TURKANA SMART NUTRITION SURVEY

JUNE 2024 REPORT

Supporting partners

ACKNOWLEDGEMENT

Turkana County June 2024 SMART survey was successfully concluded with support from various partners under the stewardship of the County Department of Health (CDH). The results of the survey provide vital information about the health, nutrition and food security status of the population in the County. The generated evidence will be integral in informing and evaluating programming in nutrition specific and sensitive sectors at the county and national levels.

Consequently, the Directorate of Nutrition would like to take this early opportunity to acknowledge effort and support of all those individuals and organizations that supported and participated in the survey. Specifically, I would like to thank UNICEF Kenya, Concern World Wide, Save the Children International, WHH, World Relief, KRCS, USAID Nawiri, IRC, Malteser International, AMREF-USAID Imarisha jamii, CRS, WFP and Feed the Children for their financial, in-kind and technical support.

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LIST OF ABBREVIATION

1	ANC	Ante Natal Care
2	ARI	Acute Respiratory Infections
3	ASAL	Arid and Semi-Arid Lands
4	BCG	Bacille Calmette Guerin
5	BFCI	Baby Friendly Community Initiative
6	CDH	County Director of Health
7	CECM	County Executive Committee Member
8	CHMT	County Health Management Team
9	CHS	Community Health Services
10	CHV	Community Health Volunteer
11	CHWs	Community Health Workers
12	CI	Confidence interval
13	CIDP	County Integrated Development Plan
14	cIMCI	community Integrated Management of Childhood Illnesses
15	CL	Cluster
16	CLTS	Community led Total Sanitation
17	cm	Centimetre
18	CMAM	Community Management of acute Malnutrition
19	CMR	Crude Mortality Rate
20	CNC	County Nutrition Coordinator
21	CO	Chief Officer
22	CSB	Corn Soy Blend
23	CSG	County Steering Group
24	CSI	Coping strategy index
25	CWW	Concern World Wide
26	DD	Dietary Diversity
27	DoL	Diocese of Lodwar
28	ENA	Emergency Nutrition Assessment
29	EPI	Expanded Program on Immunizations
30	EWS	Early Warning System
31	FANC	Focused ante natal care
32	FAO	United Nations Food and Agriculture Organization
33	FBO	Faith based Organization

34	FCS	Food Consumption Score
35	FEWSNET	Famine Early Warning Systems Network
36	FFA	Food For Asset
37	FSL	Food security and livelihood
38	GAM	Global Acute Malnutrition
39	GFD	General Food Distribution
40	WFP	World food programme
41	GoK	Government of Kenya
42	HAZ	Height for Age -Z score
43	HDD	Household Dietary Diversity
44	HH	Household
45	HiNi	High Impact Nutrition Interventions
46	HNDU	Human Nutrition and Dietetics Unit
47	HSNP	Hunger Safety Net Program
48	IDP	Internally Displace Persons
49	IFA	Iron and Folic Acid
50	IFAS	Iron and Folic Acid Supplements
51	IMAM	Integrated Management of Acute Malnutrition
52	IPC	Integrated Food Security Phase Classification
53	IRC	International Rescue Committee
54	KEMSA	Kenya Medical Supplies Agency
55	KEPI	Kenya Expanded Programme of Immunisation
56	KFSSG	Kenya Food Security Steering Group
57	KHIS	Kenya Health Information System
58	KIHBS	Kenya Integrated Household and Budget Survey
59	KNBS	Kenya National Bureau of statistics
60	KRCS	Kenya Red Cross Society
61	LMIS	Logistics Management Information System
62	LRA	Long Rains Assessment
63	MAM	Moderate Acute malnutrition
64	MCH	Mother Child Booklet
65	MDD	Minimum Dietary Diversity
66	MDD-W	Minimum Dietary Diversity for Women
67	MOH	Ministry of Health

68	MOW	Ministry of Water
69	MSP	Multi Stake Holder Forum
70	MUAC	Mid Upper Arm Circumference
71	NDMA	National Drought Management Authority
72	NGO	Non-governmental Organization
73	NICHE	Nutrition Improvement Through Cash and Health Education
74	NIWG	Nutrition Information Working Group
75	ODK	Open Data Kit
76	OJT	On The Job Training
77	OPV	Oral polio Vaccine
78	ORS	Oral Rehydration Solution
79	OTP	Outpatient Therapeutic Programme
80	PLW	Pregnant and Lactating Women
81	PPS	Probability proportional to size
82	RC	Reserve cluster
83	RUSF	Ready To use Supplementary food
84	RUTF	Ready To Use Therapeutic Food
85	SAM	Severe Acute Malnutrition
86	SANNUT	Sanitation and Nutrition Program
87	SCHMT	Sub-County Health Management Team
88	SCI	Save the Children International
89	SCNO	Sub County Nutrition Officer
90	SD	Standard Deviation
91	SFP	Supplementary Feeding Programme
92	SMART	Standardized Monitoring and Assessment of Relief and Transitions
93	SPSS	Statistical package for Social Sciences
94	TV	Television
95	U5	Under Five Years Old
96	UMR	Under-five Mortality Rate
97	UN	United Nations
98	UNICEF	United Nations Children's Fund
99	WASH	Water Sanitation and Hygiene
100	WAZ	Weight for Age -Z score

101	WFP	World Food Programme
102	WHH	Welt Hunger Hilfe
103	WHO	World Health Organization
104	WHO-GS	World Health Organisation Growth Standards
105	WHZ	Weight for Height -Z score
106	WR	World Relief
107	WRA	Women of Reproductive Age

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EXCUTIVE SUMMARY

Introduction

The Turkana County Department of Health and Sanitation in collaboration with nutrition partners UNICEF Kenya, Concern World Wide, Save the Children International (SCI), WHH, World Relief (WR), KRCS, USAID Nawiri, International Rescue Committee (IRC), Feed the children, Catholic relief services (CRS), Malteser International World food programme(WFP) and AMREF-Imarisha Jamii successfully conducted four independent SMART surveys in June 2024 covering the entire county except Suguta subcounty which was due to insecurity issues. The survey covered all the four livelihood zones in the county (pastoral, Agro-pastoral, Fisher forks and formal employment/business/petty trade). The survey zones were namely Turkana Central (Central, Lokiriama and Loima Sub Counties), Turkana North (North and Kibish Sub Counties), Turkana South (South, Aroo and East Sub Counties) and Turkana West (West and Lokichoggio Sub County).

The main goal of the survey was to determine the prevalence of malnutrition among children aged 6-59 months old and women of reproductive age in Turkana County. It also had several specific objectives which included to assess the prevalence of malnutrition among children 6-59months old, assess malnutrition levels among women of reproductive age by MUAC. In addition, the survey was to determine the immunization coverage for measles, BCG, Oral Polio Vaccines (OPV 1 and 3), and vitamin A supplementation in children aged 6-59 months and to estimate coverage of iron / folic acid supplementation during pregnancy among WRA, Other specific objectives were to determine de-worming coverage for children aged 12 to 59 months; to determine the prevalence of common illnesses among children under five and to collect information on possible underlying causes of malnutrition such as household food security, water, sanitation, and hygiene practices and to assess the MIYCN practices among children in Turkana survey zones i.e. MMF,MAD,MDD,MMF,ZVF,EFF and UFC for children aged 6-23 months.

Methodology

The survey used the same methodology like in 2023; Standardized Monitoring Assessment for Relief and Transition Method (SMART). This is a cross-sectional design methodology. It is a descriptive study and aims to provide data on the entire population under study.

As detailed in the methodology, a two-stage sampling procedure was used in this survey. The first stage involved sampling of villages (clusters) from a sampling frame detailing the villages identified by information from KNBS estimated populations with contributions from community level leaders including chiefs/sub chiefs, ward administrators and with inputs from community health services program using ENA for SMART software (11th January 2020

version). In the second stage, households were selected randomly upon getting the updated list of households in the village/Cluster provided by the village elder/community health promotor (CHP).

Based on previous SMART Survey experience and considering the maximum number of clusters allowed and considering the time spent on travelling to each household, introductions and breaks, 15-16 households were sampled per cluster per day for interview for the household questionnaire. This depended on survey zones with Turkana West, North and Central having 15 households per day and the highest being Turkana South at 16 households per day. The data was uploaded in Kobo collect and ODK aggregate servers (hosted by Concern Worldwide) from the tablets and downloaded daily for plausibility checks and at the end of the survey for data analysis. The data collection teams were provided with daily feedback on the quality of data collected the previous day before they started data collection for the new day. This formed the bases for supervisors' work for the day.

Anthropometric data processing was done using ENA software version 11thJanuary 2020. The ENA software generated weight-for-height, height-for-age and weight-for-age Z scores to classify them into various nutritional status categories using the 2006 WHO malnutrition cut-offs. All the other quantitative data were analyzed in the SPSS (Version 25) and Microsoft Excel 2016 computer packages.

Table 1:Summary of the findings

S/No	Indicator	Acceptable values/range	Central	North	South	West	County
1	Overall plausibility score	<24	0 % excellent	1 % excellent	0 % excellent	3 % excellent	
Anthropometric results (% (With 95% CI))							
	Indicator		**Central**	**North**	**South**	**West**	County
	n	MUAC	546	708	758	609	2634
2	Global < 125mm		(25) 4.6% (2.8 - 7.4 95% C.I.)	(24) 3.4 % (2.1 - 5.5 95% C.I.)	(53) 7.0 % (4.8 - 10.1 95% C.I.)	(32) 5.3 % (3.2 - 8.6 95% C.I.)	134) 5.1 % (3.9 - 6.6 95% C.I.)
3	Severe under nutrition <115mm		(2) 0.4 % (0.1 - 1.5 95% C.I.)	(3) 0.4 % (0.1 - 1.3 95% C.I.)	(15) 2.0 % (1.1 - 3.4 95% C.I.)	(1) 0.2 % (0.0 - 1.3 95% C.I.)	(21) 0.8 % (0.5 - 1.3 95% C.I.)
	n	Underweight	544	705	754	607	2604
4	Global underweight		(162) 29.8%	(152) 21.6 %	(225) 29.8 %	(95) 15.7 %	(629) 24.2 %

			(24.3 - 35.9 95% C.I.)	(17.9 - 25.7 95% C.I.)	(26.0 – 34.0 95% C.I.)	(12.0 - 20.2 95% C.I.)	(21.8 - 26.6 95% C.I.)
5	Severe underweight		(33) 6.1 % (4.2 - 8.6 95% C.I.)	(25) 3.5 % (2.4 - 5.3 95% C.I.)	(55) 7.3 % (5.2 - 10.1 95% C.I.)	(15) 2.5 % (1.4 - 4.2 95% C.I.)	(123) 4.7 % (3.8 - 5.8 95% C.I.)
	n	Stunting	n = 528	n= 695	n= 748	n = 591	n=2563
6	Global Stunting		(113) 21.4 % (17.5 - 25.9 95% C.I.)	(94) 13.5 % (10.5 - 17.3 95% C.I.)	(148) 19.8 % (16.1 – 24.1 95% C.I.)	(66) 11.2 % (8.4 - 14.7 95% C.I.)	(424) 16.5 % (14.8 - 18.5 95% C.I.)
7	Severe Stunting		(19) 3.6 % (2.5 - 5.2 95% C.I.)	(18) 2.6 % (1.5 - 4.5 95% C.I.)	(24) 3.2 % (2.1 - 4.9 95% C.I.)	(11) 1.9% (0.9- 3.8 95% C.I.)	(75) 2.9% (2.3 - 3.8 95% C.I.)
	n	Wasting	544	702	752	606	2605
8	Global Acute Malnutrition (GAM)		(130) 23.9 % (20.1 - 28.3 95% C.I.)	(158) 22.5 % (18.6 - 27.0 95% C.I.)	(178) 23.7 % (20.4 - 27.3 95% C.I.)	(100) 16.5 % (12.7 - 21.2 95% C.I.)	(567) 21.5 % (19.7 - 24.0 95% C.I.)
9	Severe Acute Malnutrition (SAM)		(17) 3.1 % (2.0–4.9 95% C.I.)	(21) 3.0 % (1.8 - 4.9 95% C.I.)	(32) 4.3 % (3.0 – 5.9 95% C.I.)	(10) 1.7 % (0.9 – 3 95% C.I.)	(81) 3.1 % (2.4-4.0 95% C.I.)
Child morbidity (last two weeks)							
	Indicator	Type of illness	Central	North	South	West	County
14	Ill	yes	28.2%	27.3%	44.8%	23.9%	31.7%
15	Type of illness	Fever with chills	56.5%	38.5%	48.2%	29.3%	44.1%
16		ARI	56.5%	66.2%	71.8%	69.4%	67.2%
17		Watery diarrhea	21.4%	9.2%	27.9%	9.5%	19.1%
18		Bloody diarrhea	0.0%	0.0%	0.0%	0.0%	0.0%
19	Sought Assistance	Yes	93.5%	96.4%	97.1%	93.9%	95.7%
20	Zinc supplementation	yes	72.7%	94.4%	96.8%	92.9%	91.2%

Vitamin A supplementation and deworming							
	Indicator	No. of times	Central	North	South	West	County
21	Vitamin A Supplementation (6- 11m)	Once	76.6%	80.8%	84.9%	87.5%	82.9%
22	Vitamin A Supplementation 12- 59m)	Twice	84.5%	82.1%	96.7%	92.4%	89.1%
23	Vitamin A supplementation 6- 59 months	Twice	82%	82%	95%	91%	88%
24	Deworming (12-59 m)	Once	84.5%	81%	92.6%	85.7%	86.1%
IMMUNISATION							
	Antigen	Means of Verification	Central	North	South	West	County
25	BCG	Presence of Scar	99.8%	99.3%	99.7%	99.8%	99.7%
26	OPV1	Card and Recall	99.6%	99.2%	99.9%	99.7%	99.6%
27	OPV3	Card and Recall	99.1%	99.3%	99.1%	99.5%	99.2%
28	Measles at 9 months	Card and Recall	97.5%	98.5%	96.8%	99.5%	98%
29	Measles at 18 months	Card and Recall	97.1%	96.8%	96.1%	99.4%	97.3%
MATERNAL NUTRITION							
	Indicator	Description	Central	North	South	West	County
30	MUAC< 21.0 cm	Women of reproductive age (non PLW)	13%	10%	11%	15%	12%
31	MUAC< 21.0 cm	Women of reproductive age - PLW	11%	10%	11%	8%	10%
32	Women supplemented with FeFo	Mothers of children less than 2 years	89.5%	97.1%	98.6%	100%	95.8%
33	Pregnant women consuming FeFo	above 180 days	3.9%	5.4%	8%	1.6%	5.1%
34	Pregnant women consuming FeFo	Below 90 days	59.8%	47.3%	24.1%	42.5%	43.3%
WATER HYGIENE AND SANITATION							
	Indicator	Description	Central	North	South	West	County
35	Households water consumption	at least 15 l per day	44.4%	28.5%	50.1%	13.9%	36.0%
36	Trekking distance	less than 500 m	38.1%	50.9%	60.5%	58.4%	52.4%
37	Household treating their drinking water		30.5%	34.5%	45.1%	24.3%	34.7%
38	Hand washing	4 critical times	82.2%	52.5%	58.8%	55.8%	62.7%
39	Relieving points	Open defecation	60.0%	83.4%	58.5%	75.5%	67.1%
Food security							

HOUSEHOLD AND WOMEN DIETARY DIVERSITY							
	Indicator	Description	Central	North	South	West	County
40	Hunger scale	Emergency & catastrophe	9.1%	2.4%	0.1%	1.3%	3.1%
41	Households consuming more than 5 food groups	Household dietary diversity	61.5%	16.5%	36%	32.8%	36.6%
42	Women consuming more than 5 food groups	(MDD-W)	13%	0%	8.6%	16.9%	9.6%
FOOD CONSUMPTION SCORE AND COPING STRATEGY INDEX							
	Indicator	Description	Central	North	South	West	County
43	Households FCS	Acceptable	65.5%	39.8%	68.5%	48.6%	46.6%
44	Reduced Coping Strategy index (rCSI)	Crisis +	17.9%	29.8%	10.8%	20.8%	19.2%
IYCF							
45	MDD		8.1%	0.4%	7.2%	15.0%	7.5%
46	MMF		37.0%	60.0%	52.3%	74.3%	56.3%
47	MAD						

Conclusion

The overall county nutrition improved in 2024 compared to June 2023 with significant improvement in Turkana South, though a slight deterioration was noted in both Central zones. However, GAM levels remain above 15 percent. The persistent poor nutrition status was consistent with poor food security indicators (HDDS/ FCS). The key drivers to high undernutrition in the county remain prevalent making community resilience weak.

The high malnutrition levels across the four survey zones can be attributed to worsening food insecurity resulting from successive failed rains leading to drought and rapid increase in food prices, loss of livestock, poor coping mechanisms. Other drivers include chronic food insecurity, high prevalence of childhood illness, inadequate dietary diversity, poor access to safe water, poor hygiene practices, inadequate incomes and assets for the households

Recommendations

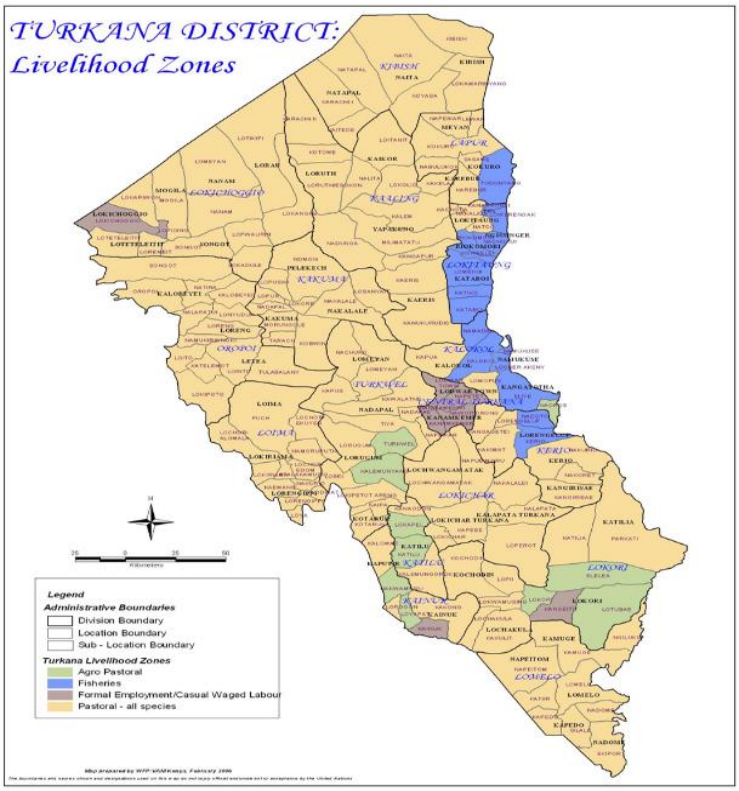
Based on the survey findings the following actions were recommended:

1. Strengthen the CHS strategy to enhance case detection in all hot spots to ensure all malnourished children and women access treatment in all service delivery points.
2. Remap and prioritize integrated outreaches in hard-to-reach areas and peace corridors(Insecurity pledged Wards/zones)
3. Implement the wasting Quality of care and treatment coverage enhancement models (ICCM-CMAM/ R-SWITCH) at community level.

4. Maintain the integrity of the nutrition supply chain for consistent and reliable last mile availability of nutrition commodities including in the buffer reserves more so management of AID diversion.
5. Strengthen Community resilience- Asset recovery like restocking, post-harvest losses management in agropastoral zones, re-seeding of rangelands, storage of hay and protection of dry season grazing lands.
6. Peace building in conflict affected areas.

1.0 CHAPTER 1

1.1 Background information



Turkana County is situated in the arid North-Western region of the country. Internationally it borders three countries, namely Ethiopia, Sudan and Uganda. It also borders Baringo, West Pokot and Samburu counties.

The County has an estimated total population *1,135,872 and 165,920 of <5s (according to 2024 Estimates*) and covers an area of 77,000km^2 (KNBS 2019). The county is divided into eleven sub counties and seventeen administrative divisions.

According to NDMA, the County has four main livelihood zones. Nearly 60% of the population is considered pastoral, 20% agro pastoral, 12% fisher folks and 8% are in the urban/peri-urban formal and informal employments.

KNBS report of 2022 indicated the county had an overall poverty index of 77.7% compared to the national average of 38.6%.

Turkana County is a drought prone area that experiences frequent, successive and prolonged drought and cattle rustling which leads to heavy losses of lives and livelihood.

1.2 Survey Justification

According to the February 2024 Integrated Phase Classification (IPC AMN) among children U5, nutrition situation remained critical to extremely critical with Turkana South in extremely critical phase (IPC AMN Phase 5) projected to slightly improve.

Likewise, the June 2023 SMART survey showed nutrition situation slightly improved compared to June 2022 across all survey zones which was consistent with KDHS 2022 though GAM levels remained above 15 percent with extremely critical in South **32.7%** (28.1 - 37.5 95% C.I.); T. Central **25.4% (**21.1 - 30.3 95% C.I.)**,** T. North **23.7%** (19.5 - 28.5 95% C.I.) and T. West **21.6%** (17.1 - 26.8 95% C.I.).The county was classified as "Crisis" (IPC Phase 3, food security) as per the 2023 SRA assessment report (Feb 2024) with a projection to remain

in the same phase. The county's EWS bulletin April 2024, showed all livelihood zones were classified under normal phase and improving.

The critical results of the June 2024 SMART survey followed by humanitarian interventions as well as good short and above normal long rains led to improved nutrition situation. The survey will assist the county establish the prevailing situation. The survey provided a progress update of health, nutrition and food security situation in the county to inform review of response actions, LRA report and programme adjustments. There had been continued impact of other shocks including floods, measles outbreak, high food prices and insecurity along the borders which led to improved nutrition situation.

1.3 Humanitarian and Development partners

Many agencies, UN and NGOs were working in collaboration with the County Department of Health (CDH), Decentralized Public Administration, and Disaster Response in child survival interventions. The main responsibility of County was coordination, resource mobilization and quality assurance of the integrated health, nutrition, food security and WASH response in the county.

1.4 Main Objective

The main goal of the survey was to determine the prevalence of malnutrition among children aged 6-59 months old and women of reproductive age (WRA) in Turkana County.

1.4.1 **Specific Objectives**

- **i.** To assess the prevalence of malnutrition among 6-59 months old children.
- **ii.** To assess malnutrition levels among women of reproductive age by MUAC.
- **iii.** To determine the immunization coverage for measles, BCG, Oral Polio Vaccines (OPV 1 and 3), and vitamin A supplementation in children aged 6-59 months;
- **iv.** To estimate coverage of iron / folic acid supplementation during pregnancy in women of reproductive age
- **v.** To determine de-worming coverage for children aged 12 to 59 months;
- **vi.** To determine the prevalence of common illnesses among children under five;
- **vii.** To collect information on possible underlying causes of malnutrition such as household food security, water, sanitation, and hygiene practices.
- **viii.** To assess the MIYCN practices among children, MDD, MMFF, ZVF, EFF and UFC for children aged 6-23 months

The survey was conducted towards the end of the long rains season, in the month of June 2024. The results of the survey fed into the LRA 2024.

Table 1:Seasonal calendar

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

1.5 Survey Area

There are a total of 11 sub counties in Turkana County. Due to the vastness and heterogeneity of the county, four independent surveys were conducted as summarized below;

Table 2: Turkana County survey zones

No	Survey Zone	Administrative Sub counties
1	Turkana Central	Turkana Central, Lokiriama and Loima
2	Turkana North	Turkana North and Kibish
3	Turkana West	Turkana West and Lokichoggio
4	Turkana South	Turkana South, Aroo, Suguta* and Turkana East

*Suguta sub-county was excluded from the survey due to insecurity

2.0 CHAPTER TWO

2.1.METHODOLOGY

The June 2024 survey used SMART Methodology in planning, training, data entry and analysis. There were other data sets collected concurrently included data on Water Sanitation and Hygiene (WASH) and Food security and livelihood (FSL) as well as Morbidity and Causes.The whole survey was done in consideration with all guidelines as stipulated by the MoH at county and national level. The survey methodology was presented to the County Steering Group (CSG) and National Nutrition Information Working Group (NIWG) for validation before commencement of data collection.

2.1.1. Sample size calculation

The Sample size was calculated using ENA for SMART software Jan 11th 2020 version. The table below outlines factors considered when determining the sample size calculation.

Table 3: Sample size calculation- June 2024

	Turkana Central	Turkana North	Turkana West	Turkana South	Rationale
Estimate (GAM)	21.1 %	19.5%	17.1%	28.1%	Use of Lower CI due to projected slight improvement of nutrition situation from June 2023
Desired Precision	5.0%	5.0%	5.0%	5.0%	SMART methodology guidance (Rule of thumb)
Design Effect	1.5	1.5	1.5	1.5	Rule of thumb
Estimated Number of Children	418	394	356	507	As per EN output
Average HH Size	6	6	6	6	From the 2019 census report
Non-Response Rate (%)	2	2	2	2	Based on previous SMART Survey Experience
Proportion of Children Under 5	15.3%	14.1%	14.3%	14.1%	From Population estimates 2024
Estimated Number of Households	516	528	470	679	As per ENA output

Number of Households per Day	15	15	15	16	Based on previous SMART Survey Experience and considering the time spent in all stages
Number of Cluster	35	36	32	43	Computed from the Number of HHs per Day
Number of Teams	5	6	5	6	

2.1.2. Sampling method

This survey used a two-stage sampling process. In the first stage villages were sampled from a sampling frame (villages identified by information from KNBS estimated populations with contributions from the chiefs/sub chiefs and Turkana community health services). Names of villages with their respective population sizes were then entered into ENA for SMART software (Jan 11th 2020 version). In the second stage households were randomly selected upon getting the updated list of households in the village/Cluster. A total of 15 to 16 households were sampled considering the time spent during travelling, introductions and breaks to each household per cluster for HH questionnaire. The definition of a household was a shelter or more whose residents ate from the same "cooking pot" the day preceding the survey.

2.1.3. Selection of children for anthropometry

The June 2024 survey considered and included all children between 6-59 months of age staying in the selected household in the sample. Respondent were the primary caregivers of the index child/children. If a child and/or the caregiver were temporarily absent, then the survey team re-visited the household to collect the data at an appropriate time.

2.1.4. Selection of women for determination of nutritional status

The mother of the index child within the reproductive age (15-49years) in the identified households and any other household member within the age bracket was enlisted in the study and had their MUAC measurements taken.

2.1.5. Survey team composition

The June 2024 Turkana county SMART Survey had 11 survey zone coordinators (representing each of the 11 sub counties) and 1 survey manager. The survey manager was supported by the UNICEF NSO and NITWG representative to manage the surveys. The survey also had 22 teams with each survey zone having between 5-6 teams. The number of teams per zone was

determined by the number of clusters. Each team had 3 members; two measures, one enumerator/team leader. The coordinators and team leaders were from MOH & partner staff. The enumerators were interviewed by the county government; directorate of nutrition and selected based on their performance in the interview and their performance during the standardization exercise. The cluster guide for the survey team in each sampled village was a CHP who resided in the sampled village.

2.1.6. Survey team training

A four days comprehensive training of the survey teams was carried out in Lodwar town (the central place among the survey zones) where 2 halls each 33 participants were used. The training included sampling methods; anthropometric measurements; interviewing techniques; and completion of questionnaires. It also included standardization tests and pilot test and included each enumerator completing two questionnaires and all pre-tested questionnaires entered on a computer to test the practicability of data entry. The pre-test exercise was discussed and necessary changes on the questionnaire done accordingly.

Quantitative data collection method was used to collect the survey data through kobo collect. The following data were collected:

- Anthropometry (weight, height, edema, MUAC, age, sex) for children and MUAC for mothers.
- Prevalence of childhood illnesses in the last 2 weeks prior to the survey.
- Water, hygiene and sanitation, social protection and Food security.

The standard survey questionnaire developed by the NITWG and modified to the context during the June 2024 period was used.

2.1.7. Data collection

The collected data was uploaded daily by the teams to kobo collect aggregate server hosted by Concern Worldwide. The team left at the central data center downloaded the anthropometry data daily to excel then to ENA during data collection days, for plausibility checks and gave feedback to the teams every morning. Analysis of anthropometric data was done using ENA for SMART (Jan 11th 2020 version). Other data sets were analyzed using SPSS 25.0 and Microsoft Excel 2016 version. Weighting of the sub county (Survey zones) results was later done to obtain the County average.

2.1.8. Variables Measured

Age: The exact age of the child was recorded in months. Calendar of events, health or baptismal cards and birth certificates were used to determine the exact age of the child.

Weight: Children were measured using a digital weighing scale (double weighing scale).

Height: Recumbent length was taken for children less than 87cm or less than 2 years of age, while height measured was done for those greater or equal to 87cm or more than 2 years of age.

MUAC: With the hand relaxed and hanging by the body's side, the Mid Upper Arm Circumference (MUAC) was measured to the nearest millimeters, at the middle point between the elbow and the shoulder, on the less active hand. MUAC measurements were taken for children 6-59months of age and for women in the reproductive age bracket (15-49 years of age).

Bilateral oedema: Assessed by the application of normal thumb pressure for at least 3 seconds to both feet at the same time. The presence of a pit or depression on both feet was recorded as nutritional oedema present and no pit or depression as oedema absent.

Morbidity: Information on two-week morbidity prevalence was collected by asking the mothers or caregivers if the index child had been ill in the two weeks preceding the survey and including the day of the survey. Illness was determined based on respondent's recall and was not verified by a clinician.

Immunization status: For all children 6-59months, information on BCG, OPV1, OPV3 and measles vaccinations status was collected using health cards and recall from caregivers. When estimating measles coverage, only children 9 months of age or older were taken into consideration as they were the ones who were eligible for the vaccination. The same was done for second dose measles where children above 9 months were taken through the question.

Vitamin A supplementation status: For all children 6-59 months of age, information on Vitamin A supplementation in the 6 months prior to the survey date was collected using child health and immunization cards or campaign cards and recall from caregivers.

Iron-Folic Acid supplementation: For all female caregivers, information was collected on IFA supplementation and number of days (period) they took IFA supplements in the pregnancy of the last birth that was within 24 months.

De-worming status: Information was solicited from the caregivers as to whether children12-59 months of age had received de-worming tablets or not in the previous one year. This information was verified by child health and Immunization card where available.

Food security status of the households: Food consumption score, Minimum Dietary Diversity score Women source of predominant foods and coping strategies data was collected.

Household water consumption and utilization: The indicators used were main source of drinking and household water, time taken to water source and back, cost of water per 20-litre jerry-can and treatment given to drinking water.

Sanitation: Data on household access and ownership to a toilet/latrine, occasions when the respondents wash their hands were also obtained.

Mosquito nets ownership and utilization: Data on the household ownership of mosquito nets and their utilisation was collected.

Minimum Dietary Diversity Score Women (MDD-W): A 24-hour food consumption recall was administered to all women of reproductive age (15-49 years). All foods consumed in the last 24 hours were enumerated for analysis. All food items were combined to form 10 defined food groups and all women consuming more or at least five of the ten food groups were considered to meet the MDD-W.

Household Food Consumption Score (FCS): Data on the frequency of consumption of different food groups consumed by a household during 7 days before the survey was collected. The table below shows WFP corporate thresholds for FCS used to analyses the data.

Table 4: WFP/FAO corporate FCS thresholds

Food Consumption Score	Profile
<21	Poor
21.5-35	Borderline
>35	Acceptable

Reduced Coping strategy index (rCSI): Data on the frequency of the five reduced CSI individual coping behaviours was collected. The five standard coping strategies and their severity weightings used in the calculation of Coping Strategy Index are:

1. Eating less-preferred foods (1.0)
2. Borrowing food/money from friends and relatives (2.0)
3. Limiting portions at meal time (1.0)
4. Limiting adult intake (3.0)
5. Rreducing the number of meals per day (1.0)

CSI index per household was calculated by summing the product of each coping strategy weight and the frequency of its use in a week (no of days).

2.2. Nutrition Indicators

2.2.1. Nutritional Indicators for children 6-59 months of age

The following nutrition indicators were used to determine the nutritional status of children under-five years.

Table 5: Definitions of acute malnutrition using WFH and/or edema in children aged 6–59 months

Acute malnutrition	WFH Z-Score	Oedema
Severe	<-3 Z Score	Yes/No
	>-3 Z Score	Yes
Moderate	<-2 Z Scores to ≥ -3 Z scores	No
Global	<-2 Z scores	Yes/No

Adapted from SMART Manual, Version 1, April 2006

2.2.2. MUAC

Guidelines for the results expressed as follows:

1. Severe malnutrition is defined by measurements <115mm
2. Moderate malnutrition is defined by measurements >=115mm to <125mm
3. At risk is defined by measurements >=125mm to <135mm
4. Normal >=135mm

MUAC cut off points for women, pregnant and lactating women: Cut off <21 cm was used for under nutrition.

2.3. Data analysis

During supervision in the field, and at the end of each day, supervisors manually checked the tablet questionnaires for completeness, consistency and accuracy. This check was also used to provide feedback to the teams to improve data collection as the survey progressed. At the end of each day, and once supervisors had completed their checks, the tablets were each synchronized to the server and the data collected was uploaded, therefore there was no need for any further data entry. The SMART plausibility report was generated daily in order to identify any problems with anthropometric data collection such as flags and digit preference for age, height and weight, to improve the quality of the anthropometric data collected as the

survey was on-going. Feedback was given to the teams every morning before the teams left for the field.

All data files were cleaned before analysis, although use of tablet reduced the amount of cleaning needed, as a number of restrictions were programmed in order to reduce data entry errors. Anthropometric data for children 6-59 months was cleaned and analysed using ENA for SMART software (11th January 2020). The nutritional indices were cleaned using SMART flags in the ENA for SMART software. Weighting of the survey zone results was done in order to obtain county data. The table below summarises other criterion that was used for exclusion.

Table 6:Definition of boundaries for exclusion

1. If sex was missing the observation was excluded from analysis.
2. If Weight was missing, no WHZ and WAZ were calculated, and the programme derived only HAZ.
3. If Height was missing, no WHZ and HAZ were calculated, and the programme derived only WAZ.
5. For any child records had missing age (age in months) only WHZ was calculated.
6. If a child had oedema only his/her HAZ was calculated.

Additional data for children aged 6-59 months, women aged 15-49 years, WASH, and food security indicators were cleaned and analysed using SPSS version 25 and Microsoft excel version 2016.

2.4. Survey Limitations

1. There were inherent difficulties in determining the exact age of some children (even with use of the local calendar of events), this may have led to inaccuracies when analysing chronic malnutrition. Although verification of age was done by use of health cards or birth notification, in some instances, documentation of the child's birth date in the birth notifications differed from the mother child booklets hence making it difficult to get the right date of birth for the child, some caregivers had also altered the date of birth to suit them in ensuring the child was targeted in the humanitarian programs in the region. Recall bias may link to wrong age which then leads to wrong weight for age and height for age indices.

2. There was poor recording of Vitamin A and deworming in the mother child booklets and hence most children were supplemented with vitamin A basing on recall by the mother. There was another type of vitamin A capsule which were supplied by the county to the health facilities and was only discovered when the teams were in the field. This omission could have led to poor recall of vitamin A supplementation.

2.5. Ethical considerations

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. Written consent was issued to parents and caregivers of all eligible children in the survey to sign and agree to the survey. The decision of caregiver to participate or withdraw was respected. Privacy and confidentiality of survey respondent and data was protected.

3. CHAPTER THREE: RESULTS AND DISCUSSIONS

3.1.House hold demographics and socio economic indicators

3.1.1. Household demographic characteristics

3.1.1.1.Number of households surveyed

The June 2024 SMART survey reached 1.0% more households than sampled. All sampled households accepted to be interviewed. One cluster in Turkana West survey zone was reached due to migration. The survey reached more children (57% more) than projected.

Table 7: Number of households surveyed

Survey Zone	No. of HHs Sampled	No. of HHs Reached	%	Non response rate	No. of Children sampled	No. of Children Reached	%	No. of Clusters Sampled	No. of Clusters done	%
T Central	516	525	102	0.0	418	546	131	35	35	100
T North	528	540	102	0.0	394	714	181	36	36	100
T West	679	688	101	0.0	507	759	150	43	43	100
T South	470	416	98	0.0	356	615	173	32	31	97
County	2193	2214	101	0.0	1675	2634	157	146	145	99

3.1.1.2.Average household size, Age cohort and Sex distribution of the members in the sampled households

The proportion of children under-five years slightly reduced in the June 2024 SMART survey to 27.6% compared to 28.4% in June 2023 changing the surging trend witnessed from June 2021 SMART survey. As has been the case before, Turkana North had the highest proportion of children.

Table 8: Age cohort distribution

Age category	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Less than 5 years	618	25.1	786	35.7	820	24.1	648	27.6	2872	27.6
5 to less than 18 years	840	34.0	526	23.9	1240	36.5	741	31.5	3347	32.1

18 years and above (Adult)	1009	40.9	890	40.4	1338	39.4	962	40.9	4199	40.3
n	2467	100.0	2202	100.0	3398	100.0	2351	100.0	10418	100.0

The average household size in the county in June 2024 SMART survey was approximately 5 persons i.e. 4.71. This was almost the same as was recorded in June 2023 (4.28) picking the increasing trend witnessed before 2023 SMART. Unlike in June 2023 where Turkana South average household size rose to 6 (5.01), the June 2024 SMART recorded Turkana West as the one with the highest household size of 5.10; this was similar to 2019 census report of 6 persons per household. All the other survey zones had on average 5 persons per household. The mean number of children under five years per household was 1.30, 0.16 increase from 1.14 in June 2023 with all survey zones showing an increase.

Table 9:Household size per survey zone

	Turkana Central	Turkana North	Turkana South	Turkana West	**Turkana County**
Household size	4.70	4.08	4.94	5.10	4.71
Mean U5	1.18	1.46	1.19	1.41	1.30

Table 10: Household members present during the interview per gender

		T Central	T North	T South	T West	T. County
Female	No	189	153	185	127	654
	Yes	1142	1111	1609	1130	4992
	%	86%	88%	90%	90%	88%
	n	1331	1264	1794	1257	5646
Male	No	331	269	373	271	1244
	Yes	805	669	1231	823	3528
	%	71%	71%	77%	75%	74%
	n	1136	938	1604	1094	4772
Total	No	520	422	558	398	1898

	Yes	1947	1780	2840	1953	8520
	n	2467	2202	3398	2351	10418
	%	79%	81%	84%	83%	82%

Females were more found at the household during the interview than males at 88% compared to 74%. This was consistent with the total household members interviewed, where females were more than males at 54% compared to 46%.

3.1.2. Residency and marital Status

Only one person was an IDP with the rest being residents. There was a slight increase in the proportion of interviewed nomadic pastoralists than there were in June 2023.

Table 11: Residency

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
IDP	0	0.0%	0	0.0%	1	0.1%	0	0.0%	1	0.0%
Resident - Nomadic/Pastoralist	29	5.5%	157	29.1%	20	2.9%	161	34.9%	367	16.6%
Resident - Permanent residential	496	94.5%	383	70.9%	667	96.9%	300	65.1%	1846	83.4%
N	525	100%	540	100%	688	100%	461	100%	2214	100%

3.1.3. Immigrant children in the households

The proportion of children who had migrated slightly increased from 6.0% to 7.5%, a 31 children difference changing the declining trend witnessed in June 2023. Migration increased in all survey zones except in Turkana Central which recorded a decline. Most migration was noted in Turkana South which had recorded the highest reduction in the previous survey.

Table 12: Children migration

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
No	502	95.6%	516	95.6%	603	87.6%	428	92.8%	2049	92.5%
Yes	23	4.4%	24	4.4%	85	12.4%	33	7.2%	165	7.5%
n	525	100.0%	540	100.0%	688	100.0%	461	100.0%	2214	100.0%

3.1.4. Reasons for Children migration

As was the in the previous survey, lack of food at home was the main reason children migrated. Other main reasons were death of caregiver and caregiver not being at home. Death of a parent was more in Turkana Central and West, while parent being away was more in Turkana Central than in other survey zones. Lack of food at home cut across all survey zones but was prominent in Turkana South where more than half was attributed to this reason. Lack of nearby school was major reason of children migrating in Turkana North.

Table 13: Reasons for Children migration

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Education (School / Madrasa / Duks)	4	17.4%	8	33.3%	5	5.9%	4	12.1%	21	12.7%
His/her caregiver died	9	39.1%	4	16.7%	3	3.5%	10	30.3%	26	15.8%
His/her Father and Mother left home	6	26.1%	3	12.5%	6	7.1%	2	6.1%	17	10.3%
other	1	4.3%	4	16.7%	6	7.1%	6	18.2%	17	10.3%
The child did not have access to food	3	13.0%	5	20.8%	65	76.5%	11	33.3%	84	50.9%
n	23	100.0%	24	100.0%	85	100.0%	33	100.0%	165	100.0%

3.1.5. Caretakers' marital status

Research has shown there is a direct correlation between caregivers with child care practices especially in a resource constrained setting. The June 2024 SMART survey assessed the proportion of caregivers who were married. Caregivers who were married improved from 84.2% to 85.4% in the June 2024 SMART survey maintaining the increasing proportion as recorded since June 2023. Important to note is the increasing proportion of the widowed caregivers especially in Turkana Central and South.

Table 14: Summary of caretakers' marital status

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Divorced	4	0.8%	4	0.7%	0	0.0%	6	1.3%	14	0.6%

Married	437	83.2%	478	88.5%	563	81.8%	412	89.4%	1890	85.4%
separated	5	1.0%	8	1.5%	23	3.3%	5	1.1%	41	1.9%
Single	32	6.1%	14	2.6%	29	4.2%	1	0.2%	76	3.4%
Widowed	47	9.0%	36	6.7%	73	10.6%	37	8.0%	193	8.7%
N	525	100.0%	540	100.0%	688	100.0%	461	100.0%	2214	100.0%

3.1.6. Occupation of the household main provider

This survey found that the Turkana County population is continuously being faced with livelihood erosion with main occupation changing to degrative copping strategy type of main occupation. The June 2024 SMART survey recorded Firewood/charcoal as the leading occupation of the interviewed caregivers which overtook the mainly recorded Livestock herding. However, the top three main occupations i.e. firewood/charcoal, livestock herding and petty trade matched the previous survey finding only that the order changed. Livestock herding led in all survey zones except in Turkana South and Central where firewood/charcoal and Petty trade were the main occupations respectively. Petty trade continued to be a major occupation in survey zones with major town centers. Salaried / employed population remained low as was the case in the last SMART survey.

Table 15: Summary of household's main provider occupation

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Crop farming/Own farm Labour	34	6.5%	1	0.2%	104	15.1%	18	3.9%	157	7.1%
Employed (salaried)	17	3.2%	1	0.2%	15	2.2%	13	2.8%	46	2.1%
Firewood/charcoal	125	23.8%	137	25.4%	254	36.9%	142	30.8%	658	29.7%
Fishing	7	1.3%	55	10.2%	0	0.0%	0	0.0%	62	2.8%
Livestock herding	73	13.9%	224	41.5%	133	19.3%	158	34.3%	588	26.6%
Merchant/trader	2	0.4%	24	4.4%	20	2.9%	7	1.5%	53	2.4%
Others (Specify)	48	9.1%	55	10.2%	34	4.9%	41	8.9%	178	8.0%
Petty trade	181	34.5%	27	5.0%	74	10.8%	65	14.1%	347	15.7%
Waged labour (Casual)	38	7.2%	16	3.0%	54	7.8%	17	3.7%	125	5.6%
N	525	100.0%	540	100.0%	688	100.0%	461	100.0%	2214	100.0%

3.1.7. Main current source of income of the Household head

As was the case in the previous surveys, the dominant source of income for the household for all survey zones in June 2024 SMART survey was petty trading, indicating majority of household had no stable sources of income. The major petty trades included firewood/ charcoal selling which is destructive form of livelihood. Sale of livestock came in third. Considering the cyclical droughts, this current source of income might be depleted with time. Important to note was that no income was the second most common response indicating that most households were destitute. Unlike the last surveys where sale of personal assets was declining, this survey recorded an increase.

Table 16: Main current source of income of the Household head –June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Casual labor	56	10.7%	17	3.1%	50	7.3%	22	4.8%	145	6.5%
No income	134	25.5%	144	26.7%	85	12.4%	46	10.0%	409	18.5%
Permanent job	12	2.3%	1	0.2%	15	2.2%	9	2.0%	37	1.7%
Petty trading e.g. sale of firewood	249	47.4%	240	44.4%	329	47.8%	232	50.3%	1050	47.4%
Remittance	1	0.2%	3	0.6%	7	1.0%	6	1.3%	17	0.8%
Sale of crops	28	5.3%	1	0.2%	60	8.7%	21	4.6%	110	5.0%
Sale of livestock	25	4.8%	119	22.0%	88	12.8%	112	24.3%	344	15.5%
Sale of livestock products	14	2.7%	8	1.5%	30	4.4%	13	2.8%	65	2.9%
Sale of personal assets	6	1.1%	7	1.3%	24	3.5%	0	0.0%	37	1.7%
n	525	100.0%	540	100.0%	688	100.0%	461	100.0%	2214	100.0%

3.1.8. Education

3.1.8.1.Highest Education level for adults

Literacy levels slightly declined to 25.3% when June 2023 was compered to June 2024 SMART survey with about 74.7% of interviewed care givers indicating they had no formal education while 68.2% had indicated they didn't have formal education during the June 2023 SMART survey. As always been the case, Turkana North led with illiteracy while Turkana Central was the most literate.

Table 17: Education Levels-June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
None	663	65.7%	706	79.3%	941	70.3%	828	86.1%	3138	74.7%
Primary	1	0.1%	0	0.0%	2	0.1%	0	0.0%	3	0.1%
Secondary	15	1.5%	1	0.1%	6	0.4%	2	0.2%	24	0.6%
Tertiary	131	13.0%	92	10.3%	117	8.7%	36	3.7%	376	9.0%
Pre primary	128	12.7%	75	8.4%	184	13.8%	83	8.6%	470	11.2%
other	71	7.0%	16	1.8%	88	6.6%	13	1.4%	188	4.5%
Total	1009	100%	890	100%	1338	100%	962	100%	4199	100%

3.1.8.2.School enrolment for age group 3 years to 18 years

There was a slight decline in school enrollment in Turkana by 1.4% when June 2023 was compared to June 2024 SMART survey. Turkana North remained the most affected having the same proportion as the same period the previous year. Turkana South led with the proportion of children enrolled in school.

Table 18: School enrollment per survey zone-June 2024

		Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
		Count	%	Count	%	Count	%	Count	%	Count	%
Female	No	99	19%	185	40%	97	13%	126	24%	507	23%
	Yes	424	81%	274	60%	657	87%	391	76%	1746	77%
	Total	523		459		754		517		2253	
Male	No	147	27%	147	36%	134	17%	121	26%	549	25%
	Yes	394	73%	264	64%	660	83%	346	74%	1664	75%
	Total	541		411		794		467		2213	
Total	No	246	23%	332	38%	231	15%	247	25%	1056	24%
	Yes	818	77%	538	62%	1317	85%	737	75%	3410	76%
	Total	1064	100%	870	100%	1548	100%	984	100%	4466	100%

3.1.9. Reason for not attending school

A total of 1056 (25%) of children were reported not be enrolled in any form of education an increase from 847 (22.6%) in June 2023 Survey. The main reasons for not attending school were similar to those reported in the previous surveys. They included family labour responsibility though reducing, no school nearby increasing and household doesn't see value

of schooling. The proportion of caregivers who did not see the importance of school were highest in Turkana West while it was lowest in Turkana South, the same trend was seen in June 2023.

Table 18: Reasons for not attending school-June 2024

	T Central		T North		T South		T West		T. County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Weather (rain, floods, storms)	1	0.4%	0	0.0%	0	0.0%	0	0.0%	1	0.1%
Chronic Sickness	0	0.0%	1	0.3%	1	0.4%	0	0.0%	2	0.2%
Pregnant / Taking care of her own child	0	0.0%	2	0.6%	1	0.4%	0	0.0%	3	0.3%
Married	2	0.8%	1	0.3%	1	0.4%	2	0.8%	6	0.6%
No food in the schools	3	1.2%	2	0.6%	1	0.4%	0	0.0%	6	0.6%
Insecurity / violence	0	0.0%	2	0.6%	4	1.7%	1	0.4%	7	0.7%
Working outside home	1	0.4%	0	0.0%	5	2.2%	1	0.4%	7	0.7%
Teacher absenteeism	4	1.6%	5	1.5%	0	0.0%	0	0.0%	9	0.9%
Migrated/ moved from school area	6	2.4%	4	1.2%	13	5.6%	5	2.0%	28	2.7%
Others (specify)	32	13.0%	19	5.7%	18	7.8%	10	4.0%	79	7.5%
lack of fees or money to meet other costs	18	7.3%	66	19.9%	15	6.5%	12	4.9%	111	10.5%
Household doesn't see value of schooling	34	13.8%	26	7.8%	2	0.9%	101	40.9%	163	15.4%
No school Near by	80	32.5%	181	54.5%	6	2.6%	21	8.5%	288	27.3%
Family labour responsibilities	65	26.4%	23	6.9%	164	71.0%	94	38.1%	346	32.8%
	246		332		231		247		1056	

CHILD HEALTH & NUTRITION

3.2.Anthropometry

Most of interviewed children had their age verified by documentation, that is mother child booklet at 87% and birth notification/certificate at 1.4%, though a reduction from 91% in June 2023. All survey zones had over 80% documentation except Turkana West which deteriorated to below 70%. As was the case in the previous survey Turkana North and West led with age verification by recall. Birth registration has been on improvement trend for the last three surveys. There is still need to continue promoting birth registration (mother child booklets) in the entire Turkana County. The improvement in birth registration might have affected indices with age as a variable such as stunting and underweight. The table below show the age verification means per survey zone.

Table 19:Summary of Children age verification means- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Recall (use event calender)	43	7.0%	79	10.1%	12	1.5%	190	29.3%	324	11.3%
Health card/Mother child booklet	555	89.8%	701	89.2%	791	96.5%	453	69.9%	2500	87.0%
Birth certificate/notification	16	2.6%	4	0.5%	16	2.0%	4	0.6%	40	1.4%
Baptism card	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.0%
Others	4	0.6%	2	0.3%	1	0.1%	0	0%	7	0.2
n	618	100%	786	100%	820	100%	648	100%	2872	100%

3.2.1. Age and sex distribution of the sampled children

More young children were sampled across all survey zones, a trend witnessed over years. Overall sex distribution across all survey zones was 1.0 (boy: girl) hence meeting the acceptable range of 0.6 -1.4, implying low bias due to equal representation of sexes across the zones. The previous two surveys got 1.0 to 1.1 and 0.9 to 1.0. The table below details the findings.

Table 20: Distribution of age and sex of sample- June 2024

	Turkana Central	Turkana North	Turkana South	Turkana West

AGE (mo)	n=546		n=708		n=758		n=609	
	Total %	Ratio Boy: girl	Total %	Ratio Boy: girl	Total %	Ratio Boy: girl	Total %	Ratio Boy: girl
6 to 17	24.9	1.3	20.9	1.1	23.5	1.1	23.6	1
18-29	23.4	1.1	23.9	1	24.4	1.2	24.6	1.3
30-41	24.9	0.9	22.3	0.8	26.4	0.9	28.6	0.7
42-53	17.8	0.8	20.6	0.9	19.7	0.8	16.3	1.3
54-59	9	1	12.3	0.7	6.1	1.3	6.9	1
Total	100	1	100	0.9	100	1	100	1

3.2.2. Prevalence of Acute Malnutrition

According to the February 2024 Integrated Phase Classification (IPC AMN) among children U5, nutrition situation remained "**critica**l" (IPC Phase 4- GAM 15-30 per cent) to "**extremely critical"** with Turkana South in extremely critical phase (IPC AMN Phase 5) projected to slightly improve. The county was also classified as "**Crisis**" (IPC Phase 3, food security) as per the 2023 SRA assessment report (Feb 2024) with a projection to remain in the same phase. These findings were supported by the June 2024 SMART survey results where the GAM (weight-for-height z-scores -and/or oedema) levels despite the improvement were still critical according to WHO classification. Results for the four survey zones were as follow: Turkana Central 23.9 %, Turkana North 22.5%, Turkana South 23.7%, Turkana West 16.5 % and a county weighted GAM of 21.8%, all of which were above the 15% WHO emergency cut off. The most improved (significant) was Turkana south. The most affected was Turkana Central though still within critical.

There was no oedema detected across the four survey zones. The Weight for Height standard deviation ranged from -1.06±0.97 to -1.35±1.00 for the four survey zones while design effect ranged from 1.18 to 1.92.

Table 21: Mean z-scores, Design Effects and excluded subjects (Turkana Central)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	546	-1.31±1.03	1.18	0	0
Weight-for-Age	546	-1.53±0.98	2.13	0	0

Height-for-Age	546	-1.14±1.25	1.34	0	0

* contains for WHZ and WAZ the children with edema.

Table 22: Mean z-scores, Design Effects and excluded subjects (Turkana North)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	714	-1.22±1.07	1.79	0	0
Weight-for-Age	714	-1.30±0.96	1.61	0	0
Height-for-Age	714	-0.85±1.20	1.66	0	0

* contains for WHZ and WAZ the children with edema.

Table 23: Mean z-scores, Design Effects and excluded subjects (Turkana South)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	759	-1.35±1.00	1.20	0	0
Weight-for-Age	759	-1.57±0.98	1.39	0	0
Height-for-Age	759	-1.17±1.08	2.07	0	0

* contains for WHZ and WAZ the children with edema.

Table 24: Mean z-scores, Design Effects and excluded subjects (Turkana West)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	609	-1.06±0.97	1.92	0	0
Weight-for-Age	609	-1.07±0.96	1.90	0	0
Height-for-Age	609	-0.61±1.24	1.53	0	0

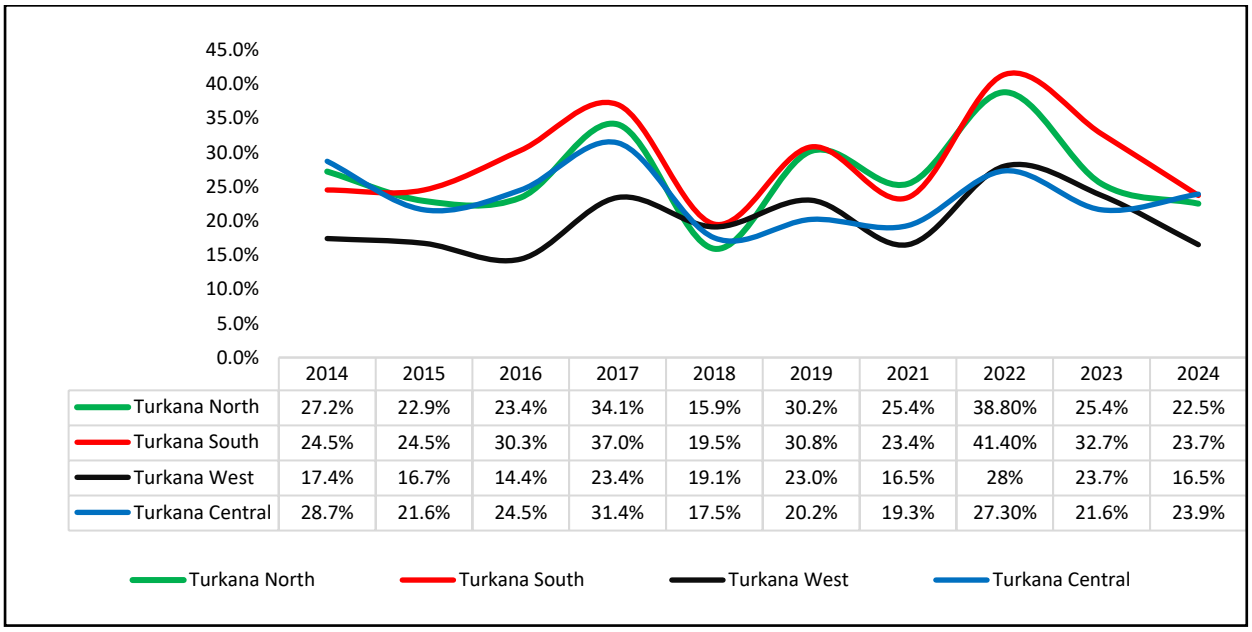
* contains for WHZ and WAZ the children with edema.

Table 25: Prevalence of malnutrition weight-for-height z-scores (WHO Standards 2006)

Turkana	**Central**	**North**	**South**	**West**	**County**
Wasting (WHO 2006) 2024	n= 544	n=702	n= 752	n= 606	n=2605
2023	n= 566	n= 704	n= 738	n= 524	n=2442

Global Acute Malnutrition (GAM) - June 2024	(130) 23.9 % (20.1 - 28.3 95% C.I.)	(158) 22.5 % (18.6 - 27.0 95% C.I.)	(178) 23.7 % (20.4 - 27.3 95% C.I.)	(100) 16.5 % (12.7 - 21.2 95% C.I.)	(567) 21.5 % (19.7 - 24.0 95% C.I.)
Global Acute Malnutrition (GAM) - June 2023	(144) 25.4 % (21.1 - 30.3 95% C.I.)	(167) 23.7 % (19.5 - 28.5 95% C.I.)	(241) 32.7 % (28.2 - 37.5 95% C.I.)	(113) 21.6 % (17.1 - 26.8 95% C.I.)	(591) 26.40% (23.5-28.7 95% C.I)
Severe Acute Malnutrition (SAM)- June 2024	(17) 3.1 % (2.0 – 4.9 95% C.I.)	(21) 3.0 % (1.8 - 4.9 95% C.I.)	(32) 4.3 % (3.0 – 5.9 95% C.I.)	(10) 1.7 % (0.9 - 3 95% C.I.)	(81) 3.1 % (2.4 - 4.0 95% C.I.)
Severe Acute Malnutrition (SAM)- June2023	(22) 3.9 % (2.4 - 6.2 95% C.I.)	(29) 4.1 % (2.8 - 6.0 95% C.I.)	(35) 4.7 % (3.2 - 6.9 95% C.I.)	(12) 2.3 % (1.3 - 4.0 95% C.I.)	(91) 3.70% (2.7 - 4.9 95% C.I.)

The levels of acute malnutrition have varied in severity across the four survey zones of Turkana County from 2014. The figure below illustrates the trends in acute malnutrition over time per survey zone, which further reveals persistently high GAM levels (exceeding WHO very high thresholds of 15%) over years. This again highlights slow recovery from the persistent various shocks from drought, floods, diseases outbreaks and conflict facing the population.



	2014	2015	2016	2017	2018	2019	2021	2022	2023	2024
Turkana North	27.2%	22.9%	23.4%	34.1%	15.9%	30.2%	25.4%	38.80%	25.4%	22.5%
Turkana South	24.5%	24.5%	30.3%	37.0%	19.5%	30.8%	23.4%	41.40%	32.7%	23.7%
Turkana West	17.4%	16.7%	14.4%	23.4%	19.1%	23.0%	16.5%	28%	23.7%	16.5%
Turkana Central	28.7%	21.6%	24.5%	31.4%	17.5%	20.2%	19.3%	27.30%	21.6%	23.9%

Figure 2: Trends of Global Acute Malnutrition in Turkana County (2013-2024)

3.2.3. Prevalence of acute malnutrition based on weight-for-height z-scores (and/or edema) and by sex

Generally, boys were more malnourished than girls as has been the case in the last surveys. However, girls were more severely malnourished in Turkana Central and North survey zones. There is need further research to establish why boys are more malnourished than girls. Table below shows the prevalence of global acute malnutrition by sex per survey zone.

Table 26: **Prevalence of acute malnutrition based on weight-for-height z-scores (and/or edema) and by sex(95% Confidence interval)- June 2024**

	Sex	**Central n**=546	**North n**=714	**South n**= 759	**West n**=609	**County n**=
		M =276**, F**=270	**M** =341**, F**=373	**M** =381**, F**=378	**M** =307**, F** =302	**M= 1309 F=1325**
Prevalence of global malnutrition (<-2z- score and/or edema)	Boys	(65) 23.6 % (18.4 - 29.6 95% C.I.)	(82) 24.0 % (18.8 - 30.2 95% C.I.)	(95) 24.9 % (20.9 - 29.5 95% C.I.)	(57) 18.6 % (14.0 - 24.2 95% C.I.)	(299) 22.8 % (20.3 - 25.6 95% C.I.)
	Girls	(66) 24.4 % (19.6 - 30.1 95% C.I.)	(81) 21.7 % (17.0 - 27.3 95% C.I.)	(86) 22.8 % (18.3 - 27.9 95% C.I.)	(45) 14.9 % (10.6 - 20.5 95% C.I.)	(278) 21.0 % (18.8 - 23.3 95% C.I.)
Prevalence of moderate malnutrition. (<-2 z-score and >=-3 z-score, no oedema)	Boys	(56) 20.3 % (15.7 - 25.9 95% C.I.)	(66) 19.4 % (14.6 - 25.2 95% C.I.)	(70) 18.4 % (14.8 - 22.6 95% C.I.)	(47) 15.3 % (11.5 - 20.1 95% C.I.)	(239) 18.3 % (16.1 - 20.7 95% C.I.)
	Girls	(57) 21.1 % (16.5 - 26.7 95% C.I.)	(73) 19.6 % (15.2 - 24.8 95% C.I.)	(76) 20.1 % (15.7 - 25.4 95% C.I.)	(43) 14.2 % (10.2 - 19.5 95% C.I.)	(249) 18.8 % (16.7 - 21.0 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	Boys	(9) 3.3 % (1.5 - 6.8 95% C.I.)	(16) 4.7 % (2.5 - 8.5 95% C.I.)	(25) 6.6 % (4.4 - 9.7 95% C.I.)	(10) 3.3 % (1.8 - 5.8 95% C.I.)	(60) 4.6 % (3.4 - 6.1 95% C.I.)
	Girls	(9) 3.3 % (1.7 - 6.5 95% C.I.)	(8) 2.1 % (1.0 - 4.4 95% C.I.)	(10) 2.6 % (1.6 - 4.3 95% C.I.)	(2) 0.7 % (0.2 - 2.8 95% C.I.)	(29) 2.2 % (1.6 - 3.1 95% C.I.)

3.2.4. Prevalence of acute malnutrition (wasting) by age based on weight-for-height Z-scores and or edema (WHO Standards 2006)

The prevalence of Oedema in June 2024 SMART survey was 0.0% in all survey zones, the same as June 2023 survey. The June 2024 SMART survey showed more malnutrition in the

older child, the same as was the case with the June 2024 SMART survey. The table below details the analysis across the four survey zones.

Table 27: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

Zone	Age months	Total no.	Severe wasting		Moderate wasting		Normal		Oedema	
			No.	%	No.	%	No.	%	No.	%
Central	**6-17**	136	6	4.4	27	19.9	103	75.7	0	0.0
	18-29	128	3	2.3	28	21.9	97	75.8	0	0.0
	30-41	136	3	2.2	23	16.9	110	80.9	0	0.0
	42-53	97	5	5.2	24	24.7	68	70.1	0	0.0
	54-59	49	1	2.0	11	22.4	37	75.5	0	0.0
	Total	546	18	3.3	113	20.7	415	76.0	0	0.0
North	**6-17**	148	6	4.1	28	18.9	114	77.0	0	0.0
	18-29	169	4	2.4	17	10.1	148	87.6	0	0.0
	30-41	158	5	3.2	29	18.4	124	78.5	0	0.0
	42-53	146	4	2.7	35	24.0	107	73.3	0	0.0
	54-59	87	5	5.7	28	32.2	54	62.1	0	0.0
	Total	708	24	3.4	137	19.4	547	77.3	0	0.0
South	**6-17**	178	15	8.4	28	15.7	135	75.8	0	0.0
	18-29	185	7	3.8	36	19.5	142	76.8	0	0.0
	30-41	200	8	4.0	34	17.0	158	79.0	0	0.0
	42-53	149	4	2.7	37	24.8	108	72.5	0	0.0
	54-59	46	1	2.2	11	23.9	34	73.9	0	0.0
	Total	758	35	4.6	146	19.3	577	76.1	0	0.0
West	**6-17**	144	3	2.1	18	12.5	123	85.4	0	0.0
	18-29	150	3	2.0	23	15.3	124	82.7	0	0.0
	30-41	174	3	1.7	25	14.4	146	83.9	0	0.0
	42-53	99	2	2.0	17	17.2	80	80.8	0	0.0
	54-59	42	1	2.4	7	16.7	34	81.0	0	0.0
	Total	609	12	2.0	90	14.8	507	83.3	0	0.0
County	**6-17**	606	30	5.0	101	16.7	475	78.4	0	0.0
	18-29	632	17	2.7	104	16.5	511	80.9	0	0.0
	30-41	668	19	2.8	111	16.6	538	80.5	0	0.0
	42-53	491	15	3.1	113	23.0	363	73.9	0	0.0
	54-59	224	8	3.6	57	25.4	159	71.0	0	0.0
	Total	2621	89	3.4	486	18.5	2046	78.1	0	0.0

There was no oedema case identified across the four survey zones, supporting the survey findings of improved nutrition situation. This has been the case in previous surveys except in the June 2022 where there was one case in Turkana West.

Table 28: **Distribution of Severe acute malnutrition and oedema based on weight-for-**

height z-score

	Central		North		South		West	
	<-3 z-score	**>=-3 z-score**	**<-3 z-score**	**>=-3 z-score**	**<-3 z-score**	**>=-3 z-score**	**<-3 z-score**	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor. 0 (0.0 %)	Kwashiorkor. 0 (0.0 %)	Marasmic kwashiorkor. 0 (0.0 %)	Kwashiorkor. 0 (0.0 %)	Marasmic kwashiorkor. 0 (0.0 %)	Kwashiorkor. 0 (0.0 %)	Marasmic kwashiorkor. 0 (0.0 %)	Kwashiorkor. 0 (0.0 %)
Oedema absent	Marasmic No. 18 (3.3 %)	Not severely malnourished. 528 (96.7 %)	Marasmic No. 24 (3.4 %)	Not severely malnourished. 690 (96.6 %)	Marasmic No. 35 (4.6 %)	Not severely malnourished. 724 (95.4 %)	Marasmic No. 12 (2.0 %)	Not severely malnourished. 597 (98.0 %)

3.2.5. Prevalence of acute malnutrition based on MUAC

MUAC measurement was one of the methods used to assess malnutrition in the June 2024 SMART survey. GAM by MUAC is not a very sensitive indicator of acute malnutrition and tends to underestimate acute malnutrition for children below one year of age when compared to GAM by WFH z-score. However, it is used as a rapid screening tool for admission into nutrition intervention programmes especially in community screening like mass screening. Thus, MUAC generally tends to indicate lower GAM levels compared to WFH z-scores as it was the case in this survey. The prevalence of malnutrition using MUAC was significantly lower compared to using Weight for Height Z-scores. This was been observed across all the Turkana survey zones over years. This could be associated with the physiology of the population in Turkana which is similar to the Somali and South Sudanese, with a high cormic index[1].This means, overall, significantly lower cases of malnourished children were identified using MUAC when compared to weight for height.

There was a significant reduction of malnutrition as assessed by MUAC for both severe and global malnutrition from **12.7%** to **8.6%**. Turkana West led with the proportion malnourished

[1]The most common bivariate index of shape is the Cormic index, sitting height/ total height (SH/S). It is a measure of the relative length of the trunks or legs and varies between individuals and groups. If sitting height is held constant and leg length varied it produce a range of ratios from 0.48 to 0.55 within and between populations. This demonstrates that variations in SH/S found in or between different population groups may be associated with variations in BMI of some 5kg/m^2, with weight and composition being kept constant. The mean SH/S for European and Indo-Mediterranean populations is about 0.52. Africans have proportionally longer legs, in general, with ratios around 0.51 most notable Somali, Sudanese and Turkana populations with even higher ratios. Asian and Far Eastern populations have proportionally shorter legs and means of 0.53-0.54. However, there is considerable variation within populations and within these major groupings

by MUAC at 12.9 % unlike in June 2022 when it was Turkana South and North. Turkana North had the highest reduction which was consistent with the GAM by weight for Height z- score. The table below summarizes prevalence of malnutrition by MUAC.

Table 29: Prevalence of Malnutrition based on MUAC per survey

Prevalence of Acute malnutrition MUAC	**Central**	**North**	**South**	**West**	**County**
2024	n=546	n=714	n=759	n=609	n = 2634
2023	n=573	n=713	n=746	n=528	n = 2560
Severe under nutrition ((< 115 mm) -June 2024)	(2) 0.4 % (0.1 - 1.5 95% C.I.)	(3) 0.4 % (0.1 - 1.3 95% C.I.)	(15) 2.0 % (1.1 - 3.4 95% C.I.)	(1) 0.2 % (0.0 - 1.3 95% C.I.)	(21) 0.8 % (0.5 - 1.3 95% C.I.)
Severe under nutrition ((< 115 mm) -June 2023)	(4) 0.7 % (0.3 - 1.8 95% C.I.)	(4) 0.6 % (0.2 - 1.5 95% C.I.)	(6) 0.8 % (0.4 - 1.7 95% C.I.)	(8) 1.5 % (0.8 - 3.0 95% C.I.)	(22) 0.9 % (0.6 - 1.3 95% C.I.)
Moderate under nutrition (≥115–<125 mm)-June 2024)	(23) 4.2 % (2.5 - 7.1 95% C.I.)	(21) 2.9 % (1.8 - 4.8 95% C.I.)	(38) 5.0 % (3.4 - 7.4 95% C.I.)	(31) 5.1 % (3.0 - 8.5 95% C.I.)	(113) 4.3 % (3.2 - 5.7 95% C.I.)
Moderate under nutrition (≥115–<125 mm)-June 2023)	(29) 5.1 % (3.6 - 7.0 95% C.I.)	(48) 6.7 % (4.8 - 9.4 95% C.I.)	(61) 8.2 % (6.1 - 10.8 95% C.I.)	(60) 11.4 % (8.3 - 15.4 95% C.I.)	(198) 7.7 % (6.7 - 9.0 95% C.I.)
Global Acute Malnutrition (≤125 mm)-June 2024)	(25) 4.6 % (2.8 - 7.4 95% C.I.)	(24) 3.4 % (2.1 - 5.4 95% C.I.)	(53) 7.0 % (4.8 - 10.0 95% C.I.)	(32) 5.3 % (3.2 - 8.6 95% C.I.)	(134) 5.1 % (3.9 - 6.6 95% C.I.)
Global Acute Malnutrition (≤125 mm)-June 2023)	33) 5.8 % (4.1 - 8.0 95% C.I.)	(52) 7.3 % (5.3 - 10.0 95% C.I.)	(67) 9.0 % (6.7 - 11.9 95% C.I.)	(68) 12.9 % (9.8 - 16.7 95% C.I.)	(220) 8.6 % (7.5 - 9.9 95% C.I.)

Comparing the sexes, girls were more malnourished by MUAC unlike in weight for height z-score where boys were more malnourished. However, in Turkana West, both were equally malnourished.

Table 30: Prevalence of acute malnutrition based on MUAC cut offs (and/or oedema) and by sex

	Sex	**Central n=546**	**North n=714**	**South n= 759**	**West n**=609	**County n=** 2634
		M=276**, F**=270	**M=341, F=373**	**M=381, F=378**	**M** =307**, F** =302	**M=1309 F=1325**

Prevalence of global malnutrition(<-2z- score and/or edema)	Boys	(4) 1.4 % (0.5 - 3.8 95% C.I.)	(9) 2.6 % (1.3 - 5.3 95% C.I.)	(21) 5.5 % (3.4 - 8.9 95% C.I.)	(17) 5.5 % (3.2 - 9.3 95% C.I.)	(51) 3.9 % (2.7 - 5.6 95% C.I.)
	Girls	(21) 7.8 % (4.9 - 12.2 95% C.I.)	(15) 4.0 % (2.3 - 6.9 95% C.I.)	(32) 8.5 % (5.5 - 12.8 95% C.I.)	(15) 5.0 % (2.6 - 9.3 95% C.I.)	(83) 6.3 % (4.8 - 8.1 95% C.I.)
Prevalence of moderate malnutrition. (<-2 z-score and >=-3 z-score, no oedema)	Boys	(4) 1.4 % (0.5 - 3.8 95% C.I.)	7) 2.1 % (1.0 - 4.2 95% C.I.)	(13) 3.4 % (1.8 - 6.3 95% C.I.)	(16) 5.2 % (3.0 - 9.0 95% C.I.)	(40) 3.1 % (2.0 - 4.6 95% C.I.)
	Girls	(19) 7.0 % (4.2 - 11.6 95% C.I.)	(14) 3.8 % (2.1 - 6.6 95% C.I.)	(25) 6.6 % (4.3 - 10.0 95% C.I.)	(15) 5.0 % (2.6 - 9.3 95% C.I.)	(73) 5.5 % (4.2 - 7.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	Boys	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(2) 0.6 % (0.1 - 2.4 95% C.I.)	(8) 2.1 % (1.1 - 4.0 95% C.I.)	(1) 0.3 % (0.0 - 2.5 95% C.I.)	(11) 0.8 % (0.4 - 1.6 95% C.I.)
	Girls	(2) 0.7 % (0.2 - 3.0 95% C.I.)	(1) 0.3 % (0.0 - 2.0 95% C.I.)	(7) 1.9 % (0.8 - 4.2 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(10) 0.8 % (0.4 - 1.4 95% C.I.)

3.2.6. Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex

Survey zone	Indicator	All	Boys	Girls
		n=546	n=276	n=270
Turkana Central	Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(138) 25.3 % (21.1 - 30.0 95% C.I.)	(68) 24.6 % (19.1 - 31.1 95% C.I.)	(70) 25.9 % (20.8 - 31.9 95% C.I.)
	Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(19) 3.5 % (2.3 - 5.3 95% C.I.)	(9) 3.3 % (1.5 - 6.8 95% C.I.)	(10) 3.7 % (2.0 - 6.9 95% C.I.)
		All	Boys	Girls
		n=714	n= 341	n=373
Turkana North	Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(166) 23.2 % (19.2 - 27.9 95% C.I.)	(83) 24.3 % (19.0 - 30.6 95% C.I.)	(83) 22.3 % (17.5 - 27.8 95% C.I.)
	Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(25) 3.5 % (2.1 - 5.9 95% C.I.)	(16) 4.7 % (2.5 - 8.5 95% C.I.)	(9) 2.4 % (1.1 - 5.0 95% C.I.)

		All	Boys	Girls
		n=759	n=381	n= 378
Turkana South	Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(189) 24.9 % (21.6 - 28.5 95% C.I.)	(95) 24.9 % (20.9 - 29.5 95% C.I.)	(94) 24.9 % (20.3 - 30.0 95% C.I.)
	Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(40) 5.3 % (3.7 - 7.4 95% C.I.)	(26) 6.8 % (4.4 - 10.3 95% C.I.)	(14) 3.7 % (2.3 - 6.0 95% C.I.)
		All	Boys	Girls
		n=609	n=307	n=302
Turkana West	Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(109) 17.9 % (13.9 - 22.7 95% C.I.)	(60) 19.5 % (15.1 - 24.8 95% C.I.)	(49) 16.2 % (11.8 - 21.8 95% C.I.)
	Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(12) 2.0 % (1.2 - 3.3 95% C.I.)	(10) 3.3 % (1.8 - 5.8 95% C.I.)	(2) 0.7 % (0.2 - 2.8 95% C.I.)
		All	Boys	Girls
		n=2634	n=1309	n=1325
Turkana County	Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(602) 22.9 % (20.6 - 25.2 95% C.I.)	(306) 23.4 % (20.7 - 26.3 95% C.I.)	(296) 22.3 % (20.1 - 24.8 95% C.I.)
	Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(96) 3.6 % (2.9 - 4.6 95% C.I.)	(61) 4.7 % (3.5 - 6.2 95% C.I.)	(35) 2.6 % (1.9 - 3.6 95% C.I.)

3.2.7. Prevalence of underweight

Another index used in this survey to access nutrition status of children was Weight -For-Age (WFA). It is 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 changes in weight against age. A low WFA is referred to as underweight. There was improvement in the proportion of children underweight June 2024 compared to June 2023 with significant improvement two survey zones Turkana South and West. This was in agreement with other indices which showed improving nutrition status across the four survey zones. The table below details the analysis.

Table 31: Prevalence of underweight- June 2024

Underweight (WHO 2006)	Central	North	South	West	County
2024	**n=546**	**n=714**	**n=759**	**n=609**	**n=2634**
2023	**n=564**	**n=710**	**n=738**	**n=523**	**n=2538**
Prevalence of global underweight-June (2024)	(162) 29.7 % (24.2 - 35.8 95% C.I.)	(154) 21.6 % (17.9 - 25.8 95% C.I.)	(227) 29.9 % (26.1 - 34.0 95% C.I.)	(97) 15.9 % (12.2 - 20.6 95% C.I.)	(640) 24.3 % (22.0 - 26.8 95% C.I.)
Prevalence of global underweight-June (2023)	(196) 34.8 % (28.8 - 41.2 95% C.I.)	(211) 29.7 % (24.6 - 35.4 95% C.I.)	(301) 40.8 % (36.4 - 45.3 95% C.I.)	(190) 36.3 % (30.5 - 42.6 95% C.I.)	(897) 35.3 % (32.2 - 38.6 95% C.I.)
Prevalence of severe underweight (June (2024)	(33) 6.0 % (4.2 - 8.6 95% C.I.)	(27) 3.8 % (2.5 - 5.6 95% C.I.)	(57) 7.5 % (5.4 - 10.4 95% C.I.)	(17) 2.8 % (1.6 - 4.8 95% C.I.)	(134) 5.1 % (4.1 - 6.3 95% C.I.)
Prevalence of severe underweight-(June 2023)	(41) 7.3 % (4.9 - 10.7 95% C.I.)	(44) 6.2 % (4.2 - 9.2 95% C.I.)	(92) 12.5 % (9.6 - 16.1 95% C.I.)	(52) 9.9 % (7.3 - 13.5 95% C.I.)	(228) 9.0 % (7.4 - 10.8 95% C.I.)

Table 33: Prevalence of underweight based on weight-for-age z-scores by sex

	Sex	Central n=546	North n=714	South n= 759	West n=609	County n=
		M=276**, F**=270	**M=341, F=373**	**M=381, F=378**	**M** =307**, F** =302	**M=1309 F=1325**
Prevalence of global malnutrition(<-2z-score and/or edema)	Boys	(86) 31.2 % (24.6 - 38.5 95% C.I.)	(80) 23.5 % (18.4 - 29.5 95% C.I.)	(127) 33.3 % (28.7 - 38.3 95% C.I.)	(52) 16.9 % (12.4 - 22.8 95% C.I.)	(345) 26.4 % (23.2 - 29.8 95% C.I.)
	Girls	(76) 28.1 % (21.1 - 36.5 95% C.I.)	(74) 19.8 % (15.8 - 24.6 95% C.I.)	(100) 26.5 % (21.5 - 32.1 95% C.I.)	(45) 14.9 % (10.5 - 20.7 95% C.I.)	(295) 22.3 % (19.7 - 25.0 95% C.I.)
Prevalence of moderate malnutrition. (<-2 z-score and >=-3 z-score, no oedema)	Boys	(73) 26.4 % (20.5 - 33.4 95% C.I.)	(66) 19.4 % (14.8 - 24.8 95% C.I.)	(89) 23.4 % (19.6 - 27.6 95% C.I.)	(40) 13.0 % (9.0 - 18.4 95% C.I.)	(268) 20.5 % (18.0 - 23.1 95% C.I.)
	Girls	(56) 20.7 % (14.8 - 28.2 95% C.I.)	(61) 16.4 % (12.7 - 20.8 95% C.I.)	(81) 21.4 % (17.3 - 26.2 95% C.I.)	(40) 13.2 % (9.1 - 18.9 95% C.I.)	(238) 18.0 % (15.6 - 20.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or	Boys	(13) 4.7 % (2.6 - 8.4 95% C.I.)	(14) 4.1 % (2.3 - 7.2 95% C.I.)	(38) 10.0 % (7.0 - 14.1 95% C.I.)	(12) 3.9 % (2.1 - 7.3 95% C.I.)	(77) 5.9 % (4.4 - 7.8 95% C.I.)
	Girls	(20) 7.4 %	(13) 3.5 %	(19) 5.0 %	(5) 1.7 %	(57) 4.3 %

oedema)		(4.8 - 11.2 95% C.I.)	(2.0 - 6.0 95% C.I.)	(2.6 - 9.4 95% C.I.)	(0.7 - 3.7 95% C.I.)	(3.2 - 5.8 95% C.I.)

Boys were more underweight than girls across all survey zones, though girls were more severely underweight in Turkana Central survey zones.

3.2.8. Prevalence of stunting

Another index used in the June 2024 SMART survey to assess nutrition status of children between 6 months to 59 months was stunting. This is a deficit in linear growth measured by a low height-for-age. It is as a result of the devastating result of poor nutrition in-utero and early childhood**.** Children suffering from stunting are known not to attain their full possible height and their brains may never develop to their full cognitive potential and the worst is, it is not reversible after 2 years of life. Globally, 144.0 million children under 5 years old suffer from stunting. These children begin their lives at a marked disadvantage: they face learning difficulties in school, earn less as adults, and face barriers to participation in their communities[2]**.** Stunting in childhood leads to reduced adult size and reduced work capacity. This, in turn, has an impact on economic productivity at the national level.

From the June 2024 SMART survey results, there was a marked reduction in the proportion of children who were stunted compared to the previous survey with significant improvement in Turkana South and West survey zones. Stunting is an outcome indicator which need multi-sectoral form of interventions to reduce hence the insignificant reduction. All the sub counties are classified as high according to WHO standards.

Table 32: Prevalence of Stunting

Stunting (WHO 2006)	**Central**	**North**	**South**	**West**	**County**
2024	**n=546**	**n=714**	**n=759**	**n=609**	**n=2634**
2023	**n=559**	**n=694**	**n=724**	**n=506**	**n=2482**
Prevalence of global stunting (<-2 z-score) June 2024	(121) 22.2 % (18.3 - 26.6 95% C.I.)	(104) 14.6 % (11.4 - 18.4 95% C.I.)	(156) 20.6 % (16.6 - 25.1 95% C.I.)	(70) 11.5 % (8.6 - 15.2 95% C.I.)	(451) 17.1 % (15.3 - 19.1 95% C.I.)

[2] UNICEF, WHO, World Bank Group. Levels and trends in child malnutrition: key findings of the 2020 edition of the joint child malnutrition estimates. United Nations Children's Fund, World Health Organization, World Bank Group, 2020

Prevalence of global stunting (<-2 z-score) June 2023	(135) 24.2 % (19.8 - 29.1 95% C.I.)	(123) 17.7 % (14.1 - 22.1 95% C.I.)	(201) 27.8 % (23.2 - 32.9 95% C.I.)	(155) 30.6 % (25.8 - 35.9 95% C.I.)	(616) 24.8 % (22.3 - 27.5 95% C.I.)
Prevalence of severe stunting (<-3 z-score)-June 2024	(27) 4.9 % (3.6 - 6.7 95% C.I.)	(28) 3.9 % (2.5 - 6.2 95% C.I.)	(32) 4.2 % (2.7 - 6.4 95% C.I.)	(15) 2.5 % (1.2 - 5.0 95% C.I.)	(102) 3.9 % (3.0 - 5.0 95% C.I.)
Prevalence of severe stunting (<-3 z-score)-June 2023	(37) 6.6 % (4.3 - 10.0 95% C.I.)	(25) 3.6 % (2.2 - 5.9 95% C.I.)	(64) 8.8 % (6.6 - 11.7 95% C.I.)	(54) 10.7 % (8.1 - 14.0 95% C.I.)	(182) 7.3 % (6.0 - 8.9 95% C.I.)

Table 34: Prevalence of stunting based on height-for-age z-scores and by sex

	Sex	**Central n=546**	**North n=714**	**South n= 759**	**West n**=609	**County n=**
		M=276**, F**=270	**M=341, F=373**	**M=381, F=378**	**M** =307**, F** =302	**M=1309 F=1325**
Prevalence of global malnutrition(<-2z-score and/or edema)	Boys	(69) 25.0 % (18.9 - 32.4 95% C.I.)	(61) 17.9 % (12.7 - 24.5 95% C.I.)	(96) 25.2 % (19.8 - 31.5 95% C.I.)	(42) 13.7 % (9.8 - 18.8 95% C.I.)	(268) 20.5 % (17.4 - 23.9 95% C.I.)
	Girls	(52) 19.3 % (14.6 - 25.0 95% C.I.)	(43) 11.5 % (8.4 - 15.7 95% C.I.)	(60) 15.9 % (11.5 - 21.5 95% C.I.)	(28) 9.3 % (5.6 - 15.0 95% C.I.)	(183) 13.8 % (11.9 - 16.0 95% C.I.)
Prevalence of moderate malnutrition. (<-2 z-score and >=-3 z-score, no oedema)	Boys	(54) 19.6 % (14.6 - 25.7 95% C.I.)	(48) 14.1 % (9.4 - 20.5 95% C.I.)	(76) 19.9 % (15.5 - 25.3 95% C.I.)	(32) 10.4 % (7.0 - 15.2 95% C.I.)	(210) 16.0 % (13.6 - 18.8 95% C.I.)
	Girls	(40) 14.8 % (10.5 - 20.5 95% C.I.)	(28) 7.5 % (5.2 - 10.6 95% C.I.)	(48) 12.7 % (8.9 - 17.7 95% C.I.)	(23) 7.6 % (4.5 - 12.6 95% C.I.)	(139) 10.5 % (8.8 - 12.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	Boys	(15) 5.4 % (3.4 - 8.6 95% C.I.)	(13) 3.8 % (2.1 - 6.9 95% C.I.)	(20) 5.2 % (3.3 - 8.1 95% C.I.)	(10) 3.3 % (1.5 - 6.9 95% C.I.)	(58) 4.4 % (3.1 - 6.3 95% C.I.)
	Girls	(12) 4.4 % (2.6 - 7.5 95% C.I.)	(15) 4.0 % (2.0 - 7.8 95% C.I.)	(12) 3.2 % (1.6 - 6.2 95% C.I.)	(5) 1.7 % (0.6 - 4.5 95% C.I.)	(44) 3.3 % (2.3 - 4.7 95% C.I.)

As was the case with the other indices, Stunting was more in boys than girls.

3.3.Children's Morbidity and Health Seeking Behaviour

The UNICEF conceptual framework of malnutrition gives diseases as immediate causes of malnutrition. This is because diseases affect food intake which in turn worsens malnutrition in a vicious cycle kind of a relationship. Thus, the June 2024 survey assessed morbidity and whether it had any effect on nutrition status of the vulnerable population in the survey areas.

3.3.1. Child morbidity

The survey used recall by mothers/caregivers of children 6 to 59 months to establish whether their children had been sick in the past 2 weeks prior to the survey. Those who answered to the affirmative were further probed on what illness affected their children and whether and where they sought any assistance when their child/children were ill. Those who indicated that their child/children suffered from watery diarrhea were probed on the kind of treatment that was given to them.

It was established 31.7% of children had been ill two weeks preceding the surveys, a considerable increase from 23.4% reported in June 2023. This changed the declining trend sustained from June 2018 survey. Turkana South was the most affected with 44.8% reporting to have been sick. Unlike in June 2023 when Turkana West was the most affected, during this survey it was the best 23.9%. The detailed analysis is as shown in the table below.

Table 33: Children ill

	Turkana Central		**Turkana North**		**Turkana South**		**Turkana West**		**Turkana County**	
	count	**%**	**count**	**%**	**count**	**%**	**count**	**%**	**count**	**%**
No	392	71.8%	519	72.7%	419	55.2%	468	76.1%	1798	68.3%
Yes	154	28.2%	195	27.3%	340	44.8%	147	23.9%	836	31.7%
n	**546**	**100%**	**714**	**100%**	**759**	**100%**	**615**	**100%**	**2634**	100%

ARI/Cough remained the most prevalent form of illness in Turkana County with malaria as the second, a trend maintained from the previous surveys. The proportion of children suffering from malaria reduced when 2024 SMART was compared to 2023. There is a proven correlation of childhood morbidity and malnutrition, thus this is an indication child malnutrition will remain high has the case with morbidity. Important to note in the low proportion of bloody diarrhea (1 case) unlike in June 2022 when there were 22 cases across the four survey zones. The table below summarizes prevalence of child morbidity in the county.

Table 34: Prevalence of child morbidity 2 weeks prior to the survey- June 2024

Disease	Label	Turkana Central	Turkana North	Turkana South	Turkana West	Turkana County
Malaria	Count	87	75	164	43	369
	%	56.5%	38.5%	48.2%	29.3%	44.1%
ARI /Cough	Count	87	129	244	102	562
	%	56.5%	66.2%	71.8%	69.4%	67.2%
Watery diarrhoea	Count	33	18	94	14	159
	%	21.4%	9.2%	27.6%	9.5%	19.2%
Bloody diarrhoea	Count	0	0	1	0	1
	%	0%	0%	0.3%	0%	0.1%
Other (specify)	Count	9	3	10	4	26
	%	5.8%	1.5%	2.9%	2.7%	3.1%
	n	154	195	340	147	836

3.3.1.1.Diseases incidences

Different measures can be used to describe diseases. These include diseases incidence and prevalence. Prevalence reflects the number of existing cases of a disease while incidence reflects the number of new cases of disease and can be reported as a risk or as an incidence rate (Marlies, 2010). The June 2024 SMART survey found an incidence rate of below 20% in all morbidity causes, the same level as in the previous survey.

Table 35: Incidence of child morbidity 2 weeks prior to the survey-June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana county	
	count	%	count	%	count	%	count	%	count	**%**
ARI /Cough	61	11.2%	115	16.1%	153	20.2%	94	15.3%	423	16.1%
Fever with chills like malaria	67	12.3%	67	9.4%	129	17.0%	36	5.9%	299	11.4%
Other (specify)	7	1.3%	3	0.4%	9	1.2%	4	0.7%	23	0.9%
Bloody diarrhoea	0	0.0%	0	0.0%	1	0.1%	0	0.0%	1	0.0%
Watery diarrhoea	19	3.5%	10	1.4%	48	6.3%	13	2.1%	90	3.4%
	546		714		759		615		2634	

3.3.2. Therapeutic Zinc Supplementation during watery diarrhoea episodes

Zinc supplementation is used in Kenya as an accompanying drug to reduce the severity and duration of diarrhoea disease. It has been proven to reduce the duration and severity of diarrhea as shown by the evidence from efficacy studies. In 2004, WHO and UNICEF gave a recommendation on 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 diarrhea[3]. Kenya adopted these recommendations through the policy guideline on control and management of diarrheal diseases in children below five years. This guideline states that all children under-five years of age with diarrhea should be given zinc supplements as soon as possible.

During the June 2024 survey, one of the objectives was to establish the proportion of children who suffered from watery diarrhea and whether they were supplemented with zinc. The findings are illustrated in the figure below.

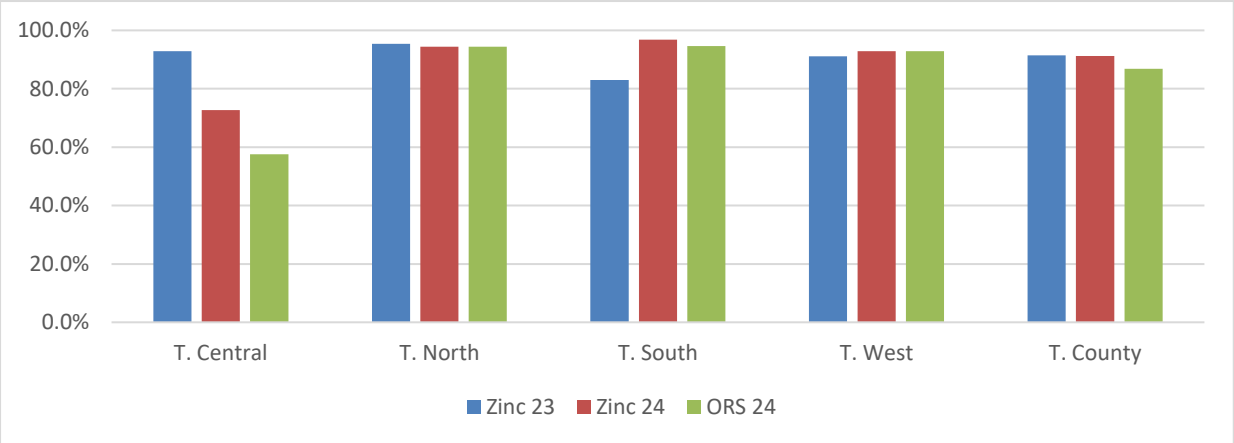


Figure 1:Therapeutic Zinc and ORS supplementation- June 2024

Utilization of zinc across the four survey zones improved in June 2024 survey when compared to June 2023 with only Turkana Central showing a decline. The same survey zone performed poorly in ORS use.

3.3.3. Health Seeking Behavior

The June 2024 SMART survey also sought to establish whether the caregivers/parents of the children who were reported to have been sick sought treatment. Health seeking behavior continued to improve with a positive change from 93.9%to 95.7%, a trend maintained from June 2019. Detailed analysis is shown below.

[3] Klemm RDW, Harvey PWJ, Wainwright E, Faillace S, Wasantwisut, E. Micronutrient Programs: What Works and What Needs More Work? A Report of the 2008 Innocenti Process. August 2009, Micronutrient Forum, Washington, DC.

Table 36: Those who sought health assistance-June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
No	10	6.5%	7	3.6%	10	2.9%	9	6.1%	36	4.3%
Yes	144	93.5%	118	96.4%	330	97.1%	138	93.9%	800	95.7%
n	154	100%	195	100%	340	100%	147	100%	836	100%

Where caregivers/parents of the sick children seek treatment is important because it determines the treatment outcome. This survey sought to understand where caregivers of children who were sick in the past two weeks prior to the survey first sought assistance from. Public health facilities remained the most preferred places where caregivers sought treatment for their children, the same case as in previous two surveys. Though, the proportion remained almost the same compared to the same period last year. CHVs are a critical component of Turkana County health care and were the second most trusted source of treatment. Turkana North had the highest proportion accessing health care through CHVs. The proportion of caregivers who accessed health care from mobile clinic was minimal despite the county having a considerable number of active integrated outreaches. A notable finding was in Turkana North where none sought treatment from a mobile clinic. The naming of mobile clinic from the commonly used outreach clinic could have also affected the response. The table below summarizes the health seeking behavior per survey zone in Turkana County.

Table 37: First Point of seeking health assistance- June 2024

		Turkana Central	**Turkana North**	**Turkana South**	**Turkana West**	**Turkana County**
Traditional healer	Count	2	0	0	0	2
	%	1.4%	0.00%	0.00%	0.00%	0.3%
Community health worker	Count	9	75	19	8	111
	%	6.3%	39.9%	5.8%	5.8%	13.9%
Private clinic/ pharmacy	Count	6	0	6	2	14
	%	4.2%	0.00%	1.8%	1.4%	1.8%
Shop/kiosk	Count	1	0	3	0	4
	%	0.7%	0.00%	0.9%	0.00%	0.5%
Public clinic	Count	125	110	302	126	663
	%	86.8%	58.5%	91.5%	91.3%	82.9%
Mobile clinic	Count	6	0	5	3	14
	%	4.2%	0.00%	1.5%	2.2%	1.8%

Relative or friend	Count	0	0	0	0	0
	%	0.00%	0.00%	0.00%	0.00%	0.00%
Local herbs	Count	0	1	1	0	2
	%	0.00%	0.5%	0.3%	0.00%	0.3%
NGO/FBO	Count	0	4	9	0	13
	%	0.00%	2.1%	2.7%	0.00%	1.6%
n		144	188	330	138	800

Still some proportion of population in Turkana Central used herbs to treat children. This was a change from June 2023 where Turkana South and Central led in use of herbs.

3.4.Childhood Immunization, Vitamin A Supplementation and Deworming

3.4.1. Childhood Immunization

The Kenyan definition of a fully immunized child is a child who has received all the prescribed antigens ***and at least one Vitamin A dose*** under the national immunization schedule before the first birthday. The Kenya immunization target for children under the age of one year was 95% by the end of third medium term plan (2018- 2022). This survey assessed the coverage of 4 vaccines namely, BCG, OPV1, OPV3, and measles at 9 and 18 months in addition to vitamin A supplementation.

There was improvement in BCG[4] immunization as confirmed by scar from 98.9% to 99.7%, maintaining the improvement trend witnessed in June 2022 to 2023. This is an indication the effect of COVID 19 containment measure have worn out though the recently concluded emergency response had a big contribution to the improvement. The immunization coverage for the four assessed antigens is summarized in the tables below per survey zone and the county.

Table 38: Child BCG immunization Coverage- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
No Scar	1	0.2%	5	0.7%	2	0.3%	1	0.2%	9	0.3%

[4]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.

Yes / Scar	545	99.8%	709	99.3%	757	99.7%	614	99.8%	2625	99.7%
n	564	100%	714	100%	759	100%	615	100%	2634	100%

By card only; three survey zones had above 90% coverage in OPV1 which is a measure of access, however when both recall and card were combined, all survey zones met the 90% mark hence a very good coverage and an improvement from the June 2023 survey.

Table 39: Child OPV 1 coverage- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Do not know	0	0.00%	3	0.4%	0	0.00%	0	0.00%	3	0.1%
No	2	0.4%	3	0.4%	1	0.1%	2	0.3%	8	0.3%
Yes, Card	499	91.4%	643	90.1%	753	99.2%	491	79.8%	2386	90.6%
Yes, Recall	45	8.2%	65	9.1%	5	0.7%	122	19.8%	237	9%
n	546	100%	714	100%	759	100%	615	100%	2634	100%

There was a general improvement in the proportion immunized on OPV 3 and confirmed by card, an indication that the use of mother child booklets was on improvement path in the county. Generally, there was improvement when recall was combined with card.

Table 40: OPV 3 Coverage

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Do not know	0	0.00%	1	0.1%	0	0.00%	1	0.2%	2	0.1%
No	5	0.9%	4	0.6%	7	0.9%	2	0.3%	18	0.7%

Yes, Card	496	90.8%	644	90.2%	748	98.6%	490	79.7%	2378	90.3%
Yes, Recall	45	8.2%	65	9.1%	4	0.5%	122	19.8%	236	9%
n	546	100%	714	100%	759	100%	615	100%	2634	100%

However, efforts are still needed to distribute mother child booklets to improve documentation of services. Notable deterioration was noted in Turkana West.

Table 41: Child measles Vaccination coverage at 9 months- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Do not know	0	0%	2	0.3%	0	0.0%	0	0.00%	2	0.1%
No	13	2.5%	8	1.2%	23	3.2%	3	0.5%	47	1.9%
Yes, Card	458	88.8%	607	89%	693	96.3%	457	79.3%	2215	88.8%
Yes, Recall	45	8.7%	65	9.5%	4	0.6%	116	20.1%	230	9.2%
n	516	100%	682	100%	720	100%	576	100%	2494	100%

There was a slight positive deviation of measles coverage from June 2023 to June 2024. The improvement was noted also when health cards was used as well as when recall was combined with health cards. This improvement meant health services utilization was improving in the county. All survey zones achieved over 90%.

Table 42: Child measles Vaccination coverage at 18 Months- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Do not know	0	0.0%	2	1.08%	0	0.00%	0	0.00%	2	0.1%

No	12	2.9%	16	3.78%	23	3.9%	3	0.6%	54	2.6%
Yes, Card	366	87.9%	487	81.62%	562	95.6%	360	76.8%	1775	86.9%
Yes, Recall	40	9.6%	11.1	13.51%	3	0.5%	106	22.6%	212	10.4%
n	418	100%	568	100%	588	100%	469	100%	2043	100%

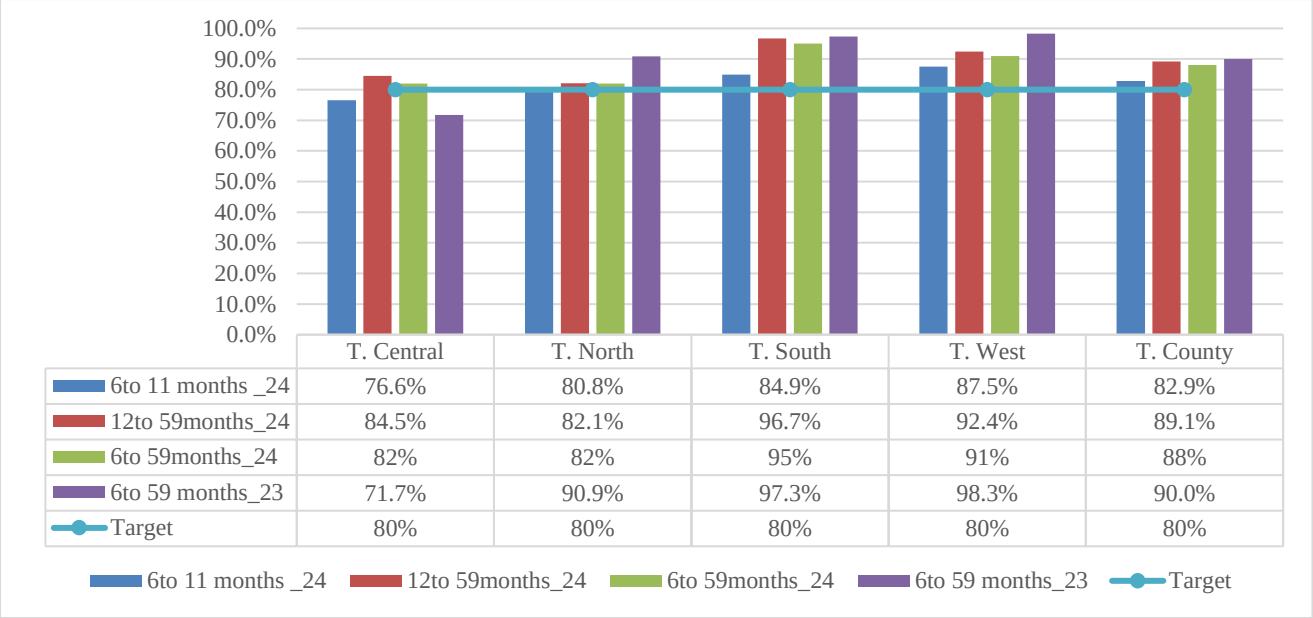
Unlike in the past surveys when measles coverage at 18 months was very low, the June 2024 survey found minimal difference between measles coverage at 9 months and 18 months with both achieving over 90% coverage. This was the same case with the June 2023 SMART survey.

3.4.2. Vitamin A supplementation

Vitamin A supplementation[5] is proven as key evidence-based intervention which can be achieved at scale and with proven potential to reduce the number of preventable child deaths each year. Vitamin A supplementation is among the 11 high impact nutrition interventions which is recognized as among the most cost-effective interventions for improving child survival. Improving vitamin A supplementation coverage of malnourished children enhances their resistance to disease and can reduce mortality from all causes by approximately 23 per cent[6]. Thus, vitamin A supplementation is important, not only for eliminating vitamin A deficiency as a public-health problem, but also as a central element for child survival.

The June 2024 SMART survey had an objective to assess vitamin A supplementation coverage among children 6 to 59 months. This was done by asking caregivers whether their children had been supplemented and if affirmative how many times in the past one year. The team confirmed the responses through mother and child health booklets or recall in cases the booklets were not available. Samples of the capsules commonly used in Turkana County were shown to the care givers.

[5] Jones, Gareth, et al., 'How Many Child Deaths can we Prevent this Year?', The Lancet, vol. 362, 5 July 2003, pp. 65-71.
[6] Vitamin A Supplementation: A Decade of Progress, UNICEF 2007



	T. Central	T. North	T. South	T. West	T. County
6to 11 months _24	76.6%	80.8%	84.9%	87.5%	82.9%
12to 59months_24	84.5%	82.1%	96.7%	92.4%	89.1%
6to 59months_24	82%	82%	95%	91%	88%
6to 59 months_23	71.7%	90.9%	97.3%	98.3%	90.0%
Target	80%	80%	80%	80%	80%

Figure 2: Vitamin A supplementation coverage

The overall vitamin A coverage in June 2024 was 88% which was above the set target of 80% though a reduction from 90% in June 2023. There was a significant improvement in vitamin A coverage when June 2023 was compared to June 2024 SMART survey. Most of the change was noted in Turkana Central survey zone though the 6 to 11 months category did not meet the target in the survey zone. The figure above shows vitamin A supplementation coverage per survey zone in Turkana County.

3.4.3 De-worming

Research shows children in developing countries are exposed to poor sanitation due to poor availability of water and sanitation facilities. WHO recommends that children in developing countries especially those exposed to poor sanitation and poor availability of clean safe water be de-wormed once every 6 months. Kenya adopted this recommendation through the Kenya National School Based Deworming Program. This is a Kenya Vision 2030 flagship program, which has provided over 52 million treatments to school going children over the last decade. Routine de-worming of the vulnerable population is important in controlling parasites such as helminthes, schistosomiasis (bilharzias) and prevention of anemia.

Turkana County implements this program through the routine child action days known as malezi bora. The June 2024 SMART survey assessed de-worming for all children aged 12-59 months old. Deworming coverage was within the recommended 80% target though a reduction

from the June 2023 SMART survey results of 88.7%. All survey zones had above 80% coverage, the county set target.

Table 43: De-worming coverage among children 12-59 months old –June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
No	76	15.5%	122	19%	50	7.4%	77	14.3%	325	13.9%
Yes	413	84.5%	519	81%	622	92.6%	462	85.7%	2016	86.1%
n	489	100%	641	100%	672	100%	539	100%	2341	100%

4. MATERNAL NUTRITION

Nutritional status of women prior to pregnancy influences their ability to conceive, determines the fetal growth and development and the size of the fetus and its overall health as well as the health of the mother. Optimal maternal nutrition is important for a successful pregnancy, child delivery and lactation. Malnutrition prior and around pregnancy makes the placenta fail to develop fully therefore it cannot optimally nourish the fetus. Under nourished and over nourished women experience more complications during pregnancy and delivery than normal women. Anemic women are more likely to deliver low birth weight infants while low folic acid levels are associated with an increased risk of low birth weight and birth defects. Adequate weight gain during pregnancy is a good indicator of good nutrition for the women and is essential for fetal growth. Desired weight gain is based on pre-pregnancy weight using BMI criteria and pre-conception nutritional status of the woman.

4.1.Women physiological status

This survey assessed physiological status of women respondents. Women were asked their current physiological status. Majority of female caregivers were breastfeeding (53.5%) compared to the same period last year (49.6%). Proportion of pregnant caregivers slightly increased to 14.4% from 11.4%, a trend maintained from June 2021 survey. The proportion of caregivers who were both pregnant and lactating remained low at 0.3% with all survey zone having at least case except Turkana Central. Thus, there is need for FP services enhancement across the county. The table below details the physiological status of women of reproductive age across the four survey zones.

Table 44: Women Physiological status

	Turkana Central		Turkana North		Turkana South		Turkana West		Proxy County	
	n	%	n	%	n	%	n	%	n	%
Pregnant	67	13.9%	73	16.3%	79	13.9%	59	13.5%	278	14.4%
Breastfeeding	241	49.9%	273	60.8%	290	51.1%	232	53.1%	1036	53.5%
Pregnant and Breastfeeding	0	0.0%	1	0.2%	3	0.5%	2	0.5%	6	0.3%
None of the above	175	36.2%	102	22.7%	195	34.4%	144	33.0%	616	31.8%
n	483		449		567		437		1936	

4.2.Acute Malnutrition

4.2.1. Nutrition status of women of reproductive age

Women nutrition status in the June 2024 SMART survey was assessed by mid-Upper -Arm circumference (MUAC). This was administered to all women of reproductive age (15 to 49 years) in all sampled households, irrespective of their physiological status. About 8.7% of women were found to be malnourished (<21cm). This was an improvement from 10.7% recorded in June 2023, a trend noted from 2022. This improvement cut across all survey zones except Turkana South which recorded deterioration.

Table 45: Nutrition status of women reproductive age-June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
MUAC < 21 cm	42	8.7%	27	6.0%	78	13.8%	21	4.8%	168	8.7%
MUAC ≥21 cm	441	91.3%	422	94.0%	489	86.2%	416	95.2%	1768	91.3%
n	483		449		567		437		1936	

4.2.2. Nutrition status of pregnant and lactating women

Further analysis was carried out to determine malnutrition in the pregnant and breastfeeding women group who are the most vulnerable due to their increased nutrients requirement. More improvement was noted in this category with county average of 8.3% against 9.9% recorded in June 2023, a trend noted from June 2022. The improvement cut across all survey zones except in Turkana South zone which recorded deterioration.

Table 46: Nutrition status of Pregnant and lactating women

PLW	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
MUAC < 21	27	8.8%	20	5.8%	51	13.7%	12	4.1%	110	8.3%
MUAC ≥21 cm	148	91.2%	82	94.2%	144	86.3%	132	95.9%	506	91.7%
n	175		102		195		144		616	

Non-pregnant and non- breastfeeding women have lesser nutrients needs compared to those who are pregnant or lactating. It is therefore expected that this group could be better nourished. These were found to be more malnourished with a county average of 9.4% against 12.0%

recorded in June 2023 SMART survey, a considerable improvement. Deterioration was noted in Turkana South with all the other survey zones recording improvement from the June 2023 SMART survey results. The results are detailed in the table below.

Table 47: Non-Pregnant/ lactating women

Non- PLW	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
MUAC < 21 cm (2024)	15	8.6%	7	6.9%	27	13.8%	9	6.3%	58	9.4%
MUAC ≥21 cm	293	91.4%	340	93.1%	345	86.2%	284	93.8%	1320	90.6%
n	308		347		372		293		1320	
MUAC < 21 cm (2023)	24	12.8%	17	10.0%	27	10.7%	27	15.1%	95	12.0%

4.3.ANC attendance

Evidence by WHO indicates that a higher frequency of antenatal contacts by women and adolescent girls with a health provider is associated with a reduced likelihood of stillbirths. Increased visits enhance the opportunities to detect and manage potential complications. World Health Organization recommended increase of minimum antenatal visits from four to eight times. Eight or more ANC contacts with a health worker for ANC can reduce perinatal deaths by up to 8 per 1000 births when compared to 4 visits. A total of 1,936 females responded to the survey among which 40.3% had children below 2 years, a reduction from 53.2% recorded in the same period last year.

Table 48: Full term pregnancy for mothers with children less than 2 years-June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Yes	229	47.4%	210	46.8%	215	37.9%	127	29.1%	781	40.3%
No	254	52.6%	239	53.2%	352	62.1%	310	70.9%	1155	59.7%
n	483	100.0%	449	100.0%	567	100.0%	437	100.0%	1936	100.0%

World Health Organization recommends a specified package for the women attending ANC. Some of the recommendations are:

- An increase from four to eight minimum contacts to reduce perinatal mortality and improve women's experience of care.
- Counselling on healthy eating and keeping physically active during pregnancy.
- Daily oral IFAS with 30 mg to 60 mg of elemental iron and 400 µg (0.4 mg) folic acid for pregnant women to prevent maternal anemia, puerperal sepsis, low birth weight, and preterm birth.
- Tetanus toxoid vaccination for all pregnant women, depending on previous tetanus vaccination exposure, to prevent neonatal mortality from tetanus.
- One ultrasound scan before 24 weeks' gestation (early ultrasound) for pregnant women to estimate gestational age, improve detection of fetal anomalies and multiple pregnancies, reduce induction of labor for post-term pregnancy, and improve a woman's pregnancy experience.
- Health-care providers should ask all pregnant women about their use of alcohol and other substances (past and present) as early as possible in the pregnancy and at every antenatal visit.

Table 49: Attendance to antenatal clinic- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
No	2	.9%	4	1.9%	1	.5%	0	0.0%	7	.9%
Yes	227	99.1%	206	98.1%	214	99.5%	127	100.0%	774	99.1%
n	229	100.0%	210	100.0%	215	100.0%	127	100.0%	781	100.0%

Among the women with children below two years, majority (99.1%) had attended ANC with all survey zones having almost the same proportion; an improvement from last year's 97.8%. This was a good indication the county health system was working on improving MCH indicators.

Table 50: First ANC attendance (month)

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Don't know	2	0.9%	2	1.00%	12	5,6%	0	0.00%	16	2.10%
1 to Month 3	28	12.3%	100	48.5%	60	28.0%	31	24.4%	219	28.3%
4 to Month 6	94	41.4%	88	42.7%	126	58.9%	57	44.9%	365	47.2%
7 to Month 9	103	45.4%	16	7.8%	16	7.5%	39	30.7%	174	22.5%
n	227		206		214		127		777	

The timing of the first time a pregnant women visit to ANC will determine how many times she will visit before delivery. The survey sought to know at what time women were making their first visit to the ANC on their pregnancy. About a third were visiting between the 1st and the 3rd month; meaning these were likely to meet the minimum 8 visits. About fifth visited ANC in their last trimester and were unlikely to meet the minimum eight visits thus missing the essential health package. Turkana West and Central led in this poor indicator.

4.4.Iron and Folic Acid Supplementation (IFAS)

The current WHO recommendation of Iron and Folic Acid Supplementation (IFAS) are a daily dose for the entire period of pregnancy as part of the Ante Natal Care (ANC) to reduce the risk of low birth weight, maternal anaemia, iron deficiency and neural tube defects commonly referred to as NTDs. The guidelines state that all pregnant women should receive Iron and Folic Acid Supplementation (IFAS) regardless of anaemia status in countries where anaemia is >40%. Kenya lying in the bracket adopted the WHO guidelines. IFA formulations are: 60mg iron /400µg folic acid and should be given as a combined pill throughout pregnancy in accordance with WHO 2012 recommendations. Iron and Folic Acid Supplementation has been shown to reduce Low Birth Weight, which is the primary cause of neonatal deaths. Folic Acid supplementation with 400µg reduces incidence of NTDs if taken before conception and within 28 days of pregnancy. Similarly, IFAS sustains strength during pregnancy and ensures enough blood stores in the body during and after delivery. IFAS is a component in the Focused Antenatal Care (FANC).

Each of the mothers of children below 2 years was asked if they had consumed iron folate in their most recent pregnancy and if affirmative, for how long. About 95.8% of women with children below 2 years across the county had been supplemented with Iron and Folic acid during their last pregnancy, a considerable increases from the June 2023 survey of 91.7%. This changed the deteriorating trend recorded since the June 2019 SMART survey. All survey zones had over 90% coverage except Turkana Central. Improvement was recorded in all survey zones.

Table 51: Caretakers with children aged 24 months and below who were supplemented with Iron Folic acid in their last pregnancy- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Don't know	2	0.9%	4	1.9%	1	0.5%	0	0.00%	7	0.9%

No	22	9.6%	2	1.0%	2	0.9%	0	0.00%	26	3.3%
Yes	205	89.5%	204	97.1%	212	98.6%	127	100%	748	95.8%
n	229	100%	210	100%	215	100%	127	100%	781	100%

There was a slight deterioration in the number of days IFAS were consumed by pregnant women from 102.9 days to 93.2 days. Only Turkana South had an average of more than 100 days unlike the previous year when two zone had crossed the 100 days mark. Duration of supplementation remained poor especially considering the current recommendation where women are expected to take the supplements for the entire pregnancy period. Only 4.8% of women took the supplements for more than 180 days, an improvement from 2.7% when compared to June 2023. Turkana South continued being the best at 8% with all survey zones having recorded at least consumption above 180 days. The poor length of taking IFAS could be attributed to the later first ANC visit as reported by the health workers. There is need to create more demand for IFAS among pregnant women through behavior change communication approaches.

Table 52: Number of days caretakers with children aged 24 months and below consumed IFAS in their last pregnancy- June 2024

Indicator	Turkana Central		Turkana North		Turkana South		Turkana West		Proxy County	
	n	%	n	%	n	%	n	%	n	%
Below 90 Days	122	59.8%	96	47.3%	51	24.1%	54	42.5%	323	43.3%
90 to >= 180	74	36.3%	224	110.3%	144	67.9%	71	55.9%	513	68.8%
Above 180 Days	8	3.9%	9	4.4%	17	8.0%	2	1.6%	36	4.8%
n	204		203		212		127		746	
Average Number of Days	81.3		89.4		115.7		81.1		93.2	

4.5.Mosquito Nets Ownership and Utilization

4.5.1. Mosquito nets ownership

The county mosquito net ownership considerably improved from 43.1% in June 2023 to 54.0%. Though Turkana County is not a malaria zone, some survey zones are endemic malaria parasite area like Loima which is in Turkana Central survey zone. There are malaria interventions in across all the survey zones which could have led to the improvement. All survey zones had

more than half of the respondents reporting mosquito net ownership. A considerable proportion owned more than one net across all survey zones.

Table 53: Mosquito nets ownership

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
No	212	40.4%	250	46.3%	328	47.7%	228	49.5%	1018	46.0%
Yes	313	59.6%	290	53.7%	360	52.3%	233	50.5%	1196	54.0%
n	525		540		688		461		2214	
2 nets and Above	124	23.6%	87	16.1%	96	14.0%	73	15.8%	380	17.2%

4.5.2. Slept under mosquito net

Children between the age of 5 years and less than 18 years were less likely to sleep under mosquito nets across all survey zones, thus predisposing them to mosquito bites and subsequent the malaria parasites. Adults were more likely to sleep under a mosquito net.

Table 54: Household member who slept under the mosquito net

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
18 years and above (Adult)	443	40.4%	394	39.0%	525	37.5%	317	36.3%	1679	38.4%
5 to less than 18 years	289	26.4%	199	19.7%	369	26.4%	242	27.7%	1099	25.1%
Less than 5 years	364	33.2%	416	41.2%	506	36.1%	314	36.0%	1600	36.5%
n	1096		1009		1400		873		4378	

5. WATER SANITATION& HYGIENE

Water access and good sanitation are considered a human right according to UN.[7] All individuals are entitled to have access to a specified amount of safe drinking water and to basic sanitation facilities as water and sanitation are deeply interrelated. The human right to water requires everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use. While sanitation is essential for the conservation and sustainable use of water resources, access to water is required for sanitation and hygiene practices. The realization of other human rights, like the right to the highest attainable standard of health, the right to food and good nutrition, right to education and the right to adequate housing, depends very substantially upon the implementation of the basic right to water and sanitation.

From research, poor water and sanitation (WASH) indicators are linked to under nutrition and more so on stunting levels. Some killer diseases of young children like diarrhea, are closely linked to poor/inadequate WASH, which often causes under nutrition (Pruss-Ustun et al, 2014). Diarrhea in turn reduces a child's resistance to subsequent infections, thus creating a vicious circle leading to death. An estimated 25% of stunting is attributable to five or more episodes of diarrhea before 24 months of age (Checkley et al, 2008). The June 2024 SMART survey assessed WASH indicators as an underlying cause to malnutrition.

5.1.Main Source of Water

The June 2024 SMART survey had an objective to understand where the households were currently obtaining water for their domestic use. The proportion of households obtaining water from safe sources, that is borehole / protected spring /protected shallow wells, Earth pan/dam with infiltration well, piped water system, Water vendor as well as water tracking reduced from 59.6% in June 2023 to the current 53.8%, a trend maintained from June 2019. Turkana South had the highest save water sources with more than half of the respondents accessing water from piped systems.

Table 55: **Main current sources of water- June 2024**

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%

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

borehole / protected spring /protected shallow wells	130	24.8%	97	18.0%	177	25.7%	44	9.5%	448	20.2%
Earth pan/dam	0	0.0%	87	16.1%	10	1.5%	13	2.8%	110	5.0%
Earth pan/dam with infiltration well	19	3.6%	1	0.2%	0	0.0%	0	0.0%	20	0.9%
Harvested water	3	0.6%	0	0.0%	0	0.0%	0	0.0%	3	0.1%
other	1	0.2%	12	2.2%	13	1.9%	0	0.0%	26	1.2%
Piped water system	150	28.6%	54	10.0%	362	52.6%	149	32.3%	715	32.3%
River/spring	99	18.9%	130	24.1%	95	13.8%	99	21.5%	423	19.1%
Unprotected shallow well	118	22.5%	154	28.5%	31	4.5%	156	33.8%	459	20.7%
Water trucking / Boozer	5	1.0%	0	0.0%	0	0.0%	0	0.0%	5	0.2%
Water vendor	0	0.0%	5	0.9%	0	0.0%	0	0.0%	5	0.2%
n	525		540		688		461		2214	
Save water sources	304	58%	157	29%	539	78%	193	42%	1193	54%

Due to the high proportion of the population relying on unsafe water sources, there is eminent need to sensitize the community on water treatment while at the same time ensure access to water treatment chemicals.

5.1.1. Improved water sources

An improved drinking water source, by nature of its construction and design, is likely to protect the source from outside contamination, in particular from faecal matter. These may include and but not limited to piped water into dwelling, plot or yard, public tap/stand pipe, tube well/borehole, protected dug well, protected spring and, rainwater collection among others. Unimproved drinking water sources include unprotected drug well, unprotected spring, cart with small tank/drum, tanker truck, surface water (river, dam, lake, pond, stream, canal, irrigation channel ad any other surface water), and bottled water (if it is not accompanied by another improved source).

Table 56: Improved water sources

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%

YES	288	54.9%	156	28.9%	539	78.3%	193	41.9%	1176	53.1%
NO	237	45.1%	384	71.1%	149	21.7%	268	58.1%	1038	46.9%
n	525		540		688		461		2214	

5.1.2. Type of Piped water

Further analysis of those who gave piped water as a response, reveled a surge for those using public taps, from 44.9% to 63% changing the declining trend witnessed earlier. However, piped into dwelling decrease from 27.2% to the current 13%, though some zones like Turkana North reported over 50% coverage. Turkana Central host the largest urban centre in the county hence it was expected the survey zone would report the highest proportion having water piped in their dwelling place. Thus, the survey zone led with the proportion reporting having water in their yards at almost double the other survey zones. Turkana South led with those using public taps, as was the case last year.

Table 57: Type of piped water

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
other	10	1.3%	0	0.0%	0	0.0%	7	0.8%	17	0.5%
Piped into dwelling	142	18.8%	124	59.3%	141	7.8%	62	7.3%	469	13.0%
Piped to neighbour	125	16.6%	8	3.8%	136	7.6%	14	1.7%	283	7.8%
Piped to yard / plot	304	40.3%	8	3.8%	129	7.2%	126	14.9%	567	15.7%
Public tap / standpipe	174	23.0%	69	33.0%	1391	77.4%	638	75.3%	2272	63.0%
n	755		209		1797		847		3608	

5.2.Distance to Water Source and Queuing Time

The SPHERE standards hand book gives a distance of 500 meters as the maximum distance to the nearest water point each household should trek to access water. The same handbook gives the maximum queuing time at a water point to be not more than 15 minutes and should not take more than three minutes to fill a 20-litre jerry can.

5.2.1. Distance to water sources

This survey sought to establish the distance households were walking to the nearest water points. The results show a slight improvement in the proportion of households accessing water from the acceptable recommended distance of less than 500m. The proportion marginally increased from 50.7% in June 2023 to the current 52.4%, changing the declining trend witnessed from 2021 where it was 64.6%. This was consistent with the other water access indicators. The proportion accessing water from more than 2km distance decreased from 18.2% to the current 7.4% while those accessing water from more than 500m to less than 2km (15 to 1 hour) increased from 31% to 40.1%. The table below shows distance to water sources per survey zone in Turkana County.

Table 58: Distance to water sources

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Less than 500m (Less than 15 minutes)	200	38.1%	275	50.9%	416	60.5%	269	58.4%	1160	52.4%
More than 2 km (1 – 2 hrs)	75	14.3%	50	9.3%	27	3.9%	12	2.6%	164	7.4%
More than 500m to less than 2km (15 to 1 hour)	248	47.2%	215	39.8%	244	35.5%	180	39.0%	887	40.1%
other	2	0.4%	0	0.0%	1	0.1%	0	0.0%	3	0.1%
n	525		540		688		461		2214	

Fetching water is one of the major causes of child labour and more so girls as well women in ASAL counties and more so in Turkana County. The survey sought to find out who in the households mainly fetches water. As has been the case in the previous surveys, women bore the burden of fetching water for domestic use at 84.3% a light increase from 83.5% followed by girls. The proportion was almost the same across the four survey zones. Turkana Central had more women fetching water while Turkana South had the lowest with girls leading in the same survey zone. Turkana. Strategies should be put in place to reduce the burden to girls and women.

Table 59: Who goes to fetch water

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Boys	3	.6%	4	.7%	35	5.1%	8	1.7%	50	2.3%
Girls	41	7.8%	58	10.7%	101	14.7%	45	9.8%	245	11.1%
Men	12	2.3%	4	.7%	12	1.7%	8	1.7%	36	1.6%
other	2	.4%	0	0.0%	15	2.2%	0	0.0%	17	0.8%
Women	467	89.0%	474	87.8%	525	76.3%	400	86.8%	1866	84.3%
Total	525	100.0%	540	100.0%	688	100.0%	461	100.0%	2214	100.0%

5.2.2. Queuing time to water sources

The proportion of households not queuing for water further declined in the June 2024 SMART survey when compared to the same period in 2023 from 65.6% to 60.1%, a trend maintained from 2022. This shows a deterioration of water access indicators. Turkana South was the worst in terms of queuing with more than half of the households queuing for water while Turkana Central remained the best.

Table 60: Proportion of Households Queuing for water

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
No	426	81.1%	327	60.6%	270	39.2%	308	66.8%	1331	60.1%
Yes	99	18.9%	213	39.4%	418	60.8%	153	33.2%	883	39.9%
Total	525		540		688		461		2214	

Among those who queued, majority queued for less than 30 minutes, an improvement from June 2023 SMART survey from 51.8% to 66.7%. There was a further reduction in the most severe duration of waiting of more than one hour from 11.3% to 4.8%. Generally, the highest improvement was seen in Turkana Central. The table below details the analysis.

Table 61: Queuing time at water source

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
30-60 minutes	46	46.5%	20	9.4%	162	38.8%	24	15.7%	252	28.5%
Less than 30 minutes	46	46.5%	189	88.7%	229	54.8%	125	81.7%	589	66.7%

More than 1 hour	7	7.1%	4	1.9%	27	6.5%	4	2.6%	42	4.8%
Total	99		213		418		153		883	

5.3.Methods of drinking water treatment and storage

5.3.1. Household water treatment

Since a large proportion of households were accessing water from unsafe source, it was important that they embraced water treatment methods to prevent water borne diseases. There was a considerable improvement of the households who were treating water from 17.3% in June 2023 to 34.7% in June 2024; which meant still majority (65.3%) of households were not treating drinking water. The improvement trend was witnessed from June 2021. Most improvement was seen in Turkana South and Central survey zones. Efforts are needed to improve water treatment across the county. The table below details the analysis.

Table 62: Drinking Water treatment

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
No	365	69.5%	354	65.6%	378	54.9%	349	75.7%	1446	65.3%
Yes	160	30.5%	186	34.4%	310	45.1%	112	24.3%	768	34.7%
Total	525		540		688		461		2214	

Though an improvement, only a small proportion was treating water despite the low latrine coverage and high proportion accessing water from unsafe sources. The poor WASH indicators could be among the leading contributors to the high levels of undernutrition especially when the relationship between WASH and undernutrition is considered.

Unlike in the previous years where traditional herb seemed to be entrenched as a water treatment method in the county, this year's surveys show minimal use of the herbs. Use of chemicals remained the dominant water treatment method in the county 76.3%, a slight improvement compared to 73.6% the previous year.

Table 63: Methods used for treating drinking water

	Turkana Central	Turkana North	Turkana South	Turkana West	Turkana County

	Count	%	Count	%	Count	%	Count	%	Count	%
Boiling	13	8.1%	77	41.4%	130	41.9%	59	52.7%	279	36.3%
Chemicals (Chlorine,Pur,Waterguard)	149	93.1%	142	76.3%	219	70.6%	76	67.9%	586	76.3%
Traditional herbs	6	3.8%	2	1.1%	37	11.9%	1	0.9%	46	6.0%
Pot filters	12	7.5%	2	1.1%	1	0.3%	0	0.0%	15	2.0%
other	0	0.0%	0	0.0%	2	0.6%	2	1.8%	4	0.5%
n	160		186		310		112		768	

Boiling was also a dominant water treatment method because it cut across all survey zones unlike the previous surveys.

Table 64: Reasons for not treating water

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Treatment chemical are not Available	4	1.1 %	129	36.4 %	15	4.0 %	46	13.2 %	194	13.4 %
I don't like water treated with chemical (alter taste)	4	1.1 %	23	6.5 %	1	0.3 %	4	1.1 %	32	2.2 %
I have no time to treat water	12	3.3 %	25	7.1 %	54	14.3 %	42	12.0 %	133	9.2 %
Our water does not need treatment	12	3.3 %	25	7.1 %	54	14.3 %	42	12.0 %	133	9.2 %
Our water is treated from the source	122	33.4 %	7	2.0 %	184	48.7 %	25	7.2 %	338	23.4 %
Never had of water treatment method	2	0.5 %	2	0.6 %	20	5.3 %	52	14.9 %	76	5.3 %
I don't know how & treatment chemicals	36	9.9 %	8	2.3 %	4	1.1 %	18	5.2 %	66	4.6 %
other	0	0.0 %	0	0.0 %	2	0.5 %	0	0.0 %	2	0.1 %

Majority of those not treating water said their water was being treated at the source which was a good thing. However, there were warrying response which needed behavior change communication to counter.

5.3.2. Storage of Drinking water

Only one survey zone showed improvement in the use of closed containers to store drinking water; that is Turkana South, the rest recorded a decline. The overall county proportion reduced from 76.8% to 74.6% unlike in the previous survey where it was on the increase attributed to free distribution of free Jeri cans during the emergency response.

Table 65: Storage of drinking water- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Closed container / Jerrican /brika	476	90.7%	278	51.5%	670	97.4%	228	49.5%	1652	74.6%
Open container / Jerrican /brika	49	9.3%	262	48.5%	18	2.6%	233	50.5%	562	25.4%
n	525		540		688		461		2214	

5.4.Water Payment

The proportion of households paying for water increased when the June 2024 survey was compared to June 2023, a trend maintained from June 2022 SMART survey. The increase was recorded in Turkana Central and West survey zones.

Table 66: **Payment for water**

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
No	377	71.8%	390	72.2%	369	53.6%	370	80.3%	1506	68.0%
Yes	148	28.2%	150	27.8%	319	46.4%	91	19.7%	708	32.0%
n	525		540		688		461		2214	

Unlike in June 2023 when most of the interviewed households were paying water on monthly bases, the June 2024 SMART survey showed most households were paying per 20 liters jericans. This was same for two of the four survey zones; that is Turkana South and West.

Table 67: Domestic water payment mode

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Per 20 litre jerrican	43	29.1%	68	45.3%	187	58.6%	63	69.2%	361	51.0%
Per month	105	70.9%	82	54.7%	132	41.4%	28	30.8%	347	49.0%
n	148		150		319		91		708	

On average Turkana West had the cheapest water when purchased per 20 liters jerrycan which was slightly below KSh.10 and the highest at KSh.20, while Turkana North had the most expensive at close to KSh.14 and the maximum at KSh.50.

Table 68: Price per 20l Jerry can

	Turkana Central	Turkana North	Turkana South	Turkana West	Turkana County
Mean (Average cost)	**12.1**	**13.9**	**11.7**	**6.4**	**11.3**
Median	10.0	10.0	10.0	5.0	10.0
Maximum	30.0	50.0	50.0	20.0	50.0
Minimum	5.0	2.5	4.0	5.0	2.5

When water was purchase per month, Turkana West had the most expensive water unlike when purchased per 20 liter jerrycan which was the cheapest. However Turkana South had some households paying the highest maximum prices of KSh.3000 per month.

Table 69: Monthly Bill

	Turkana Central	Turkana North	Turkana South	Turkana West	Turkana County
Mean (Average monthly pay)	**285**	**154**	**159**	**323**	**209**
Median	200	100	100	100	100
Maximum	1000	300	3000	1500	3000
Minimum	10	50	10	5	5

5.5.Household water consumption

The global standards as per the SPHERE handbook is given as 15 liters and above daily water consumption per person as the adequate quantity. There was a considerable reduction of the

proportion of households consuming the recommended amount from 49% in June 2023 to the current 36%. Thus, majority of the households were not consuming adequate quantity of water, maintaining the declining trend recorded in the previous survey. The deterioration was observed in two of the four survey zones, that is Turkana West and North with the rest recording improvement. The table below details sub-county specific analysis.

Table 70: household water consumption per day per survey zone

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Consuming > 15 Liters/Person/Day	233	44.4%	154	28.5%	345	50.1%	64	13.9%	796	36.0%
Consuming < 15 Liters/Person/Day	292	55.6%	386	71.5%	343	49.9%	397	86.1%	1418	64.0%
n	525		540		688		461		2214	

5.6.Hand washing

The single most cost-effective public health intervention in preventing diarrhea diseases is hand washing with soap and running water[8]. The Kenya Ministry of Health (MOH) gives four critical hand washing moments as; after visiting the toilet/latrine, before cooking, before eating and after taking children to the toilet/latrine. There was a marked improvement in handwashing awareness in Turkana County in the June 2024 SMART survey from 69.2% to the current 91.5%. This changed the declining trend recorded in June 2023 SMART. As it was in the previous surveys, Turkana North survey zone was the least aware of handwashing practices. The other survey zones had over 90% of their population aware of handwashing practices.

Table 71: Awareness of hand washing practices – June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Don't know	6	1.1%	8	1.5%	11	1.6%	2	0.4%	27	1.2%
No	14	2.7%	105	19.4%	9	1.3%	34	7.4%	162	7.3%
Yes	505	96.2%	427	79.1%	668	97.1%	425	92.2%	2025	91.5%
n	525		540		688		461		2214	

[8]Borghi, J., Guinness, L., Ouedraogo, and J., Curtis, V. (2002): Is hygiene promotion cost-effective? A case study in Burkina Faso. *Tropical Medicine and International Health*, **7(11)**, 960-969.

Most of the interviewed households were washing hands after toilet (94.4%), a departure from the previous surveys where before eating was dominant. This was an improvement from 86% in the previous year. There was a slight decline in those washing hands before eating from 94.5% to 92.7%. Still a considerable proportion do not consider washing hands after taking children to the toilet was that important though the [proportion improved from 53.6% to 68.8%. The worst zones were Turkana North and South. There was an overall improvement in hand washing practices in June 2024 compared to June 2023.

Table 72: Hand washing at critical times

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
After toilet	504	99.8%	404	94.6%	646	96.7%	357	84.0%	1911	94.4%
Before cooking	498	98.6%	357	83.6%	506	75.7%	338	79.5%	1699	83.9%
Before eating	504	99.8%	355	83.1%	616	92.2%	403	94.8%	1878	92.7%
After taking children to the toilet	410	81.2%	249	58.3%	433	64.8%	301	70.8%	1393	68.8%
n	505		427		668		425		2025	

5.6.1. Hand washing at all four critical times

People should was hands with soap and running water during four prescribed critical moments to break key contamination routes in the human body as recommended by the MOH guideline. Contamination is the transmission of disease-causing germs from one human to another or via contact with human or animal faeces. A single gram of human faeces can contain up to one trillion germs.[9] Adults and children who practice proper hand washing enjoy direct health benefits and other benefits.

This survey recorded a considerable improvement of hand washing at the four critical times (before eating, before cooking, after visiting the toilet, after changing the baby diaper) compared to the same period in 2023; that is from 43.2% to 62.7%. Thus maintaining the improving trend noted from 2022 to 2023. All survey zones had over 50% handwashing at four critical time with Turkana central being the best at 82.2% and Turkana North being the worst at 52.5% as was the case in the previous surveys, though a big improvement. This is a concern

[9] Franks AH, Harmsen HJM, Raangs GC, Jansen GJ, Schut F, Welling GW. Variations of bacterial populations in human feces measured by fluorescent in situ hybridization with group-specific 16S rRNA-targeted oligonucleotide probes. Appl Environ Microbiol. 1998; 64(9):3336-3345.

as the bigger proportion of the community is exposed to contamination considering the poor health environment where they live. The results shows work has been done to improve the situation though more need to be done to improve the hygiene practices across the county for better nutrition outcomes for the vulnerable population.

Table 73: Hand washing at all the four critical times

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
All 4 Instances	415	82.2%	224	52.5%	393	58.8%	237	55.8%	1269	62.7%
< 4 Instances	90	17.8%	203	47.5%	275	41.2%	188	44.2%	756	37.3%
n	505		427		668		425		2025	

5.6.2. Hand washing with soap

Evidence show hand washing with soap is one of the most effective and inexpensive interventions for preventing diarrheal diseases and pneumonia, which together account for 3.5 million child deaths annually worldwide.[10] Less than half of the households were washing hands with soap and water, though a slight improvement from 42.7% to 47.6%. Unlike the previous year, this time two survey zone recorded over 50% hand washing with soap and water. Those who washed hands with only water were on the decline from 38.3% to 34.1%. Continued behaviour change messaging is needed to have the right practice. None of the zones was using herbs for handwashing unlike the previous years.

Table 74: What is used for hand washing- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Only water	150	29.7%	226	52.9%	128	19.2%	186	43.8%	690	34.1%
Soap and water	293	58.0%	161	37.7%	346	51.8%	163	38.4%	963	47.6%
Soap when I can afford it	61	12.1%	39	9.1%	171	25.6%	61	14.4%	332	16.4%
Others	1	0.2%	1	0.2%	4	0.6%	7	1.6%	13	0.6%
Total	505	100.0%	427	100.0%	668	100.0%	425	100.0%	2025	100.0%

[10] 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.

Caregivers' knowledge level considerably improved from 72.3% to 92.0% in June 2024 survey with all survey zones recording over 90% caregivers knowledge on hand washing apart from Turkana North which recorded 78.3% though an improvement from 48.6%. This changed the declining trend recorded in the previous surveys. NICHE could have played a role in the improvement. Improvement was noted in all categories including all the four critical moments. Still much efforts are needed to improve hygiene and sanitation indicators in Turkana North.

Table 75: Hand washing in HH with Children 0-23 Months

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
Practice	n	%	n	%	n	%	n	%	n	%
Awareness of handwashing	256	98.1%	234	78.3%	308	97.8%	230	95.0%	1028	92.0%
Hand washing moments	n	%	n	%	n	%	n	%	n	%
After toilet	255	99.6%	223	95.3%	301	97.7%	194	84.3%	973	94.6%
Before cooking	255	99.6%	198	84.6%	221	71.8%	182	79.1%	856	83.3%
Before eating	255	99.6%	199	85.0%	285	92.5%	217	94.3%	956	93.0%
After taking child toilet	232	90.6%	149	63.7%	186	60.4%	167	72.6%	734	71.4%
Below 4 critical moments	23	9.0%	101	43.2%	142	46.1%	104	45.2%	370	36.0%
All 4 critical moments	233	91.0%	133	56.8%	166	53.9%	126	54.8%	658	64.0%

5.7.Latrine Utilization

The overall sanitation status for Turkana County continued to improve with proportion of households relieving themselves in the bush or open field having (open defecation) decreasing from 70.9% to 63.6% in June 2024 SMART survey. Hence the county latrine coverage was 36.4% an improvement from 29.2% recorded in the previous year. Pit latrine coverage being the main form of toilet, increased considerably from 23.5% to 27.7%. Open defecation was highest in Turkana North and Turkana West survey zones though declining. There is an urgent need to strengthen CLTS efforts to improve the household's sanitation facility coverage. The table below shows latrine ownership and utilization per survey zone.

Table 76: Latrine ownership and utilization

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Bucket	0	0.0%	1	0.2%	0	0.0%	0	0.0%	1	0.0%
Composting toilet	19	3.6%	50	9.3%	28	4.1%	0	0.0%	97	4.4%
Flush / pour flush	2	0.4%	0	0.0%	1	0.1%	0	0.0%	3	0.1%
Hanging toilet / hanging latrine	28	5.3%	3	0.6%	41	6.0%	5	1.1%	77	3.5%

No facility / bush / field	287	54.7%	418	77.4%	361	52.5%	343	74.4%	1409	63.6%
other	1	0.2%	0	0.0%	3	0.4%	9	2.0%	13	0.6%
Pit latrine	188	35.8%	68	12.6%	254	36.9%	104	22.6%	614	27.7%
Total	525		540		688		461		2214	

6. FOOD SECURITY

Food and Agriculture Organization of the United Nations defines food and nutrition security as a situation where all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The February 2024 SRA classified Turkana County at "Crisis" (IPC Phase 3, food security) with a projection to improve but remain in the same phase. The SRA report recommended the population in need of food assistance per ward ranging from 20% in Lokichoggio, Kakuma and Letea wards to 45% in Lakezone, kalokol, Lokori, kochodin and Kalapata among other. This was a reduction from 35% to 65% recommended in the February 2023 SRA. The February 2023 Integrated Phase Classification (IPC AMN) among children under the age of five years, documented Turkana nutrition situation had remained critical to extremely critical with Turkana South in extremely critical phase (IPC AMN Phase 5) with an improving projection, though to remain in the same phase. At the same time 94,508 children 6-59 months and 25,140 pregnant and lactating women were acutely malnourished in Turkana County (KFSSG, 2024); an improvement from 106,587 children and 30,120 PLW in the same period last year. Thus, Turkana County is one of the counties with high burden of malnutrition. Consequently, this makes Turkana County as the most food insure county in Kenya.

6.1.Cash transfer

Cash transfers are defined as direct payments of money to people, either as an alternative or in addition to distributing items such as food, blankets and shelter kits. It is usually done through physically giving cash, mobile money, and vouchers for local suppliers or smart card transfers. Cash transfers can be either conditional or unconditional cash transfers.

Kenya has been implementing cash transfer programs across the country for some years. The country has an entrenched government supported cash transfer domiciled in the Ministry of Public Service, Gender, Senior Citizens Affairs and Special Programmes and Ministry of East African Community, Arid and Semi-Arid Lands (ASALs), and Regional Development. Kenyan government through Kenya Social Inclusion and Economic Program (KSIEP) in the state department of Social Security and protection has an established social protection program costing KSh.30 billion annual budget and covers 1,338,000 people. Kenya's cash transfer program offers a model for affordable and well-targeted social protection, facilitated by deep government commitment and sensible donor support. Turkana County has over 60,000 households on cash transfer targeting different groups. In Turkana, several modalities of cash

transfer are implemented including the Nutrition Improvement through Cash and Health Education (NICHE), a health program incorporated in the routine government supported cash transfer through the ministry of labour and social protection and Ministry of Devolution and ASAL (NDMA) targeting pregnant women and children below 24 months. Currently NICHE is implemented in all the seven (currently 11) sub-counties. The county through support of several partners and different government departments has been using cash transfer to respond to drought emergencies.

Research shows providing cash to vulnerable population and especially to women can reduce physical abuse, rates of child marriage and improve women's health and economic status. This evidence led to the survey objective of seeking to establish what proportion of the households interviewed was enrolled in any cash transfer program.

Table 77: Household enrolled in cash transfer- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
No	477	90.9%	500	92.6%	541	78.6%	395	85.7%	1913	86.4%
Yes	48	9.1%	40	7.4%	147	21.4%	66	14.3%	301	13.6%
n	525	100.0%	540	100.0%	688	100.0%	461	100.0%	2214	100.0%

Despite the presence of many cash transfer programs in the county, the proportion of households reported to have been enrolled in cash transfer programs maintained a declining trend from 16.0% to the current 13.6%. This was still too low especially considering evidence from the administrative data which indicate more than 50% of households in the county are enrolled in different cash transfer programs. This could be attributes to the perception that the survey teams could be enrolling for more support thus household felt they would be left out by responding on the affirmative.

Table 78: Household enrolled which cash transfer programme- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Emergency Response Cash Tranfer	6	12.5%	1	2.5%	2	1.4%	13	19.7%	22	7.3%
Hunger safety net programme	31	64.6%	31	77.5%	68	46.3%	41	62.1%	171	56.8%
Wfp linda lishe bora	0	0.0%	0	0.0%	27	18.4%	0	0.0%	27	9.0%

Older persons programme	3	6.3%	3	7.5%	8	5.4%	5	7.6%	19	6.3%
other	0	0.0%	0	0.0%	3	2.0%	0	0.0%	3	1.0%
OVC programme	6	12.5%	5	12.5%	39	26.5%	7	10.6%	57	18.9%
People with severe disabilities	2	4.2%	0	0.0%	0	0.0%	0	0.0%	2	0.7%
Total	48	100.0%	40	100.0%	147	100.0%	66	100.0%	301	100.0%

The main cash transfer was HSNP followed by Inua Jamii as was the case in the past surveys. This means government is the main implementer of cash transfer programs in Turkana County. There was a decline in the proportion of households receiving HSNP cash transfer from 69.2% to 56.8%. Minimal coverage was seen from other cash transfers (from other partners).

6.2.Food access and consumption

6.2.1. Dominant foods and food groups consumed by households and women

The major food groups consumed across the four survey zones was grains, white roots and tubers and plantains as has been the case in the last survey. The least foods consumed across the survey zones were eggs, nuts and seeds. There was a considerable increase in the population consuming different food groups. Consumption of fruits remained relatively low in Turkana North (usually the last in past surveys) which could be attributed to access.

6.2.2. Household Dietary Diversity (HDD)

Household Dietary Diversity (HDD) provides an evaluation of household economic access to food. As a results items requiring household resources to obtain like condiments, sugar and sugary foods, and beverages, form part of the score. Individual dietary diversity scores aim to reflect nutrient adequacy. Evidence from studies in different age groups show an increase in individual dietary diversity score is related to an increase in specific diet nutrient adequacy. There are validated dietary diversity scores for different age/sex groups as a proxy measure for macro and/or micronutrient adequacy of the diet.

This survey assessed household dietary diversity based on a 24-hour recall period. Data was collected on 16 food group as described in the FAO 201 guideline. At analysis level, the groups were compressed into 10 food groups.

The overall dietary diversity for the county generally improved when June 2023 was compared to June 2024 with the population taking more than 5 food groups which is referred to as

acceptable HDD increased from 22.7% to 36.6% while the poor HDD reduced from 55.3% to 34.7%. This was in agreement with the improved nutrition situation across all the survey zones. Turkana North remained the worst with only 16.5% of the household taking the recommended dietary diversity, an improvement from 1.9% % from the same period in 2023. Improvement was seen in all survey zones. The figure below details the analysis.

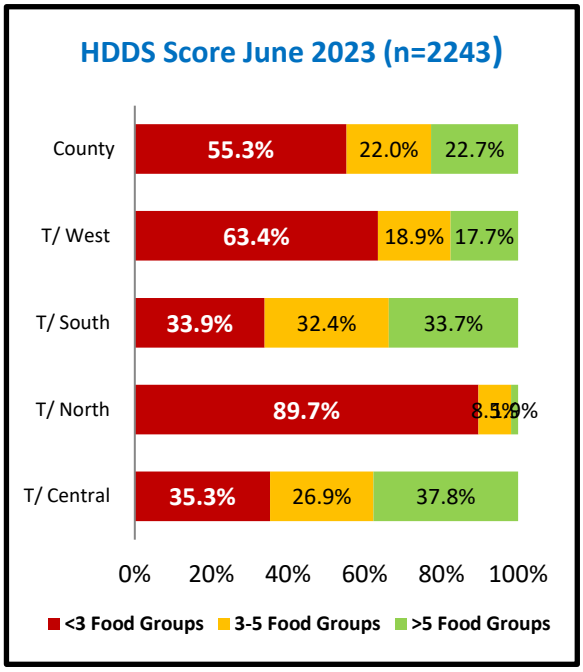


Figure 3: Household Dietary Diversity Score based on 24 hours recall for June 2021(n=2257)

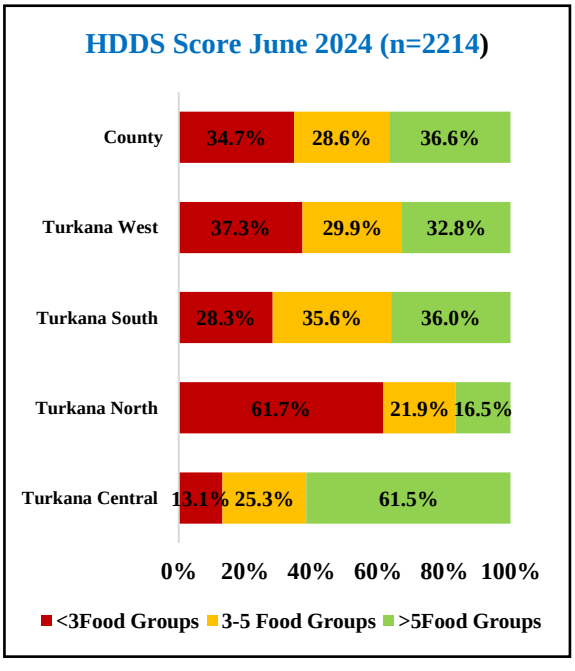


Figure 4 Household Dietary Diversity Score based on 24 hours recall for June 2022 (n=2540)

6.2.3. Women Dietary Diversity score (MDD-W)

Another indicator used to assess food diversity is Minimum Dietary Diversity for WRA (MDD-W). Many a time, this indicator reflects key dimension of diet quality; that is micronutrient adequacy. It is a two-level indicator showing whether or not women 15–49 years of age were consuming at least five out of ten defined food groups the previous day or night. There is evidence that there is elevated nutrients requirement for pregnant and lactating women than for adult men (National Research Council, 2006). Apart from during pregnancy and lactation period, 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. In many resource-poor environments, diet quality for WRA is usually very poor, and there are gaps between

intakes and requirements for a range of micronutrients (Arimond et al., 2010; Kavle, 2017). The proportion of women 15–49 years of age who reach the specified minimum dietary diversity in a population are usually used as a proxy indicator for higher micronutrient adequacy, one important dimension of diet quality.

The proportion of women 15 -49 years consuming 5 and more food groups reduced across the four survey zones when compared to the same period in 2023; from 21.6% to 9.6% on average with all survey zones showing deterioration despite the improved nutrition status. The worst was in Turkana North where none of the households consumed 5 or more food groups. This shows women of reproductive age in Turkana are unlikely to meet micronutrients intake requirements.

Table 79: Minimum MDD-W June 2024

Survey zone	<5 food groups		5 and more food groups	
	June 2023	June 2024	June 2023	June 2024
Turkana Central	69.8%	87.0%	30.2%	13.0%
Turkana North	91.0%	100.0%	9.0%	0.0%
Turkana South	87.4%	91.4%	12.6%	8.6%
Turkana West	73.5%	83.1%	26.5%	16.9%
Turkana County	78.4%	90.4%	21.6%	9.6%

Similar to the previous survey, staples formed the greater proportion of food consumed at the households. This varies per survey zone with Turkana North being the worst which is consistent with previous surveys.

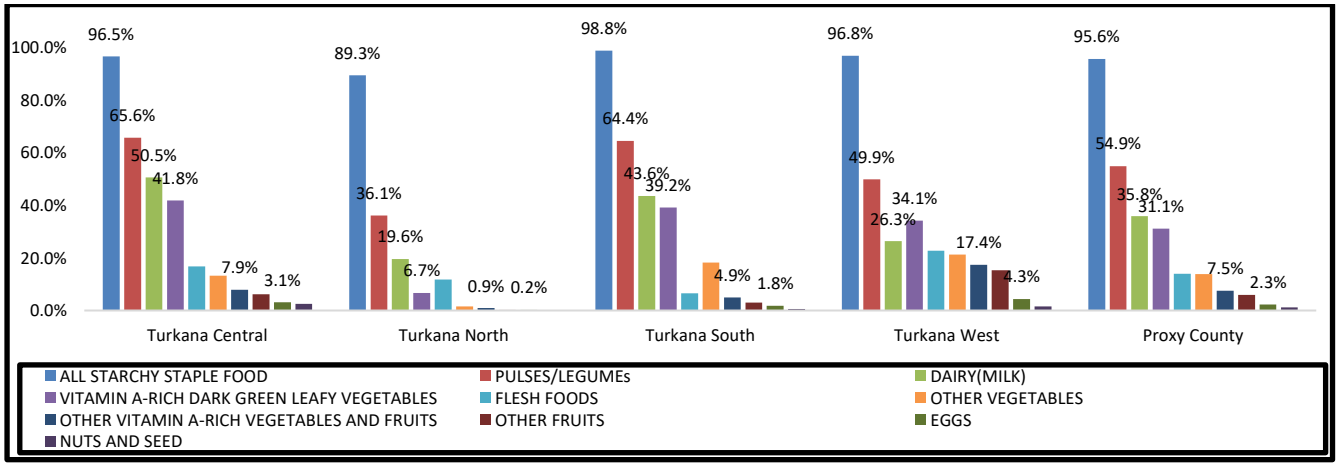


Figure 5: Food groups consumed (Women)

6.2.4. Food Consumption Score (FCS) Classification

FCS is defined as a composite score based on dietary diversity, food frequency and relative nutrition importance of different food group (WFP, 2015). This is a proxy measure of household's food security and is designed to reflect the quality of people's diet and it is considered as an outcome measure of household food security. The June 2024 SMART survey assessed the households' Food Consumption Score (FCS). In this analysis households were classified in three categories according to food consumption score; namely, poor, borderline and acceptable. The figures below detail a comparison of the June 2023 with the June 2024 SMART survey results.

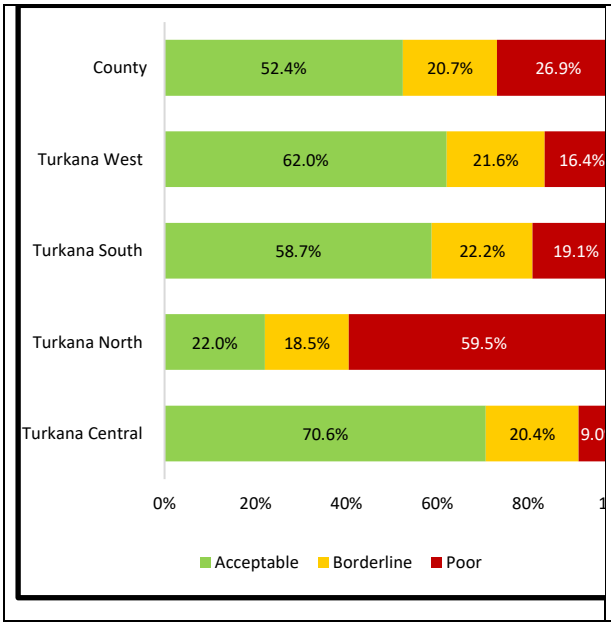


Figure 6:Jun 2023 Food Consumption Score (n=2243)

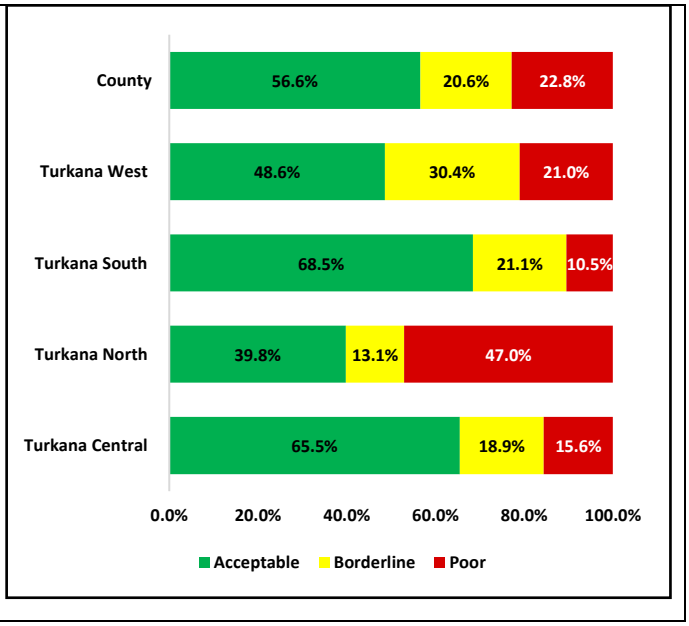


Figure 7:Jun 2024 Food Consumption Score (n=2214)

Food security indicators continued to improve in two of the four survey zones; that is Turkana South and North though it deteriorated in Turkana Central and West. The overall county food security improved with the proportion of households consuming the poor FCS reducing from 26.9% to 22.8%. This was supported by the nutrition status results where the levels of acute malnutrition significantly improved.

6.2.5. Consumption of micronutrients (iron, protein and vitamin A rich foods in relation to Food consumption score

Micronutrients are vitamins and minerals needed by the body in very small amounts but are vital for the body to thrive. Micronutrient deficiencies are also referred as hidden hunger and can cause visible and dangerous health conditions, as well as lead to clinically notable

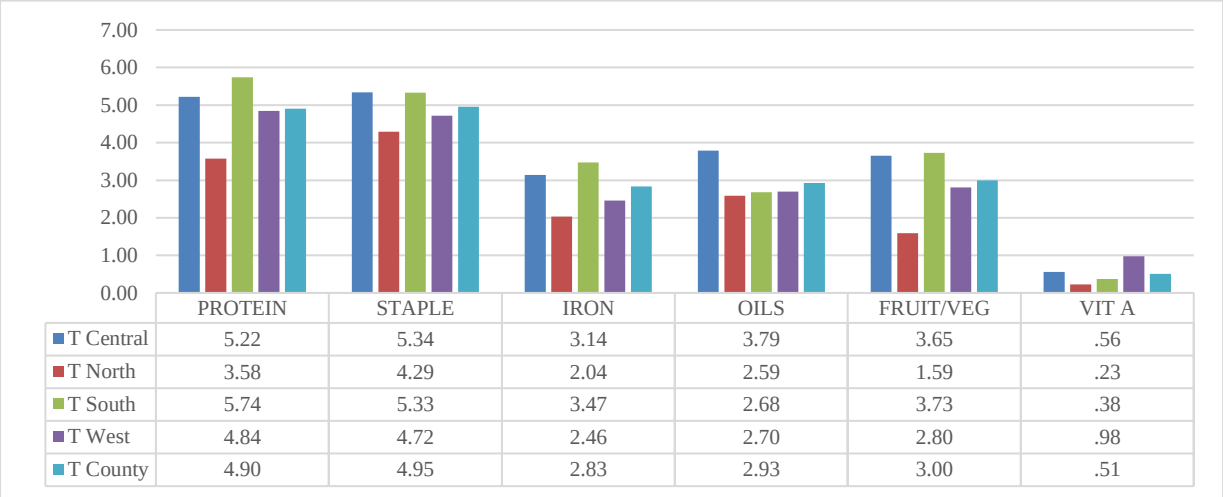
reductions in energy level, mental clarity and overall body incapacity. Available evidence shows micronutrients deficiencies can lead to reduced educational outcomes, reduced work productivity and increased risk from other diseases and health conditions (WHO, 2021).

This SMART survey assessed the diet quality of the respondents based on vitamin A rich, iron rich and protein richness. Consumption of vitamin A rich food was fair in all survey zones except Turkana North where majority did not consume the food group. Protein rich foods were well consumed across all zones except in Turkana North. Majority of the households across all survey zones did not consume hem iron-rich foods. This is consistent in the previous surveys. Turkana North was the worst in these indicators which was the same in the last two surveys. Dietary diversity interventions should be promoted across the county.

Table 80: Cconsumption frequency of the three nutrient rich food groups

		Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
		Count	%	Count	%	Count	%	Count	%	Count	%
"Consumption of vitamin A-rich foods"	0 days (never consumed)	102	19.4%	296	54.8%	92	13.4%	155	33.6%	645	29.1%
	1-6 days(consumed sometimes)	180	34.3%	140	25.9%	263	38.2%	166	36.0%	749	33.8%
	7 days (consumed at least daily)	243	46.3%	104	19.3%	333	48.4%	140	30.4%	820	37.0%
	n	525		540		688		461		2214	
Consumption of protein-rich foods	0 days (never consumed)	54	10.3%	202	37.4%	42	6.1%	59	12.8%	357	16.1%
	1-6 days(consumed sometimes)	176	33.5%	138	25.6%	204	29.7%	191	41.4%	709	32.0%
	7 days (consumed at least daily)	295	56.2%	200	37.0%	442	64.2%	211	45.8%	1148	51.9%
	n	525		540		688		461		2214	
Consumption of hem iron-rich foods	0 days (never consumed)	344	65.5%	319	59.1%	430	62.5%	296	64.2%	1389	62.7%
	1-6 days(consumed sometimes)	154	29.3%	177	32.8%	240	34.9%	86	18.7%	657	29.7%
	7 days (consumed at least daily)	27	5.1%	44	8.1%	18	2.6%	79	17.1%	168	7.6%
	n	525		540		688		461		2214	

The findings were, staples were the most consumed food sources followed by protein rich foods, the same as the June 2023. As was the case last year, fruits and vegetables among the most consumed foods. Turkana North lagged behind in most foods which could be attributed to physical access issues. There was a considerable improvement in the consumption of iron rich food across all survey zones. Vitamin A rich foods were the least consumed foods across the four survey zones. This explains the micronutrients deficiency levels specifically vitamin A and iron among the vulnerable population. The figure below details the analysis.



	PROTEIN	STAPLE	IRON	OILS	FRUIT/VEG	VIT A
T Central	5.22	5.34	3.14	3.79	3.65	.56
T North	3.58	4.29	2.04	2.59	1.59	.23
T South	5.74	5.33	3.47	2.68	3.73	.38
T West	4.84	4.72	2.46	2.70	2.80	.98
T County	4.90	4.95	2.83	2.93	3.00	.51

Figure 8: Number of days food was consumed showing micronutrient consumption

6.2.6. Coping Strategy Index (rCSI)

Another index used in this survey to assess food security was reduced coping strategy index (CSI). This is a simple and easy-to-use indicator of household stress due to a lack of food or money to buy food. The rCSI is based on a series of responses to a single question: “What do you do when you don’t have adequate food, and don’t have the money to buy food?” rCSI combines, the frequency of each strategy (how many times was each strategy adopted) and the severity (how serious is each strategy). This indicator assesses whether there has been a 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. The weighted frequency scores are summed up into one final score (WFP 2012). Coping Strategy Index (rCSI) is an experience-based indicator measuring the behaviour of households over the past seven days when they did not have enough food or money to purchase food.

The June 2024 SMART survey results show 74.4% of households reported an incident in the last 7 days where they had no adequate food or money to buy food a reduction from 98.1% reported in June 2023. This changed the increasing trend which had been witnessed since the June 2021 SMART survey where about 66% had reported an incident where they had to cope with inadequate food or money to buy food. This indicted an improved food security situation across the county. The rCSI was worse in Turkana South and North survey zones where the households in crisis were more.

Table 81: Reduced Coping strategy index- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
None	172	32.8%	182	33.7%	136	19.8%	76	16.5%	566	25.6%
Stressed	259	49.3%	197	36.5%	478	69.5%	289	62.7%	1223	55.2%
Crisis+	94	17.9%	161	29.8%	74	10.8%	96	20.8%	425	19.2%
n	525		540		688		461		2214	

6.2.7. Hunger scale

Closely related to the reduced copy strategy index is hunger scale. The June 2024 SMART survey also measured the households' hinger scale. The proportion under catastrophe reduced from 10.3% to 2.2% with all survey zones having below 10%. Turkana South had 0.1% (the lowest) of the households under catastrophe unlike in 2023 when it had 20%. Majority of the households were in crisis hunger scale across the four survey zones.

Table 82: Hunger scale- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Minimal	82	15.6%	185	34.3%	210	30.5%	62	13.4%	539	24.3%
Stressed	18	3.4%	4	0.7%	23	3.3%	7	1.5%	52	2.3%
Crisis	377	71.8%	338	62.6%	454	66.0%	386	83.7%	1555	70.2%
Emergency	7	1.3%	9	1.7%	0	0.0%	3	0.7%	19	0.9%
Catastrophe	41	7.8%	4	0.7%	1	0.1%	3	0.7%	49	2.2%
n	525		540		688		461		2214	

6.2.8. Food fortification

According to WHO, food fortification is defined as the practice of deliberately increasing the content of one or more micronutrients (vitamins and minerals) in a food to improve the nutritional quality of the food and provide a public health benefit with minimal risk to health. The main purpose of food fortification is to increase the nutritional content of foods, more so the staples. Evidence show food fortification can help to restore the micronutrient content lost during processing.

Kenya has made considerable achievements in achieving global commitments including the World Health Assembly 2025 targets. These include reduction in stunting, wasting and improving exclusive breastfeeding levels. These achievements vary across counties with some counties like Turkana having very poor indicators (Kenya Food fortification strategy 2018-2022, 2018). Kenya has an approved Food Fortification strategic plan 2018- 2022 to guide the program.

6.2.8.1.Food fortification awareness

The June 2024 SMART survey assessed the awareness level of the Turkana population on food fortification. Almost the same proportion as in June 2023 reported having heard about food fortification; that was 19.4% compared to 19.7% last year. Turkana South, as was the case last year led with the proportion who were aware of food fortification. The results confirms the need for the county to re-strategize on how to make the community aware of the strategy. The table below details the findings.

Table 83: Heard about food fortification- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Don't know	162	30.9%	172	31.9%	411	59.7%	111	24.1%	856	38.7%
No	291	55.4%	269	49.8%	72	10.5%	296	64.2%	928	41.9%
Yes	72	13.7%	99	18.3%	205	29.8%	54	11.7%	430	19.4%
n	525	100.0%	540	100.0%	688	100.0%	461	100.0%	2214	100.0%

Detailed analysis shows the dominant source of food fortification information was trainings and radio messages, though it varied per survey zone with Turkana Central survey zone reporting TV as a dominant source of food fortification information. The results mirrored the June 2023 survey results.

6.2.8.2.Source of food fortification information

Table 84: Source of food fortification information

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Radio	42	58.3%	13	13.1%	56	27.3%	23	42.6%	134	31.2%
Road Show	28	38.9%	4	4.0%	11	5.4%	4	7.4%	47	10.9%
In a training session attended	7	9.7%	81	81.8%	124	60.5%	10	18.5%	222	51.6%
On TV show	32	44.4%	0	0.0%	32	15.6%	6	11.1%	70	16.3%
other	6	8.3%	1	1.0%	4	2.0%	12	22.2%	23	5.3%
n	72		99		205		54		430	

The Kenyan food fortification strategic plan gives a specific log to be put on the fortified food products. The survey wanted to establish whether the caregivers can identify the log. Despite caregivers having heard about food fortification, some could hardly identify the food fortification logo. About 17% of the caregivers could identify the logo, a big reduction from 85.7% recorded in June 2023. This meant majority of the households could not use the food fortification logo to make decision about their food purchase.

Table 85: Know the food fortification logo- June 2024

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Don't know	166	31.6%	149	27.6%	350	50.9%	113	24.5%	778	35.1%
No	294	56.0%	283	52.4%	196	28.5%	287	62.3%	1060	47.9%
Yes	65	12.4%	108	20.0%	142	20.6%	61	13.2%	376	17.0%
n	525	100.0%	540	100.0%	688	100.0%	461	100.0%	2214	100.0%

6.2.8.3.Utilization of fortified foods

The survey used maize meal/flour to measure consumption of fortified food in the surveyed households. Slightly less than half of the care givers confirmed they sourced their maize meal/flour from either a shop or supermarket. Braded flour was more likely to be fortified due to mandatory fortification of maize flour/meal.

Table 86: Sources of maize flour/meal

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Bought from posho mill	10	1.9%	47	8.7%	34	4.9%	82	17.8%	173	7.8%
Bought from Shops / Supermarkets	337	64.2%	367	68.0%	158	23.0%	114	24.7%	976	44.1%
Maize taken for milling	160	30.5%	126	23.3%	422	61.3%	239	51.8%	947	42.8%
other	18	3.4%	0	0.0%	74	10.8%	26	5.6%	118	5.3%
n	525		540		688		461		2214	

7. MIYCN

The first 1000 days of child's life; covering the period between a woman's pregnancy and the child's 2nd birthday is a unique opportunity to shape up child's life for heathier life and future opportunities. This window of opportunity is adequate to create impact for child's ability to grow, learn and rise from poverty. This in turn affects the general society welfare (Maternal, infant and young child nutrition. national operational guidelines for health workers. 2013). Child's optimal growth and development starts from the womb because a malnourished baby in the mother's womb has higher risk of dying in infancy and are more likely to face lifelong cognitive and physical deficits and chronic health problems.

7.1. MDD 6-23 months

This SMART survey was the second one in the county to assess MIYCN indicators, though there were more assessments done in the 2017 KABP survey and 2022 KDHS. Infants and young children should be fed a minimum acceptable diet. This means they should be fed meals with appropriate frequency and a variety of foods to meet their energy and nutrient needs. The 2023 SMART survey recorded a MDD of 27% while this survey found a MDD of 7.7% as a county average with a survey zone highest of 15.4% in Turkana West and a low of 0.4% in Turkana North. These are regarded as poor.

Majority of these children were still breastfeeding making continued breastfeeding coverage 82.1% though a reduction from 83.7% in June 2023. Considering the poor complementary feeding indicators, breast milk forms a critical component of their diet. The good continued breast-feeding rate means children will get the required essential nutrient from breast milk to complement the poor complimentary diets Children on complementary feeding consumed majorly starchy foods and dairy products unlike in June 2023 when legumes was the second.

Eggs were the least consumed as was the case last year with none of the children in Turkana North survey zone consuming any egg. From these finding less than half of the children were likely to consume a diversified diet.

Table 87: MDD- children 6-23 months

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
Breastmilk	152	79.2%	178	77.4%	228	89.1%	174	81.3%	732	82.1%
Starch	132	68.8%	122	53.0%	162	63.3%	155	72.4%	571	64.0%
Legumes	56	29.2%	35	15.2%	70	27.3%	63	29.4%	224	25.1%
Dairy	84	43.8%	105	45.7%	108	42.2%	96	44.9%	393	44.1%
Meat fish	24	12.5%	18	7.8%	14	5.5%	41	19.2%	97	10.9%
Eggs	3	1.6%	0	0.0%	2	0.8%	12	5.6%	17	1.9%
VitA rich fruits Vegs	60	31.3%	13	5.7%	75	29.3%	60	28.0%	208	23.3%
Other fruits Vegs	23	12.0%	5	2.2%	22	8.6%	30	14.0%	80	9.0%

7.2.Children food consumption score

This survey recorded a worsening food consumption score for children with the FCS-Children reducing from 27.8% in 2023 to 7.7% in June 2024. A negligible proportion in Turkana North consumed 5 or more food groups.

Table 88: Food consumption score for children

	Turkana Central		Turkana North		Turkana South		Turkana West		Turkana County	
	Count	%	Count	%	Count	%	Count	%	Count	%
5 or more food groups	16	8.3%	1	0.4%	19	7.4%	33	15.4%	69	7.7%
0 to 4 food groups	176	91.7%	229	99.6%	237	92.6%	181	84.6%	823	92.3%
n	192		230		256		214		892	

The table below details a worrying status of complementary feeding in Turkana among which was unhealthy food consumption 6–23 months (UFC) of 6.1%, meaning children consume unhealthy foods in their early life which is likely to have an adverse effect in their adult life.

Table 89: IYCF indicators

Survey areas	MDD 6-23 months	MMF 6–23 Moths including non-breastfed children	Zero vegetable or fruit consumption	Egg and/or flesh food consumption	Continued breastfeeding 12–23 months	Sweet beverage consumption	Unhealthy Food Consumption (UFC)

			6–23 months (ZVF)	6–23 months(EFF)		6–23 months (SwB)	
County	7.7%	56.3%	72.0%	11.1%	74.0%	7.2%	6.1%
T. Central	8.3%	37.0%	60.9%	13.0%	72.0%	5.7%	2.1%
T. North	0.4%	60.0%	90.0%	7.8%	68.0%	7.8%	7.0%
T. South	7.4%	52.3%	67.2%	5.5%	83.0%	1.6%	0.8%
T. West	15.4%	74.3	68.2%	19.6%	73.0%	14.5%	15.0%

7.3.Child Food Poverty

UNICEF defines child food poverty as children's inability to access and consume a nutritious and diverse diet in early childhood. The June 2024 was the first in the county to examine child food poverty in Turkana County. Child food poverty was measured using the UNICEF and World Health Organization (WHO) dietary diversity score. Children need to consume foods from at least five out of the eight defined food groups to meet the minimum dietary diversity for healthy growth and development, children need to consume foods from at least five out of the eight defined food groups. The cut off are as detailed below:

Table 90: Defining child food poverty

Category	Definition
0–2 food groups/day	Severe child food poverty
3–4 food groups/day	Moderate child food poverty
5 or more food groups/day	No child food poverty

Majority of the children experienced in one way or another some form of food poverty with less than 10% experiencing no food poverty. On average, one in every two children were living in severe child food poverty in the county with some survey zones like Turkana North having the highest of 71.3% of children living in severe child food poverty.

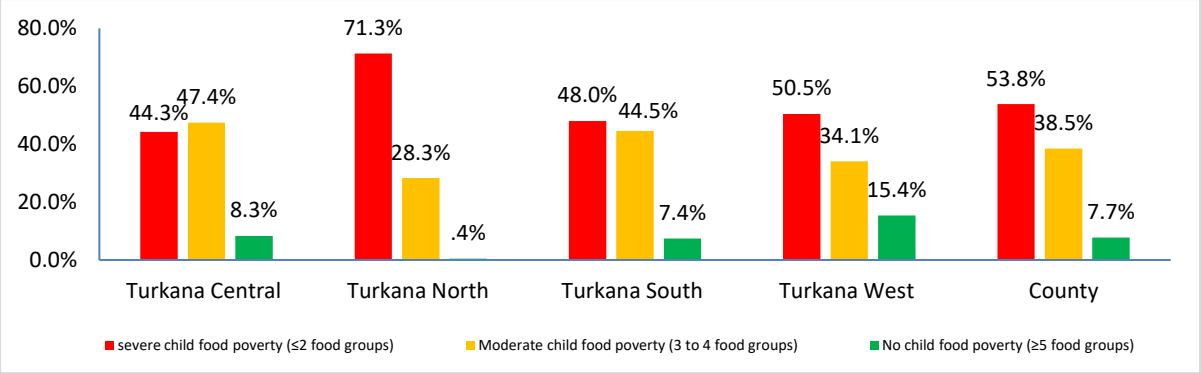


Figure 9: Child food poverty

CONCLUSION

The survey established 31.7% of children had been ill two weeks preceding the surveys, a considerable increase from 23.4% reported in the previous year. This changed the declining trend sustained from June 2018 survey. ARI/Cough remained the most prevalent form of illness in Turkana County with malaria as the second, a trend maintained from the previous surveys. The proportion of children suffering from malaria reduced from what was recorded the previous year. Important to note is the low proportion of bloody diarrhea (1 case) unlike in June 2022 when there were 22 cases across the four survey zones. Morbidity as an immediate cause of malnutrition was still high and could be linked to the high malnutrition level across the county. Utilization of zinc across the four survey zones improved in June 2024 survey when compared to the previous year; though Turkana Central showed a decline. Health seeking behavior continued to improve with a positive change from 93.9%to 95.7%, a trend maintained from June 2019. Public health facilities remained the most preferred places across the four survey zones where caregivers sought treatment for their children, the same case as in the previous surveys. The proportion remained almost the same compared to the same period in 2023. CHVs were a critical component of Turkana County health care and were the second most trusted source of treatment. Turkana North had the highest proportion accessing health care through CHVs. The proportion of caregivers who sought health care from public clinics reduced, a trend maintained from June 2021. CHVs are a critical component of Turkana County health care and were the second most trusted source of treatment. A notable finding was in Turkana North where none sought treatment from a mobile clinic.

The BCG[11] immunization antigen as confirmed by scar increased marginally from 98.9% to 99.7%, maintaining the improvement trend witnessed from June 2022. Access the immunization was good as indicated by OPV 1 coverage, which was above 90% in all survey zones. OPV 3 was also on improvement path as confirmed by card indicating improved birth registration. There was a slight positive deviation of measles coverage from June 2023 to June 2024 for both measles at 9 months and 18 months indicating good utilization of immunization services. There was a significant improvement in vitamin A coverage when June 2023 was compared to June 2024 SMART survey with all survey zones meeting the set target of 80% unlike in June 2023 when Turkana Central did not meet despite high overall county coverage. Deworming coverage was within the recommended 80% target though a reduction from the June 2023 SMART survey results of 88.7%, with all survey zones meeting the set target. MCH booklet coverage continued to improve, a trend maintained from the June 2019 SMART survey.

Majority of female caregivers were breastfeeding (53.5%). Proportion of pregnant caregivers slightly increased to 14.4% from 11.4%, a trend maintained from June 2021 survey. The proportion of caregivers who were both pregnant and lactating remained low at 0.3% with all survey with all survey zone having at least one case except Turkana Central. This shows there is need for FP services enhancement across the county.

About 8.7% of women were found to be malnourished (<21cm). This was an improvement from 10.7% recorded in June 2023, a trend noted from 2022. This improvement cut across all survey zones except Turkana South that recorded deterioration. More improvement was noted in the pregnant and breast-feeding category with county average of 8.3% against 9.9% recorded in June 2023, a trend noted from June 2022. The improvement cut across all survey zones except in Turkana South zone that recorded deterioration. However, more malnutrition was recorded in the non-pregnant and non-breastfeeding women with an average of 9.4% against 12.0% recorded in June 2023 SMART survey.

Among the women with children below two years, majority (99.1%) had attended ANC. About a third were visiting between the 1st and the 3rd month; meaning these were likely to meet the minimum 8 visits. About fifth visited ANC in their last trimester and were unlikely to meet the

[11]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.

minimum eight visits thus missing the essential health package. About 95.8% of women with children below 2 years across the county had been supplemented with Iron and Folic acid during their last pregnancy, a considerable increases from the June 2023 survey of 91.7%. There was a slight deterioration in the number of days IFAS were consumed by pregnant women from 102.9 days to 93.2 days. Duration of supplementation remained poor. Only 4.8% of women took the supplements for more than 180 days, an improvement from 2.7% when compared to June 2023. The poor consumption was attributed to late 1st ANC visit. The county mosquito net ownership considerably improved from 43.1% in June 2023 to 54.0%. Children between the age of 5 years and less than 18 years were less likely to sleep under mosquito nets across all survey zones.

The proportion of households obtaining water from safe sources reduced from 59.6% in June 2023 to the current 53.8%, a trend maintained from June 2019. There was a surge for those using public taps, from 44.9% to 63% changing the declining trend witnessed earlier. The results show a slight improvement in the proportion of households accessing water from the acceptable recommended distance of less than 500m. As has been the case in the previous surveys, women bore the burden of fetching water for domestic use at 84.3% a light increase from 83.5% followed by girls. The proportion of households not queuing for water further declined in the June 2024 SMART survey when compared to the same period in 2023 from 65.6% to 60.1%, a trend maintained from 2022. There was a considerable improvement of the households who were treating water in the county, from 17.3% in June 2023 to 34.7% in June 2024. This meant still majority (65.3%) of households were not treating drinking water. Use of chemicals remained the dominant water treatment method in the county 76.3%, a slight improvement compared to 73.6% the previous year. Majority of those not treating water said their water was being treated at the source, which was a good thing. Only one survey zone showed improvement in the use of closed containers to store drinking water; that is Turkana South, the rest recorded a decline. There was a reduction of the proportion of households consuming the recommended amount from 49% in June 2023 to the current 36%.

There was a marked improvement in handwashing awareness in Turkana County in the June 2024 SMART survey from 69.2% to the current 91.5%. This changed the declining trend recorded in June 2023 SMART. This survey recorded a considerable improvement of hand washing at the four critical times (before eating, before cooking, after visiting the toilet, after changing the baby diaper) compared to the same period in 2023; that is from 43.2% to 62.7%.

Less than half of the households were washing hands with soap and water, though a slight improvement from 42.7% to 47.6%. Caregivers' knowledge level considerably improved from 72.3% to 92.0% in June 2024 survey with all survey zones recording over 90% caregivers knowledge on hand washing apart from Turkana North which recorded 78.3% though an improvement from 48.6%. The overall sanitation status for Turkana County continued to improve with proportion of households relieving themselves in the bush or open field having (open defecation) decreasing from 70.9% to 63.6% in June 2024 SMART survey. The county latrine coverage was 36.4% an improvement from 29.2% recorded in the previous year.

The proportion of households reported to have been enrolled in cash transfer programs maintained a declining trend from 16.0% to the current 13.6%. The main cash transfer was HSNP followed by Inua Jamii as was the case in the past surveys this the government is the main provider of cash transfer.

The overall dietary diversity for the county generally improved when June 2023 was compared to June 2024 with the population taking more than 5 food groups which is referred to as increasing from 22.7% to 36.6% while the poor HDD reduced from 55.3% to 34.7%. The proportion of women 15 -49 years consuming 5 and more food groups reduced across the four survey zones when compared to the same period in in the previous year; from 21.6% to 9.6% on average with all survey zones showing deterioration despite the improved nutrition status. Similar to the previous survey, staples formed the greater proportion of food consumed at the households. This varies per survey zone with Turkana North being the worst, which was consistent with previous surveys. Food security indicators continued to improve in two of the four survey zones; that is Turkana South and North though it deteriorated in Turkana Central and West. The overall county food security improved with the proportion of households consuming the poor FCS reducing from 26.9% to 22.8%. Consumption of vitamin A rich food was fair in all survey zones except Turkana North where majority did not consume the food group. Protein rich foods were well consumed across all zones except in Turkana North. Majority of the households across all survey zones did not consume hem iron-rich foods.

The June 2024 SMART survey results show 74.4% of households reported an incident in the last 7 days where they had no adequate food or money to buy food a reduction from 98.1% reported in June 2023. The rCSI was worse in Turkana South and North survey zones where the households in crisis were more. The proportion under catastrophe reduced from 10.3% to 2.2% with all survey zones having below 10%.

Almost the same proportion as in June 2023 reported having heard about food fortification; that was 19.4% compared to 19.7% last year. The dominant source of food fortification information was trainings and radio messages, though it varied per survey zone with Turkana Central survey zone reporting TV as a dominant source of food fortification information. About 17% of the caregivers could identify the logo, a big reduction from 85.7% recorded in June 2023. Slightly less than half of the caregivers confirmed they sourced their maize meal/flour from either a shop or supermarket. These were likely to have been fortified.

The 2023 SMART survey recorded a MDD of 27% while this survey found a MDD of 7.7% as a county average with a survey zone highest of 15.4% in Turkana West and a low of 0.4% in Turkana North. From these finding less than half of the children were likely to consume a diversified diet. Continued breastfeeding reduced from 83.7 % to 82.1%. The good continued breast-feeding rate meant children were to get the required essential nutrient from breast milk to complement the poor complimentary diets Children on complementary feeding consumed majorly starchy foods and dairy products unlike in June 2023 when legumes was the second. The survey recorded a worsening food consumption score for children with the FCS-Children reducing from 27.8% in 2023 to 7.7% in June 2024. About 6.1% of the children were reported to have been consuming unhealthy food consumption 6–23 months (UFC). Majority of the children experienced in one way or another some form of food poverty with less than 10% experiencing no food poverty. One in every two children were living in severe child food poverty in the county.

The overall county nutrition improved in 2024 compared to June 2023 with significant improvement in Turkana South, though a slight deterioration was noted in both Central zone. However, GAM levels remain above 15 percent. The persistent poor nutrition status was consistent with poor food security indicators (HDDS/ FCS). The key drivers to high undernutrition in the county remain prevalent making community resilience weak. The high malnutrition levels across the four survey zones can be attributed to worsening food insecurity resulting from successive failed rains leading to drought and rapid increase in food prices, loss of livestock, poor coping mechanisms. Other drivers include chronic food insecurity, high prevalence of childhood illness, inadequate dietary diversity, poor access to safe water, poor hygiene practices, inadequate incomes and assets for the households

3. RECOMMENDATIONS

Table 91: Recommendation – June 2024

	Action	By whom	By when
1	Strengthen the CHS strategy to enhance case detection in in all hot spots to ensure all malnourished women and children access treatment in all service delivery points	MOH, NDMA and nutrition partners	Immediately
2	Remap and prioritize integrated outreaches in hard-to-reach areas and peace corridors(Insecurity pledged Wards/zones)	MOH and nutrition partners	immediately
3	Implement the wasting Quality of care and treatment coverage enhancement models (ICCM-CMAM/ R-SWITCH) at community level.	MOH and partners	immediately
4	Maintain the integrity of the nutrition supply chain for consistent and reliable last mile availability of nutrition commodities including in the buffer reserves including management of AID diversion	MoH (nutrition & public health), UNICEF-KEMSA, KRCS, WFP and nutrition partners	Continuous
5	Strengthen Community resilience-Asset recovery- Restocking, Post-harvest losses management in agropastoral zones, Re-seeding of rangelands, Storage of hay and protection of dry season grazing lands	TCG, GOK, WFP and partners	Immediately
6	Peace building in conflict affected areas	TCG, National Government and partners	Continuous

4. PPENDIX

4.1.Appendix 1: Mapped out hotspots- June 2022 & June 2023

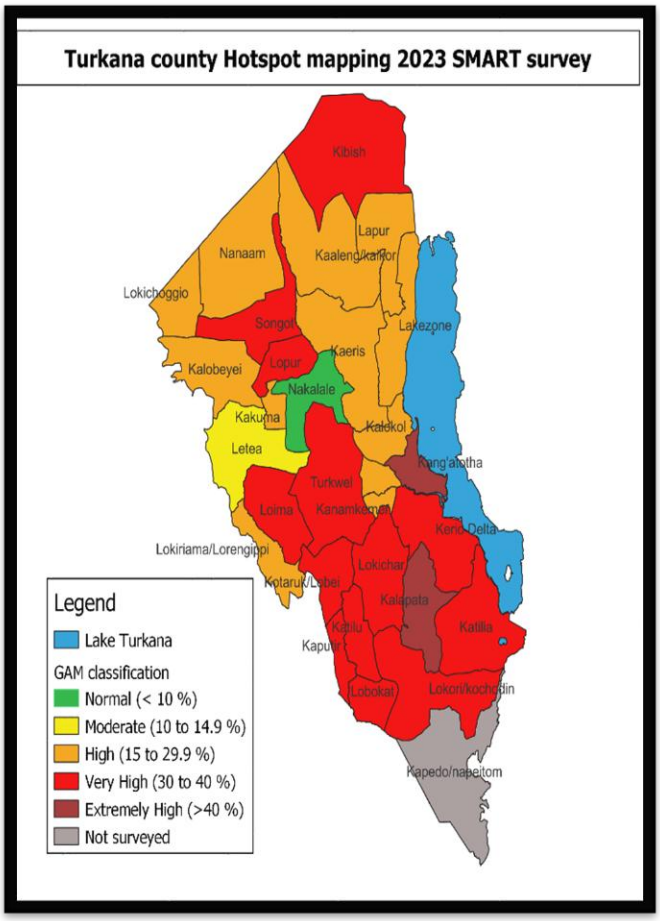


Figure 10: Turkana county June 2023 SMART survey hot spots

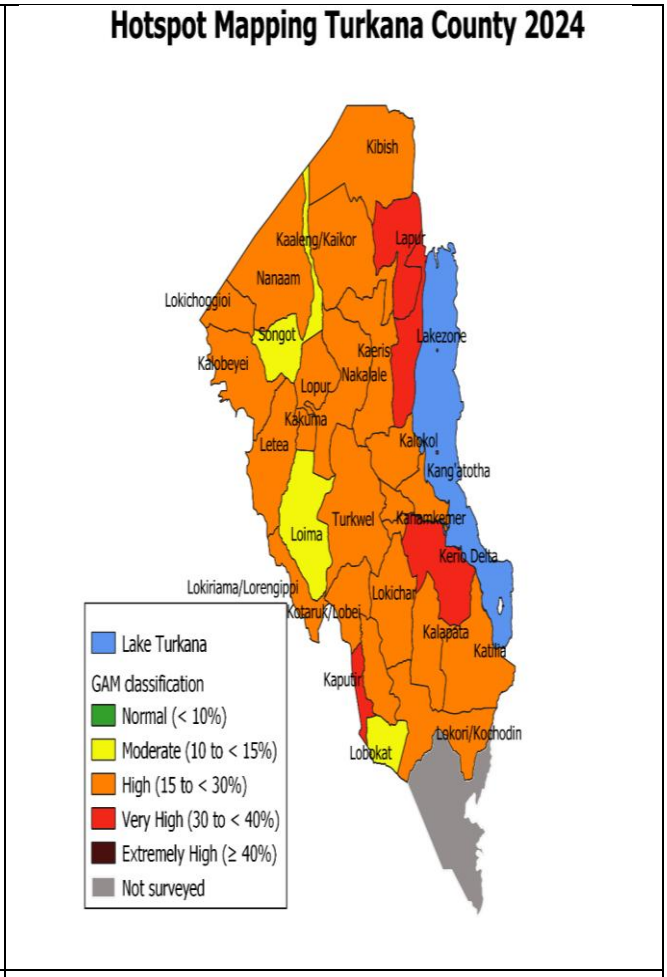


Figure 11: Turkana county June 2024 SMART survey hot spots

4.2.Appendix 2: Plausibility Summary report

Table 92:Turkana June 2024 SMART survey Plausibility summary report

	Indicator	Acceptable values/range	CENTRAL	NORTH	SOUTH	WEST
1	Flagged data (% of out of range subjects)	<7.5	0 (0.4 %)	0 (0.8 %)	0 (0.9 %)	0 (0.5 %)
2	Overall sex ratio (significant CHI	>0.001	0 (p=0.797)	0 (p=0.201)	0 (p=0.942)	0 (p=0.839)

	square)					
3	**Age ratio (6-29vs 30-59) Significant CHI square**	**>0.001**	**0 (p=0.259)**	**0 (p=0.532)**	**0 (p=0.283)**	**0 (p=0.249)**
4	**Dig. prevalence score-weight**	**<20**	**0 (4)**	**0 (3)**	**0 (4)**	**0 (2)**
5	**Dig. prevalence score-height**	**<20**	**0 (5)**	**0 (6)**	**0 (6)**	**0 (6)**
6	**Dig. prevalence score-MUAC**	**<20**	**0 (5)**	**0 (3)**	**0 (3)**	**0 (5)**
7	**Standard Dev..height WHZ**	**>0.80**	**0 (0.94)**	**0 (1.02)**	**0 (0.94)**	**0 (0.93)**
8	**Skewness WHZ**	**<±0.6**	**0 (0.05)**	**0 (0.06)**	**0 (-0.05)**	**0 (0.05)**
9	**Kurtosis WHZ**	**<±0.6**	**0 (-0.09)**	**0 (-0.03)**	**0 (0.00)**	**0 (0.00)**
10	**Poisson WHZ -2**	**>0.001**	**0 (p=0.292)**	**1 (p=0.047)**	**0 (p=0.267)**	**3 (p=0.002)**
11	**OVERALL**	**<24**	**0** % excellent	**1% excellent**	**0 % excellent**	**3 % excellent**

4.3.Appendix 3: Sampled clusters per survey zone

Table 93:Sampled clusters Turkana Central survey zone – June 2024

SUB COUNTY	WARD	UNIT NAME	CHV Name	VILLAGE NAME	CLUSTER
TURKANA CENTRAL	KANAMKEMER	NABULON	Adou Pherester	JULUK A	1
TURKANA CENTRAL	KANAMKEMER	NABULON	Philiph Ekwom	JULUK B AND C	2
TURKANA CENTRAL	KANAMKEMER	LOLUPE	Elimlim Akai Lowoyi	NATIIR LULUNG	3
TURKANA CENTRAL	KANAMKEMER	CANAAN	Mishael Ajuma Napas	KASARANI	4
TURKANA CENTRAL	TOWNSHIP	TOWNSHIP	Newtened Erot	SOWETO C	5
TURKANA CENTRAL	TOWNSHIP	NAPETET	Teresa Akipor	NATOTOL	6
TURKANA CENTRAL	KANAMKEMER	NAWOITORONG	Florence Lotira	NAPETET	7
TURKANA CENTRAL	KANAMKEMER	NAWOITORONG	Ikaru Lomongin	LOKWAR	8
TURKANA CENTRAL	TOWNSHIP	NAKWAMEKWI	Susan Ngasike Emase	NGILUKMONG’	9
TURKANA CENTRAL	KANAMKEMER	NAOTIN	Rebecca Akitela	NAOTIN	RC
TURKANA CENTRAL	KERIODELTA	NAKURIO	Charles Emathe	NANGOLPUS	10
TURKANA CENTRAL	KANAMKEMER	LOTUREREI	Teresa Alimlim	LOTAGOR	11

TURKANA CENTRAL	KANAMKEMER	KANAMKEMER	Antony Loregae	KAMBI MPYA B	12
TURKANA CENTRAL	TOWNSHIP	KAWALASE	Irene Ajikon	LOKAPARAPARAE	13
TURKANA CENTRAL	KANGATOSA	ELIYE SPRING	Colletar Eyanae Ekoel	NAKITINY	14
TURKANA CENTRAL	KALOKOL	LONGECH	Everline Katodl	LOGAACHA	RC
TURKANA CENTRAL	KERIODELTA	KERIO	Susan A. Echwa	ABULON	15
TURKANA CENTRAL	KANGATOSA	LOBOOLO	John Ewaar	ERUS	16
TURKANA CENTRAL	KALOKOL	NAMUKUSE	Paulina Tirkwel	LPKORKOR	RC
TURKANA CENTRAL	KALOKOL	KALOKOL AIC	Catherine Loreng	LOPANGAE	17
TURKANA CENTRAL	KALOKOL	NARIAMAWOI	William Kataboi Erus	LOPONGO	18
TURKANA CENTRAL	KALOKOL	KALIMAPUS	Epat Eyanae Choper	NABWEL EKOROT	19
TURKANA CENTRAL	KALOKOL	KAPUA	Emekwi Topori	KAPOKOR	20
TURKANA CENTRAL	KANGATOSA	NAOROS	Simeon Amana Ebei	LOTIIRA	21
TURKANA CENTRAL	TOWNSHIP	NGIITAKITO	Zacheus Lopeyok	NADIRKONYEN 'A'	22
TURKANA CENTRAL	KANGATOSA	LOCHORAIKENY	Phillip Aweet Atiyan	MORUAROT	RC
LOIMA	LOBEI KOTARUK	KABLOKOL	Joseph Eklale	KOONO	23
LOIMA	LOBEI KOTARUK	KALEMUNYANG	Asha H. Mohammed	NAKUNYOA	24
LOIMA	LOBEI KOTARUK	LOBEI	Nasipan Isekon	KOBANGAA	25
LOIMA	LOBEI KOTARUK	NAIPA	Nachuch E. John	NAKWAYIIR	26
LOIMA	LOIMA	LOKWATUBA	Dominic Ekai	LOWER KALELEKOI	27
LOIMA	LORENGIPPI LOGIRIAMA	KIEMENIC	Ekuwam Esekon	KAICHOM	28
LOIMA	LORENGIPPI LOGIRIAMA	LORINGIPPI	Flavina Akiru Ejore	LOTEPESIT	29
LOIMA	TURKWEL	KAAPUS	Florence Lopua	NANGRENY	30
LOIMA	TURKWEL	LOMIL	James Ewoi Losike	NAMEYAN	31
LOIMA	TURKWEL	NADAPAL	Joseph Ekomwa E.	NAGIS	32
LOIMA	TURKWEL	NAPEIKAR	Esther Akadeli	KODOPA	33
LOIMA	TURKWEL	NASIGER	Sammy Ekunoit	KASIYELPUS	34
LOIMA	TURKWEL	TURKWEL	Ekupurat A. Selina	NAPETET ONE	35

Table 94: Sampled clusters Turkana North survey zone – June 2024

Sub County	Ward	Sub Location	Unit Name	Village Name	Cluster
Kibish	Kibish	Lokamarinyang	Kachuromongin	Kanamese	Rc
Kibish	Kibish	Natapar	Natumakalei	Kambi Safi	1
Kibish	Kaikor/Kaaleng	Lokolio	Nayook	Nakilinga 1	2
Kibish	Kaikor/Kaaleng	Lokolio	Nayook	Nawokojom B	3

Kibish	Lapur	Kokuro	Edoot	Edoot	Rc
Kibish	Lapur	Karebur	Toiunae Karebur	Kang'akurio A	4
Kibish	Kaikor/Kaaleng	Kotome	Ilemkajokon	Kotome	5
Kibish	Kaikor/Kaaleng	Loruth Esekon	Kapoko	Alidat	6
Kibish	Kaikor/Kaaleng	Loruth Esekon	Kapoko	Ngimapai	7
Kibish	Kaikor/Kaaleng	Karach 2	Kawoo	Ngibakuli	8
Kibish	Kaikor/Kaaleng	Nalita	Lochilamuya	Lotirae	9
Kibish	Lapur	Sasame	Sasame	Nangorkitoe 'A'	10
Kibish	Kibish	Koyasa	Kichubi	Nariamao	11
Turkana North		Lomii	Lomii	Ekudule	12
Turkana North		Kaeris	Kaeris	Ngipidinga	13
Turkana North		Kanakurdio	Nadunga	Kaprilkor	14
Turkana North		Kanakurdio	Kanakurdio	Napalakipor	15
Turkana North		Lomekwi	Lomekwi	Lottirmoe	16
Turkana North		Kataboi	Kataboi	Kambi Safi-A	17
Turkana North		Katiko	Katiko	Torernawi	18
Turkana North		Lowarengak	Lowaarengak	Ruk Ruk	Rc
Turkana North		Lowarengak	Lowaarengak	Legio	19
Turkana North		Lowarengak	Lowaarengak	Lake Side	20
Turkana North		Nachukui	Narengewoi	Narengewoi	21
Turkana North		Nachukui	Nachukui	Kalochoro	22
Turkana North		Nachukui	Kokiselei	Nameturon A	23
Turkana North		Kalem	Lokapelpus	Akopuro	24
Turkana North		Kaleng	Nakapelewoi	Morukirion B	25
Turkana North		Todonyang	Todonyang	Kaekogo	26
Turkana North		Nakalale	Lokitaung	Ngatabab	Rc
Turkana North		Kalem	Kalem	Moru-Apong	27
Turkana North		Kaleng	Kaleng	New Munyen-2	28
Turkana North		Lolupe	Lolupe	Lolupe Centre	29
Turkana North		Lolupe	Lolupe	Lokwasuro	30
Turkana North		Lolupe	Lolupe	Lolupe	31
Turkana North		Naduat	Naduat	Makutano	32

Turkana North		Naduat	Naduat	Naperebei	33
Turkana North		Naduat	Naduat	Loopong	34
Turkana North		Lokore	Lokore	Nairobi A	35
Turkana North		Kaenyangaluk	Kaenyangluk	Kaemongor	36

Table 95: Sampled clusters Turkana South survey zone – June 2024

Sub County	Ward	Sub Location	Unit Name	Geographical Unit	Cluster
T/East	Katilia	Lomunyenakwan	Lomunyenakwan	Ngataparin	1
T/East	Katilia	Parkati	Lopeduru	Morukomol	Rc
T/East	Katilia	Katilia	Lokorkor	Akatorongot	2
T/East	Katilia	Katilia	Katilia	Edoot	3
T/East	Katilia	Katilia	Katilia	Akwanga	4
T/East	Katilia	Katilia	Katilia	Alamach	5
T/East	Katilia	Elelea	Elelea Sch Chu	Kanaminy A	6
T/East	Lokori/Kochodin	Kochodin	Nakukulas	Nawoyatira	7
T/East	Lokori/Kochodin	Lokori	Lokori Sch Chu	Emanman A	8
T/East	Lokori/Kochodin	Lokori	Lokori Phc	Morudapal	9
T/East	Lokori/Kochodin	Lokori	Lokori Aic	Apetet	10
T/East	Lokori/Kochodin	Kangitit	Morulem A	Naputirio A	11
T/East	Lokori/Kochodin	Kangitit	Morulem A	Urban B	12
T/East	Lokori/Kochodin	Kangitit	Morulemb/Kangitit	Kangitit B	13
T/East	Lokori/Kochodin	Lotubae	Lokwii A	Keereng	14
T/East	Lokori/Kochodin	Lotubae	Lokwii B	Ngakookes	15
T/East	Lokori/Kochodin	Lotubae	Lotubae	Kambi Kavu	16
T/East	Lokori/Kochodin	Lotubae	Lotubae	Napetao	17
T/East	Lokori/Kochodin	Lopii	Karuko	Kangibenyoi	18
T. South	Katilu	Katilu	Korinyang	Angarabat C	19
T. South	Katilu	Katilu	Lopur	Shanti C	20
T. South	Katilu	Kalemngorok	Kalemngorok	Aburur A	21
T. South	Katilu	Kalemngorok	Kalemngorok	Achukule B	22
T. South	Katilu	Katilu	Namakat	Nachoto	23
T. South	Katilu	Katilu	Katilu	Ngarengelup B	24
T. South	Katilu	Katilu	Katilu	Kaareman	Rc
T. South	Katilu	Katilu	Kagitankori	Lokamichuura	25
T. South	Katilu	Lokapel	Lokapel	Kimiirik	26
T. South	Katilu	Kanaodon	Kanaodon	Ayanae Ebur	Rc

T. South	Lobokat	Kainuk	Nakululumaet	Market A	27
T. South	Lobokat	Kainuk	Nakululumaet	Natorobwo A	28
T. South	Lobokat	Loyapat	Loyapat	Naakot B	29
T. South	Kaputir	Kalomwae	Juluk	Juluk	30
T. South	Kaputir	Nakwamoru	Nakwamoru	Lomoopus	31
T. South	Lokichar	Kapese	Kasuroi	Akou Ekori	Rc
T. South	Lokichar	Kapese	Lokaburu	Naporotoi	32
T. South	Lokichar	Kapese	Kapese	Narengelup C	Rc
T. South	Lokichar	Kapese	Kapese	Kosikiria B	33
T. South	Lokichar	Lochwaa	Locheremoit	Edos A	34
T. South	Katilu	Kalemngorok	Namakat	Namakat D	35
T. South	Lokichar	Lokichar	Lokichar	Baraka	36
T. South	Kalapata	Nakaalei	Nakaalei	Loupwala	37
T. South	Lokichar	Napusmoru	Napusmoru	Kaengolerengan	38
T. South	Kalapata	Kalapata	Kangakipur	Abukut	39
T. South	Lokichar	Kapese	Kapese	Kangolemongin	40
T. South	Lokichar	Lokichar	Kamarese	Nayanae Atiir	41
T. South	Lokichar	Lochwaa	Lochwaa	Kaakalel	42
T. South	Katilu	Katilu	Nakabosan	Akalabach	43

Table 96: Sampled clusters Turkana West survey zone- June 2024

No	Sub-county	Ward	SUB LOCATION	CHU name	VILLAGES	CLUSTER
1	T /WEST	KAKUMA	MORUNGOLE	Yemen	Ejore	1
2	T /WEST	KAKUMA	MORUNGOLE	Morungole1	Adaak 4	RC
3	T /WEST	KAKUMA	MORUNGOLE	Morungole 1	Kabokorit	2
4	T/WEST	KAKUMA	MORUNGOLE	Morungole2	Ngiriemeto	3
5	T/WEST	LETEA	KATELEMOT	Lokipoto	Lomuton	4
6	T /WEST	Kalobeyei	OROPOI	Oropoi	Nawountos	5
7	T /WEST	LOPUR	LOPUSKI	Lopur	Lodakach	6
8	T /WEST	KALOBEYEI	NATIIRA	Namortotio	Apak	7
9	T /WEST	Lopur	LOPUSKI	Namon	Lolenga	8
10	T /WEST	KALOBEYEI	KALOBEYEI	Timu	Nalemusekon	9
11	T /WEST	KALOBEYEI	KALOBEYEI	Timu	Ngikachalak	10
12	T /WEST	Nanam	LOMEYAN	Ngadakarin Asegis	Ngidocha	11
13	T /WEST	Nanam	LOMEYAN	Ngadakarin Asegis	Ngikwamong Kraal	12
14	T /WEST	KAKUMA	MORUNGOLE	Lomunyenpus	Awarnaparan	13
15	LOKICHOGGIO	SONGOT	LOTETELEIT	Nakasengan	Rukruk	14
16	LOKICHOGGIO	SONGOT	LOTETELEIT	Nakasengan	Nasoo	15
17	T /WEST	KAKUMA	TARACH	Wapet	Ngiremeto	16

18	LOKICHOGGIO	songot	SONGOT	Songot	Emoru	17
19	LOKICHOGGIO	Songot	SONGOT	Napeikar	Ngiwayawaya	RC
20	LOKICHOGGIO	songot	SONGOT	Songot	Nabangareu	18
21	T /WEST	KAKUMA	KAKUMA	Tarach	Ngimanmania	19
22	T /WEST	KAKUMA	KAKUMA	Tarach	Ariogule	20
23	T /WEST	KAKUMA	NADAPAL	Nadapal	Natirae D	21
24	T /WEST	KAKUMA	NADAPAL	Nadapal	K/Ndege 3	RC
25	T /WEST	Letea	LORENG	Loreng	Ngikidingo	22
26	T /WEST	LOKICHOGGIO	LOKICHOGGIO	Ngapetan2	Lotorob-1 Nachuchukait	23
27	LOKICHOGGIO	LOKICHOGGIO	LOKICHOGGIO	Ngapetan2	Achukule	24
28	LOKICHOGGIO	LOKICHOGGIO	LOKICHOGGIO	Ngapetan1	Nadapal-2	25
29	T /WEST	Songot	LOKANGAE	Emilait	Emilait	26
30	T /WEST	Letea	LORITIT	Lorengesinyen	Ngikengoe	27
31	T /WEST	NANAM	MOGILA	Aochele	Kangaachuro	RC
32	T /WEST	NANAM	MOGILA	Aochele	Kapetadiye	28
33	T /WEST	NANAM	MOGILA	Mogila	Naimoit	29
34	T /WEST	LETEA	OROPOI	Nalapatui	Moru Epat	30
35	T /WEST	LETEA	TULABALANY	Tulabalany	Kayotoberu	31
36	T /WEST	KALOBEYEI	KALOBEYEI	Lonyuduk	Kangura	32

4.4.Appendix 4: Movement plans per survey zone

Table 97: Movement plans Turkana Central – June 2024

Date	Team	Ward	Location	Village Name	Cluster
22/06/2024	1	Township	Township	Soweto	5
	2	Township	Napetet	Natotol	6
	3	Township	Nakwamekwi	Ngilukmong’	9
	4	Township	Kawalase	Lokaparaparae	13
	5	Township	Ngiitakito	Nadirkonyen 'A'	22
23/06/2024	1	Keriodelta	Nakurio	Nangolpus	10
	2	Kangatosa	Eliye Spring	Nakitiny	14
	3	Keriodelta	Kerio	Abulon	15
	4	Kangatosa	Loboolo	Erus	16
	5	Kangatosa	Naoros	Lotiira	21
24/06/2024	1	Kanamkemer	Nabulon	Juluk A	1
	2	Kanamkemer	Nabulon	Juluk B And C	2
	3	Kanamkemer	Lolupe	Natiir Lulung	3
	4	Kanamkemer	Canaan	Kasarani	4
	5	Kanamkemer	Nawoitorong	Napetet	7
25/06/2024	1	Kanamkemer	Nawoitorong	Lokwar	8
	2	Kanamkemer	Loturerei	Lotagor	11
	3	Kanamkemer	Kanamkemer	Kambi Mpya B	12

	4	Turkwel	Nadapal	Nagis	32
	5	Turkwel	Napeikar	Kodopa	33
26/06/2024	1	Kalokol	Kalokol Aic	Lopangae	17
	2	Kalokol	Nariamawoi	Lopongo	18
	3	Kalokol	Kalimapus	Nabwel Ekorot	19
	4	Kalokol	Kapua	Kapokor	20
	5	Turkwel	Nasiger	Kasiyelpus	34
27/06/2024	4	Lobei Kotaruk	Kablokol	Koono	23
	5	Lobei Kotaruk	Kalemunyang	Nakunyoa	24
	1	Turkwel	Kaapus	Nangreny	30
	2	Turkwel	Lomil	Nameyan	31
	3	Turkwel	Turkwel	Napetet One	35
28/06/2024	1	Lobei Kotaruk	Lobei	Kobangaa	25
	2	Lobei Kotaruk	Naipa	Nakwayiir	26
	3	Loima	Lokwatuba	Lower Kalelekoi	27
	4	Lorengippi Logiriama	Kiemenic	Kaichom	28
	5	Lorengippi Logiriama	Loringippi	Lotepesit	29
		Kanamkemer	Naotin	Naotin	Rc
		Kalokol	Longech	Logaacha	Rc
		Kalokol	Namukuse	Lpkorkor	Rc
		Kangatosa	Lochoraikeny	Moruarot	Rc

Table 98: Movement plans Turkana West- June 2024

DATE	TEAM NUMBER	WARD	SUB-LOCATION	VILLAGE	CLUSTER NUMBER
22/6/2024 TRAVELING DAY	ALL TEAMS			NONE	
23/6/2024	1	NANAM	MEYEN	NGIDOCHA NGIKWAMONG Kraal	11
	2	NANAM	LOMEYAN	LOTOROB-1	12
	3	LOKICHOGGIO	LOKICHOGGIO	NACHUCHUKAIT	23
	4	NANAM	MOGILA	KOPETADIE	28
	5	NANAM	MOGILA	NAIMOIT	29
24/6/2024					
	1	SONGOT	LOTETELEIT	RUKRUK	14
	2	SONGOT	LOTETELEIT	NASOO	15
	3	SONGOT	SONGOT	EMORU	17
	4	LOKICHOGGIO	LOKICHOGGIO	ACHUKULE	24
	5	LOCHOGGIO	LOKICHOGGIO	NADAPAL-2	25
25/6/2024	1	KALOBEYEI	OROPOI	NAWOUNTOS	5

	2	KALOBEYEI	NATIIRA	APAK	7
	3	KALOBEYEI	KALOBEYEI	NALEMUSEKON	9
	4	KALOBEYEI	KALOBEYEI	NGIKACHALAK	10
	5	SONGOT	SONGOT	NABANGAREU	18
26/6/2024	1	KAKUMA	MORUNGOLE	EJORE	1
	2	LOPUR	LOPUSKI	LODAKACH	6
	3	LOPUR	LOPUSKI	LOLENGA	8
	4	SONGOT	LOKANGAE	EMILAIT	26
	5	KALOBEYEI	KALOBEYEI	KANGURA	32
28/6/2024	1	KAKUMA	MORUNGOLE	KABOKORIT	2
	2	KAKUMA	MORUNGOLE	NGIRIEMETO	3
	3	KAKUMA	MORUNGOLE	AWARNAPARAN	13
	4	KAKUMA	TARACH	NGIREMETO	16
	5	KAKUMA	KAKUMA	NGIMANMANIA	19
27/6/2024	1.	LETEA	KATELEMOT	LOMUTON	4
	2	LETEA	OROPOI	MORUEPAT	30
	3	LETEA	TULABALANY	KAYOTOBERU	31
	4	Letea	LORENG	NGIKIDINGO	22
	5	LETEA	LORITIT	NGIKENGOE	27
29/6/2023	1	KAKUMA	KAKUMA	ERIOGULA	20
	2	KAKUMA	NADAPAL	NATIRAE B	21

Table 99: Movement plans Turkana North- June 2024

TEAM	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
	22/6/2024	23/6/2024	24/6/2024	25/6/2024	26/6/2024	27/6/2024	28/6/2024
TEAM 1	TRAVELING	KATABOI-KAMBI SAFIA CLUSTER 17	TODONYANG-KAEKONGO C26 SECURITY VEHICLE REQUIRED.	KOYASA-NARIAMAO CL11 SECURITY VEHICLE REQUIRED	LORUTH-NGIMAMPAE CL7 SECURITY VEHICLE REQUIRED	LOMII-EKUDULE CL12 SECURITY VEHICLE REQUIRED	LOLUPE-LOLUPE CL 31 TRAVEL BACK TO LODWAR
TEAM 2	TRAVELING	KATIKO-TOPERNAWI CLUSTER 18	LOWARENGAK-LEGIO CL19	NAPAK-KAMBI SAFI CL 1	LORUTH-NGIBAKULI CL8	KAERIS-NGIPIDINGA CL13	NADUAT-MAKUTANO CL32

							TRAVEL BACK TO LODWAR
TEAM 3	TRAVELING	LOMEKWI-LOTIIRMOE CLUSTER 16	LOWARENGAK-LAKE SIDE C20	KAIKOR-NAKILINGA CL 2	EKICHELES-LOTIRAE CL9	NADUNGA-KAPRILKOR CL14	NADUAT-NAPEREBEI CL33 TRAVEL BACK TO LODWAR
TEAM 4	TRAVELING	NACHUKUI-KALOCHORO CLUSTER 22	KALEM-MORUAPOO CL27	KAIKOR NAWOKOJOM B CL3	KALENG-NANYANGA MUNYEN 2 CL 28	KANAKURUDIO-NAPALAKIPOR CL15	NADUAT-LOOPONG CL34
TEAM 5	TRAVELING	NARENGEWOI-NARENGEWOI CLUSTER 21	SASAME-NANGORKITOE A CL10	LORUTH-KOTOME CL5	NAKAPELEWOI-MORUKIRIONB CL 25	LOLUPE-LOLUPE CENTRE CL29	LOKORE-NAIROBI A CL 35
TEAM 6	TRAVELING	KOKSELEI-NAMETURAN A CLUSTER 23	KAREBUR-KANGAKURIO CL 4	LORUTH-ALIDAT CL6	LOKAPELPUS-AKOPURO CL 24	LOLUPE-LOKWASURO CL30	KAENYANGALUK-KAEMONGOR CL 36

Table 100: Movement plan Turkana South -June 2024

TEAM NO.	TRAVELING 22/6/2024	DAY 1 23/6/2024	DAY 2 24/6/2024	DAY 3 25/6/2024	DAY4 26/6/2024	DAY 5 27/6/2024	DAY 6 28/6/2024	DAY 7 29/6/2024	DAY 8 30/6/2024
TEAM 1	TRAVELING	LOKORISCHEMANMAN A CL8	LOMUNYENAKWAAN NGATAPARIN CL 1	LOKWII AKERENG CL 14	KATILU NARENGELUP-B CL 24	KALEMNGOROK ABURUR -A CL 21	JULUK JULUK CL 30	LOCHWAAKAAKALEL CL 42	LOKICHARBARAKA CL 36
TEAM 2	TRAVELING	LOKORIPHC MORUDAPAL CL9	LOKORKORAKATORONGOT CL2	LOKWII BNGAKOKES CL15	LOPUR SHANTI -C CL 20	KALEMNGOROK ACHUKULE-B CL 22	NAKWAMORU LOMOPUS CL31	KAMARASENAYANAEATIIR CL 41	
TEAM 3	TRAVELING	LOKORIAIC APETET CL10	KATILIAEDOOT CL3	LOTUBAEKAMBIKAVU CL 16	KORINYANGANGARABAT-C	NAMAKATNACHOTO CL 23	NAMAKATNAMAKAT-D CL 35	KAPESEKANGOLEMONGIN CL 40	

					CL 19				
TEAM 4	TRAVELING	MORULEM A NAPUTIRIO A CL11	KATILIA AKWANGAA CL4	LOTUBAE NAPETAO CL 17	KANGITAN KORI LOKAMICHUURA CL 25	NAKULULU MAET NAAKOT-B CL 29	KANGAKIPUR ABUKUT CL 39	KAPESE KASIKIRIA-B CL 33	
TEAM 5	TRAVELING	MORULEM A URBAN B CL12	KATILIA ALAMACH CL5	KAARUKO KANGIBENYOI CL 18	LOKAPEL KIMIIRIK CL 26	NAKULULU MAET NATOROBWO-A CL 28	NAKAALEI LOUPWALA CL 37	LOCHEREE MOIT EDOS-A CL 34	
TEAM 6	TRAVELING	KANGITIT KANGITIT B CL13	ELELEA KANAMINY A CL 6	NAKUKULAS NAWOYATIRA CL 7	NAKABOSAN AKALABACH CL.43	NAKULULU MAET MARKET-A CL 27	NAPUSMORU KAENGOL ERENGAN CL 38	LOKABURU NAPOROTOI CL32	

4.5.Appendix 5: June 2024 SMART Survey Hot Spots

Table 101: Weight for Height Z scores ± SD-Malnutrition hot spots- June 2024

SUB COUNTY	WARD	SUB-LOCATION	UNIT NAME	VILLAGE NAME	CLUSTER	n	% < -3SD	% < -2SD
TURKANA CENTRAL	KANAMKEMER		NABULON	JULUK A	1	16	6.30%	25.00%
TURKANA CENTRAL	KANAMKEMER		NABULON	JULUK B AND C	2	15	0.00%	26.70%
TURKANA CENTRAL	KANAMKEMER		LOLUPE	NATIIR LULUNG	3	14	7.10%	42.90%
TURKANA CENTRAL	KANAMKEMER		CANAAN	KASARANI	4	11	9.10%	18.20%
TURKANA CENTRAL	TOWNSHIP		TOWNSHIP	SOWETO C	5	17	0.00%	23.50%
TURKANA CENTRAL	TOWNSHIP		NAPETET	NATOTOL	6	13	7.70%	30.80%
TURKANA CENTRAL	KANAMKEMER		NAWOITORONG	NAPETET	7	10	0.00%	10.00%
TURKANA CENTRAL	KANAMKEMER		NAWOITORONG	LOKWAR	8	14	0.00%	42.90%
TURKANA CENTRAL	TOWNSHIP		NAKWAMEKWI	NGILUKMONG’	9	13	0.00%	30.80%
TURKANA CENTRAL	KERIODELTA		NAKURIO	NANGOLPUS	10	18	11.10%	50.00%
TURKANA CENTRAL	KANAMKEMER		LOTUREREI	LOTAGOR	11	14	0.00%	7.10%
TURKANA CENTRAL	KANAMKEMER		KANAMKEMER	KAMBI MPYA B	12	12	0.00%	16.70%
TURKANA CENTRAL	TOWNSHIP		KAWALASE	LOKAPARAPARAE	13	16	6.30%	37.50%
TURKANA CENTRAL	KANGATOSA		ELIYE SPRING	NAKITINY	14	13	7.70%	23.10%
TURKANA CENTRAL	KERIODELTA		KERIO	ABULON	15	15	0.00%	20.00%
TURKANA CENTRAL	KANGATOSA		LOBOOLO	ERUS	16	14	7.10%	35.70%
TURKANA CENTRAL	KALOKOL		KALOKOL AIC	LOPANGAE	17	20	10.00%	35.00%
TURKANA CENTRAL	KALOKOL		NARIAMAWOI	LOPONGO	18	22	0.00%	13.60%
TURKANA CENTRAL	KALOKOL		KALIMAPUS	NABWEL EKOROT	19	13	7.70%	38.50%
TURKANA CENTRAL	KALOKOL		KAPUA	KAPOKOR	20	20	0.00%	15.00%
TURKANA CENTRAL	KANGATOSA		NAOROS	LOTIIRA	21	13	7.70%	15.40%
TURKANA CENTRAL	TOWNSHIP		NGIITAKITO	NADIRKONYEN 'A'	22	12	0.00%	16.70%
LOIMA	LOBEI KOTARUK		KABLOKOL	KOONO	23	21	4.80%	9.50%
LOIMA	LOBEI KOTARUK		KALEMUNYANG	NAKUNYOA	24	18	11.10%	22.20%

LOIMA	LOBEI KOTARUK		LOBEI	KOBANGAA	25	16	6.30%	25.00%
LOIMA	LOBEI KOTARUK		NAIPA	NAKWAYIIR	26	17	0.00%	23.50%
LOIMA	LOIMA		LOKWATUBA	LOWER KALELEKOI	27	14	0.00%	14.30%
LOIMA	LORENGIPPI LOGIRIAMA		KIEMENIC	KAICHOM	28	22	0.00%	13.60%
LOIMA	LORENGIPPI LOGIRIAMA		LORINGIPPI	LOTEPESIT	29	14	7.10%	21.40%
LOIMA	TURKWEL		KAAPUS	NANGRENY	30	20	0.00%	35.00%
LOIMA	TURKWEL		LOMIL	NAMEYAN	31	22	0.00%	27.30%
LOIMA	TURKWEL		NADAPAL	NAGIS	32	12	0.00%	25.00%
LOIMA	TURKWEL		NAPEIKAR	KODOPA	33	12	0.00%	8.30%
LOIMA	TURKWEL		NASIGER	KASIYELPUS	34	15	0.00%	0.00%
LOIMA	TURKWEL		TURKWEL	NAPETET ONE	35	18	0.00%	33.30%
Kibish	Kibish	Natapar	Natumakalei	Kambi Safi	1	25	0.00%	16.00%
Kibish	Kaikor/Kaaleng	Lokolio	Nayook	Nakilinga 1	2	24	0.00%	20.80%
Kibish	Kaikor/Kaaleng	Lokolio	Nayook	Nawokojom B	3	21	9.50%	19.00%
Kibish	Lapur	Karebur	Toiunae Karebur	Kang'akurio A	4	24	0.00%	37.50%
Kibish	Kaikor/Kaaleng	Kotome	Ilemkajokon	Kotome	5	22	0.00%	22.70%
Kibish	Kaikor/Kaaleng	Loruth Esekon	Kapoko	Alidat	6	22	13.60%	22.70%
Kibish	Kaikor/Kaaleng	Loruth Esekon	Kapoko	Ngimapai	7	28	0.00%	7.10%
Kibish	Kaikor/Kaaleng	Karach 2	Kawoo	Ngibakuli	8	23	4.30%	26.10%
Kibish	Kaikor/Kaaleng	Nalita	Lochilamuya	Lotirae	9	23	0.00%	13.00%
Kibish	Lapur	Sasame	Sasame	Nangorkitoe 'A'	10	11	0.00%	27.30%
Kibish	Kibish	Koyasa	Kichubi	Nariamao	11	14	0.00%	28.60%
Turkana North		Lomii	Lomii	Ekudule	12	28	7.10%	25.00%
Turkana North		Kaeris	Kaeris	Ngipidinga	13	24	0.00%	12.50%
Turkana North		Kanakurdio	Nadunga	Kaprilkor	14	23	0.00%	13.00%
Turkana North		Kanakurdio	Kanakurdio	Napalakipor	15	20	0.00%	25.00%

Turkana North		Lomekwi	Lomekwi	Lottirmoe	16	9	0.00%	0.00%
Turkana North		Kataboi	Kataboi	Kambi Safi-A	17	7	14.30%	42.90%
Turkana North		Katiko	Katiko	Torernawi	18	20	10.00%	55.00%
Turkana North		Lowarengak	Lowaarengak	Legio	19	17	5.90%	41.20%
Turkana North		Lowarengak	Lowaarengak	Lake Side	20	20	0.00%	35.00%
Turkana North		Nachukui	Narengewoi	Narengewoi	21	16	0.00%	18.80%
Turkana North		Nachukui	Nachukui	Kalochoro	22	17	0.00%	41.20%
Turkana North		Nachukui	Kokiselei	Nameturon A	23	18	5.60%	50.00%
Turkana North		Kalem	Lokapelpus	Akopuro	24	18	5.60%	33.30%
Turkana North		Kaleng	Nakapelewoi	Morukirion B	25	17	0.00%	5.90%
Turkana North		Todonyang	Todonyang	Kaekogo	26	16	6.30%	18.80%
Turkana North		Kalem	Kalem	Moru-Apong	27	22	4.50%	22.70%
Turkana North		Kaleng	Kaleng	New Munyen-2	28	20	0.00%	10.00%
Turkana North		Lolupe	Lolupe	Lolupe Centre	29	14	0.00%	7.10%
Turkana North		Lolupe	Lolupe	Lokwasuro	30	19	0.00%	5.30%
Turkana North		Lolupe	Lolupe	Lolupe	31	23	0.00%	8.70%
Turkana North		Naduat	Naduat	Makutano	32	25	4.00%	32.00%
Turkana North		Naduat	Naduat	Naperebei	33	21	4.80%	28.60%
Turkana North		Naduat	Naduat	Loopong	34	24	4.20%	8.30%
Turkana North		Lokore	Lokore	Nairobi A	35	17	0.00%	23.50%
Turkana North		Kaenyangaluk	Kaenyangluk	Kaemongor	36	22	22.70%	31.80%
T/East	Katilia	Lomunyenakwan	Lomunyenakwan	Ngataparin	1	12	8.30%	41.70%
T/East	Katilia	Katilia	Lokorkor	Akatorongot	2	18	0.00%	22.20%
T/East	Katilia	Katilia	Katilia	Edoot	3	20	5.00%	35.00%
T/East	Katilia	Katilia	Katilia	Akwanga	4	18	0.00%	22.20%
T/East	Katilia	Katilia	Katilia	Alamach	5	21	4.80%	19.00%
T/East	Katilia	Elelea	Elelea Sch Chu	Kanaminy A	6	16	0.00%	25.00%
T/East	Lokori/Kochodin	Kochodin	Nakukulas	Nawoyatira	7	12	0.00%	16.70%

T/East	Lokori/Kochodin	Lokori	Lokori Sch Chu	Emanman A	8	13	0.00%	61.50%
T/East	Lokori/Kochodin	Lokori	Lokori Phc	Morudapal	9	20	15.00%	55.00%
T/East	Lokori/Kochodin	Lokori	Lokori Aic	Apetet	10	19	10.50%	31.60%
T/East	Lokori/Kochodin	Kangitit	Morulem A	Naputirio A	11	21	0.00%	19.00%
T/East	Lokori/Kochodin	Kangitit	Morulem A	Urban B	12	16	6.30%	31.30%
T/East	Lokori/Kochodin	Kangitit	Morulemb/Kangitit	Kangitit B	13	14	0.00%	35.70%
T/East	Lokori/Kochodin	Lotubae	Lokwii A	Keereng	14	12	0.00%	8.30%
T/East	Lokori/Kochodin	Lotubae	Lokwii B	Ngakookes	15	19	0.00%	10.50%
T/East	Lokori/Kochodin	Lotubae	Lotubae	Kambi Kavu	16	19	0.00%	15.80%
T/East	Lokori/Kochodin	Lotubae	Lotubae	Napetao	17	12	8.30%	33.30%
T/East	Lokori/Kochodin	Lopii	Karuko	Kangibenyoi	18	15	0.00%	26.70%
T. South	Katilu	Katilu	Korinyang	Angarabat C	19	18	5.60%	22.20%
T. South	Katilu	Katilu	Lopur	Shanti C	20	20	5.00%	15.00%
T. South	Katilu	Kalemngorok	Kalemngorok	Aburur A	21	31	3.20%	25.80%
T. South	Katilu	Kalemngorok	Kalemngorok	Achukule B	22	21	9.50%	23.80%
T. South	Katilu	Katilu	Namakat	Nachoto	23	47	4.30%	17.00%
T. South	Katilu	Katilu	Katilu	Ngarengelup B	24	15	6.70%	26.70%
T. South	Katilu	Katilu	Kagitankori	Lokamichuura	25	19	0.00%	10.50%
T. South	Katilu	Lokapel	Lokapel	Kimiirik	26	16	0.00%	12.50%
T. South	Lobokat	Kainuk	Nakululumaet	Market A	27	14	7.10%	7.10%
T. South	Lobokat	Kainuk	Nakululumaet	Natorobwo A	28	16	6.30%	6.30%
T. South	Lobokat	Loyapat	Loyapat	Naakot B	29	15	6.70%	33.30%
T. South	Kaputir	Kalomwae	Juluk	Juluk	30	22	18.20%	22.70%
T. South	Kaputir	Nakwamoru	Nakwamoru	Lomoopus	31	19	5.30%	42.10%
T. South	Lokichar	Kapese	Lokaburu	Naporotoi	32	19	10.50%	26.30%
T. South	Lokichar	Kapese	Kapese	Kosikiria B	33	20	10.00%	20.00%
T. South	Lokichar	Lochwaa	Locheremoit	Edos A	34	16	0.00%	31.30%
T. South	Katilu	Kalemngorok	Namakat	Namakat D	35	20	5.00%	15.00%

T. South	Lokichar	Lokichar	Lokichar	Baraka	36	22	9.10%	13.60%
T. South	Kalapata	Nakaalei	Nakaalei	Loupwala	37	18	0.00%	27.80%
T. South	Lokichar	Napusmoru	Napusmoru	Kaengolerengan	38	16	6.30%	31.30%
T. South	Kalapata	Kalapata	Kangakipur	Abukut	39	16	0.00%	18.80%
T. South	Lokichar	Kapese	Kapese	Kangolemongin	40	42	2.40%	21.40%
T. South	Lokichar	Lokichar	Kamarese	Nayanae Atiir	41			
T. South	Lokichar	Lochwaa	Lochwaa	Kaakalel	42			
T. South	Katilu	Katilu	Nakabosan	Akalabach	43			
T /WEST	KAKUMA	MORUNGOLE	Yemen	Ejore	1	26	0.00%	3.80%
T /WEST	KAKUMA	MORUNGOLE	Morungole 1	Kabokorit	2	25	4.00%	16.00%
T/WEST	KAKUMA	MORUNGOLE	Morungole2	Ngiriemeto	3	22	0.00%	13.60%
T/WEST	LETEA	KATELEMOT	Lokipoto	Lomuton	4	16	0.00%	6.30%
T /WEST	Kalobeyei	OROPOI	Oropoi	Nawountos	5	17	0.00%	5.90%
T /WEST	LOPUR	LOPUSKI	Lopur	Lodakach	6	22	0.00%	18.20%
T /WEST	KALOBEYEI	NATIIRA	Namortotio	Apak	7	18	0.00%	5.60%
T /WEST	Lopur	LOPUSKI	Namon	Lolenga	8			
T /WEST	KALOBEYEI	KALOBEYEI	Timu	Nalemusekon	9	18	0.00%	11.10%
T /WEST	KALOBEYEI	KALOBEYEI	Timu	Ngikachalak	10	23	4.30%	39.10%
T /WEST	Nanam	LOMEYAN	Ngadakarin Asegis	Ngidocha	11	12	0.00%	8.30%
T /WEST	Nanam	LOMEYAN	Ngadakarin Asegis	Ngikwamong Kraal	12			
T /WEST	KAKUMA	MORUNGOLE	Lomunyenpus	Awarnaparan	13	28	3.60%	14.30%
LOKICHOGGIO	SONGOT	LOTETELEIT	Nakasengan	Rukruk	14	13	0.00%	7.70%
LOKICHOGGIO	SONGOT	LOTETELEIT	Nakasengan	Nasoo	15	19	5.30%	15.80%
T /WEST	KAKUMA	TARACH	Wapet	Ngiremeto	16	19	0.00%	36.80%
LOKICHOGGIO	songot	SONGOT	Songot	Emoru	17	11	0.00%	9.10%
LOKICHOGGIO	songot	SONGOT	Songot	Nabangareu	18	21	0.00%	23.80%
T /WEST	KAKUMA	KAKUMA	Tarach	Ngimanmania	19	21	4.80%	23.80%
T /WEST	KAKUMA	KAKUMA	Tarach	Ariogule	20	23	0.00%	21.70%

T /WEST	KAKUMA	NADAPAL	Nadapal	Natirae D	21	32	0.00%	0.00%
T /WEST	Letea	LORENG	Loreng	Ngikidingo	22	22	4.50%	27.30%
T /WEST	LOKICHOGGIO	LOKICHOGGIO	Ngapetan2	Lotorob-1 Nachuchukait	23	24	8.30%	33.30%
LOKICHOGGIO	LOKICHOGGIO	LOKICHOGGIO	Ngapetan2	Achukule	24	20	0.00%	0.00%
LOKICHOGGIO	LOKICHOGGIO	LOKICHOGGIO	Ngapetan1	Nadapal-2	25	11	0.00%	27.30%
T /WEST	Songot	LOKANGAE	Emilait	Emilait	26	47	2.10%	17.00%
T /WEST	Letea	LORITIT	Lorengesinyen	Ngikengoe	27	22	4.50%	22.70%
T /WEST	NANAM	MOGILA	Aochele	Kapetadiye	28	15	0.00%	0.00%
T /WEST	NANAM	MOGILA	Mogila	Naimoit	29			
T /WEST	LETEA	OROPOI	Nalapatui	Moru Epat	30	26	7.70%	30.80%
T /WEST	LETEA	TULABALANY	Tulabalany	Kayotoberu	31	22	0.00%	18.20%
T /WEST	KALOBEYEI	KALOBEYEI	Lonyuduk	Kangura	32	14	0.00%	14.30%

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4.6. NUTRITION SMART SURVEY QUESTIONNAIRE REVISED VERSION © MAY 2024

1.IDENTIFICATION 1.1 Data Collector_____ 1.2 Team Leader_____ 1.3 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**	**2.5a go to 2.5b, c and d before proceeding to 2.6**	**2.6**	**2.7a**	**2.7b**	**2.8**	**2.10a**
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** 1=Health card 2=Birth certificate/ notification 3=Baptism card 4=Recall 5. other _____ specify	**Sex** 1= Male 2= Female	**If between 3 and 18 years old, Is the child attending school?** 1 = Yes 2 = No (If yes go to 2.8; If no go t o 2.7)	**Main reason for not attending school (Enter one code from list)** 1=Chronic Sickness 2=Weather (rain, floods, storms) 3=Family labour responsibilities 4=Working outside home 5=Teacher absenteeism /lack of teachers 6= Fees or costs 7=Household doesn't see value of schooling 8 =No food in the schools 9 = Migrated/ moved from school area (including	**2.7a, What is the child doing when not in school?** **1**=Working on family farm 2=Herding Livestock 3=Working for payment away from home 4=Left home for elsewhere 5=Child living on the street 6: Other specify _____ _	**What is the highest level of education attained?(level completed) From 5 yrs and above** 1 =Pre primary 2= Primary 3=Secondary 4=Tertiary 5= None 6=others(specify) Go to question to 2.9 ↓	**If the household owns mosquito net/s, who slept under the mosquito net last night?** (*Probe-enter all responses mentioned (Use 1 if "Yes" 2 if "No and 3 if not applicable) go to question 2.11*)
			Years	Months							

								displacements) 10=Insecurity/violence 11-No school Near by 12=Married 13. Pregnant/ taking care of her own child 14. attending Duksi/Madrasa 15. too young for school 13=others (specify)…… ……			
< 5 YRS	1										
	2										
	3										
	4										
>5 TO <18 YRS	5										
	6										
	7										
	8										
	9										
	10										
	11										
	12										
ADULT (18 years and above)	13										
	14)										
	15										
	16										
	2.5c. Total number of ALL people in the Household including children ----------		2.5d Total number of children under 5 years (0-59 months) _____		2.5e Total number of children below 2 years (0-23 months) _____						

2.9	**How many mosquito nets does this household have? _____ (Indicate no.) go to question 2.10a before proceeding to question 2.11**	
2.11	**Main Occupation of the Household Head – HH.** **(enter code from list)** 1=Livestock herding 2=Crop farming/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	**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 |____|

	10=Others (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 Number of child/children who have recently come to live with you Males …….. Females ……	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 _____
2.16	Are any of your children currently not living with you? Yes No Number of child/children currently not living with you Males …….. Females ……	2.16b If yes, why is the child/children not living with you? 1. Did not have access to food 2. To attend boarding school 3. Placed in the care of someone else 4. Left home for work 5. Living in the streets 6. Has left home to marry/be married 7. I don't know 8. Other specify
2.17	Is this household enrolled in any cash transfer programme? 1. YES 2. NO	2.17b If Yes, which cash transfer programme? 1. Hunger safety net programme 2. Older persons programme 3. OVC programme 4. People with severe disabilities 5. Wfp linda lishe bora 6. Emergency Response Cash Tranfer

3. CHILD HEALTH AND NUTRITION (ONLY FOR CHILDREN 6-59 MONTHS OF AGE; IF N/A SKIP TO SECTION 3.6)

Instructions: *The caregiver of the child should be the main respondent for this section*
3.1 CHILD ANTHROPOMETRY ***3.2 and 3.3 CHILD MORBIDITY***
(***Please*** *fill in* ***ALL REQUIRED*** *details below. Maintain the same child number as part 2)*

A Child No.	B	C	D	E	F		G	H	I	J	K	L	M	N		3.2a	3.2b	3.3a	3.3b	3.3c
	what is the relationship of the respondent with the child/ children 1=Mother 2=Father 3=Sibling 4=Grandmother 5=Other (specify)	SEX Female ..... F Male ....M	Exact Birth Date	Age in months	Weight (KG) XX.X		Height (CM) XX.X	Oedema Y= Yes N= No	MUAC (cm) XX.X	Was child weighed at birth? 1. Yes 2. No 3. Don't know If no or don't know skip to M	How much did the child weigh?	Child's weight verified by: 1= Health card 2= Recall	Is the child in any nutrition program 1. Yes 2. No If no skip to question 3.2	If yes to question J. which nutrition program? 1. OTP 2.SFP 3.BSFP Other Specify ___ ___ ___		Has your child (NAME) been ill in the past two weeks? 1. Yes 2. No <u>If No, skip to 3.4</u>	If YES, which illness (multiple responses possible)[12] 1 = Fever with chills like malaria 2 = ARI /Cough 3 = Watery diarrhoea 4 = Bloody diarrhoea 5 = Other (specify) *See case definiti*	**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-** 1. Traditional healer 2.Community health worker 3. Private clinic/ pharmacy 4. Sho	If the child **<u>had watery diarrhoea</u>** in the last TWO (2) WEEKS, did the child get: 1. ORS 2. Zinc supplementation? *Show sample and probe further for this component check the remaining drugs(confirm from mother child booklet)*

[12] Fever with Malaria: High temperature with shivering
Cough/ARI: Any episode with severe, persistent cough or difficulty breathing
Watery diarrhoea: Any episode of three or more watery stools per day
Bloody diarrhoea: Any episode of three or more stools with blood per day

																	ons abo ve		p/kiosk 5.Public clinic 6. Mobile clinic 7. Relative or friend 8. Local herbs 9.NGO/ FBO	
01																	1, 2, 3			
02																				

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 CHILDREN 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										

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			
	3.5.1.a Is MNP program available (program running in the past six month) in the survey area? Yes =1 No = 2 If 'No' skip section 3.5 and 3.6 and go to 3.7					
	3.5.1. b Is the child enrolled in the MNP program?(show the example of the MNP sachet) ***(record the code in the respective child's number)*** Yes =1 No=0 **If no go to 3.5.2, If yes go to section 3.6.1**	3.5.2 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)*** Do not know about MNPs ….....……1 Discouraged from what I heard from others …….....…….2 The child has not fallen ill, so have not gone to the health facility …. …....…..3 Health facility or outreach is far ….....…4 Ch ild receiving therapeutic or supplementary foods .....5 Other reason, specify ...…….....…….6 ***Skip to 3.7***	3.6.1 Has the child consumed MNPs in the last 7 days?(shows the MNP sachet) ***(record the code in the respective child's number)*** YES = 1 N0= 0 ***If no skip to 3.6.3***	3.6.2 If yes, how frequent do you give MNP to your child? ***(record the code in the respective child's number)*** Every day …….....…….1 Every other day .....……..2 Every third day …….....……..3 2 days per week at any day ....4 Any day when I remember..…5	3.6.3 If no, since when did you stop feeding MNPs to your child? ***(record the code in the respective child's number)*** 1 week to 2 weeks ago ....1 2 week to 1 month ago ....2 More than 1 month 3	3.6.4 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)*** Finished all of the sachets .....1 Child did not like it .....2 Husband did not agree to give to the child .....3 Sachet got damaged …….4 Child had diarrhea after being given vitamin and mineral powder ……..5 Child fell sick.....6 Forgot ……. …..7 Child enrolled in IMAM program …8 Other (Specify)_____ ____ ..9
01						
02						

3.5 B: CHILDREN DIET DIVERSITY (CHILDREN 6 TO 23 MONTHS)

I would like to ask you about foods and some drinks that [NAME] had yesterday during the day or at night. I am interested in foods your child ate, whether at home or someplace else.

I will ask you about different types of foods as well as some drinks, and I would like to know whether your child ate the food even if it was combined with other foods as in a mixed dish like *[insert common local examples of mixed dishes]*.

Please do not answer 'yes' for any food or ingredient used in a small amount to add flavour to a dish.

Yesterday during the day or at night, did [NAME] eat (or drink) any:

			YES	NO	DK
3A.0	Breastmilk?	BREASTMILK	1	2	9
3A.1	Infant formula such as *[insert local examples]*?	INFANT FORMULA	1	2	9
3A.1Nu	*If "yes": How many times did [NAME] drink Formula?* *If 7 or more times, record "7".* *If number of times not known, record "9"*	*Number of times* |___|			
3A.2	Milk from animals, such as fresh, tinned, or powdered milk?	ANIMAL MILK	1	2	9
3A.2Nu	*If "yes": How many times did [NAME] drink Milk?* *If 7 or more times, record "7".* *If number of times not known, record "9"*	*Number of times* |___|			
3A.3	Yogurt or yogurt drinks?	YOGURT	1	2	9
3A.3Nu	*If "yes": How many times did [NAME] drink Yogurt?* *If 7 or more times, record "7".* *If number of times not known, record "9"*	*Number of times* |___|			
3B	Porridge, bread, rice, noodles, pasta or *[insert other commonly consumed foods made from grains, including rice dishes, noodle dishes etc.]*?	FOODS MADE FROM GRAINS	1	2	9
3C	Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside?	PUMPKIN, CARROTS, SQUASH, ETC.	1	2	9
3D	Plantains, white potatoes, white yams, manioc, cassava, or *[insert other commonly consumed starchy tubers or starchy tuberous roots that are white or pale inside]*?	FOODS MADE FROM ROOTS	1	2	9
3E	Dark green leafy vegetables, such as *[insert commonly consumed vitamin A-rich dark green leafy vegetables]*?	DARK GREEN, LEAFY VEGETABLES	1	2	9
3F	Any other vegetables, such as *[insert commonly consumed vegetables]*?	OTHER VEGETABLES	1	2	9
3G	Ripe mangoes or ripe papayas or *[insert locally available vitamin A-rich fruits]*?	RIPE MANGO, RIPE PAPAYA	1	2	9
3H	Any other fruits, such as *[insert commonly consumed fruits]*?	OTHER FRUITS	1	2	9
3I	Liver, kidney, heart or other organ meats?	ORGAN MEATS	1	2	9
3J	Sausages, hot dogs/frankfurters, ham, bacon, salami, canned meat or *[insert other commonly consumed processed meats]*?	PROCESSED MEATS	1	2	9

3K	Any other meat, such as beef, pork, lamb, goat, chicken, or duck?	OTHER MEATS	1	2	9
3L	Eggs?	EGGS	1	2	9
3M	Fish or shellfish, either fresh or dried?	FRESH OR DRIED FISH	1	2	9
3N	Beans, peas, lentils, nuts, or *[insert commonly consumed foods made from beans, peas, lentils, nuts, or seeds]*?	FOODS MADE FROM BEANS, PEAS, NUTS, ETC.	1	2	9
3O	Hard or soft cheese such as *[insert commonly consumed types of cheeses]*?	CHEESE	1	2	9
3P	Sweet foods such as chocolates, candies, pastries, cakes, biscuits, or frozen treats like ice cream and popsicles, or *[insert other commonly consumed 'sentinel' sweet foods]*?	SWEET FOODS	1	2	9
3Q	Chips, crisps, puffs, French fries, fried dough, instant noodles, or *[insert other commonly consumed 'sentinel' fried and salty foods]*?	SALTY FOODS	1	2	9
3R.0	Other solid, semi-solid, or soft food?	OTHER SOLID, SEMI-SOLID, OR SOFT FOOD	1	2	9
3R.1	*Record all other solid, semi-solid, or soft food that do not fit food groups above.*	(*Specify*) _____			
3S	How many times did [NAME] eat any solid, semi-solid or soft foods yesterday during the day or night? If 7 or more times, record "7". If number of times not known, record "9"	Number of times |___|			

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

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MINIMUM DIETARY DIVERSITY FOR WOMEN (MDD-W) QUESTIONNAIRE

ONLY FOR WOMEN AGE 15 TO 49 YEARS. REFER TO THE HOUSEHOLD DEMOGRAPHICS SECTION Q2.3 AND Q2.5

Please describe the foods (meals and snacks) that you ate or drank yesterday (during the day and night), whether at home or outside the home. Start with the first food or drink of the morning.

Write down all foods and drinks mentioned. When composite dishes are mentioned, ask for the list of ingredients.

When the respondent has finished, probe for meals and snacks not mentioned in the following section.

Yesterday during the day or at night, did [NAME] eat (or drink) any:

		REPLACE THE EXAMPLE FOODS BELOW WITH ITEMS COMMONLY CONSUMED IN THE SURVEY AREA(S).	YES	NO
A	GRAINS, WHITE ROOTS AND TUBERS AND PLANTAINS	(maize, sorghum, wheat, rice, millet , cassava, pasta, potatoes, white freshed sweet potatoes	1	2
B	PULSES	(beans, peas, pegion peas, cowpeas, lentils, soybean and soybean products and other legumes)	1	2
C	NUTS AND SEEDS	(cashew nuts, macadamia, groundnuts, simsim seed, groundnuts, pumpkin seeds	1	2
D	DAIRY	(milk, cheese, yogurt or other milk products)	1	2
E	MEAT, POULTRY AND FISH	(all flesh meats, liver, kidney, beef, pork, lamb, goat, rabbit, chicken, duck other birds and insects)	1	2
F	EGGS	(eggs from chicken, duck, guinea fowl or any other egg)	1	2
G	DARK GREEN LEAFY VEGETABLES	(Kales, spinach, pumpkin leaves, cowpea leaves, cassava leaves, amaranths)	1	2
H	OTHER VITAMIN A RICH FRUITS AND VEGETABLES	(ripe mango, ripe papaya, orange fleshed sweet potatoes, carrots and pumpkin)	1	2
I	OTHER VEGETABLES	(legumes in green and fresh pods such as fresh peas, snow peas, green beans, green bananas, cucumber and tomatoes)	1	2
J	OTHER FRUITS	(apple, ripe bananas, guava, orange, lime, plum, pear, peach)	1	2

	4.0 WATER, SANITATION AND HYGIENE (WASH)/- *Please ask the respondent and indicate the appropriate number in the space provided*		
4.1	**What is the MAIN source of drinking water for the household NOW?** **piped water** piped into dwelling.....11 piped to yard / plot.....12 piped to neighbour .....13 public tap / standpipe .....14 tube well / borehole.....21 **dug well** protected well.....31 unprotected well.....32	**4.2 a What is the trekking distance to the current main water source?** 1=less than 500m (Less than 15 minutes) 2=more than 500m to less than 2km (15 to 1 hour) 3=more than 2 km (1 – 2 hrs) 4=Other(specify) |____|	4.2b – Who MAINLY goes to fetch water at your current main water source? 1=Women, 2=Men,

	spring protected spring .....41 unprotected spring .....42 rainwater .....51 tanker-truck.....61 cart with small tank .....71 water kiosk.....72 surface water (river, dam, lake, pond, stream, canal, irrigation channel) .....81 **packaged water** bottled water.....91 sachet water.....92 1.		3=Girls, 4=Boys
4.2.2 a	**How long do you queue for water?** 1. Less than 30 minutes 2. 30-60 minutes 3. More than 1 hour 4. Don't que for water	**4.3 Do you do anything to your water before drinking? (*MULTIPLE RESPONSES POSSIBLE*) *(Use 1 if YES and 2 if NO).*** |____| 1. Nothing 2. Boiling…… …… |____| 3. Chemicals (*Chlorine,Pur,Waterguard*)…… |____| 4. Traditional herb…….. |____| 5. Pot filters…… …….. |____|	
4.4	**Where do you store water for drinking?** 1. Open container / Jerrican 2. Closed container / Jerrican |____|	**4.5 How much water did your household use YESTERDAY (excluding for animals)?** *(Ask the question in the number of 20 liter Jerrican and convert to liters & write down the total quantity used in liters)* |____|	
4.6	**Do you pay for water?** 1. Yes 2. No **(If No skip to Question 4.7.1)** |____|	**4.6.1 If yes, how much per 20 liters jerrican _____ KSh/20ltrs**	**4.6.2 If paid per month how much** |____|
4.7.1 a	We would like to learn about where members of this household wash their hands. Can you please show me where members of your household <u>most often</u> wash their hands? *Record result and observation.* **OBSERVED** FIXED FACILITY OBSERVED (SINK / TAP) IN DWELLING .....1 IN YARD /PLOT.....2 MOBILE OBJECT OBSERVED (BUCKET / JUG / KETTLE) .....3 NOT OBSERVED NO HANDWASHING PLACE IN DWELLING / YARD / PLOT.....4	4.7.1b Is soap or detergent or ash/mud/sand present at the place for handwashing? YES, PRESENT .....1 NO, NOT PRESENT ..... ……**2**	

	NO PERMISSION TO SEE.....5	
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…… … |____| 2. Before cooking…….. |____| 3. Before eating…… 4. After taking children to the toilet…… 5. Others…… ……	
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 |____|	**4.8 What kind of toilet facility do members of your household usually use?** **If 'Flush' or 'Pour flush', probe: Where does it flush to?** |____| **If not possible to determine, ask permission to observe the facility.** **flush / pour flush** **flush to piped sewer system 11** **flush to septic tank 12** **flush to pit latrine 13** **flush to open drain 14** **flush to DK where 18** **pit latrine** **ventilated improved pit latrine 21** **pit latrine with slab 22** **pit latrine without slab / open pit 23** **composting toilet 31** **bucket 41** **hanging toilet / hanging latrine 51** **no facility / bush / field 95** **OTHER (specify) 96**

5.0: Food frequency and Household Dietary Diversity

Type of food*	**Did members of your household consume any food from these food groups in the last *7 days?*** *(food must have been cooked/served at the household)* ***0-No*** ***1-Yes***	**If *yes*, mark days the food was consumed in the last 7 days?** ***0-No*** ***1-Yes***								**Did members of your household consume any food from these food groups in the last *24 hours? (HDDS)*** *(food must have been cooked/served at the household)* ***0-No*** ***1-Yes***	What was the **main** source of the dominant food item consumed in the HHD? **1.Own production** **2.Purchase** **3.Gifts from friends/families** **4.Food aid** **5.Traded or Bartered** **6.Borrowed** **7.Gathering/ wild fruits** **8.Other (specify)**
		D 1	***D 2***	**D 3**	**D 4**	**D 5**	**D 6**	**D 7**	**TOTAL**		
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) ?*											
5.10Eggs?											
5.11Fish: Fresh or dries fish or shellfish											
5.12a Pulses/legumes, *(e.g. beans, lentils, green grams, cowpeas)*?											
5.12b nuts and seeds											
*5.13*Milk and milk products *(e.g. goat/camel/ fermented milk, milk powder)?*											
5.14Oils/fats *(e.g. cooking fat or oil, butter, ghee, margarine)?*											
5.15Sweets: Sugar, honey, sweetened soda or sugary foods such as chocolates, sweets or candies											
5.16Condiments, spices and beverages:											

6. CSI and HHS

6a. Coping Strategy Index

6.0	**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)*	**Frequency score: Number of days out of the past seven (0 - 7).**
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	

6b. Household Hunger Scale

No.	Question	Response Option	Code
Q1	In the past [4 weeks/30 days], was there ever no food to eat of any kind in your house because of lack of resources to get food?	0 = No (Skip to Q2) 1 = Yes	|___|
Q1a	How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1-2 times) 2 = Sometimes (3 - 10 times) 3 = Often (more than 10 times)	|___|
Q2	In the past [4 weeks/30 days], did you or any household member go to sleep at night hungry because there was not enough food?	0 = No (Skip to Q3) 1 = Yes	|___|
Q2a	How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1-2 times) 2 = Sometimes (3 - 10 times) 3 = Often (more than 10 times)	|___|
Q3	In the past [4 weeks/30 days], did you or any household member go a whole day and night without eating anything at all because there was not enough food?	0 = No (Skip to the next section) 1 = Yes	|___|
Q3a	How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1-2 times) 2 = Sometimes (3 - 10 times) 3 = Often (more than 10 times)	|___|

7. **Food fortification:** Please ask the respondent and indicate the appropriate number in the space provided. Reflect on latest data and its use; make a decision on whether to administer this module

7.1	**Have you heard about food fortification?** 1. Yes 2. No 3. Don't know
7.1.1	**If yes, where did you hear or learn about it? (MULTIPLE RESPONSE ARE POSSIBLE-** (Use 1 if "Yes" and 2 if "No") 6. Radio..... |____| 7. Road show..... |____| 8. In a training session attended..... |____| 9. On a TV show..... |____| 10. Others.....

7.2a	**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?** 1. Yes 2. No 3. Don't know	|____|
7.2b	**If yes in 1.2a, What is the sign about?**	1. Indicates the food has been added minerals and/or vitamins (food fortification) 2. Other specify……
7.3	**What is the MAIN source of Maize flour for the household <u>NOW</u>?** 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)* |_____|	**1.1b Do you know if the maize flour you consume is fortified or not?** 1. Yes 2. No 3. Don't know
7.4	**What brands of the following foods does your household consume?** 1. Maize flour 2. Wheat flour 3. Margarine 4. Oils 5. Fats 6. Sugar	|_____ | |_____ | |_____ | |_____ | |_____ | |_____ |

8.0 Family MUAC **(Awareness, Ownership, Use, and referral)**

Family MUAC	Have you ever seen this? (Show the family MUAC tape to the respondent.) 1. Yes 2. No
	Have you been sensitized on how to use this tape? 1. Yes 2. No
	If yes, Do you have it (Family MUAC tape)? (Ask to the respondent to show you the tape) 1. Yes (if the respondent shows you the family MUAC tape 2. No (if they don't show you the tape)
	Have you used the MUAC tape? 1. Yes 2. No
	If yes, demonstrate how to use it (Observe the demonstration and rate accordingly) 1. Does the demonstration correctly 2. Does not do the demonstration correctly
Referral	Have you ever referred the child for treatment after using this tape? 1. Yes

	2. No If yes, proceed to the next question If no – exit
	Where did you refer the child 1. Nearest health center/dispensary 2. To CHV 3. Outreach site 4. Others (specify)