and training of community groups ,Fathers and MTMSG'S - Promote dietary diversification through Kitchen gardening, dietary formulation and cooking demonstration 	MOH/MOA/ WFP/UNICE F	JUL- DEC 2019
<ul style="list-style-type: none"> - Low awareness on food fortification 	<ul style="list-style-type: none"> - Health education on the on use fortified foods - Conduct community sensitization on importance of using fortified foods 	MOH/UNIC EF/WFP	JUL 2019-2020

ANNEX 2: Questionnaire

I.IDENTIFICATION		I.1 Data Collector _____				I.2 Team Leader _____		
I.3 Survey date (dd/mm/yy)-----								
1.4 County	1.5 Sub County	1.6 Ward	1.7 Location	1.8 Sub-Location	1.9 Village	1.10 Cluster No	1.11 HH No	1.12 Team No.
1.13 Household geographical coordinates	Latitude	_____	Longitude	_____				

2. Household Demographics										
2.1	2.2a	2.2b	2.3	2.4	2.5	2.6	2.7a	2.7b	2.8	2.10
Age Group	Please give me the names of the persons who usually live in your household.	Please indicate the household head (write HH on the member's column)	Age (Record age in MONTHS for children <5yrs and YEARS for those ≥ 5 years's)	Childs age verified by	Sex	If between 3 and 18 years old, Is the child attending school?	Main reason for not attending school (Enter one code from list)	2.7a, What is the child doing when not in school ?	What is the highest level of education attained?(level completed) From 5 yrs and above	If the household owns mosquito net/s, who slept under the mosquito net last night? (Probe-enter all responses mentioned (Use 1 if "Yes"
			Ye ars	Mo nths	1=Health card 2=Birth certificate/ notification	1= Male 2= Female 1 = Yes 2 = No (If yes go to 2.8; If no go to 2.7)	1=Chronic Sickness 2=Weather (rain,	1=Working on family farm 2=Herding Livestock	1 =Pre primary	

					<p>3=Ba ptism card</p> <p>4=Re call</p> <p>5. other _____ _____</p> <p>specif y</p>			<p>floods, storms)</p> <p>3=Famil y labour responsi bilities</p> <p>4=Work ing outside home</p> <p>5=Teach er absentee ism/lack of teachers</p> <p>6= Fees or costs</p> <p>7=Hous ehold doesn't see value of schoolin g</p> <p>8 =No food in the schools</p> <p>9 = Migrated / moved from school area (includin g displace ments)</p>	<p>3=Wor king for paymen t away from home</p> <p>4=Left home for elsewh ere</p> <p>5=Chil d living on the street</p> <p>6: Other specify _____ _____</p>	<p>2= Primary</p> <p>3=Seco ndary</p> <p>4=Terti ary</p> <p>5= None</p> <p>6=othe rs(speci fy)</p> <p>Go to questio n to 2.9 ↓</p>	<p>2 if "No and 3 if not applicabl e) go to question 2.11</p>
--	--	--	--	--	---	--	--	---	--	--	---

								I0=Insecurity/violence I1-No school Near by I2=Married I3. Pregnant / taking care of her own child I3=others (specify)			
< 5 YRS	1										
	2										
	3										
	4										
>5 TO <18 YRS	5										
	6										
	7										
	8										
	9										
	10										
	11										
	12										
	13										

ADULT (18 years and above)	14)										
	15										
	16										

2.9 How many mosquito nets does this household have? _____ (Indicate no.)
 go to question 2.10 before proceeding to question 2.11

2.11 Main Occupation of the Household Head – HH.
 (enter code from list)

1=Livestock herding
 2=Own farm labour
 3=Employed (salaried)
 4=Waged labour (Casual)
 5=Petty trade
 6=Merchant/trader
 7=Firewood/charcoal
 8=Fishing
 9= Income earned by children

10=Others (Specify)

2.12. What is the main current source of income of the household?

1. =No income
 2. = Sale of livestock
 3. = Sale of livestock products
 4. = Sale of crops
 5. = Petty trading e.g. sale of firewood
 6. =Casual labor
 7. =Permanent job
 8. = Sale of personal assets
 9. = Remittance
 10. Other-Specify _____

2.13 Marital status of the respondent

1. = Married
 2. = Single
 3. = Widowed
 4. = separated
 5. = _____ Divorced.

2.14. What is the residency status of the household?

1. IDP
 2.Refugee
 3. Resident _____

2.15 Are there children who have come to live with you recently?

1. YES
 2. NO

2.15b If yes, why did the child/children come to live with you?

1= Did not have access to food

2=Father and Mother left home

3=Child was living on the street,

4=Care giver died

5= Other specify

Fever with Malaria: High temperature	Cough/ARI: Any episode with severe, persistent cough or difficulty	Watery diarrhoea: Any episode of three or more watery stools	Bloody diarrhoea: Any episode of three or more stools with blood per day
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3.	4.	<p>5. CHILD HEALTH AND NUTRITION (ONLY FOR CHILDREN 6-59 MONTHS OF AGE; IF N/A SKIP TO SECTION 3.6)</p> <p>Instructions: <i>The caregiver of the child should be the main respondent for this section</i></p> <p>3.1 CHILD ANTHROPOMETRY 3.2 and 3.3 CHILD MORBIDITY</p> <p><i>(Please fill in ALL REQUIRED details below. Maintain the same child number as part 2)</i></p>
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A Child No.	B	C	D	E	F	G	H	I	J	K	3.2 a	3.2 b	3.3 a	3.3 b	3.3 c
	what is the relationship of the respondent with the child/children I=Mother	SEX FemaleF MaleM	Exact Birth Date	Age in months	Weight (KG) XX.X	Height (CM) XX.X	Oedema Y= Yes N= No	MUAC (cm) XX.X	Is the child in any nutrition program 1. Yes 2. No	If yes to question J. which nutrition program? I. O.T P	Has your child (NAME) been ill in the past two weeks?	If YES, which illness (multiple responses possible) I = Fever with chills like malaria	When the child was sick did you seek assistance? 1. Yes 2. No	If the response is yes to question # 3.2 where did you seek assistance? (More than one response possible-	If the child had watery diarrhoea in the last TWO (2) WEEKS, did the child get: 1. ORS 2. Zinc supplementation?

	2=Father 3=Sibling 4=Grand mother 5=Other (specify)								If no skip to questions 3.2	2.SFP 3.BSP Other Specify _____ _____	1.Yes 2. No <u>If No, skip to 3.4</u>	2 = ARI /Cough 3 = Watery diarrhoea 4 = Bloody diarrhoea 5 = Other (specify) See case definitions above		1. Traditional healer 2.Community health worker 3. Private clinic/ pharmacy 4. Shop/kiosk 5.Public clinic 6. Mobile clinic 7. Relative or friend 8. Local herbs 9.NGO/FBO	Show sample and probe further for this component check the remaining drugs(confirm from mother child booklet)
01															
02															
03															
04															

3.4 Maintain the same child number as part 2 and 3.1 above

	A1	A2	B	C	D	E	F	G	H	I
Child No.	How many times has child received Vitamin A in the past year? (show sample)	Has the child received vitamin A supplement in the past 6 months?	How many times did the child receive vitamin A capsules from the facility or out reach	If Vitamin A received how many times in the past one year did the child receive verified by Card?	FOR CHILD REN 12-59 MONTHS How many times has child received drugs for worms in the past year? (show Sample)	Has the child received BCG vaccination ? Check for BCG scar. 1 = scar 2=No scar	Has child received OPV1 vaccination 1=Yes, Card 2=Yes, Recall 3 = No 4 = Do not know	Has child received OPV3 vaccination? 1=Yes, Card 2=Yes, Recall 3 = No 4 = Do not know	Has child received measles vaccination at 9 months (On the upper right shoulder)? 1=Yes, Card 2=Yes, Recall 3 = No 4 = Do not know	Has child received the second measles vaccination (18 to 59 months) (On the upper right shoulder)? 1=Yes, Card 2=Yes, Recall 3 = No 4 = Do not know

01										
02										
03										
04										

3.5 MNP Programme Coverage. *Maintain the same child number as part 2 and 3.1 above. Ask all the relevant questions (3.5.1 to 3.6.4) before moving on to fill responses for the next child. THIS SECTION SHOULD ONLY BE ADMINISTERED IF MNP PROGRAM IS BEING IMPLEMENTED OR HAS BEEN IMPLEMENTED*

3.5 Enrolment in an MNP program		3.6 Consumption of MNPs			
<p>3.5.1.</p> <p>Is the child enrolled in the MNP program?(show the example of the MNP sachet)</p> <p><i>(record the code in the respective child's number)</i></p> <p>Yes =1</p> <p>No=0</p> <p>If no go to 3.5.2,</p> <p>If yes go to section 3.6.1</p>	<p>3.5.2</p> <p>If the child, 6-23months, is not enrolled for MNP, give reason. (Multiple answers possible. Record the code/codes in the respective child's number. DO NOT READ the answers)</p> <p>Do not know about MNPs1</p> <p>Discouraged from what I heard from others2</p> <p>The child has not fallen ill, so have not gone to the health facility3</p> <p>Health facility or outreach is far4</p>	<p>3.6.1</p> <p>Has the child consumed MNPs in the last 7 days?(show s the MNP sachet) (record the code in the respective child's number)</p> <p>YES = 1</p> <p>N0= 0</p> <p>If no skip to 3.6.3</p>	<p>3.6.2</p> <p>If yes, how frequent do you give MNP to your child? (record the code in the respective child's number)</p> <p>Every day1</p> <p>Every other day2</p> <p>Every third day3</p> <p>2 days per week at any day4</p> <p>Any day when I remember.....5</p>	<p>3.6.3</p> <p>If no, since when did you stop feeding MNPs to your child? (record the code in the respective child's number)</p> <p>1 week to 2 weeks ago1</p> <p>2 week to 1 month ago2</p> <p>More than 1 month3</p>	<p>3.6.4</p> <p>What are the reasons to stop feeding your child with MNPs? (Multiple answers possible. Record the code/codes in the respective child's number. DO NOT READ the answers)</p> <p>Finished all of the sachets1</p> <p>Child did not like it2</p> <p>Husband did not agree to give to the child3</p> <p>Sachet got damaged4</p>

		Child receiving therapeutic or supplementary foods5 Other reason, specify6 Skip to 3.7				Child had diarrhea after being given vitamin and mineral powder5 Child fell sick.....6 Forgot 7 Child enrolled in IMAM program ...8 Other (Specify) _____ ____ ..9
Child 1						
Child 2						

Child 3						
Child 4						

MATERNAL NUTRITION FOR WOMEN OF REPRODUCTIVE AGE (15-49 YEARS)(Please insert appropriate number in the box)

3.7	3.8	3.9	3.10			3.11		
Woman ID. (all women in the HH aged 15-49 years from the household demographics – section 2)	What is the mother’s / caretaker’s physiological status 1. Pregnant 2. Lactating 3. not pregnant and not lactating 4. Pregnant and lactating	Mother/ caretaker’s MUAC reading: _____ cm	During the pregnancy of the (name of the youngest biological child below 24 months) did you take the following supplements? indicate 1. Yes 2. No 3. Don’t know 4. N/A			If Yes, for how many days did you take? (probe and approximate the number of days)		
			Iron tablets syrup	Folic acid	Combined iron and folic acid supplements	Iron tablets syrup	Folic acid	Combined iron and folic acid supplements

4.0 WATER, SANITATION AND HYGIENE (WASH)/- Please ask the respondent and indicate the appropriate number in the space provided			
4.1	<p>What is the MAIN source of drinking water for the household <u>NOW</u>?</p> <p>piped water</p> <p>piped into dwelling 11</p> <p>piped to yard / plot 12</p> <p>piped to neighbour 13</p> <p>public tap / standpipe 14</p> <p>tube well / borehole 21</p> <p>dug well</p> <p>protected well 31</p> <p>unprotected well 32</p> <p>spring</p> <p>protected spring 41</p> <p>unprotected spring 42</p> <p>rainwater 51</p> <p>tanker-truck 61</p> <p>cart with small tank 71</p> <p>water kiosk 72</p> <p>surface water (river, dam, lake, pond, stream, canal, irrigation channel) 81</p> <p>packaged water</p> <p>bottled water 91</p> <p>sachet water 92</p> <p>1.</p>	<p>4.2 a What is the trekking distance to the current main water source?</p> <p>1=less than 500m (Less than 15 minutes)</p> <p>2=more than 500m to less than 2km (15 to 1 hour)</p> <p>3=more than 2 km (1 – 2 hrs)</p> <p>4=Other(specify) _____</p>	<p>4.2b – Who MAINLY goes to fetch water at your current main water source?</p> <p>1=Wom en,</p> <p>2=Men,</p> <p>3=Girls,</p> <p>4=Boys</p>
4.2. 2a	<p>How long do you queue for water?</p> <p>1. Less than 30 minutes</p> <p>2. 30-60 minutes</p> <p>3. More than 1 hour</p> <p>4. Don't que for water</p> <p>1.</p>	<p>.3 Do you do anything to your water before drinking? (MULTIPLE RESPONSES POSSIBLE) (Use 1 if YES and 2 if NO).</p> <p>1. Nothing _____</p> <p>2. Boiling..... _____</p> <p>..... _____</p>	

		<p>3. Chemicals (Chlorine,Pur,Waterguard)..... ____ </p> <p>4. Traditional herb..... ____ </p> <p>5. Pot filters..... ____ </p> <p>5.</p>	
4.3a	____	6.	
4.4	<p>Where do you store water for drinking?</p> <p>1. Open container / Jerrican</p> <p>2. Closed container / Jerrican ____ </p>	<p>4.5 How much water did your household use YESTERDAY (excluding for animals)?</p> <p>(Ask the question in the number of 20 liter Jerrican and convert to liters & write down the total quantity used in liters) ____ </p>	
4.6	<p>Do you pay for water?</p> <p>1. Yes</p> <p>2. No (If No skip to Question 4.7.1) ____ </p>	<p>4.6.1 If yes, how much per 20 liters jerrican _____ KSh/20ltrs</p>	<p>4.6.2 If paid per month how much ____ </p>
4.7.1a	<p>We would like to learn about where members of this household wash their hands.</p> <p>Can you please show me where members of your household <u>most often</u> wash their hands?</p> <p><i>Record result and observation.</i></p> <p>OBSERVED</p> <p>FIXED FACILITY OBSERVED (SINK / TAP)</p> <p>IN DWELLING1</p> <p>IN YARD /PLOT.....2</p> <p>MOBILE OBJECT OBSERVED</p>	<p>4.7.1b Is soap or detergent or ash/mud/sand present at the place for handwashing?</p> <p>YES, PRESENT 1</p> <p>NO, NOT PRESENT...2</p>	

	(BUCKET / JUG / KETTLE).....3 NOT OBSERVED NO HANDWASHING PLACE IN DWELLING / YARD / PLOT4 NO PERMISSION TO SEE.....5	
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4.7. 1	Yesterday (within last 24 hours) at what instances did you wash your hands? (MULTIPLE RESPONSE- (Use 1 if “Yes” and 2 if “No”)) 1. After toilet..... <input type="checkbox"/> 2. Before cooking..... <input type="checkbox"/> 3. Before eating..... <input type="checkbox"/> 4. After taking children to the toilet..... <input type="checkbox"/> 5. Others..... <input type="checkbox"/>
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4.7. 2	If the caregiver washes her hands, then probe further; what did you use to wash your hands? 1. Only water 2. Soap and water 3. Soap when I can afford it 4. traditional herb 5. Any other specify <input type="checkbox"/>	4.8 What kind of toilet facility do members of your household usually use? <p style="text-align: center;">If ‘Flush’ or ‘Pour flush’, probe:</p> <p style="text-align: center;">Where does it flush to?</p> <p style="text-align: right;"><input type="checkbox"/></p> <p style="text-align: center;">If not possible to determine, ask permission to observe the facility.</p> <p>flush / pour flush</p>
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		<p>flush to piped sewer system 11</p> <p>flush to septic tank 12</p> <p>flush to pit latrine 13</p> <p>flush to open drain 14</p> <p>flush to DK where 18</p> <p>pit latrine</p> <p>ventilated improved pit latrine 21</p> <p>pit latrine with slab 22</p> <p>pit latrine without slab / open pit 23</p> <p>composting toilet 31</p> <p>bucket 41</p> <p>hanging toilet / hanging latrine 51</p> <p>no facility / bush / field 95</p> <p>I. OTHER (specify) 96</p>
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5.0: Food frequency and Household Dietary Diversity

<p>*Type of food*</p>	<p>Did members of your household consume any food from these food groups in the last 7 days? <i>(food must have been cooked/served at the household)</i></p> <p>0-No 1-Yes</p>	<p>If yes, mark days the food was consumed in the last 7 days?</p> <p>0-No 1-Yes</p>							<p>What was the main source of the dominant food item consumed in the HHD?</p> <p>1. Own production</p> <p>2. Purchase</p> <p>3. Gifts from friends/families</p> <p>4. Food aid</p> <p>5. Traded or Bartered</p> <p>6. Borrowed</p> <p>7. Gathering/wild fruits</p> <p>8. Other (specify)</p>	<p><u>WOMEN DIETARY DIVERSITY</u></p> <p>ONLY FOR WOMEN AGE 15 TO 49 YEARS. REFER TO THE HOUSEHOLD DEMOGRAPHICS SECTION Q2.3 AND Q2.5</p>			
		<p>Please describe the foods that you ate or drank yesterday during day and night at home or outside the home (start with the first food or drink of the morning)</p> <p>0-No 1-Yes</p>								<p>Wom an ID...</p>	<p>Wom an ID...</p>	<p>Wom an ID</p>	<p>Wom an ID...</p>
		<p>D1</p>	<p>D2</p>	<p>D 3</p>	<p>D 4</p>	<p>D5</p>	<p>D 6</p>	<p>D7</p>					

5.1. Cereals and cereal products (e.g. sorghum, maize, spaghetti, pasta, anjera, bread)?														
5.2. Vitamin A rich vegetables and tubers: Pumpkins, carrots, orange sweet potatoes														
5.3. White tubers and roots: White potatoes, white yams, cassava, or foods made from roots														
5.4 Dark green leafy vegetables: Dark green leafy vegetables, including wild ones + locally available vitamin A rich leaves such as cassava leaves etc.														
5.5 Other vegetables (e.g., tomatoes, egg plant, onions)?														
5.6. Vitamin A rich fruits: + other locally available vitamin A rich fruits														
5.7 Other fruits														

5.8 Organ meat (iron rich): Liver, kidney, heart or other organ meats or blood based foods														
5.9. Flesh meats and offals: Meat, poultry, offal (e.g. goat/camel meat, beef; chicken/poultry)?														
5.10 Eggs?														
5.11 Fish: Fresh or dries fish or shellfish														
5.12 Pulses/legumes, nuts (e.g. beans, lentils, green grams, cowpeas)?														
5.13 Milk and milk products (e.g. goat/camel/ fermented milk, milk powder)?														
5.14 Oils/fats (e.g. cooking fat or oil, butter, ghee, margarine)?														
5.15 Sweets: Sugar, honey, sweetened soda or sugary foods such as chocolates, sweets or candies														
5.16 Condiments, spices and beverages:														

6. COPING STRATEGIES INDEX		
		Frequency score: Number of days out of the past seven (0 -7).
	In the past 7 DAYS, have there been times when you did not have enough food or money to buy food? If No; END THE INTERVIEW AND THANK THE RESPONDENT If YES, how often has your household had to: (INDICATE THE SCORE IN THE SPACE PROVIDED)	
1	Rely on less preferred and less expensive foods?	
2	Borrow food, or rely on help from a friend or relative?	
3	Limit portion size at mealtimes?	
4	Restrict consumption by adults in order for small children to eat?	
5	Reduce number of meals eaten in a day?	
	TOTAL HOUSEHOLD SCORE: END THE INTERVIEW AND THANK THE RESPONDENT	

4.1 FOOD FORTIFICATION (FF) - Please ask the respondent and indicate the appropriate number in the space provided	
1.1	Have you heard about food fortification? 1. Yes 2. No 3. Don't know
	If yes, where did you hear or learn about it? (MULTIPLE RESPONSE ARE POSSIBLE- (Use 1 if "Yes" and 2 if "No") 6. Radio..... <input type="checkbox"/> 7. Road show..... <input type="checkbox"/>

<p>I.1. I</p>	<p>8. In a training session attended.....</p> <p>9. On a TV show.....</p> <p>10. Others.....</p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>
<p>I.2</p>	<p>Respondent's knowledge on the food fortification logo (Show the food fortification logo to the respondent and record the response). Do you know about this sign?</p> <p>1. Yes 2. No 3. Don't know</p>	<p><input type="checkbox"/></p>
<p>I.3</p>	<p>What is the MAIN source of Maize flour for the household <u>NOW</u>?</p> <p>2. Bought from the shops, supermarket e.t.c 3. Maize is taken for milling at a nearby Posho Mill 4. Bought from a nearby Posho Mill 5. Other (Please specify)</p> <p>_____</p>	<p>I.1b Do you know if the maize flour you consume is fortified or not?</p> <p>1. Yes 2. No 3. Don't know</p>
<p>I.4</p>	<p>What brands of the following foods does your household consume?</p> <p>1. Maize flour 2. Wheat flour 3. Margarine 4. Oils 5. Fats 6. Sugar</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

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