SAMBURU CENTRAL DISTRICT

SMART NUTRITION SURVEY REPORT

(Final Report)

By

WORLD VISION KENYA
HUMANITARIAN EMERGENCY AFFAIRS

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ACRONYMS AND ABBREVIATIONS

ARI	- Acute Respiratory Infection
CED	- Chronic Energy Deficiency
CI	- Confidence Interval
CMR	- Crude Mortality Rate
CSB	- Corn Soya Blend
ENA	- Emergency Nutrition Assessment
FAO	- Food and Agriculture Organization
FGD	- Focus Group Discussion
GCM	- Global Chronic Malnutrition
GFD	- General Food Distribution
GAM	- Global Acute Malnutrition
GOK	- Government of Kenya
GS	- Growth Standards
HFA	- Height-for-Age
IMAM	- Integrated Management of Acute Malnutrition
ITN	- Insecticide Treated Nets
KEPI	- Kenya Expanded Programme on Immunization
MOH	- Ministry of Health
MUAC	- Mid-Upper Arm Circumference
NCHS	- National Centre for Health Statistics
OPV	- Oral Polio Vaccine
PPS	- Probability Proportional to Population Size
SAM	- Severe Acute Malnutrition
SD	- Standard Deviation
SFP	- Supplementary Feeding Programme
SMART	- Standardized Monitoring and Assessment of Relief and Transitions
SPSS	- Statistical Package for Social Scientists
TBA	- Traditional Birth Attendant
UFMR	- Underfive Mortality Rate
UNICEF	- United Nations Children's Fund
WFA	- Weight-for-Age
WFH	- Weight-for-Height
WFP	- World Food Programme
WHO	- World Health Organization
WVK	- World Vision Kenya

EXECUTIVE SUMMARY

Table 1*: Summary of main survey findings*

Characteristic	No. or %	(CI and SD where applicable)	
Mean household size	6.3	2.2	
Total underfive population screened during the survey	725		
Males	368 (50.8%)		
Females	357 (49.2%)		
Sex ratio (M/F)	1.0		
Number of children eligible for WFH analysis	709		
GAM (WFH <-2 Z score or presence of oedema)	8.5	6.0-11.8	
SAM (WFH <-3 Z score or presence of oedema)	1.0	0.4-2.5	
Child Wasting by MUAC (<12.5cm)	3.0	1.9-4.5	
Total underweight (WFA <-2 Z score or presence of oedema)	23.1	19.2-27.6	
Severe underweight (WFA <-3 Z score or presence of oedema)	5.0	3.5-7.3	
Total stunting (HFA <-2 Z score)	40.0	35.6-48.7	
Severe stunting (Height for age <-3 Z score)	16.7	12.4-22.1	
Proportion of households received food aid last three months	18.4		
Proportion of households received blanket supplementary feeding rations	30.6		
Proportion of children with ARI in two weeks prior to survey	29.0		
Proportion of children with malaria in two weeks prior to survey	6.5		
Proportion of children with diarrhoea in two weeks prior to survey	6.0		
Proportion of children with measles in two weeks prior to survey	1.1		
Vitamin A supplementation coverage	76.6		
Oral polio vaccination coverage	88.9		
Proportion of children dewormed in the past six months prior to the survey	51.4		
Proportion of children immunised against measles (9-59 months)	90.5		
Proportion of malnourished pregnant women	40.5	25.2-57.8	
Proportion of malnourished non-pregnant women	6.6	4.7-9.1	
Under five mortality rate (deaths/10000/day)	0.36	0.12-1.05	
Crude mortality rate (deaths/10000/day)	0.19	0.009-0.39	
Infant and young child feeding practices (IYCF)			
Breastfeeding Practices:	Males	Females	Total
Ever breastfed (n=384)	184 (48.2)*	198 (51.8)	382 (99.5)
Timely Initiation of breastfeeding (within 1hr) (n=383)	177 (48.0)	192 (52.0)	369 (96.3)
Given of colostrum (n=385)	174 (47.0)	196 (53.0)	370 (96.1)
Exclusive breastfeeding <6 months (n=102)	42 (48.8)	44 (51.2)	86 (84.3)
Pre-lacteal feeds given (n=385):	184 (48.2)	198 (51.8)	382 (99.2)
Types of pre-lacteal feeds (n=382): Plain Water	285 (74.6)		
Infant formula	46 (12.0)		
Sugar/Glucose water	27 (7.1)		
Animal milk/products	20 (5.2)		
Herbs	4 (1.0)		
Continued breastfeeding at 1 year (12 – 15 months) (n=68)	30 (49.2)	31 (50.8)	61 (89.7)
Continued breastfeeding at 2 years (20- 23.9 months) (n=32)	8 (44.4)	10 (55.6)	18 (56.3)
Minimum meal frequency:			
Breastfed children 6-8 months who received complementary foods ≥2 times (n=61)	21 (47.7)	23 (52.3)	44 (72.1)
Breastfed children 6-23 months who received complementary foods ≥ 3 times per day (n=235)	83 (48.8)	87 (51.2)	170 (72.3
Non -breastfed children 6-23 months who received complementary foods a ≥4 times (n=43)	3 (15.8)	16 (84.2)	19 (44.2)
Breastfed children 6-8 months old ≥ 2 times +Breastfed children 6-23 months old ≥3 times + non-breastfed children 6-23 months old ≥ 4 times (n=339)	107 (45.9)	126 (54.1)	233 (68.7)

Minimum dietary diversity:			
Breastfed children 6-23 months of age who received ≥3 food groups (n=237)	19 (47.5)	21 (52.5)	40 (16.9)
Non-breastfed children 6-23 months of age who received ≥4 food groups (n=43)	9 (81.8)	2 (18.2)	11 (25.6)
Breastfed children consuming ≥3 food groups + non-breastfed children consuming ≥4 food groups (n=280)	28 (54.9)	23 (45.1)	51 (18.2)

Figures in parethesis percentages

Samburu Central district was curved from the previous Greater Samburu district. It has two divisions (Kirisia and Lorroki). It borders Laikipia District to the South, Samburu North to the north, Samburu East to the East, and Baringo East to the west. It has a total catchment population of 111,018 people and an area of 1,339.4 Km^2. The district is mainly inhabited by nomadic pastoralists who move from time to time with their animals. The inhabitants of the district are afflicted by water-borne and water wash diseases such as diarrhoea and accassional cholera outbreaks as well as malnutrition with a Global Acute Malnutrition (GAM) rate of 19.1% and Severe Acute Malnutrition (SAM) of 0.8% during the baseline survey for implementation of High Impact Nutrition Intervention (HINI) in the district[1]. Among preganant and lactwomen of reproductive age, 18% were malnourished. According to the nutrition early warning report for the period June to August 2011 Samburu was classified among the districts with persistently high proportions of children under five at risk of malnutrition based on MUAC.

Samburu Central district has 28 health facilities, out of which 20 are GOK health facilities, 7 are faith-based and 1 is community owned. WVK and MoPHS, with funding support from UNICEF are currently supporting health facilities to deliver essential nutrition services through on-the-job training, coaching and mentoring approach. Since December 2009 WVK has been supporting the Ministry of Health to deliver nutrition services in the district through identification and training of CHWs, community sensitization and mobilization, screening and referral of malnourished children and establishment of IMAM reporting systems. In order to guide programming in the district, this nutrition survey was conducted from 4th to 10th December 2011 in Samburu Central district with the goal of establishing the current health and nutritional situation and recommend appropriate food and non-food interventions in the backdrop of an accelerated HINI programme that has been operational in the district.

The survey utilized the Standardized Monitoring and assessment of Relief and Transitions (SMART) methodology in accordance with both the National Guidelines for Nutrition and Mortality assessments in Kenya and the UNICEF-recommended nutritional survey key indicators. Both anthropometric and mortality data were collected simultaneously during the survey. A two-stage cluster sampling with probability proportional to size (PPS) design was employed for the integrated nutrition survey. Sample size was determined on the basis of estimated prevalence rates of malnutrition (GAM), desired precision and design effect) using the ENA for SMART software. Being the first SMART survey in Samburu Central district, the IYCF Multi Sampling Calculator could not be used to determine the IYCF sample. Stratified proportionate sampling methodology as per Care International Guidelines was therefore used where 3 children below 6 months and 8 children aged 6-23 months were assessed in each cluster, resulting in a total IYCF sample of 389 children.

With a mean household size of 6.3 (SD 2.2) persons, the surveyed households yielded a total of 725 eligible children aged 6-59 months with an overall sex ratio of 1.0. The prevalence of GAM (WFH <-2 z-scores or oedema) by the World Health Organization growth standards (WHO-GS) was 8.5% (6.0-11.8 CI) while severe acute malnutrition (SAM) i.e. z-scores below -3 or oedema stood at 1.0% (0.4-2.5 CI). The prevalence of GAM by MUAC was 3.0% (1.9-4.5 CI) and SAM 0.1% (0.0-0.7 CI) with one fifth (20.0% 17.1-23.1 CI) of the children being at risk of malnutrition. The prevalence of underweight (WFA <-2 Z-scores or oedema) was 23.1% (19.2-27.6 CI) while 5.0% (3.5-7.3 CI) of the children were severely underweight (WFA <-3 Z-scores or oedema). The global chronic malnutrition (GCM) rate among the underfives (WFA <-2 Z-scores) was 40.0% (35.6-48.7 CI) while severe GCM rate was 16.7% (12.4-22.1 CI). The prevalence of chronic energy deficiency (CED) among pregnant mothers (40.5% 25.2-57.8 CI) was significantly higher ($P<0.01$) than that of their non-pregnant counterparts (6.6% 4.7-9.1 CI).

Initiation of breastfeeding was appropriate for 96.3%, with a similar proportion (96.1% of the infants receiving colostrum during the first 3 days. Ignoring the fact that practically all (99.2%) of the children were giving pre-lacteals during the first 3 days, a commendable more than four fifths (84.3%) of the eligible children (<6 months) were exclusively breastfed, a

[1] Save the Children UK (2011): Baseline Survey for Implementation of HINI.

level which is more than twice the national average of 31.9%. Maintainance of breastfeeding decreased with age as reflected by the fact that the proportion of breastfed children had dropped from 89.7% at 1 year to 56.3% at 2 years. Overall, appropriate breastfeeding practices were generally more favourable to girls compared to boys. Early weaning was commonly practised in the district. Out of the children who were not exclusively breastfed (15.7%), more than half of them (56.3%) had been weaned by the first week of birth. According to focussed group discussions (FGD) information, traditional belief-related reasons and ignorance were culpable for early child weaning. Chief among these were *'breast milk alone not enough for baby, inability of mothers to produce enough milk to meet all the needs of the child, crying a lot of the baby, need to clean the baby's system after birth and lack of enough food for mothers in order to produce enough milk'.* Although results showed that the overall complementary feeding rate for children 6-23 months (regardless of breastfeeding status) was relatively high at 91.8% compared to the national average of 83.9% according to KDHS, the nutritive quality of the children's diets was poor as reflected by their dietary diversity. Both complementary feeding and dietary diversity assessments were based on the 24-hour food intake recall.

The proportions of breastfed children 6-8 months and 6-23 months who had attained the minimum feeding frequency were similar (72.1% and 72.3%, respectively). Only (44.2%) of the non-breastfed children had attained the minimum feeding frequency, which together with non-availability of breast milk nutrients subjected them to increased risk of malnutrition. Overall, only slightly more than two thirds (68.7%) of the children had attained minimum meal frequency as reflected by the minimum meal frequency composite indicator (for both breastfeeding and non-breastfeeding children). The findings further showed that less than one fifth (16.9%) of the children 6-23 months had attained the minimum dietary diversity score with one quaters (25.6%) of their non-breastfed counterparts attaining the same. Overall, only 18.2% of the children 6-23 months had attained the expected minimum dietary diversity as shown in Table 10. As was the case for breastfeeding practices, girls generally faired better than boys in terms of both minimum meal frequency and minimum dietary diversity, which among other things probably expalins why girls enjoyed better nutritional status in the district.

Overall, child immunization coverage for polio (88.9%) and measles (90.5%) were above the KEPI recommendation of 80%. Nearly half (48.1%) of the children were reported to have been sick during the 2-week period prior to the survey, with the main causes of illness being acute respiratory infections (ARI) affecting 29.0% of the children, malaria (6.5%) and diarrhoea (6.0%). The coverage of zinc supplementation during diarrhoea was very low (4.7%). Likewise, iron/folate supplementation during pregnancy covered only about half (52.9%) of the mothers while vitamin A supplementation after delivery stood at 49.1%. The coverage for SFP by WFH Z-scores was commendably high at 37.7% while OTP coverage was 14.3%. Both the proportion of households possessing mosquito nets (13.8%) as well as utilization rates by pregnant women (17.0%) was low. Results on treatment of drinking water showed only 14.4% of the households took safe water. Both the crude mortality rate (CMR) of 0.19 deaths/10,000/day and the underfive mortality rate (UFMR) of 0.36 deaths/10,000/day did not reach the WHO threshold for 'Alert' status.

Conclusions

This survey is not reflective of **'a worst-case scenario'** in Samburu Central district since it was conducted in the backdrop of the following circumstances:

- ✓ adequate rains since March 2011
- ✓ adequate pastures for livestock
- ✓ minimal livestock migration and therefore availability of animal products to the population
- ✓ post-harvest period, some food (grains and cereals) in stores, therefore relatively good food-secure situation
- ✓ non-risky food insecurity mitigation strategies practiced in the previous 2 months
- ✓ relatively good IYCFP and SFP coverage
- ✓ accelerated HINI programme in the district

The overall GAM prevalence in the district of 8.5% (6.0-11.8 CI) and both the UFMR (0.36 deaths/10,000/day (0.12-1.05 CI) and CMR (0.19 (0.009-0.39) fell below the WHO benchmarks[2,3] for 'Alert' threshold. However, the survey identified a number of

[2] CDC (1992): Famine Affected Refugee and Displaced Populations: Recommendations for Public Health Issues. MMWR, 1992; 41 (No. RR-13).

[3] In stable developing countries, a CMR of <1 death/10,000/day and an UFMR of <2 deaths/10,000/day are below the 'Alert' thresholds of 1 death/10,000/day and 2 deaths/10,000/day, respectively.

aggravating factors that could have militated against optimal child health/nutritional status and probably contributed to the high rates underweight (23.1%) and stunting (42.0%) which were higher than National average of 16.1% and 35.3%, respectively[4]. Chief among these were:

- ✓ poorly diversified diets for children particularly with regard to micronutrient profiles
- ✓ low child feeding frequencies (low levels of on-demand child feeding)
- ✓ early weaning practised for more than one-fifths of the children with negative socio-cultural factors and ignorance being mainly responsible
- ✓ implementation level of some HINI programme components still low, particularly zinc supplementation during diarrhoea among the underfives, iron/folate supplementation and qualified supervision of mothers during delivery
- ✓ high levels of chronic energy deficiency among pregnant women
- ✓ non-treatment of drinking water by more than four-fifths of households
- ✓ low ITN holding and utilization rates particularly by pregnant women

Under these circumstances, the situation in the district should not be viewed as one where the population has adequately stabilized to an extent of self-dependence. More crucially, the situation will most likely worsen with the anticipated and impending *La Nina,* which therefore makes the following recommendations of the essence.

Recommendations

1. Blanket supplementary feeding for all pregnant and lactating women to bring down maternal malnutrition to acceptable levels
2. Eventual Integration of HINI components into community-based IMAM to address high levels of stunting in order to ultimately keep levels of GAM low
3. Upscale small-scale agricultural activities e.g. kitchen gardens to further improve dietary profiles. Sustained agricultural diversification e.g. through rain water harvesting for small-scale irrigation farming, farming input subsidies would in the long term promote and sustain food security in the district
4. Accelerated promotion of basic health preventive strategies e.g. through community campaigns. Provision of adequate resources to enable eventual full implementation of the government-steered Community Strategy in Samburu Central district for sustainability of the current interventions in the district
5. Ensure timely availability of all HINI programme inputs to facilitate optimal implementation e.g. through campaigns, mobile and outreach clinics.

[4] Kenya National Bureau of Statistics (June 2010): Kenya Demographic and Health Survey.

1.0 INTRODUCTION

1.1 Background and Rationale

Samburu is among the arid to semi-arid Rift Valley districts in Kenya. The livelihood of the people revolves around pastoralism. Traditional beliefs such as food taboos, strong cultural systems and harsh climatic conditions have conspired and resulted in low income levels, food insecurity, high illiteracy levels, malnutrition and reduced potable water, and morbidity from preventable disease among households. Samburu Central district was curved from the previous larger Samburu district. It has two divisions namely: Kirisia and Lorroki divisions with a proposal to add two more. It borders Laikipia District to the South, Samburu North to the north, Samburu East to the East, and Baringo East to the west. It has a total catchment population of 111,018 people and an area of 1,339.4 Km^2.

The district is mainly inhabited by nomadic pastoralists who move from time to time with their animals. The inhabitants of the district are afflicted by water-borne and water wash diseases such as diarrhoea and accassional cholera outbreaks as well as malnutrition with a Global Acute Malnutrition (GAM) rate of 19.1% and Severe Acute Malnutrition (SAM) of 0.8% during the baseline survey for implementation of High Impact Nutrition Intervention (HINI) in the district[5]. Among preganant and lactwomen of reproductive age, 18% were malnourished. According to the nutrition early warning report for the period June to August 2011 Samburu was classified among the districts with persistently high proportions of children under five at risk of malnutrition based on MUAC. This, compounded by the expected La Nina, was expected to worsen the situation towards the last months 2011 and during early 2012 until the long rains are received. The district had also been listed by the national crisis response centre (NCRC) as one of the districts that will be affected by the La Nina.

Samburu Central district has 28 health facilities, out of which 20 are GOK health facilities, 7 are faith-based and 1 is community owned. Of the 28 health facilities, 5 are not currently in operation. WVK and MoPHS with funding support from UNICEF are currently supporting 12 of the health facilities to deliver essential nutrition services through on-the-job training, coaching and mentoring approach. Since December 2009 WVK has been supporting the Ministry of Health to deliver nutrition services in the district. Initially support was towards management of acute malnutrition and then transitioned to support delivery of essential nutrition services from July 2011. Achievements so far have been capacity building 12 of the health facilities to manage acute malnutrition, identification and training of CHWs, community sensitization and mobilization, screening and referral of malnourished children, established reporting systems for IMAM at the 12 health facilities. Nutrition surveys and assessments have been conducted every year to monitor the situation.

Despite the improvements in establishing systems, the situation is still poor and the ministry of health needs support to ensure further improvement coverage and delivery systems for nutrition services. Through funding support from UNICEF, the ministry of health is being supported to scale up delivery of high impact nutrition interventions. The HiNi project builds on On-the-Job training project that started in July 2010 and is employing training, mentoring and coaching of health workers and CHWs. Eventually, the package of services will be more comprehensive to cover 11 high impact nutrition interventions and geographical scale up to cover all the 28 health facilities in Kirisia and Lorroki divisions of Samburu Central district. In order to guide programming in the district, this nutrition survey was conducted from 4th to 10th December 2011 in Samburu Central district with the purpose of establishing the current health and nutritional situation and recommend appropriate food and non-food interventions.

1.2 Objectives

In view of the need for informed formulation and prioritization of appropriate interventions, the main objective of this survey was to establish the extent and severity of malnutrition and elucidate the possible causes of malnutrition to provide data for use in monitoring the progression of the situation. The survey was carried out specifically:

1. To estimate the current prevalence of acute malnutrition in children aged 6-59 months (65-110cm height/length)
2 Estimate the retrospective crude and underfive death rates and morbidity among underfive children in the survey area
3 To estimate Measles coverage for children 9-59 months and polio vaccination, Zinc supplementation and Vitamin A supplementation for children and 6-59 months

[5] Save the Children UK (2011): Baseline Survey for Implementation of HINI.

4 To assess the current food security situation of the surveyed population
5 To estimate point coverage for SFP, OTP, GFD, BSFP interventions among children 6-59 months
6 To estimate iron folate supplementation among pregnant women
7 To compare overall nutritional changes with previous GAM and SAM

2.0 METHODOLOGY

2.1 Geographic Target Area and Population Group

This survey covered both divisions of Samburu Central district (Lorroki and Kirisia) with the target population comprising of children 6-59 months old for anthropometric measurements and their mothers/primary caregivers as the primary respondents to the household and child questionnaires. The nutritional status of mothers or primary child caregivers aged 15-49 years was also assessed.

2.2 Type of Survey

This Anthropometric and Retrospective Mortality survey utilized the Standardized Monitoring and Assessment of Relief and Transitions (SMART) methodology and was also in accordance with both the National Guidelines for Nutrition and Mortality assessments in Kenya and the recommended UNICEF key nutritional survey indicators. Both anthropometric and mortality data were collected simultaneously in all households visited during the survey. Qualitative data (focus group discussions (FGDs), key informant interviews and general observations) were also collected to complement the quantitative findings.

2.3 Sampling Methodology and Sample Size

A two-stage cluster sampling method with probability proportional to size (PPS) design was employed for this integrated nutritional survey. The Emergency Nutrition Assessment (ENA) for Standardized Monitoring and Assessment of Relief and Transitions (SMART) software was used to determine the sample size using sub-location-level population data in the 2 administrative divisions of the district.

In the first sampling stage, anthropometric survey sample size was determined by entering relevant information (estimated GAM rate, desired precision and design effect) into the ENA for SMART software. Use of an estimated GAM prevalence of 18.9%, desired precision of 4%, a design effect of 1.5 and an estimated household size of 5.8 persons, 18% children under five years and non-response rate of 3% gave a sample size of 601 children (6-59 months) and a household sample of 659 households. The sample size for mortality survey was determined by using a CMR of 1.81, desired precision of 0.75, design effect of 1.5, 90-day recall period, average household size of 5.8 and a non-response rate of 3% to give a total population of 2243 and 399 households. The anthropometric sample size, being higher was therefore used in both surveys. Stratified proportionate sampling methodology was used to calculate the IYCF sample where 3 children 0-<6 months and 8 children 6-23 months were assessed per cluster which gave a sample size of 389.

The second sampling stage comprised of village and household selection. In order to select survey clusters, the names of sub-locations, their respective population sizes and the required number of clusters were entered into the SMART software, which generated the actual list of the villages to survey (including reserve clusters). At the field level, the EPI method was employed to select the first household to be enumerated. The survey teams first reported to the area chief, assistant chief or a village elder who assigned them a cluster guide. With the assistance of the cluster guide, the teams then went to the approximate centre of the village and spun a pen to select a random direction to walk to the boundary of the village. Choosing this initial random direction ensured randomization of the households to be visited in order to avoid systemic bias which may arise if survey teams systematically sample households in a biased subjective manner e.g. in proximity to shopping centres. While at the boundary of the village, the teams spun the pen again to select a second direction and walked along counting, assigning numbers to the first five households within a 45^0 radius and writing them on pieces of paper. The folded numbers were then shuffled and the first household to visit picked using simple random sampling (lottery system). All subsequent households in the selected direction were enumerated to implement the questionnaires until the required number of households was covered. All children aged 6-59 and those below 6 months in every household visited were included in the anthropometric and IYCF survey according to SMART Survey Guidelines[6].

A household was defined as a group of people who lived together and shared a common cooking pot. In polygamous families with several structures within the same compound but with different wives having their own cooking pots, the structures were considered as separate households and assessed separately. In cases where there was no eligible child, a household was still considered part of the sample, where only household and mortality data were collected. If a

[6] SMART (2006): Measuring Mortality, Nutritional Status and Food Security in Crises Situations: SMART METHODOLOGY

respondent was absent during the time of household visit, the teams left a message and re-visited later to collect data for the missing person, with no substitution of households allowed. The teams visited the nearest adjacent village (not among those sampled) to make up for the required number of households if the selected village yielded a number below 16 households, following the methodology described above.

2.4 Data collection Tools and Variables Measured

A total of 6 survey teams, each comprising of 1 team leader and 3 enumerators collected the data. Five sets of questionnaires (Appendix 2) were used for data collection. These included four sets of structured questionnaires (household, 6-59 months old child and maternal/primary child caregiver, 0-<6 months child and mortality questionnaires) and a focus group discussion (FGD) guide to collect qualitative data.

2.4.1 The household questionnaire

This was used to elicit general household information (demographic data, household water sources and consumption, household food consumption, maternal health care information, maternal dietary diversity, sanitation, food aid, food insecurity mitigation strategies, possession and utilization of insecticide-treated mosquito nets, livestock condition and household socio-economic status indicators.

2.4.2 Child (6-59 months old) and maternal questionnaire

Using this questionnaire, the following data were collected:

Child age: the age of the child was recorded based on a combination child health cards, baptism cards, the mothers'/caretakers' knowledge of the birth date and use of a calendar of events for the district developed in collaboration with the survey team.

Child sex: it was recoded whether a child was male or female.

Bilateral oedema: normal thumb pressure was applied on the top part of both feet for 3 seconds. If pitting occurred on both feet upon release of the fingers, nutritional oedema was indicated.

Child weight: the weights of children were taken in the nude (or with minimal light clothing on) using UNICEF Salter Scales with a threshold of 25kgs and recorded to the nearest 0.1kg.

Child length/height: children were measured bareheaded and barefooted using wooden UNICEF height boards with a precision of 0.1cm. Children under the age of two years were measured while lying down (length) and those over two years while standing upright (height). If child age could not be accurately determined, proxy heights were used to determine cases where height would be taken in a supine position (between 65cm-<85cm) or in an upright position (heights greater ≥85cm).

Child and maternal MUAC: the MUAC of children and child caregivers were taken using child and adult tapes, respectively, and recorded to the nearest 0.1cm.

Morbidity: a 2-week morbidity recall was conducted for all index children (6-59 months) to assess the prevalence of common diseases (e.g. malaria, acute respiratory infections (ARI), diarrhoea, measles, stomach-ache, eye and skin infections).

Child feeding: information on breastfeeding, weaning and child feeding were collected. Dietary diversity information based on a 24-hour food intake recall was collected for the children to assess the number of food groups taken the previous day.

Child immunization and Vitamin A supplementation: data on vitamin A supplementation, deworming, and immunization for polio and measles were collected to estimate their coverage. The coverage for measles immunization was only done for eligible children (≥ 9 months).

Feeding programme enrolment: it was established if children 6-59 months old were enrolled in SFP or OTP and the duration in the feeding programme.

2.4.3 Under 6 months old child questionnaire This was used to collect infant and young child feeding (IYCF) practices data in the households visited.

2.4.4 Mortality questionnaire

This elicited 3-month (90-day) retrospective recall information on whether there had been any deaths in households and the probable causes of death through verbal autopsy.

2.4.5 IYCF questionnaire

This elicited information on infant and young child feeding practices.

2.4.6 Focus group discussion (FGD) guide

A FGD guide was used to collect qualitative data to complement quantitative data. A totakl of 12 FGds were implemented (seperately for women and men). The FGD clusters were selected from the targeted villages in a manner that ensured adequate representation of socio-economic, ecological and livelihood differentials among the clusters in Samburu central district.

2.5 Training and Supervision

A consultant nutritionist recruited by WVK trained the survey team for five days (29th November to 3rd December 2011) at the Cheers Guest House Conference Room. The team had been selected by WVK in collaboration with MoPHS on the basis of previous survey experience, education and knowledge of local languages of the communities surveyed. Training included survey team standardization and a pre-test of the survey tools and procedures which was conducted in Lebero village on 3rd December, after which the entire team met to review and share experiences before teams were dispatched to their respective clusters to embark on the definitive survey, which took place from 4th–10th December 2011. During data collection and entry, the teams were supervised by the consultant and WVK nutritionists.
The following topics were covered during training:

- survey objectives, types and causes of malnutrition
- SMART survey and sampling methodologies
- verbal interpretation of the questions into the local languages during training for uniform contextual understanding by all the teams
- household, child and mortality questionnaire interviewing techniques
- anthropometric measurement procedures
- practical on conducting interviews and anthropometric measurements
- conduction of mock (simulated) interviews
- duties and responsibilities
- survey ethics
- community entry behaviour
- survey logistics

2.6 Data Entry and Analysis

Anthropometric and mortality data entry and processing was done using the SMART/ENA software where the World Health Organization Growth Standards (WHO-GS) data cleaning and flagging procedures were used to identify outliers which enabled data cleaning as well as exclusion of discordant measurements from anthropometric analysis. The SMART/ENA software generated weight-for-height, height-for-age and weight-for-age Z scores to classify the underfives into various nutritional status categories using WHO[7] standards and cut-off points and exported back to SPSS for further analysis. All the other quantitative data were entered and analysed in the SPSS (Version 17.0) computer package.

2.7 Nutritional Status Cut-off Points

The following nutritional indices and cut-off points were used in this survey:

2.7.1 Weight-for-height (WFH) and MUAC – Wasting among Children

The prevalence of wasting (a reflection of the current health/nutritional status of an individual) are presented as global acute malnutrition (GAM) and severe acute malnutrition (SAM) using weight-for-height (WFH) z-scores, WFH percentage of median and MUAC indices. The results on wasting are presented as global acute malnutrition (GAM) and severe acute malnutrition (SAM):

- Children whose WFH z-scores fell below -2 standard deviations from the median of the WHO standards (WHO-GS) or had bilateral oedema were classified as wasted (to reflect GAM)
- A cut-off point of <12.5cm MUAC was used to denote GAM among the underfives.

2.7.2 Weight-for-age (WFA) – Underweight

The measure of underweight gives a mixed reflection of both the current and past nutritional experience by a population and is a very useful tool in growth monitoring.

- Children whose WFA z-scores fell below -2 standard deviations from the median of the WHO-GS or had bilateral oedema were classified as underweight

[7] WHO (2005): Anthro 2005 Version 2.02 Standards

- Children whose WFA z-scores fell below -3 standard deviations from the median of the WHO-GS or had bilateral oedema were classified as severely underweight.

2.7.3 Height-for-age (HFA) – Stunting

Height-for-age is a measure of linear growth and therefore an unequivocal reflection of the cumulative effects of past nutritional inadequacy and/or illness episodes.

- Children whose HFA z-scores fell below -2 standard deviations from the median of the WHO-GS were classified as stunted (to reflect Global Stunting)
- Children whose HFA z-scores fell below -3 standard deviations from the median of the WHO-GS were classified as severely stunted.

2.7.4 Maternal MUAC

The following cut-off points for MUAC (Table 2) were used to classify pregnant and non-pregnant mothers into various nutritional status categories according to SPHERE standards[8].

Table 2: *Maternal MUAC cut-off points*

Nutritional status	Pregnant	Non-pregnant
Normal	≥ 23.0cm	≥ 21.0cm
GAM	< 23.0cm	< 21.0cm
Severe wasting	< 20.7cm	< 18.5cm

2.8 Data Quality control

Data quality was ensured through:

- thorough training of team members for four days
- the majority of the enumerators and team leaders had prior experience in carrying out nutrition surveys
- standardization of interviewing procedures through verbal translation of questions by survey team members into the local languages spoken in the district during training
- standardization of anthropometric measurement procedures
- practical sessions on interviewing and anthropometric measurements taking during survey team standardization
- daily supervision of the teams by their team leaders, the consultant and WVK Samburu field office nutriutionists
- review of questionnaires on a daily basis for completeness and consistency
- on-the-spot correction/feedback of any mistakes noted during data collection to avoid mistake carry-overs
- review of questionnaires by teams before leaving the household to ensure questionnaire completeness and consistency
- frequencies for all variables were first run and the data cleaned by cross-checking any aberrant values observed on the respective questionnaire before analysis
- triangulation and validation of quantitative data using qualitative information
- entry of anthropometric data in the SMART/ENA software which enabled on-the-spot identification, cross-checking and correction of any aberrant values
- use of ENA for SMART random table software to generate the actual list of villages (clusters) to cover after selection of sub-locations.

[8] The SPHERE Project Handbook (2004). Humanitarian Charter and Minimum Standards in Disaster Response.

3.0 RESULTS AND DISCUSSIONS

3.1 General Characteristics of Study Population and Households

The mean size of households was 6.3 (SD 2.2) members ranging from 2-16 which yielded a total of 725 eligible underfives (6-59 months) for whom nutritional status assessment was carried out. Overall, the households had a total population of 4112 subjects out of whom 939 (22.2%) comprised of children below five years (0-59 months old) whose mean number was 1.41 (SD 0.8) per household. A majority (70.2%) of the households in Samburu Central district comprised of monogamous families with only 25.9% being polygamous and the rest (3.8%) single-parent families. Most (81.7%) of the men practising polygamy had 2 wives, 16.6% 3 wives and only 1.8% 4 wives. As is customary with many rural African communities, most (80.8%) of the households were male-headed. As shown in Table 3, the anthropometric survey sample comprised of 725 children (50.8% males and 49.2% females) whose overall as well as age-group sex ratios (male/female) were within the expected ratio of 0.8-1.2, which is indicative of an unbiased survey sample.

Table 3: *Age and sex distribution of sample children*

Age in Months	Males		Females		Total		Sex`Ratio Male/Female
	n	%	n	%	n	%	
6-17	125	51.0	120	49.0	245	33.8	1.0
18-29	87	53.0	77	47.0	164	22.6	1.1
30-41	75	49.7	76	50.3	151	20.8	1.0
42-53	64	50.4	63	49.6	127	17.5	1.0
54-59	17	44.7	21	55.3	38	5.2	0.8
Total	368	50.8	357	49.2	725	100.0	1.0

3.2 Nutritional Status of Children 6-59 Months

The World Health Organization's Growth Standards (WHO-GS) z-scores are currently recommended for use in nutritional status assessment[9] using the Emergency Nutrition Assessment (ENA) for Standardized Monitoring and Assessment of Relief and Transitions (SMART) software. Acute malnutrition is also reported using the Mid-upper Arm Circumference (MUAC) index, which is usually used as a rapid estimation of acute malnutrition in emergencies.

3.2.1 *Prevalence of Global Acute Malnutrition (GAM) by WFH Z-scores (WHO-GS)*

The weight-for-height (WFH) index reflects the current nutritional status of the community. According to WHO standards flagging procedures, 16 (2.2%) of the children were excluded from analysis due to aberrant values. As shown in Table 4, the prevalence of global acute malnutrition i.e. GAM (WFH z-scores < -2 standard deviations from the median of the WHO-GS reference population or having oedema) of 8.5% (6.0-11.8 CI) was within acceptable limits according to WHO[10] benchmarks. The level of severe acute malnutriton (SAM) i.e. z-scores < -3 or oedema was likewise low at only 1.0% (0.4-2.5 CI). The results further indicate that significantly more boys (11.3% 8.1-15.5 CI) than girls (5.6% 3.3-9.4 CI) suffered from GAM (P<0.01). Compared to the findings of a Small-Scale Survey carried out in the Greater Samburu district early last year (March 2011)[11], GAM prevalence had decreased significantly (P<0.05) from 19.6% (14.7-25.5 CI).

Table 4: *Prevalence of acute malnutrition by weight-for-height z-scores (WHO-GS)*

	Males (n=355)		Females (n= 354)		Total (N= 709)	
	n	%	n	%	n	%
Global acute malnutrition (GAM) **W/H <-2 Z scores or oedema**	40	11.3 [8.1-15.5]	20	5.6 [3.3-9.4]	60	**8.5** [6.0-11.8]
Severe acute malnutrition (SAM) **W/H <-3 Z scores or oedema**	5	1.4 [0.5-4.0]	2	0.6 [0.1-2.3]	7	**1.0** [0.4-2.5]

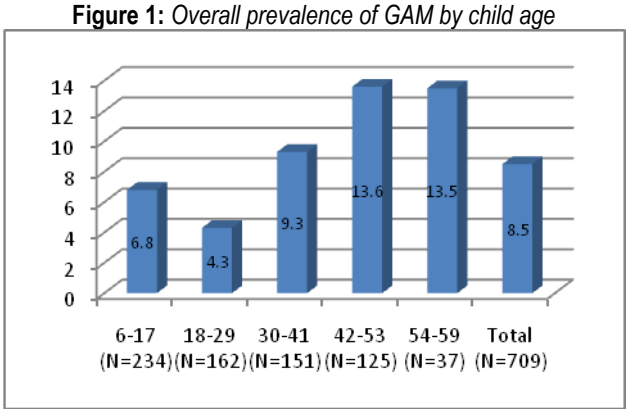
[9] WHO Muliticentre Growth Reference Study Group. WHO Child Growth Standards based on length/height, weight and age. *Acta Paediat* 2006; (Suppl 450): 76-85.

[10] WHO (200): Management of Nutrition in Major Emergencies.

[11] Save the Children UK (March 2011): Baseline Surveillance for the High Impact Nutrition Intervention in Marsabit, Isiolo and Samburu Districts)

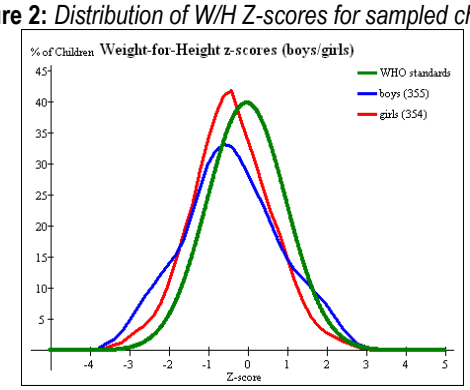
Overall, the prevalence of GAM by child age (Figure 1) indicates a general increase with child age, which may partly be attributed to cessation of breastfeeding and consequent decline in the quality of child feeding and care practices among relatively older children.

Figure 1: *Overall prevalence of GAM by child age*



Both the male and female sample children's weight-for-height anthropometric distribution curves shift to the left of the WHO-GS reference, with a mean Z-score of -0.35 (SD 1.2), which implies an overall worse-off nutritional situation for sample children (Figure 2).

Figure 2: *Distribution of W/H Z-scores for sampled children*



3.2.2 Prevalence of Acute Malnutrition by MUAC

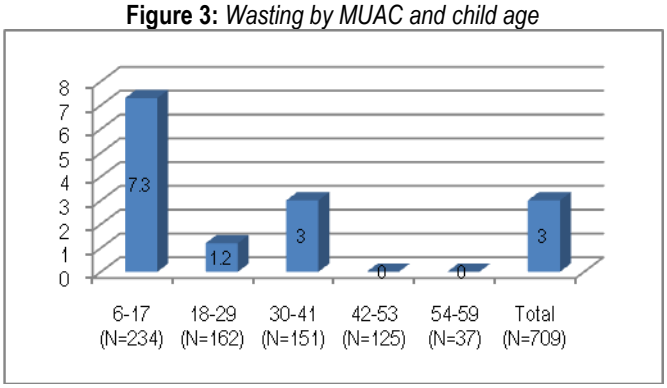
As a departure from past practice where MUAC was widely used as a quick screening tool for admission into and discharge from nutrition intervention programmes, the use of WHO WFH z-scores is currently recommended. This is because MUAC is not a very sensitive indicator of acute malnutrition and the fact that it tends to overestimate acute malnutrition for children below one year of age. The former is illustarated by the MUAC findings (Table 5) which indicate a lower overall GAM prevalence (3.0% 1.9-4.5 CI) compared to that by WFH z-scores. The findings further indicate one fifth (20% 17.1-23.1 CI) of the children were at risk of malnutrition.

Table 5: Child n*utritional status based on MUAC*

Criteria	Interpretation	n	% and CIs
MUAC < 11.5cm	SAM	1	0.1[0.0-0.7]
11.5- <12.5cm	Moderate malnutrition	21	2.9 [1.8-4.4]
Total malnourished (<12.5cm)	GAM	22	3.0 [1.9-4.5]
12.5- <13.5cm	At risk of malnutrition	145	20 [17.1-23.1]
>13.5cm	Normal	558	77 [73.7-79.9]
	Total	725	

The prevalence of GAM by child age (Figure 3) indicates a relatively higher prevalence among children of age group 6-17 months (7.3% (4.2-11.3 CI) owing to overestimation by MUAC among younger children.

Figure 3: *Wasting by MUAC and child age*



3.2.3 Prevalence of Underweight by Weight-for-age Z-scores (WHO-GS)

The weight-for-age (WFA) index is a composite measure of wasting and stunting since it reflects deficits in both skeletal and soft body tissue masses. It is commonly used to monitor the growth of individual children in the community since it enables mothers to easily visualise the trend of their children's increase in weight against age along the 'Road to Health Curves', make and take requisite actions even with minimal advice from healthcare providers. A low WFA is referred to as underweight while a high WFA refers to overweight. As shown in Table 6, the prevalence of underweight among the children was 23.1% (19.2-27.6 CI) while 5.0% (3.5-7.3 CI) of the children were severly underweight. There was no significant difference in the prevalence of underweight among boys and girls as indicated by overlapping confidence intervals.

Table 6: *Prevalence of **underweight** by weight-for-age z-scores (**WHO-GS**)*

	Males (n= 360)		Females (n= 354)		Total (N= 714)	
	n	% CI	n	% CI	n	% CI
Global acute malnutrition (GAM) **W/A <-2 Z scores or oedema**	99	27.5 [22.6-33.0]	66	18.6 [14.5-23.7]	165	**23.1** [19.2-27.6]
Severe acute malnutrition (SAM) **W/A <-3 Z scores or oedema**	20	5.6 [3.4-9.1]	16	4.5 [2.8-7.3]	36	**5.0** [3.5-7.3]

3.2.4 Prevalence of Stunting by Height-for-Age (HFA) Z-scores (WHO-GS)

The height-for-age (HFA) index is a measure of long-standing (chronic) malnutrition. It measures linear growth and is therefore reflective of the cumulative effects of long-standing nutritional inadequacy and/or recurrent chronic illness episodes. Unlike wasting, it is not affected by seasonality but is rather related to the long-term effects of socio-economic development and long-standing food insecurity situation. A low height-for-age reflects deficits in linear growth and is referred to as stunting. The findings (Table 7) indicate that the global chronic malnutrition (GCM) rate in Samburu Central district (40.0% 35.6-48.7 CI) was higher than the National average rate of 29.6%[12]. Severe chronic stunting level stood at 16.7% (12.4-22.1 CI). The rates of both GCM and SCM were higher among boys than girls.

Table 7: *Prevalence of **stunting** by height-for-age z-scores (**WHO-GS**)*

	Males (n=346)		Females (n=342)		Total (N= 688)	
	n	% CI	n	% CI	n	% CI
Global acute malnutrition (GCM) **W/H <-2 Z scores or oedema**	171	49.4 [40.8-58.1]	118	34.5 [28.7-40.8]	289	**40.0** [35.6-48.7]
Severe acute malnutrition (SCM) **W/H <-3 Z scores or oedema**	82	23.7 [16.8-32.4]	33	9.6 [6.5-14.1]	115	**16.7** [12.4-22.1]

3.3 Adult Nutritional Status by MUAC

The findings on maternal nutritional status by MUAC indicate that Samburu Central district is no exception from consistent findings from other districts, which indicate that the magnitude of under-nutrition is usually significantly higher

[12] GOK 2009: Kenya Demographic and Health Survey Report

among pregnant compared to non-pregnant women. Pregnancy imposes a big nutrient-need load on mothers, which in the absence of adequate extra nutrients leads to utilization of body nutrient reserves giving rise to gestational malnutrition, which affects both the mother and her foetus and ultimately imapcts negatively on the health of the child even in later life. The MUAC measurements of 555 eligible women (15-49 years) were taken to assess their nutritional status. As shown in Table 8, significantly (P<0.01) more (40.5% 25.2-57.8 CI) pregnant women than 6.6% (4.7-9.1 CI) non-pregnant women suffered from chronic energy deficiency (CED) which calls for an urgent mitigation to address high rates of malnutrition among pregnant women.

Table 8: *Adult nutritional status by MUAC*

	Physiological status				Total (N=555)	
	Pregnant (n=37)		Non-pregnant (n518)			
Wasting by MUAC	**n**	**95% CI**	**n**	**95% CI**	**n**	**95% CI**
Severe <20.7cm pregnant <18.5cm non-pregnant	3	8.1 [2.1-23.0]	1	0.2 [0.0-1.2]	4	0.7 [0.2-2.0]
Moderate <23.0cm pregnant <21.0cm non-pregnant	12	32.4 [18.6-49.9]	33	6.4 [4.5-8.9]	45	8.1 [6.0-10.8]
Total wasted	15	40.5* [25.2-57.8]	34	6.6 [4.7-9.1]	49	8.8 [6.7-11.6]

P<0.01

3.4 Child Feeding, Care and Health

The 24-hour recall method, which is widely accepted as an appropriate proxy for infant feeding practices in populations, was used to assess infant and young child feeding practices (IYCFP). The approach is widely used and is appropriate in surveys of dietary intake when the objective is to describe infant feeding practices and care in populations[13]. Infant and young child feeding practices (IYCF) were assessed for children between 6-23 months. The IYCFP sample was 385 children comprising of 185 males (48.3%) and 198 females (51.7%).

3.4.1 Breastfeeding Practices

Practically all (99.5%) of the children were reported to have breastfed at some point after birth. Infants should be breastfed within 1 hour after birth according to the World Health Organization (WHO). Among other benefits, it stimulates the onset and maintenance of lactation as well as provision of necessary maternal antigens to the infant. The proportion of infants put to the breast within the first hour of birth was reported at a high 96.3%, with a similar proportion (96.1% of the infants receiving colostrum during the first 3 days, a figure that was higher than the WHO acceptable level of 90% (Table 9). Regardless of the fact that practically all (99.2%) of the children were giving pre-lacteals during the first 3 days, a commendable more than four fifths (84.3%) of the eligible children (<6 months) were exclusively breastfed, a level which is more than twice the national average of 31.9%[14]. However, the daily frequency of breastfeeding was low. Child breastfeeding decreased with age as reflected by the fact that the proportion of breastfed children had dropped from 89.7% at 1 year to 56.3% at 2 years. The findings further showed early cessation of breastfeeding among 15.4% of the children aged between 6-23 months. Overall, as shown in Table 9, appropriate breastfeeding practices were generally more favourable to girls compared to boys.

Table 9: *Breastfeeding Practices*

	Males	Females	Total
Ever breastfed (n=384)	184 (48.2)*	198 (51.8)	382 (99.5)
Timely Initiation of breastfeeding (within 1hr) (n=383)	177 (48.0)	192 (52.0)	369 (96.3)
Giving of colostrum (n=385)	174 (47.0)	196 (53.0)	370 (96.1)
Exclusive breastfeeding <6 months (n=102)	42 (48.8)	44 (51.2)	86 (84.3)
Pre-lacteal feeds given (n=385):	184 (48.2)	198 (51.8)	382 (99.2)
Types of pre-lacteal feeds (n=382): Plain Water			285 (74.6)
Infant formula			46 (12.0)
Sugar/Glucose water			27 (7.1)
Animal milk/products			20 (5.2)
Herbs			4 (1.0)
Continued breastfeeding at 1 year (12 – 15 months) (n=68)	30 (49.2)	31 (50.8)	61 (89.7)
Continued breastfeeding at 2 years (20- 23.9 months) (n=32)	8 (44.4)	10 (55.6)	18 (56.3)

[13] Engebresten SMI, Wamani H, Karamangi C, Semiyanga N, Tumwine J, Tylleskar T (2007): Low Adherence to Exclusive Breastfeeding in Eastern Uganda: A Community-based Cross-sectional Study Comparing Dietary Recall since Birth with 24-hour Recall. *BMC Paediatrics 2007; 7 (10): 1-12.*

[14] Kenya National Bureau of Statistics (June 2010): Kenya Demographic and Health Survey.

**Figures in parethesis percentages*

WHO recommends on-demand breastfeeding for exclusively breastfed children at a frequency of atleast 12 times daily. Among the children below 6 months, the mean breastfeeding frequency was 9.6 (SD 3.8) times, with only 15.7% of them having been breastfed 12 or more times according to the 24-hour recall findings on breastfeeding. Out of the children who were not exclusively breastfed (15.7%), more than half of them (56.3%) had been weaned by the first week of birth. Information derived from focussed group discussions (FGDs) gave traditional belief-related reasons and ignorance for early child weaning among the non-exclusively breastfed group. Chief among these were *'breast milk alone not enough for baby, inability of mothers to produce enough milk to meet all the needs of the child, crying a lot of the baby, need to clean the baby's system after birth and lack of enough food for mothers in order to produce enough milk'*. Early weaning increases the risk of infections in young children, with the foods given being nutritionally inferior to breast milk, which ultimately results in malnurtition.

3.4.2 Complementary Feeding Practices

After 6 months children should receive other foods in addition to breast milk since the nutrients from breast milk alone cannot meet all the needs for accelerated growth and development. These foods are refered to as complementary foods. Although results showed that the overall complementary feeding rate for children 6-23 months (regardless of breastfeeding status) was relatively high at 91.8% compared to the national average of 83.9% according to KDHS, the nutritive quality of the children's diets was poor as reflected by their dietary diversity. Both complementary feeding and dietary diversity assessments were based on the 24-hour food intake recall.

The findings (Table 10) indicated that the proportions of breastfed children 6-8 months and 6-23 months who had attained the minimum feeding frequency were similar (72.1% and 72.3%, respectively). Only (44.2%) of the non-breastfed children had attained the minimum feeding frequency, which together with non-availability of breast milk nutrients subjected them to increased risk of malnutrition. Overall, only slightly more than two thirds (68.7%) of the children had attained minimum meal frequency as reflected by the minimum meal frequency composite indicator (for both breastfeeding and non-breastfeeding children).

Dietary diversity is a qualitative measure of food consumption that reflects household access to a wide variety of foods, and is also a proxy of the nutrient intake adequacy of the diet for individuals. Dietary diversity scores (DDS), were created by summing up the number of food groups consumed the previous day to aid in understanding if and how the diets are diversified. According to the Food and Agricultural Organization (FAO), dietary diversity scores are meant to reflect, in a snap shot, the economic ability of a household to consume a variety of foods[15]. A score of 1 was allocated to each of the food groups that were consumed by the child and a score of 0 for each of the food groups not consumed. Children who had consumed less than four food groups were classified as the low dietary diversity group and those with a score of 4 or more as high dietary diversity group. The findings showed that less than one fifth (16.9%) of the children 6-23 months had attained the minimum dietary diversity score with one quaters (25.6%) of their non-breastfed counterparts attaining the same. Overall, only 18.2% of the children 6-23 months had attained the expected minimum dietary diversity as shown in Table 10. As was the case for breastfeeding practices, girls generally faired better than boys in terms of both minimum meal frequency and minimum dietary diversity, which among other things probably expalins why they enjoyed better nutritional status.

Table 10: *Complementary feeding practices*

Practice	Boys	Girls	Total
Minimum meal frequency: Breastfed children 6-8 months who received complementary foods ≥2 times (n=61)	21 (47.7)	23 (52.3)	44 (72.1)
Breastfed children 6-23 months who received complementary foods ≥ 3 times per day (n=235)	83 (48.8)	87 (51.2)	170 (72.3
Non -breastfed children 6-23 months who received complementary foods a ≥4 times (n=43)	3 (15.8)	16 (84.2)	19 (44.2)
Breastfed children 6-8 months old ≥ 2 times +Breastfed children 6-23 months old ≥3 times + non-breastfed children 6-23 months old ≥ 4 times (n=339)	107 (45.9)	126 (54.1)	233 (68.7)

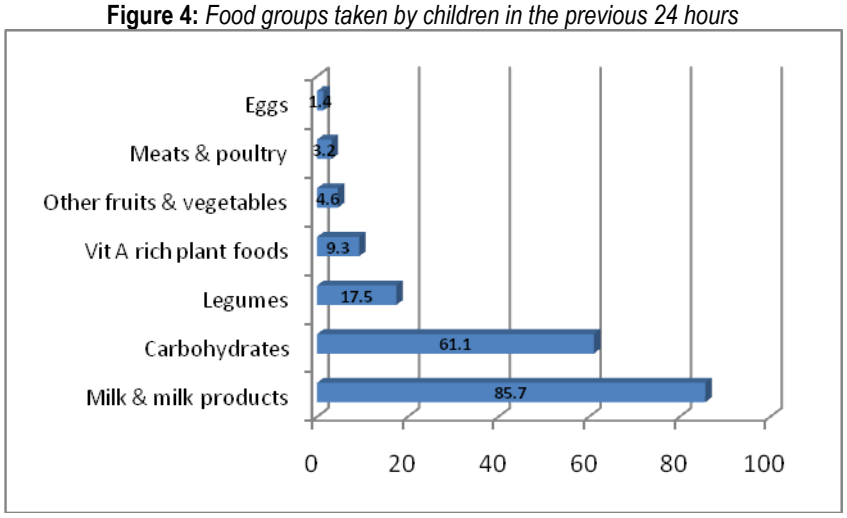
[15] Guidelines for measuring household and individual dietary diversity. Version 2, June 2007. Prepared by FAO Nutrition and Consumer Protection Division with the support from EC/FAO Food Security Information for Action Programme and the Food and Nutrition Technical Assistance (FANTA) Project. Rome, Italy

Minimum dietary diversity: Breastfed children 6-23 months of age who received ≥3 food groups (n=237)	19	(47.5)	21	(52.5)	40	(16.9)
Non-breastfed children 6-23 months of age who received ≥4 food groups (n=43)	9	(81.8)	2	(18.2)	11	(25.6)
Breastfed children consuming ≥3 food groups + non-breastfed children consuming ≥4 food groups (n=280)	28	(54.9)	23	(45.1)	51	(18.2)

Further overall, the findings indicate that the meals given to only a small proportion (9.3%) of the children constituted high dietary diversity diets, with majority of the children (90.7%) therefore receiving poorly diversified diets. The children's dietary diversity improved with age to 11.4% for those aged 9 months and above enjoying highly diversified diets compared to only 3.2% among those in the 6-8 months age bracket, probably due to increased ability to feed from the family pot with age (it is also instructive that the dietary diversity for mothers was better than that of underfives).Likewise, frequency of feeding children also improved with age as reflected by the fact that on average, children aged 6-8 months were given meals 2.6 (SD 1.8) times the previous day compared to 3.2 (SD 1.3) times among those aged 9-23 months. Overall, these relatively low feeding frequencies are reflective of children who were not fed on demand as recommended by WHO.

An analysis of the actual food groups taken (Figure 4) indicates that less one-tenth of the children took eggs, meats, non-vitamin A-rich fruits and vegetables and vitamin A-rich plant foods, despite observations indicating the availability of fruits and vegetables during the rainy season and the fact that many chicken were reared by households. This calls for more efforts to educate the community the importance of giving young children balanced diets using locally available foodstuffs, which would further improve their health and nutritional status.

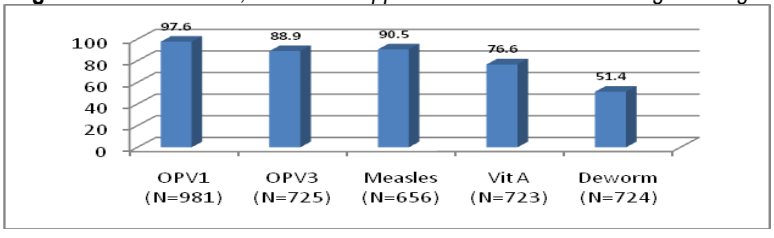
Figure 4: *Food groups taken by children in the previous 24 hours*



3.4.3 Child Immunization, Vitamin A Supplementation and Deworming

Child immunization is crucial as it prevents and/or reduces the severity of certain diseases in young children. The immunization coverage rates (Figure 5) for polio (88.9%) and measles (90.5%) were commendably high and above the Kenya Expanded Programme on Immunization (KEPI) recommendation of 80%. The polio immunization indicated a substancilal dropout rate of 8.7%. Vitamin A supplementation is carried out routinely in the community and is also part of routine systemic disease treatment in all health facilities in Kenya for underfives. In the previous one year period prior to this survey, an overall 76.6% of the underfives were reported to have received vitamin A supplementation at least once. Only about half (51.4%) of the children had received dewormers during the 6-month period prior to this survey. Deworming is crucial in avoiding the debilitating effects of helminthic infections among growing children.

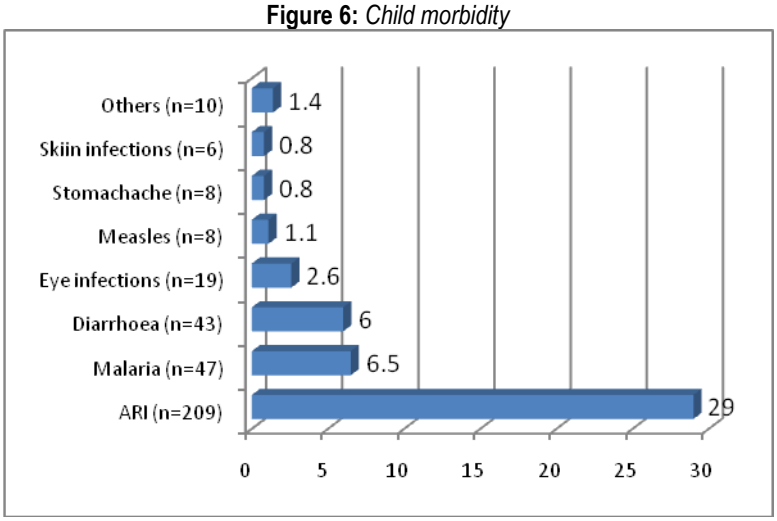
Figure 5: *Immunization, vitamin A supplementation and deworming coverage*



3.4.4 Child Morbidity

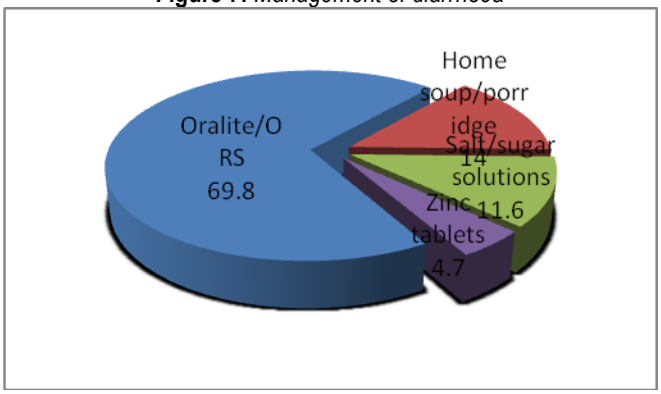
A 2-week child morbidity recall (inclusive of the day of survey) was assessed to establish the prevalence of common illnesses among the children. Close to half (48.1%) of the underfives were reported to have been sick. As shown in Figure 6, the most prevalent illness affecting the underfives was acute respiratory infections suffered by 29.0% of the children followed by malaria (6.5%) and diarrhoea (6.0%). This was collaborated by data from the MOH (Malaral district hospital) Health Information Systems, which also confirmed these as the leading causes of child morbidity in the district.

Figure 6: *Child morbidity*



The health-seeking behaviour by mothers of sick children was assessed by asking the respondents what they did the last time their underfive child was sick. During the last episode of illness, the majority (59.1%) of mothers reportedly sought the assistance of community health workers and 11.9% took the children to public or private clinics, implying that 71.0% sought qualified medical assistance while the rest (29.0%) sought unqualified assistance. Zinc supplememntation during diarrhoea is crucial and a component of the accelerated high impact nutrition intervention (HINI). A very low percentage (4.7%) of the children who had diarrhoea in the 2-week period prior to this survey was reportedly given zinc tablets, with the majority (69.8%) given oralite/ORS, and the rest given home-made solutions such as soup and salt/sugar solutions as shown in Figure 7. Verbatim information revealed irregular availability of zinc tablets in health facilities.

Figure 7: *Management of diarrhoea*



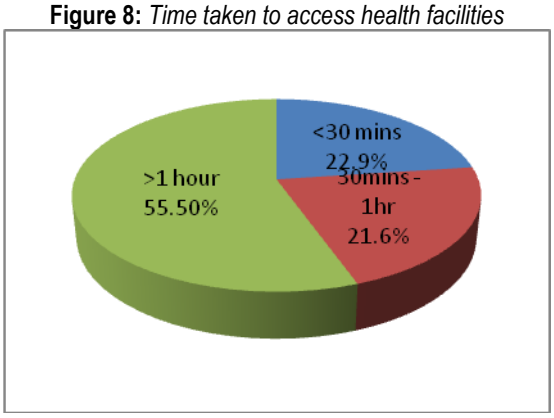
3.5 Access to Health Facilities

According to SPHERE[16] recommendations, health facilities should be within a 30-minute travelling distance to households. Regardless of the means used, it took people in Samburu Central district an average of 2.3 (Sd 2.0) hours to reach the nearest health facility, which is way beyond the SPHERE recommendation. The amount of time spent outside the home by mothers has a direct influence on both the quality and quantity of care that they are able to give to their children, which influences child health, growth and development. It also influences willingness and ability to access and utilize medical care services, which may partly account for the high levels of seeking medical assistance from CHW rather than public hospitals. Further analysis of the findings on access to health facilities (Figure 8) showed that overall,

[16] The SPHERE Project Handbook (2004). Humanitarian Charter and Minimum Standards in Disaster Response

only 22.9% of the population in the district were within a 30-minutes distance to health facilities, 21.6% took 30 minutes to 1 hour's time and the rest (55.5%) took more than 1 hour.

Figure 8: *Time taken to access health facilities*



Although a high proportion (72.5%) of the mothers reportedly attended ante natal clinics (ANC), only 18.1% delivered under supervised medical care. Only about half (52.9%) of the mothers had recieved iron/folate supplementation, with only 6.1% of them taking it for 90 or more days. Vitamin A supplementation after delivery had covered only 49.1% of the mothers.

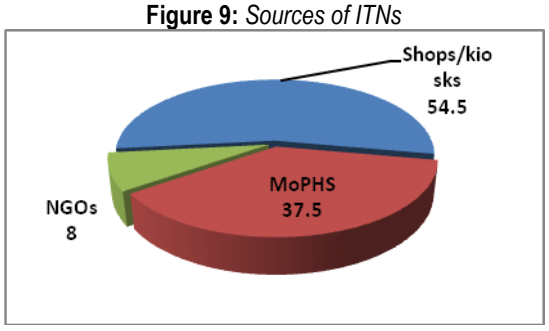
3.5.1 *Supplementary and Therapeutic Feeding Programme Coverage*

The SFP and OTP programmes are both currently components of the HINI programme supported by UNICEF and implemented by WVK and MOH in Samburu Central district. Their coverage was estimated using WFH z-scores, which are currently recommended for screening and admitting children into the programmes (however, MUAC is used in initial community screening). Although nutrition surveys are not very accurate in the estimation of programme coverage, the estimated point coverage for SFP was relatively high at 37.7% and that of OTP at 14.3% according to the WFH z-scores index. SPHERE[17] recommends a minimum 60% coverage for community nutrition intervention programmes.

3.5.2 Insecticide Treated Mosquito Nets (ITN) Holding Rates and Utilization

Insecticide treated mosquito nets (ITNs) are provided free of charge by the Ministry of Public Health Services (MoPHS) to expectant mothers attending MCH clinics. The findings of this survey indicate very low ITN holding rate in Samburu Central district at only 13.8%. It was noted that after mothers receive the nets, they are sometimes given to Morans to use 'outside' in the bushes where they look after livestock. Further, the nets were reportedly not available in the medical facilities. A majority (54.5%) of the holders reported having sourced them from shops/kiosks, 37.5% from the MoPHS and 8.0% from NGOs as shown in Figure 9. This calls for accelerated ITN distribution in the district since use of the nets is a cheap and easy-to-implement primary diasease prevention strategy, considering the potential economic and health losses that would accrue from an actual malarial attack.

Figure 9: *Sources of ITNs*

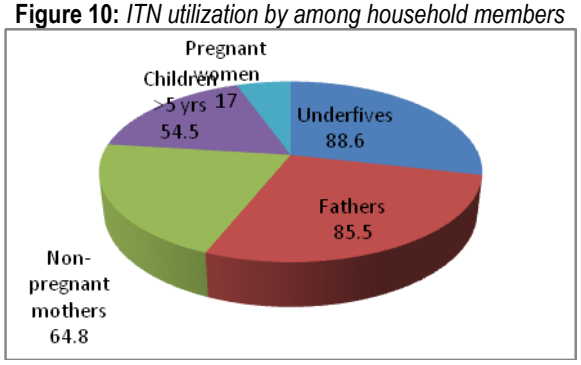


The nets obtained from hospitals and NGOs are treated with long-term insect-repelling chemicals while the ones from shops or vendors may not be treated, which makes it necessary to wash them in chemicals to repel mosquitoes and other insects. More than one third (68.8%) of the holders reported treating their nets with mosquito repellents, with equal proportions (36.4%) reporting having done so less than one month and between one and six months prior to the survey.

[17] The SPHERE Project Handbook (2004). Humanitarian Charter and Minimum Standards in Disaster Response.

The rest (27.3%) had treated their nets more than 6 months previously. Paradoxically, the utilization rate of the nets among those who had was lowest among pregnant women, among whom less than one fifths (17.0%) reported having slept under them the previous night. The rates were, however, high among underfives (88.6%), men (85.5% and non-pregnant women (64.8%) as shown in Figure 10. It is, therefore, necessary to facilitate acquisition of the nets for the households without and further sensitize the community on the importance of ITN use in order to achieve universal holding and utilization rates.

Figure 10: *ITN utilization by among household members*



3.6 Water, Sanitation and Hygiene Practices

This survey was conducted during the rainy season that had prevailed in Samburu Central district since March 2011. With many seasonal rivers flowing, the highest proportion of households (34.4% and 33.7%, respectively) reported mainly sourcing their water for household use and drinking from rivers. Boreholes were the next main source of water with 18.5% of the households sourcing water for general use and a similar proportion (18.3%) for drinking. This was followed by unprotected wells accounting for 12.5% households obtaining water for general use and 12.8% for drinking. Digging along the dry river beds (laga), which was common in the lower sections of the northern part of the district accounted for 11.0% and 9.8% obtaining water for general use and drinking, respectively (Table 11). The findings depict nominal treatment of drinking water at the household level, with more than four fifths (85.6%) taking untreated water, which is of concern considering that most of the reported sources were unsafe. There is need, therefore, to sensitize the Samburu Central district population to treat their drinking water through boiling, being a very feasible and cheap method.

Table 11: *Sources of water and treatment of drinking water*

Source of water	For HHD use (%)	For Drinking (%)
River	34.4	33.7
Borehole	18.5	18.3
Unprotected well	12.5	12.8
Digging along laga	11.0	9.8
Tap	9.8	9.9
Dam	5.2	5.0
Protected well	3.8	3.2
Public pan	3.1	2.9
Others	1.7	4.4
Treatment of drinking water		
Doing nothing		82.4
Boiling		10.6
Use of chemicals		3.8
Decant		2.1
Others		1.1

On average, households took slightly more than hour (64.8 (SD 74.3) minutes to access their main source of water and used 58.4 (SD 31.9) litres of water daily (which translates to approximately three 20-litre jerricans). Households bought water at an average of Kshs 2.13 (SD 5.4) per 20-litre jerrican. The reported latrine access in the district stood at less than one third (30.6%) out of which a commendable 57.7% of the households had ventillated pit latrines (VIP) and the rest (40.0%) traditional pit latrines. Practically all (98.0%) of those without toilets reportedly used the bush to relieve themselves, a practice which is daunted with possibilities of drinking water contaminition in light of the fact that a big majority of households reported not treating their drinking water in any way despite obtaining it from unsafe sources prone to rain run-off conatmination with faecal matter. From observations made to assess if the compounds immediate to dwelling areas were clean, evidence of child faecal matter was found in 38.7% around the immediate dwelling of the houses, with slightly more than half (52.0%) of the general area around compounds found unclean. This makes it

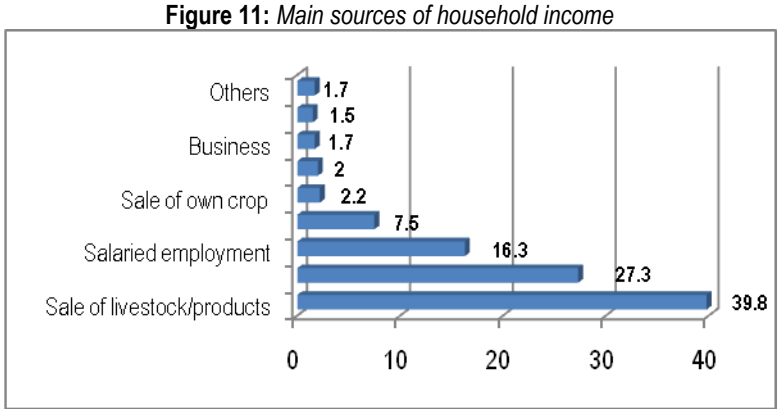
necessary to educate the community on the health implications of unhygienic faecal disposal and dwelling in unclean compounds. Washing of hands before handling food should also be given greater attention, for example through health-education banner messages since more than one-third (38.7%) of the mothers reported not washing hands before handling food.

3.7 Household Food Security Indicators

3.7.1 *Sources of Income*

Overall, the inhabitants of Samburu central district (Figure 11) depended on three main sources of income during the previous 3 months namely; sale of animals and their products (39.8%), wage labour (27.3%), and salaried employment (16.3%). Other important sources of income included sale of charcoal/firewood and sale of crops, which accounted for 7.5% and 2.2%, respectively. The mix of income sources is reflective of the varied livelihood activities in the district.

Figure 11: *Main sources of household income*



3.7.2 Food Aid

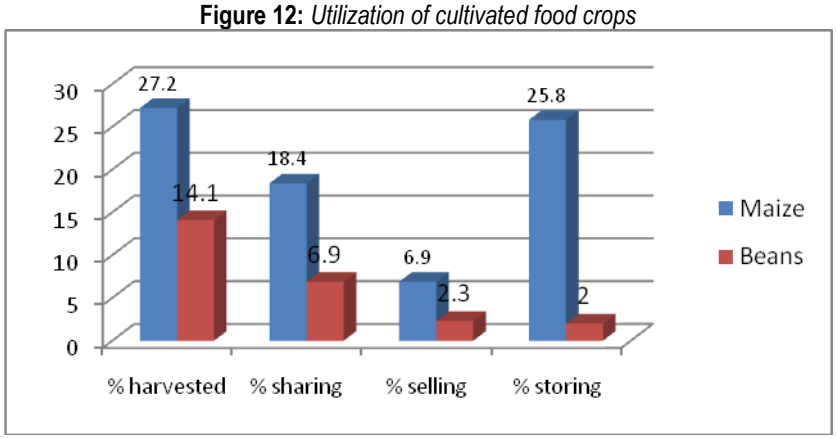
A blanket supplementary feeding programme (BSFP) meant for children less than three years had been implemented in Samburu Central district during the month of September 2011. Less than one third (30.6%) of the households reported having received the rations for the eligible children. The proportion of households reporting having received general food aid (GFA) stood at less than one fifth (18.4%) out of which most (60.0%) of the households had got within the 1-2 months prior to the survey, 35.7% within the previous month and the rest (4.3%) 2 or more months prior to the survey. As shown in Table 12, the biggest amount of foodstuff received was maize with households reporting receiving, on average, 5.3 (SD 7.2) kgs, followed by wheat (1.6 SD 3.3) kgs, and CSB (1.4 SD 3.6) kgs. The food aid received lasted the recipient households an average of 6.4 (SD 6.6) days.

Table 12: *Quantities of food aid received by households*

Type of food	Quantity received (kgs)	SD
Maize	5.3	7.2
Wheat	1.6	3.3
CSB	1.4	3.6
Vegetable oil	1.1	1.1
Peas	0.3	1.2

About one third (34.4%) of the households reported having cultivated maize and beans on thier land during the rainy season. As shown in Figure 12, the relatively low proportions of those reporting having, respectively, harvested and stored maize (27.2% and 25.8%) and beans (14.1% and 2.0%,) suggests that they were largely subsistence farmers. The practice of sharing out harvested food with relatives is common in the district as reported by 18.4% of those who had cultivated maize and 6.9% beans, and could be a source of laxity and disintensive to food production, particularly among those who receive such food. Information from FGDs had it that a relative who had not cultivated anything would wait until harvest time and *'pay a visit'* to those who had harvested ready with haulage means (read donkey) to get his share of the harvest. The finding on farming and GFA coverage negates the perception that the community is largely and wholly dependent on food aid considering the low levels of GAM, implying that with adequate rains and appropriate farming incentives, the community could easily turn to self-reliance in feeding its population.

Figure 12: *Utilization of cultivated food crops*

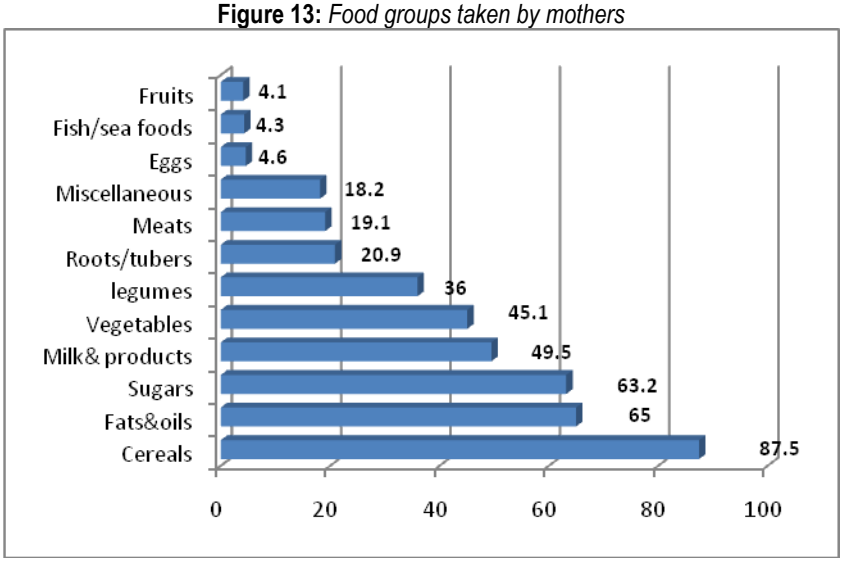


3.7.3 Household Dietary Diversity and Food Sources

A qualitative 24-hour food intake recall was conducted on primary childcare givers and used as a proxy to household dietary diversity, since food intake by mothers is a good estimation of the variety of what other members of the households took (excluding the underfives). The dietary diversity of mothers was based on 12 food groups according to the UN's FAO recommendation[18]. Unlike the case for underfives where relatively low proportions had taken highly diversified diets, close to three quarters (70.4%) of the mothers had taken highly diversified diets (4 or more food groups). On the whole, the reported usual/normal frequency of taking meals by households as well as during the preceding day were similar (2.7 SD 0.5) and 2.7 (SD 0.6), respectively. This is suggestive of a relatively food secure situation during this survey's conduct.

An analysis of the food groups taken by mothers (Figure 13), however, indicates that most took foods predominantly rich in carbohydrates i.e. cereals (87.5%), fats and oils (65.0%) and sugars (63.2%). Less than half of the respondents had taken milk and its products as well as vegetales. Overall, as was the case for the underfives, the micronutrient profile of the foodstuffs taken by mothers was generally poor.

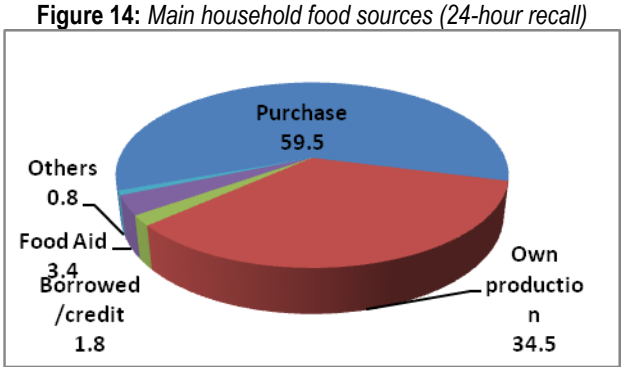
Figure 13: *Food groups taken by mothers*



Under normal circumstances, food-secure rural households usually depend on a balanced mix of own food production, with relatively minimal food purchases. As shown in Figure 14, 59.5% of the households depended on food purchase as their major food source with a sizable proportion (34.5% depending on own production. The reported relatively low-priced and readily available food in the markets (FGDs information) is another pointer to a reasonable food secure sitaution in Samburu central district during the conduct of this survey. This is further supported by the low proportion of households depending on food aid and credit-buying to acquire food.

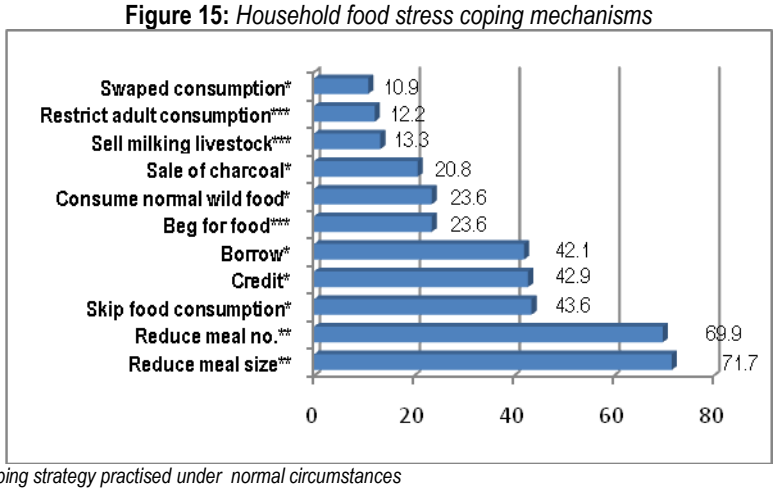
[18] Guidelines for measuring household and individual dietary diversity. Version 2, June 2007. Prepared by FAO Nutrition and Consumer Protection Division with the support from EC/FAO Food Security Information for Action Programme and the Food and Nutrition Technical Assistance (FANTA) Project. Rome, Italy

Figure 14: *Main household food sources (24-hour recall)*



In more than four fifths (88.2%) of the households all members reportedly took the meals prepared the previous day, with the main reason given for eligible members who did not take meals at home being that the food prepared was not enough (60.5%), 35.5% taking meals elsewhere and food not suitable for 3.9%. During the preceding 2-month period, more than half (59.2%) of the sampled households reported having experienced some food shortage. Focus group discussants were asked about the food shortage coping strategies their communities had employed in the previous 2 months and requested to classify them according to severity of food shortage when they are usually practised. As shown in Figure 15, the 4 main food stress coping mechanisms employed by households implied near-normal food intake by household members (being paractised during mild food deficits and normal periods). These included reduction in the number of meals taken (69.9%), skipping food consumption (43.6%), buying food on credit (42.9%) and borrowing food (42.1%). Begging for food, which was reported in 23.6% of the household reporting having experienced a food shortage was classified in FGDs as a severe-food shortage coping strategy. On the whole, households had, therefore, not engaged extensively in coping strategies suggestive of massive reduction in nutrient intake by the population in Samburu Central in the previous 2 months.

Figure 15: *Household food stress coping mechanisms*



**Coping strategy practised under normal circumstances*
***Coping Strategies practised during mild food shortage*
****Coping strategies practised during severe food shortage*

3.9 Mortality

Both the crude mortality rate (CMR) of 0.19 deaths/10,000/day and the underfive mortality rate (UFMR) of 0.36 deaths/10,000/day did not reach the threshold for 'Alert' status (Table 13).

Table 13: *Underfive and crude mortality rates*

	Mortality rate (95% CI)
UFMR	0.36 deaths/10,000/day (0.12-1.05)
CMR	0.19 deaths/10,000/day (0.009-0.39)

3.10 Association between GAM and Important Public Heath Variables

The relationship between GAM rates among the underfives and selected important public health variables was investigated to establish factors which posed significant risk to the underfive nutritional status. Though no significant

relationships were established overall, the findings generally indicate that children enjoyed relatively better nutritional status when the public indicators were favourable as shown in Table 14.

Table 14: *Association between GAM and other variables*

Variable	Status	% GAM	Odds ratio (OR)*	Correlation Coefficient (R)**	P value (P)***
Dietary diversity	Low	11.7	1.654	0.069	0.066
	High	7.4			
Household size	<6 members	7.6	0.812	-0.028	0.449
	>6 members	9.2			
Caretaker nutritional status	Wasted	6.7	0.749	-0.010	0.782
	Not wasted	8.7			
Toilet availability	Yes	5.7	0.550	-0.068	0.069
	No	9.8			
Household Herd size	Increased	9.4	1.186	0.026	0.570
	Decreased	11.0			
Enrolment in feeding prog	Yes	11.1	1.341	0.018	0.639
	No	8.5			
Mosquito net Availabile?	Yes	5.0	0.515	-0.053	0.160
	No	9.2			
Vitamin A supplementation	Yes	8.3	1.160	0.018	0.625
	No	9.5			
Child dewormed?	Yes	9.4	1.242	0.030	0.417
	No	7.7			
Caregiver age	<30 years	9.7	1.495	0.051	0.172
	>30 years	6.7			
Food aid received?	Yes	14.1	2.051	0.092	0.015
	No	7.4			
Child Sick?	Yes	6.9	0.682	-0.052	0.223
	No	9.8			
BSFP?	Yes	9.3	1.195	0.023	0.590
	No	7.9			
Cultivated Land?	Yes	5.9	1.762	0.068	0.070
	No	10.0			
Mother pregnant?	Yes	9.3	1.300	0.036	0.384
	No	7.3			

** Odds ratio (OR) shows the risk that a child stands to be malnourished if GAM is present together with respective characteristic.*
*** R (correlation) shows positive or negative direction of association.*
**** P value < 0.05 indicates a positive significant relationship*

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusions

This survey is not reflective of **'a worst-case scenario'** in Samburu Central district since it was conducted in the backdrop of the following circumstances:

- ✓ adequate rains since March 2011
- ✓ adequate pastures for livestock
- ✓ minimal livestock migration and therefore availability of animal products to the population
- ✓ post-harvest period, some food (grains and cereals) in stores, therefore relatively good food-secure situation
- ✓ non-risky food insecurity mitigation strategies practiced in the previous 2 months
- ✓ relatively good IYCFP and SFP coverage
- ✓ accelerated HINI programme in the district

The overall GAM prevalence in the district of 8.5% (6.0-11.8 CI) and both the UFMR (0.36 deaths/10,000/day (0.12-1.05 CI) and CMR (0.19 (0.009-0.39) fell below the WHO benchmarks[19,20] for 'Alert' threshold. However, the survey identified a number of aggravating factors that could have militated against optimal child health/nutritional status and probably contributed to the high rates underweight (23.1%) and stunting (42.0%) which were higher than National average of 16.1% and 35.3%, respectively[21]. Chief among these were:

- ✓ poorly diversified diets for children particularly with regard to micronutrient profiles
- ✓ low child feeding frequencies (low levels of on-demand child feeding)
- ✓ early weaning practised for more than one-fifths of the children with negative socio-cultural factors and ignorance being mainly responsible
- ✓ implementation level of some HINI programme components still low, particularly zinc supplementation during diarrhoea among the underfives, iron/folate supplementation and qualified supervision of mothers during delivery
- ✓ high levels of chronic energy deficiency among pregnant women
- ✓ non-treatment of drinking water by more than four-fifths of households
- ✓ low ITN holding and utilization rates particularly by pregnant women

Under these circumstances, the situation in the district should not be viewed as one where the population has adequately stabilized to an extent of self-dependence. More crucially, the situation will most likely worsen with the anticipated and impending *La Nina,* which therefore makes the following recommendations of the essence.

4.2 Recommendations

1. Blanket supplementary feeding for all pregnant and lactating women to bring down maternal malnutrition to acceptable levels
2. Eventual Integration of HINI components into community-based IMAM to address high levels of stunting in order to ultimately keep levels of GAM low
3. Upscale small-scale agricultural activities e.g. kitchen gardens to further improve dietary profiles. Sustained agricultural diversification e.g. through rain water harvesting for small-scale irrigation farming, farming input subsidies would in the long term promote and sustain food security in the district
4. Accelerated promotion of basic health preventive strategies e.g. through community campaigns. Provision of adequate resources to enable eventual full implementation of the government-steered Community Strategy in Samburu Central district for sustainability of the current interventions in the district
5. Ensure timely availability of all HINI programme inputs to facilitate optimal implementation e.g. through campaigns, mobile and outreach clinics.

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[19] CDC (1992): Famine Affected Refugee and Displaced Populations: Recommendations for Public Health Issues. MMWR, 1992; 41 (No. RR-13).

[20] In stable developing countries, a CMR of <1 death/10,000/day and an UFMR of <2 deaths/10,000/day are below the 'Alert' thresholds of 1 death/10,000/day and 2 deaths/10,000/day, respectively.

[21] Kenya National Bureau of Statistics (June 2010): Kenya Demographic and Health Survey.

Appendix 1: LOCAL EVENTS CALENDAR AND CHILD AGE CHART

MONTHS		2007	Age	2008	Age	2009	Age	2010	Age	2011	Age
JANUARY **Eligible child MUST have been born AFTER 4th JANUARY 2007**		-New year -Opening of schools	59	-New year -Postelection violence - Opening of schools	47	-New year -Opening of schools	35	-New year -BSFP of BSFP -Opening of schools	23	-New year -Opening of schools -Maralal Mixed Day school opened -Longewan Mixed boarding Sec School opened	11
FEBRUARY			58		46	-Government operation on livestock recovery (East)	34	-Ewasonyiro floods (end of feb) (East)	22		10
MARCH	Long rains		57		45	-Government operation on livestock recovery (East)	33	-Minor solar eclipse -Voter registration	21	-Closing of schools -Preparations for planting	9
APRIL		-Easter	56	-Easter	44	-Trachoma mass campaigns -Easter	32	-End of BSFP -Trachoma mass campaigns -Easter	20	-Easter Holiday	8
MAY		-Opening of schools	55	-Opening of schools	43	-Loruko raids. -Opening of schools	31	-Gen Lenges death -Opening of schools	19	-Opening of schools -Beginning of Long rains -Lopiro Celebrations at Nkeju emuny (Long'eli) -End of the world prophesy (May 21st)	7
JUNE **Eligible child MUST have been born BEFORE JUNE 4TH 2011**		-Madaraka Day	54	-Madaraka Day	42	-Madaraka Day	30	-Gen Lenges burial -Madaraka Day -Mammoth harambee for samburu women	18	-Trachoma mass campaigns -Madaraka day -Lopiro Celebrations at Loosuk (Lorokushu)	6
JULY			53		41		29	**-1st samburu lady elected councilor (north)**	17	_Closing of schools - Lopiro Celebrations at Ledero (Ngwesi)	5
AUGUST		-Camel Derby	52	Camel Derby	40	-Census (Nkikenare) -Camel Derby	28	-Katiba Yes/No -Camel Derby	16	-School holidays -Camel derby -Mobilization for BSFP	4
September		-Opening of schools	51	-Opening of schools	39	-Opening of schools -Kanampiu village massacre (Central)	27	-Opening of schools	15	-Opening of schools -BSFP -Baawa sec school Fundraiser - Lopiro Celebrations Baawa) -Sinai Slum fire trajedy -Death of wangari	3
OCTOBER	Short rains	-Kenyatta Day	50	-Kenyatta Day	38	-Kenyatta Day	26	-Kenyatta Day	14	-Mashujaa day celebrations -Teachers strike -KCSE Exams started	2
NOVEMBER			49	-Obama elections	37		25		13	-KCPE exams -Polio campaign	1
DECEMBER		-Christmas	48	-Christmas	36	-Christmas	24		12		0

Team Leader Name _____ Signature _____ Date _____

Appendix 2: Survey Tools

Qnn A: Household Questionnaire Nutrition and Food Security Survey for Samburu Central District

Name of District	Name of Division	Division No	Name of Village/ Sub-location	Cluster/Vill No	Household No	Date of Interview (dd/mm/yy)	Name of Interviewer	Name of Team Leader	Team No
						_____/_____/_____			

Note: ***This Questionnaire must be filled in*** *ALL the19 households visite per cluster* ***regardless of whether they have children 6-59 months or not.***

Household Demographic Information:

1. **How many people live in this household together and share meals? (Household size)** [_____] .
2. Who is the head of this household? [_____] (**Codes: 1=Husband 2=Self (Mother) 3=My parent 4=Other (specify)** _____
3. Is your family monogamous or polygamous? [_____] (**Codes: 1=Monogamous 2=Polygamous 3=Single parent) (If Monogamous SKIP to Q5)**
4. **If polygamous (i.e. Q3 =2)**, how many wives does your husband have? [_____]
5. **Household Water Sources and Consumption**

5.1 What is your current MAIN source of water for general household use?	5.2 How long does it take to go to the MAIN source of water, fetch it and come back (including waiting time at the water point) in minutes?	5.3 On average, how many jerricans of water does the household use per day? [Enter in litres]	5.4 How much do you pay for a 20 litre jerrican of water currently? (enter zero if water is free)	5.5 What is your Current main source of DRINKING water?	5.6 Do you do anything to the water before drinking it?
Codes: 1=River, 2=Lake, 3=Tap water, 4=Borehole, 5=protected well, 6=Unprotected well, 7=Public pan, 8=Water bowser/tanker, 9=Dam, 10=Digging along the Laga, 11=Rain water, 12=Other(specify) _____				**Codes:** 1=River, 2=Lake, 3=Tap water, 4=Borehole, 5=Protected well, 6=Unprotected well, 7=Public pan, 8=Water bowser, 9=Dam, 10=Digging along the Laga, 11=Rain water, 12=Other Specify_____	**Codes:** 1=Nothing, 2=Boiling, 3= Add chemicals, 4= Use traditional herbs, 5=Filters/Sieves, 6=Decant
Main source	Minutes	Litres	Kshs		

Household Food Consumption

7. **Usually,** how many times does your household take meals in a day? [_____]
8. How many times did the household take meals **YESTERDAY?** [_____]
9. Did **all eligible** members of your household (excluding those who are away from home or very young children) take all the meals prepared **YESTERDAY?** [_____] (**Codes: 1=Yes 2=No)**
10. **(If NO),** for what reason did some members who were present not take ALL meals? [_____] **Codes: 1=Not enough food 2=Took meals elsewhere 3=Food prepared not suitable for them**

Team Leader Name _____ Signature _____ Date _____

Maternal Health Care Information

11. During your last pregnancy, did you attend Ante-Natal Clinic (ANC)? [_____] **Codes: 1=Yes 2= No 3= Mother never delivered [If Never delivered SKIP to Q 17]**

12. **[IF YES],** how many times did you attend the clinic? [_____]

13. **[IF NO],** why did you not attend? [_____] **Codes: 1=Not aware of existence/importance of ANC 2=Health facility too far 3=Unfriendly health workers 4=TBA services adequate 5= Cultural barriers e.g. staff too young, male staff etc 6=Other (Specify)**_____

14. Where did your last delivery take place? [_____] **Codes: 1=At home by TBA 2=At home by Nurse 3=At home without assistance 4=Hospital**

15. **[If at HOME],** how long did it take before you took child to a clinic for the first time? [_____] **Codes: 1=Within first 2 weeks 2= Between 2 weeks and 1 month 3=After 1 month 4= Child not taken/does not intend to take child to clinic**

16. After your last delivery, did you receive vitamin A supplementation wthin the first 2 weekss? (Show mother Vitamin A Capsule) [_____] **1= Yes 2= No**

16(b) During your last pregnancy, did you recieve iron folate supplementation? (Show tablet samples) [_____] **1= Yes 2= No**

16(c) **[IF YES to Q16b],** for how many weeks did you take the iron folate? [_____] **weeks**

16(d) **How** long does it take you to access the nearest health facility? [_____] minutes

17. **Food consumption for mother or primary child giver**: Since you **(mother)** woke up yesterday morning to the time you slept in the evening, what types of food and drinks did you take? First tick all the food groups reported as having been consumed. Enter 1 for food groups reported as having been consumed and 0 for those not consumed. If a food group was consumed more than once, entre 1 only once. [Do not read the list to the respondent]. [This question applies only to the caretaker and not any other household member]

	Food group	Examples	1=Yes 0=No	17b) What was the **main** source of food consumed in HHD yesterday?
17.1	**Cereals and Cereal Products**	Maize, rice, pasta, ugali, porridge, bread, biscuits, millet, sorghum, wheat [and any *other locally available grains*]	17.1	
17.2	**Fish and Sea Foods**	fresh or dried fish or shellfish	17.2	
17.3	**Roots and Tubers**	Irish potatoes, sweet potatoes, yams, cassava, or foods made from roots or wild roots and tubers	17.3	
17.4	**Vegetables**	Sukuma wiki, cabbages, carrots, spinach, and any other locally available vegetables including wild vegetables	17.4	Codes: 1= Own production 2= Purchase 3= Gift from relatives 4= Food aid 5= Bartered 6= Borrowed/credit 7= Wild food 8= Other (Specify) [_____]
17.5	**Fruits**	Oranges, ripe bananas, mangoes, avocados,	17.5	
17.6	**Meats and Poultry**	Camel, beef, lamb, goat, rabbit, wild game, chicken or other birds, liver, kidney, heart , matumbo, meat soup or blood-based foods	17.6	
17.7	**Eggs**	Chicken, bird eggs	17.7	
17.8	**Pulses / Legumes / Nuts and Seeds**	Beans, peas, lentils, nuts, seeds or foods made from these	17.8	
17.9	**Milk and Milk Products**	Fresh/fermented milk, cheese, yogurt, or other milk products	17.9	
17.10	**Fats and Oils**	Oil, fats, ghee, margarine or butter added to food or used for cooking	17.10	
17.11	**Sugars / Honey and Commercial Juices**	Sugar in tea, honey, sweetened soda or sugary foods such as commercial juices, chocolates, sweets or candies	17.11	
17.12	**Miscellaneous/condiments**	Spices, sweets, unsweetened beverages, black tea, black coffee	17.12	

18. Sanitation – Toilet facility

18.1. Does your household have access to a toilet facility that you use? [If NO, Skip to 18.3] 1=Yes 2=No	**18.2. (If yes), what type of toilet facility do you have?** 1=Bucket 2=Traditional pit latrines 3=Ventilated improved pit latrine 4=Flush toilet 5=Other Specify _____	**18.3. (If No), where do you go/use? (probe further)** 1= Bush 2=Open field 3.=Near a water source 4.=Behind the house 5.=Other (specify)_____	**18.4 [OBSERVE] how children's faeces is disposed** 1= disposed of immediately and hygienically 2= Not disposed (scattered in the compound)	**18.5 Do you wash your hands before you feed your child?** 1 = Yes 2 = No	**18.6 [OBSERVE] Is the compound clean?** 1 = Yes 2 = No

Team Leader Name _____ Signature _____ Date _____

19. **Food Security**

19.1 Did your household receive the **blanket food rations** (CSB and Oil) meant for children <3years distributed during the month of September this year? [_____]1= **Yes** 2= **No**

19.2 Have you received **General food aid** within the last three (3) months i.e. **since beginning of September this year?** [_____] 1= **Yes** 2= **No** [If NO skip to Q20]

19.3 If Yes when? [_____] **codes:** 1= Less than 1 month ago 2= between 1 and 2 months 3= Over 2 months ago

19.4 **[If YES]** Please indicate the food commodities received in the last distribution and the quantities received.

	FOOD AID COMMODITY	Quantity received Kgs
19.5	**Maize**	
19.6	**Vegetable oil (litres)**	
19.7	**Peas**	
19.8	**CSB (Corn soya blend)**	

19.9a) [If YES], **How many days did the food aid received last the household? [_____] Days**

19.9b) During the last season, what size of land did you cultivate? [_____] Acres

19.9c) How much maize and beans did you harvest? **Maize** = [_____] Sacks **Beans** = [_____] Sacks

19.9d) How did you use the food you harvested? How much is available in the store currently? Fill the table below from respondent's answers.

(Probe and observe the food store)

	Foodstuff	Quantity Shared (Kgs)	Quantity Consumed in HHD (Kgs)	Quantity sold (Kgs)	Quantity available in store (Kgs)
1.	Maize				
2.	Beans				

(Note: 1 Sack=90 Kgs)

Team Leader Name _____ Signature _____ Date _____

20. Coping Strategies

	20.1 In the previous TWO months, (**i.e. Since October)** did your household experience a food shortage? [_____] **1=Yes 2=No [If NO Skip to Q21]** **[If Yes]** what did you do to **mitigate/solve** the food shortage? First tick all the coping strategies mentioned. Do not read the list to the respondent **COPING STRATEGIES**	**22.2 [IF YES]**, How many times **in a WEEK (Frequency)** did HHD engage in the coping strategies mentioned? **Enter Number of times**
20.2	Reduction in the **number of meals** per day	20.2
20.3	Skip food consumption for an entire day	20.3
20.4	Reduction in **size** of meals	20.4
20.5	Restrict consumption of adults to allow more for children	20.5
20.6	Feed working members at expense of non-working	20.6
20.7	Swapped consumption to less preferred or cheaper foods	20.7
20.8	Borrow food from a friend or relative	20.8
20.9	Purchase food on credit	20.9
20.10	Consume wild foods (normal wild food)	20.10
20.11	Consume toxic/taboo foods (acacia pod/bitter fruit)	20.11
2012	Consume immature crop	2012
20.13	Consumption of seed stock	20.13
20.14	Send children to eat elsewhere eg neighbours, school, religious centres	20.14
20.15	Withdraw child(ren) from school	20.15
20.16	Begging or engaging in degrading jobs	20.16
20.17	Individual migration out of the area	20.17
20.18	Household migration out of the area	20.18
20.19	Sale of farm implements	20.19
20.20	Sale of milking livestock	20.20
20.21	Sale of household goods	20.21
20.22	Disintegration of families	20.22
20.23	Abandonment of children or elderly	20.23
20.24	Sale of charcoal and/or fire wood	20.24
20.25	Part of family migrating with animals to look for grazing	20.25
20.26	Ask for food assistance from religious organizations	20.26

Team Leader Name _____ Signature _____ Date _____

21. Possession and Utilization of ITNs

21.1 Does this household have a mosquito net or nets? Codes: 1 = Yes 2 = No **[IF NO, GO TO Q 22]**	22.2 [If YES], Where did you get it from? Codes: 1 = A shop/vendors 2 = An agency/NGO 3 = MOH/Mission hospital **[If 2 or 3 Skip to Q 22.5]**	22.3 [If from the shop] Have you ever treated your net (soaked or dipped it in dawa or chemical to repel mosquito or insects)? 1 = Yes 2 = No [If NO, Skip to 21.5]	22.4 [If YES], When did you last treat it? Enter code 1) Less than one month ago 2) Between one and six months ago 3) More than six months ago 4) Cannot remember	22.5 Who slept under the mosquito net last night? (Probe - enter all responses mentioned)	Codes: 1=Yes 2= No
				1) Children less than 5 years	
				2) Children over 5 years	
				3) Pregnant woman	
				4) Non-pregnant woman	
				5) Father	

22. Livestock Situation

	Livestock Size	
	Codes	
22.1	Has the number of your livestock changed in the last **three** months? **Codes:** **1**=Increased **2**=Reduced **3**=Remained the same	
22.2	If **increased** what are the reason(s)? **Codes:1**= Animals gave birth **2**= Bought **3=** Given **4**= Other (specify)----------	Increase
	If **decreased** what are the reason(s)? **1**= Death because of drought **2**= Death because diseases **3**= Sold **4**= Raid **5**= Bride price	Decrease

23. Sources of Income

	Main Source of Income	
	In the last **three** months **[i.e. Since September this year]** what was the **MAIN** source of income for your household? **Codes:** **1=** Sale of livestock **2**= Sale of livestock products **3**= Sale of food ration **4**= Sale of own crop **5**= Wage labor **6**= Salaried employment **7**= Petty trade **8=** Remittances **9=** Sale of charcoal/firewood **10**= Beadwork **11**= Business **12=** Quarrying **13= Brewing** **14=** Other (Specify) _____	

24. Household Wealth Ranking

	Household Wealth Ranking	
24.1	According to your community's wealth ranking system, how do other people classify your household? **1**= Rich **2**= Middle **3**= Poor	
24.2	How many people in your household earn some income that **directly benefits** the household?	

Team Leader Name _____ Signature _____ Date _____

Qnn B: Greater Samburu District Survey - Child Immunization, Anthropometric and Breast Feeding Data Form (Only for Children 6-59 months Old)

Name of District _____Name of division_____Division No_____Name of Sub-Location_____Sub-loc No_____Name of Village/Cluster_____ Cluster No_____ Date of Interview____/____/_____ TL Name

Q1	Q2	Q3		Q4a	Q4b	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
HHD No. (Copy from main **HHD Qnn for ALL children)**	Child serial No	**Child's Intra-Household ID number and Name** Give youngest child in the household ID no 1. If more than one child, record them **sequentially by age**) **Child Intra-HHD** ID No.**	**Child's Name**	**Child's Date of Birth** **(Use Clinic Cards and Calendar of EVENTS)**	**Enter the Age** of child in **months** **(Use Clinic Cards and Calendar of EVENTS)**	**Child age Verification** **1**= Vaccination card **2**= Birth certificate **3**= Baptism card **4**= Recall	**Child Sex** 1= **M** 2= **F**	How many times has (Name) received vit A capsules in the last **1 Year?** (Show the mother the Red, Blue, translucent capsules) If none, enter **ZERO**	Has (Name) been Immunized against **measles?*** **Codes: 1**=Yes by Card **2**=Yes by Recall **3**=No **4**=DNK	Has (Name) received **OPV1?** **Codes: 1**=Yes by Card **2**=Yes by recall **3**=No **4**=DNK	Has (Name) received **OPV3?** **Codes: 1**=Yes by Card **2**=Yes byrecall **3**=No **4**=DNK	Has (Name) taken any deworming drug in the last 6 months? **Codes: 1**=Yes by Card **2**=Yes by recall **3**=No **4**=DNK	**Oedema present?** 1=Yes 2=No	**Height** In **cm** (Nearest 0.1cm) Write down the decimal and do not round up	**Weight** In **KGs** (Nearest 0.1kg) Write down the decimal and do not round up	**MUAC** In **cm** (Nearest 0.1cm) Write down the decimal and do not round up
	1.													.	.	.
	2.													.	.	.
	3.													.	.	.
	4.													.	.	.
	5.													.	.	.
	6.													.	.	.
	7.													.	.	.
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	16.													.	.	.
	17.													.	.	.
	18.													.	.	.
	19.															

_____TeamNo___

Note: ** Child Intra-HHD Id No = Number/serial number for each child in a given household starting with the youngest to the oldest child and repeated in each of the households visited. If there is only one child 6-59 months in the household, the Intra-household number for this child = 1 ***Measles vaccine only applicable to children 9 months and above**

Team Leader Name _____ Signature _____ Date _____

Greater Samburu District Survey - Child Immunization, Anthropometric and Breast Feeding Data Form (Only for Children 6-59 months Old)

Name of District _____Name of division_____Division No_____Name of Sub-Location_____Sub-loc No_____Name of Village/Cluster_____ Cluster No_____ Date of Interview____/____/_____ TL Name _____TeamNo___

Q1	Q2	Q3		Q4a	Q4b	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
HHD No. (Copy from main **HHD Qnn for ALL children)**	Child Serial No	**Child's Intra-Household ID number and Name** Give youngest child in the household ID no 1. If more than one child, record them **sequentially by age**)		**Child's Date of Birth** **(Use Clinic Cards and Calendar of EVENTS**	**Enter the Age** of child in **months** **(Use Clinic Cards and Calendar of EVENTS**	**Child age Verification** 1= Vaccination card 2= Birth certificate 3= Baptism card 4= Recall	**Child Sex** 1= **M** 2= **F**	How many times has (Name) received vit A capsules in the last **1 Year?** (Show the mother the Red, Blue, translucent capsules) If none, enter **ZERO**	Has (Name) been Immunized against **measles?*** **Codes: 1**=Yes by Card **2**=Yes by Recall **3**=No **4**=DNK	Has (Name) received **OPV1?** **Codes: 1**=Yes by Card **2**=Yes by recall **3**=No **4**=DNK	Has (Name) received **OPV3?** **Codes: 1**=Yes by Card **2**=Yes byrecall **3**=No **4**=DNK	Has (Name) taken any deworming drug in the last 6 months? **Codes: 1**=Yes by Card **2**=Yes by recall **3**=No **4**=DNK	**Oedema present?** 1=Yes 2=No	**Height** In **cm** (Nearest 0.1cm) Write down the decimal and do not round up	**Weight** In **KGs** (Nearest 0.1kg) Write down the decimal and do not round up	**MUAC** In **cm** (Nearest 0.1cm) Write down the decimal and do not round up
		Child Intra-HHD ID No.**	**Child's Name**													
	20.													.	.	.
	21.													.	.	.
	22.													.	.	.
	23.													.	.	.
	24.													.	.	.
	25.													.	.	.
	26.													.	.	.
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	36.													.	.	.
	37.													.	.	.
	38.															

Note: ** Child Intra-HHD Id No = Number/serial number for each child in a given household starting with the youngest to the oldest child and repeated in each of the households visited. If there is only one child 6-59 months in the household, the Intra-household number for this child = 1 ***Measles vaccine only applicable to children 9 months and above**

Team Leader Name _____ Signature _____ Date _____

Greater Samburu District Survey – Child Morbidity and Child Feeding Data Form (Only for Children 6-59 months Old) **[Continue from Page 1]**

Name of District _____Name of division_____Division No_____Name of Sub-Location_____Sub-loc No_____Name of Village/Cluster_____ Cluster No_____ Date of Interview____/____/_____ TL Name _____TeamNo___

Q1	Q2	Q3		Q16		Q17	Q18	Q19			Q20	Q21	Q22	Q23
HHOLD No. Copy HHD Numbers in exactly the same order in which they appear on **page 1**	Child Serial No.	**Child's Intra- HHD ID number and Name** Copy child **intra-household ID Numbers** and **Names** in exactly the same order in which they appear on **page 1** **Child Intra-HHD** ID No.**	**Child Name**	Has (Name) been sick **in the last 2 WEEKS?** **1=Yes 2= No** **[If yes], enter type of illness** 1= Cough/ARI 2= Measles 3= Eye infect 4= Diarrhea 6= Malaria 7= Stomache 8= Skin infect 9= Others specify--------- Sick?	Illness	If DIARRHOEA was **YES i.e. = 4,** what was e/she given while he/she was having diarrhoea? 1= Oralite/ORS 2= Home-made sugar-salt Solution 3=Zinc(Show sample) 4=Any other home-made liquid such as porridge, soup, yoghut, fruit drink, tea, milk, rice water 5=Other (specify)	When (Name) was sick the **LAST** time, did you seek assistance? **IF YES, where?** 1=No Assistance sought **2=** Public Clinic/Hospital **3=** CHW **4=** Mobile/outreach Clinic **5=** Private Clinic/Pharmcy **6=** Shop/Kiosk **7=** Relative/Friend **8=** Traditional Healer **9=** Other (specify)---	Is (Name) currently enrolled in the hospital Feeding Programme? **1=Yes 2=No** **[If YES**, for how long? [convert time and indicate how long in **DAYS** **[If YES], indicate which type of programme]** **1=Supplment Feed Prog** **2=Theraptic Prog (OTP)** In Program?	Duraion In program	Type of programme	Age of Mother/ Primary Childcare Taker in **years**	**Physiological status of mother/child care taker** **1**=Pregnant **2**=Lactating **3**=Preg &lact **4**=Not preg/ not lactating	In your last pregnancy, did you take Iron pills or sprinkle food with Iron Syrup? 1= Yes 2= No 3= Don't know	**Maternal MUAC** **Mother MUST be between 15-49 years For MUAC to be taken** Record maternal MUAC in mm
	1.													
	2.													
	3.													
	4.													
	5.													
	6.													
	7.													
	8.													
	9.													
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	16.													
	17.													
	18.													
	19.													

Team Leader Name _____ Signature _____ Date _____

Greater Samburu District Survey – Child Morbidity and Child Feeding Data Form (Only for Children 6-59 months Old) **[Continue from Page 2]**

Name of District _____Name of division_____Division No_____Name of Sub-Location_____Sub-loc No_____Name of Village/Cluster_____ Cluster No_____ Date of Interview____/____/_____ TL Name __TeamNo___

Q1	Q2	Q3		Q16		Q17	Q18	Q19			Q20	Q21	Q22	Q23
HHOLD No. Copy HHD Numbers in exactly the same order in which they appear on **page 1**	Child Serial No.	**Child's Intra- HHD ID number and Name** Copy child **intra-household ID Numbers** and **Names** in exactly the same order in which they appear on **page 1** **Child Intra-HHD** ID No.**	**Child Name**	Has (Name) been sick **in the last 2 WEEKS?** **1=Yes 2= No** **[If yes], enter type of illness** 1= Cough/ARI 2= Measles 3= Eye infect 4= Diarrhea 6= Malaria 7= Stomache 8= Skin infect 9= Others specify--------- Sick?	Illness	If DIARRHOEA was **YES I.E. 4,** what was he/she given while having diarrhoea? 1= Oralite/ORS 2= Home-made sugar-salt Solution 3=Zinc(show tablet) 4=Any other home-made liquid such as porridge, soup, yoghut, fruit drink, tea, milk, rice water 5=Other (specify)	When (Name) was sick the **LAST** time, did you seek assistance? **IF YES, where?** 1=No Assistance sought **2=** Public Clinic/Hospital **3=** CHW **4=** Mobile/outreach Clinic **5=** Private Clinic/Pharmcy **6=** Shop/Kiosk **7=** Relative/Friend **8=** Traditional Healer **9=** Other (specify)---	Is (Name) currently enrolled in the hospital Feeding Programme? **1=Yes 2=No** **[If YES**, for how long? [convert time and indicate how long in **DAYS** **[If YES], indicate which type of programme]** **1=Supplment Feed Prog** **2=Theraptic Prog (OTP)** In Program?	Duraion In program	Type of programme	Age of Mother/ Primary Childcare Taker in **years**	**Physiological status of mother/child care taker** **1**=Pregnant **2**=Lactating **3**=Preg &lact **4**=Not preg/ not lactating	In your last pregnancy, did you take Iron pills or sprinkle food with Iron Syrup? 1= Yes 2= No 3= Don't know	**Maternal MUAC** **Mother MUST be between 15-49 years For MUAC to be taken** Record maternal MUAC in mm
	20.													
	21.													
	22.													
	23.													
	24.													
	25.													
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	38.													

Team Leader Name _____ Signature _____ Date _____

Qnn No C: 0-23 MONTH-OLD CHILD QUESTIONNAIRE - ONLY to be filled for Children 0 to 23 Months (i.e. <24 Months)

Name of district	Name of Division	Division No	Name of Sub-Location	Sub-Loc No.	Village/ Cluster Name	Cluster No	Date of Interview	Name of Team Leader	Team No
							_____/_____/_____		

Important NOTE:

- Make every effort to speak with the mother. If she is not available, speak with the primary caregiver responsible for feeding of the child.
- Fill in the identification information in the table **above** from the **Main Household Questionnaire.**
- **Fill Questionnaire to cover 3 children aged 0-<6 months and 8 children aged 6-23 months.**

Q1	Q2	Q3	Q4	Q4(b)	Q5	Q6	Q7	Q8(a)	Q8(b)	Q9	Q10	Q11	Q12	Q13(a)	Q13 (b)	Q13(c)
HHD No. (Copy from MAIN HHD Questionnaire) Indicate **N/A** if HHDs are Outside the sampled ones	**Child serial No.**	**Child's Name**	**Child Age in DAYS (Convert months to DAYS)**	Child Date of Birth **(Copy from Clinic Card or use Calendar of Events)** **(dd/mm/yy)**	**Child age verification** **1=Vaccination card 2=Birth certificate 3=Baptism card 4=Recall**	**Child** Sex **1= M 2= F**	**Did (Name) ever breastfeed?** **1= Yes 2= No**	**[If yes to Q7], How long did it take you before breastfeeding (Name) for the first time after birth? (PROBE) Codes:** **1=** Within ONE Hour **2=** More than ONE hour but less than 1 day **3=** After first day	**[If No to Q7], Why did (Name) not breastfeed? Codes:** **1=** No milk from breasts **2=** Child refused to breastfeed **3=** Traditional beliefs **4=** Child deformity **5=**Mother not available e.g. dead **6=**Mother had health problems	**[If Yes to Q7],** During the first 3 days after delivery, did you give (Name) the fluid/liquid that came from your breasts? **Codes 1= Yes 2= No**	**[If YES to Q7],** In the first 3 days after delivery, was (Name) given anything else other than breast milk? (PROBE) **Codes:** **1=** No **2=**Plain water **3=**Sugar/glucose water/honey **4=**Animal milk/products **5=**Infant formula **6=**Fruit juice **7=**GripeWater	**[If YES to Q7],** Is (Name) Currently still breast-Feeding? Codes: 1= Yes 2= No	**[If YES to Q11] How many times did (Name) breastfeed Yesterday?** Record number of times	Is (Name) **currently** taking other foods or drinks other than breast milk? (Note: other drinks include water) **Codes: 1=**Yes **2=**No	**[If Yes to Q13a], At what age did you start giving (Name) other foods and drinks which were not breast milk?** **(Convert if months to DAYS)**	**[If Yes to Q13a],** How many times was (Name) given these other foods and drinks from the time he/she woke up to the time of sleeping at night **YESTERDAY?** **Enter the no. of times mentioned**
	1.															
	2.															
	3.															
	4.															
	5.															
	6.															
	7.															
	8.															
	9.															
	10.															
	11.															

Number of Children 0-<6 months = _____**(Must be 3)** **Number of Children 6-23 months =** _____**(Must be 8)**

Team Leader Name _____ Signature _____ Date _____

Name of district	Name of Division	Division No	Name of Sub-Location	Sub-Loc No.	Village/ Cluster Name	Cluster No	Date of Interview	Name of Team Leader	Team No
							_____/_____/_____		

- Make every effort to speak with the mother. If she is not available, speak with the primary caregiver responsible for feeding of the child.
- Fill in the identification information in the table **above** from the **Main Household Questionnaire**
- **Ask questions on this page only for children between 6-23 months only**

Q1	Q2	Q3		Q14 Questions 14.1 – 14.7 I would like to ask you about the type of foods and drinks the child(ren) aged 6-23 months ate or drank yesterday from the time they woke up in the morning to the time they slept. [Enter 1 against a food group that is reported as having been consumed by each child 6-23 months assessed in this questionnaire and 0 for foodstuffs NOT consumed]. This question does NOT apply to children below 6 months of age. Do not read the list of foodstuffs in the table below to the respondent. Note: 1=Yes 0=No							
HHD No. (Copy from MAIN household Questionnaire) If done outside sample households indicate **N/A** in this column)	**Child serial No.**	**Child's Name and Age in months** (Copy from previous page). Name Age in months		Q14.1 **Grains, Cereal Roots or Tubers** Eg Maize, Bread, Sorghum, Wheat, Rice, Pastas, Irish and Sweet Potatoes, Porridge	Q14.2 **Vitamin-A rich Plant Foods** E.g. Dark green leafy vegetables (e.g. Sukuma wiki, Spinach) and Bright-colored vegetables e.g. Carrots, Pawpaw, Pumpkins	Q14.3 **Other Fruits and Vegetables** Any other vegetables or fruits eg Oranges, Mangoes, Avocado, Ripe bananas, Cabbages	Q14.4 **Meat, Poultry, Fish, Organ meat, Seafood** E.g. Beef, Poultry, Fish Shellfish, Organ meats e.g. Matumbo, Liver, Kidney	Q14.5 **Eggs** E.g. Chicken Bird eggs	Q14.6 **Pulses Legumes Nuts and Seeds** E.g. Beans, Peas, Nuts, Seeds, Ground Nut	Q14.7 **Dairy products** E.g. Milk, Cheese Tea with milk	Q14.8 **Fats and oils**
	1.										
	2.										
	3.										
	4.										
	5.										
	6.										
	7.										
	8.										
	9.										
	10.										
	11.										

Number of Children 6-23 months = _____ (Must be 8)

Team Leader Name _____ Signature _____ Date _____

Name of district	Name of Division	Div No	Name of Sub-Location	Sub -Loc No.	Name of Village/ Sub-location	Village /Cluster No	Date of Interview (dd/mm/yy)	Name of Team Leader	Team No
							_____/_____/_____		

NOTE: Mortality Questionnaire MUST be administered in ALL the 19 Households visited for HOUSEHOLD Survey.

Qnn D: Mortality Data Form

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13
HH no.	**Total number** of people in HHD (Hdsize) currently	Total Number **< 5 years** in HHD currently	**Total people** join HH in the last **3**months (i.e. **Since schools opened on 5th Septembe** (Excluding birth)	Number of **underfives** join HH last 3 months (i.e. **Since schools opened on 5th September**) (Excluding birth)	**Total people left HHD** in the last **3** months (**Since schools opened on 5th September**)	**Number underfives left** household in the last **3** months (i.e. **Since schools opened on 5th September**)	**No of Births in the HHD** in the last **3** months (i.e. **Since schools opened on 5th September**)	**** Total number of deaths in the HHD** in the last **3** Months (i.e. **Since schools opened on 5thSept**)	Number deaths of people **< 5 yrs old** in the last **3** months (i.e. **Since schools opened on 5th Sept**)	Number deaths of people **> 5 yrs Old** In the last **3** months (i.e. **Since schools opened on 5th September**)	**Causes** of death for people **< 5 years Old** (Use codes below)	**Causes** of Death for people **> 5 Years Old** (Use codes below)
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19												

**** Q9: First ask (CAUTIOUSLY and CAREFULLY) if there has been any death in the household in the last 3 months and Specify the Recall Period i.e. Since Schools opened for Third Term on September 5th 2011 this year**

Causes of death Codes:

ENTER **N/A** in Q12 and Q13 if **no** deaths reported in **Q10 and Q11**

1= Watery Diarrhoea
2= Bloody Diarrhoea
3= ARI (Cough + difficulty breathing (pneumonia)
4= Malaria (Fever with malaria-like chills
5=Neonatal death
6= Measles (persistent fever, oesophagus infection, skin rash, red eyes)
7= Malnutrition (bilateral oedema and or wasting)
8= Killed/Accidents
9= Not known
10=Old age
11=During delivery
12=Others (specify) _____

Name of Team Leader _____ Signature _____ Date _____