



Nutrition and Mortality Survey Report- Manderia East & North and Wajir West and North Districts

MAY 2011

ACKNOWLEDGEMENTS

This survey has been carried out with the participation of many partners at different levels who are all hereby highly acknowledged. At the community level were the caretakers at the household level who provided the primary data by agreeing to be interviewed. Not to be forgotten are the respective opinion leaders who provided some key insides through key informant interviews. The local administrators are also acknowledged for being extremely valuable assets in mobilizing the communities for the survey. The survey teams composed of the enumerators and team leaders are highly appreciated for the hard work of collecting high quality data to the best of their abilities. Special appreciations go to the district nutritionists of Mandera districts, the IRK nutrition coordinators and officers as well as field support staff in Mandera and Wajir who coordinated, supervised and supported the two surveys in their respective capacities very effectively.

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LIST OF ABBREVIATIONS

CI	Confidence Interval
CSB	Corn Soya Blend
GAM	Global Acute Malnutrition
IRK	Islamic Relief Kenya
IYCF	Infant and Young Child Feeding
KAP	knowledge, Attitude and practice
KDHS	Kenya Demographic Health Survey
MOMS	Ministry of Medical Services
MOPHS	Ministry of Public Health and Sanitation
MUAC	Mid Upper Arm Circumference
NGO	Non-Governmental Organization
OTP	Out-patient Therapeutic programme
SAM	Severe Acute Malnutrition
SFP	Supplementary Feeding Programme
WHZ	Weight for Height Z-score

1.0 EXECUTIVE SUMMARY

INTRODUCTION

Food crisis situations as a result of droughts have generally been leading to deterioration of nutrition status in many parts of the country with reported increases in the number of malnourished children. The food security status of pastoralists and agro pastoralists remains fragile. It has been noted elsewhere that in the pastoral and marginal agricultural areas in particular, undesirable coping strategies, most of them detrimental to the environment or to the health and nutrition of households are slowly becoming entrenched as livelihood strategies. IR-Kenya has been running selective feeding projects in the four districts of Wajir North, Wajir West, Mandera North and Mandera East. To this end, Islamic Relief – Kenya (IRK) sought to conduct nutrition, mortality and food security surveys in areas where it is implementing programs.

The overall purpose of the assessment was to determine the impact of the IRK projects in its areas of intervention. The following objectives guided the implementation of the assessment: estimate the prevalence of acute malnutrition in children aged 6-59 month, estimate the measles and BCG Vaccination coverage of children aged 9 to 59 months, identify groups at higher risk to malnutrition, estimate the retrospective crude Morbidity and crude/under five mortality rates, estimate Vitamin A supplementation coverage, estimate the proportion of households with access to improved water as well as sanitation and good hygiene practices, describe the childcare and feeding practices, estimate coverage and adequacy of general food distribution, recommend appropriate interventions based on the survey findings.

METHODOLOGY AND SURVEY AREAS

The two surveys employed a two-stage cluster sampling methodology for selecting the study area and subjects. Stage one in each case identified the number of clusters per geographical unit while stage two identified the households for the actual data collection. The sampling resulted in a total of 617 children sampled in Mandera districts and 596 children sampled in Wajir districts. The survey area in Mandera covered the two entire districts of Mandera East and Mandera North with a

total of 10 divisions while the survey area in Wajir covered the entire two districts of Wajir North and Wajir with a total of 7 divisions.

RESULTS

Malnutrition among children: The GAM level in Mandera Districts was at 26.9 % while SAM was at 5.6 %. GAM levels have been steadily increasing and consistently in the 20s since the year 2000. The drop in 2010 could be attributed to the blanket supplementary feeding program in that year and the fair weather. The GAM level in Wajir Districts was at 27.9 % while SAM was at 6.8 %. GAM levels for Wajir North and Wajir West were 19.8 % and 16.5 % respectively in 2010, the survey of which had been done just after a blanket supplementary feeding program. In the previous survey in 2009, GAM levels were at 23.1 % and 21.0 % for Wajir West and Wajir North respectively. It therefore also seems like the GAM levels in 2010 were only a temporal drop which has not been sustainable.

Mortality: In Mandera districts, the point estimate for the crude mortality rate during this period was 0.68 (0.35-1.34: 95% CI) deaths/per 10,000 persons/day while the under-five mortality rate was 0.78 (0.43-1.39: 95% CI) deaths/10,000 children/day. In Wajir districts, the point estimate for the crude mortality rate during this period was 0.70 (0.50 -0.98: 95 % CI) deaths/per 10,000 persons/day while the under-five mortality rate was 1.15 (0.71 – 1.86: 95% CI) deaths/10,000 children/day. In both cases the under-five mortality rate was below the emergency benchmark of 2/10,000 children/day. However with the high GAM levels, it could be just a matter of days before this situation deteriorates for the worst if the current drought situation persists.

Programme coverage: There seemed to be markedly low coverage levels for both SFP (13.8 % in Mandera and 16.9 % in Wajir) and OTP (20.6 % in Mandera and 15.0 % in Wajir). Reasons advanced for this scenario could include: severely malnourished children being under SFP and vice versa hinting to a wrong targeting for a few children; a possibility that some respondents answered in the negative when their moderately or severely were actually in the respective programmes fearing that if they responded in affirmative no more food would be forthcoming.

Infant and Young Child Feeding: In 83.3 % of the cases in Mandera districts, other food items other than breast milk were introduced before the sixth month with 65.6 % of the children not

having the optimal frequency of feeding per day. On the other hand, in 90.0 % of the cases in Wajir, other food items other than breast milk were introduced before the sixth month with 77.5 % of the children not having the optimal frequency of feeding per day. Generally, this was an indication of sub-optimal infant and young child feeding practices as well as an acute food stress in the majority of households in the two survey areas.

Food security and livelihoods: Although these are pastoral communities hence presumed to survive on livestock products, only 34.3 % of the households had consumed milk the previous day in Mandera districts and only 24.9 % of the households had consumed milk the previous day in Wajir districts. The majority of households (55.4 % in Mandera and 65.3 % in Wajir) were dependent on the market for their food items. With respect to food aid, over half of the households (56.2 % in Mandera) had received food aid within the previous three months while only 39.0 % of the households in Wajir had received food aid within the previous three months.

To illustrate how dire the food situation is, a lot of households reduced meal sizes (88.3 % in Mandera and 94.9 % in Wajir) or purchased food on credit (86.6 % in Mandera and 94.9 % in Wajir) or borrowed food (83.2 % in Mandera and 86.3 % in Wajir). Finally, more than three-quarters of the households (82.2 % in Mandera and 92.0 % in Wajir) had experienced a reduction in the livestock sizes the major reason in both situations being death as a result of the prolonged drought (in 74.3 % of the households in Mandera and 89.5 % in Wajir).

MAIN CONCLUSIONS

- Levels of acute malnutrition are very high
- Not all the children eligible to be on the appropriate feeding programs (OTP/SFP) are enrolled pointing to programmatic challenges on the ground
- The situation on the ground seem to be becoming quite dire that targeted feeding may not be practical at this stage
- There was generalized food scarcity at the household level with majority of households recording reduced number of meals and skipping meals
- Almost all households recorded reduced livestock numbers

- Majority of households are relying on the market for their food needs a clear indication that their traditional livelihood system is fast collapsing
- The time allocated to the survey was not sufficient to carry out comprehensive data collection on IYCF
- Complementary foods are introduced too early among the children

MAIN RECOMMENDATIONS

- Blanket supplementary feeding may be required in the short run
- There is need to review programmatic challenges on the ground in order to increase the level/coverage of appropriate feeding programs (OTP and SFP)
- Need to increase the level of awareness in the community with regard to the rationale for targeted feeding
- More work on livelihood initiatives required particularly geared towards stabilizing livestock numbers (fodder and water projects)
- Carry out independent surveys for each district in future
- There is need for more harmonized guidelines within the national guidelines for incorporating IYCF surveys into the normal health and nutrition assessments
- There is need for more concerted effort among implementing agencies on the ground to come up with more effective educational or training material on IYCF that is relevant, convincing and acceptable to the caregivers

2.0 INTRODUCTION

2.1 BACKGROUND INFORMATION

DEMOGRAPHY AND AREA

Mandera and Wajir districts are part of the North Eastern Province (NEP) and are gazetted as Arid and Semi-Arid Lands of Kenya (ASAL). The two former wider districts of Mandera and Wajir have since been split into smaller units namely; Mandera North, Mandera Central, Mandera West and Mandera East, Wajir North, Wajir West, Wajir South, Wajir East.

Mandera East and Mandera North Districts share international boundaries with Ethiopia to the North, Somalia to the East, and to the West are Mandera West and Mandera Central. The district headquarters for Mandera East and Mandera North are at Mandera and Rhamu towns respectively. The populations according to the 2009 population census results for Mandera East and Mandera North are 288,687 and 141,010 respectively. Administratively, the two districts have 10 divisions namely Laffey, Warankara, Fino, Hareri, Libehia, Khalalio and Central in Mandera East and Ashabito, Rhamu and Rhamudumtu in Mandera North.

Wajir North and Wajir West have total populations of 135,505 and 171,948 respectively as per the 2009 population census. Bute is the district headquarters of Wajir North while Griftu is the district headquarter for Wajir West. The two districts have a total of 7 divisions namely Bute, Buna and Gurar in Wajir North and Eldas, Griftu, Hadado and Ademasajida in Wajir West.

TOPOGRAPHY AND ECOLOGY

The two Mandera districts are characterized by low-lying rocky hills and vast plains. The two districts experiences two rain seasons (April - May and October - December) with annual precipitation mean of 225mm. Wajir North district has no forest cover but has evenly distributed scrubs. The terrain is mostly flat and therefore, prone to flooding when it rains.

SOCIO-ECONOMIC FEATURES AND LIVELIHOODS

Poverty levels in the Mandera districts are high with 64 % of the population living below poverty line. Around 80 % of the populations are pastoralists while the rest are agro pastoralists or traders. Comparatively, there are more agro-pastoralists in Mandera North (practicing irrigation along river Daua) than Mandera East. Persistent challenges in the two districts range from political, social and economic instabilities arising from the volatile Somali situation.

Both Wajir North and West are covered by a murram road network that is rendered impassable during the rainy season, cutting off huge sections of the communities from humanitarian assistance, including health services. Wildlife and humans co-exist albeit with some human-wildlife conflicts as the wild life roam freely with no enclosures to restrain their movements. The main livelihood in the two districts is pastarolism with livestock rearing with small business trading and agro-pastarolism in limited locations. Frequent drought, however, has seen people lose their entire herds and livelihoods, leading to dependency on relief food from the government and other partners by up to 75% of the population. Land is owned communally with the two districts under trust land with no specified settlement schemes. The prevailing land issues include unplanned settlements; conflict over water and pasture, grazing conflict over agricultural prime areas.

HEALTH AND NUTRITION

There are two district hospitals, one at Mandera and the other at Rhamu. Although all public health facilities are managed by qualified health staff, they are grossly understaffed. Inadequate access to health services is a serious problem for the residents of the two Mandera districts. In Wajir North and Wajir West, there are 3 district hospitals, 8 health centers and 17 dispensaries. The health infrastructure in the two districts is supported by 6 clinical officers and 41 nurses.

2.2 ON-GOING PROGRAMMES BY ISLAMIC RELIEF AND OTHER PARTNERS

IRK has programs in seven divisions of Mandera East and North Districts. The divisions are Lafey, Fino, Hareri, Rhamu, Ashabito, Warankara and Libehia. All the divisions basically lie within the same climatic conditions and socio-economic status. IRK defines its operation area using two routes

from Mandera town; The Lafey route which is along the Somali border along Lafey town to Elwak and the Rhamu route which is along the Ethiopian border running almost parallel to River Daua.

Islamic Relief has been operational in the two Mandera districts since January 2006 in response to the drought emergency then affecting the entire horn of Africa. Currently, IRK is undertaking projects in the following sectors; Child welfare, Water and Sanitation, Health and Nutrition, Livelihoods (micro-credit/Irrigated farming). The nutrition program started in March 2006 and addresses moderately malnutrition of children and pregnant and lactating women. A number of development agencies have pulled out of the area due to a sense of instability.

IRK (Islamic-Relief Kenya) in collaboration with the MOMS and MOPHS in Wajir North and Wajir West has been working in the respective districts since January 2010 initially providing BSFP and later scaling-up essential nutrition services at health facility and community level using IMAM approach.

2.4 RATIONALE FOR THE SURVEYS

Food crisis situations as a result of droughts have generally been leading to deterioration of nutrition status in many parts of the country with reported increases in the number of malnourished children. The food security status of pastoralists and agro pastoralists remains fragile. It has been noted elsewhere that in the pastoral and marginal agricultural areas in particular, undesirable coping strategies, most of them detrimental to the environment or to the health and nutrition of households are slowly becoming entrenched as livelihood strategies. IR-Kenya has been running selective feeding projects in the four districts of Wajir North, Wajir West, Mandera North and Mandera East. To this end, Islamic Relief – Kenya (IRK) sought to conduct nutrition, mortality and food security surveys in areas where it is implementing programs.

2.5 OBJECTIVES OF THE SURVEY

The overall purpose of the assessment was to determine the impact of the IRK projects in its areas of intervention.

The following objectives guided the implementation of the assessment

- To estimate the prevalence of acute malnutrition in children aged 6-59 month
- To estimate the measles and BCG Vaccination coverage of children aged 9 to 59 months
- To identify groups at higher risk to malnutrition: age group and sex
- To estimate the retrospective crude Morbidity and crude/under five mortality rates and cause of death
- To estimate Vitamin A supplementation coverage
- To estimate the proportion of households with access to improved water as well as sanitation and good hygiene practices
- To describe the childcare and feeding practices
- To estimate coverage and adequacy of general food distribution
- To recommend appropriate interventions based on the survey findings

3.0 SURVEY METHODOLOGY

3.1 SURVEY DESIGN AND SAMPLING

SAMPLE SIZE DETERMINATION

Anthropometry (Mandera Districts)

- A desired precision - 5 %
- Malnutrition levels - 24.3 %
- Desired design effect - 2
- Average household size – 7
- % of under-fives - 22
- % of non response households – 3 %
- Sample size of 615 children (6 – 59 months) in 458 households calculated through ENA for SMART April 2011 version

Anthropometry (Wajir Districts)

- A desired precision - 5 %
- Malnutrition levels - 23.1 %
- A desired design effect - 2

- Average household size of – 7
- % of under-fives - 22
- % of non response households – 3 %
- Sample size of 594 children (6 – 59 months) in 442 households calculated through ENA for SMART April 2011 version

Mortality (Mandera Districts)

- A desired precision - 0.3 %
- Crude mortality rate - 0.5 per 10,000/day
- A desired design effect - 2
- A recall period - 90 days
- A household size - 6
- % of non response households – 3 %
- A sample size of 887 households (calculated through ENA for SMART April 2011 version)

Mortality (Wajir Districts)

- A desired precision - 0.3 %
- Crude mortality rate - 0.49 per 10,000/day
- A desired design effect - 2
- A recall period - 90 days
- A household size - 6
- % of non response households – 3 %
- A sample size of 869 households (calculated through ENA for SMART April 2011 version)

CLUSTER AND HOUSEHOLD SELECTION

Each of the surveys employed a two-stage cluster sampling methodology for selecting the study area and subjects. Stage one in each case identified the number of clusters per sub-location or per location while stage two identified the households for the actual data collection.

Stage one

All the village areas (Sub-locations) with their respective estimated under-five populations (6 – 59 months) were listed. Allocation of clusters was done through ENA for SMART April 2011 version. The number of clusters allocated was proportional to the number of under-fives within the village areas. In the two Mandera districts, the total number of clusters was 30 whereas in the two Wajir districts, the number of clusters was 45 to cater for the expansiveness of the area.

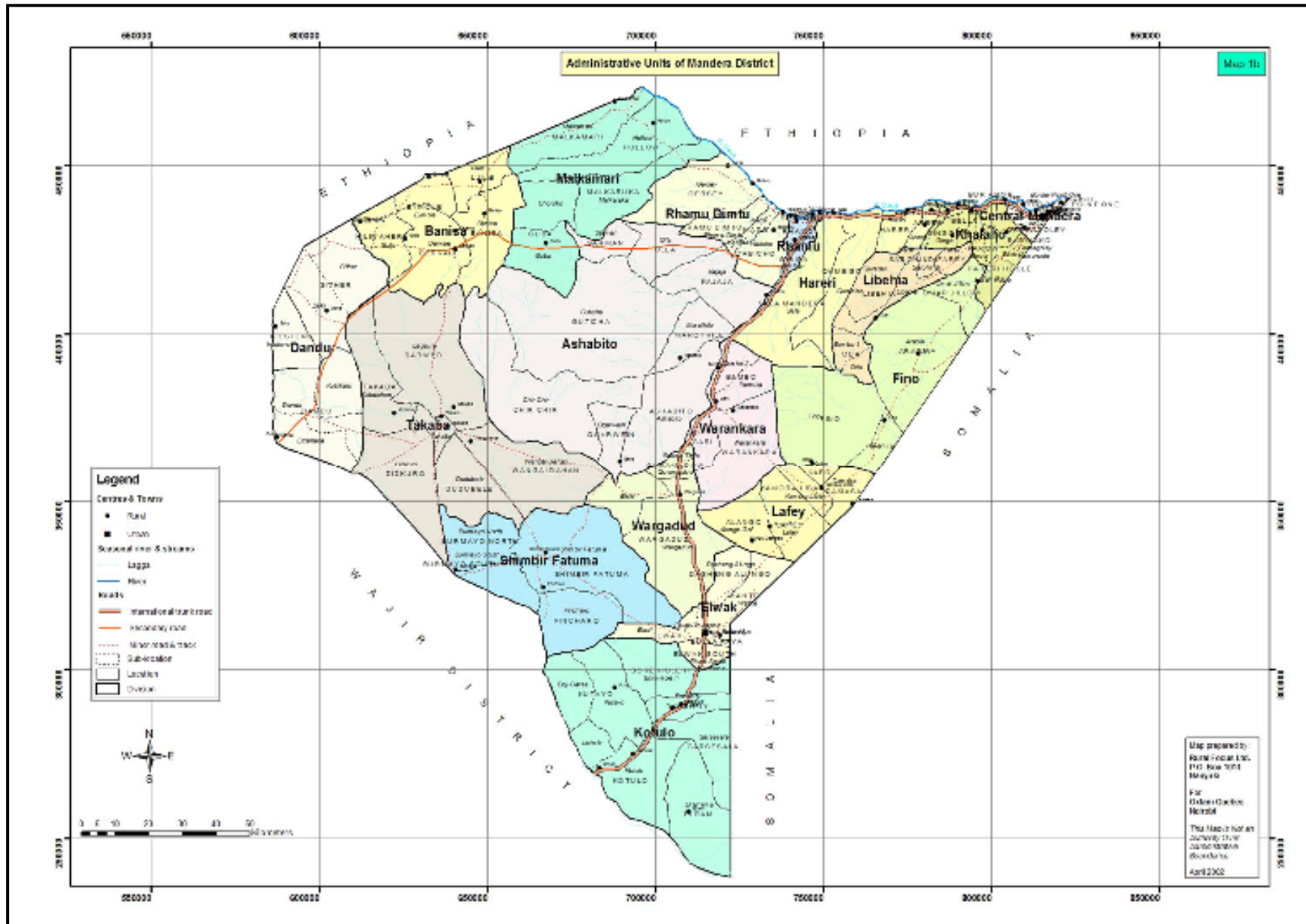
Stage two

Once in the community and after meeting the officials of the identified sub-location, the survey team with the help of the local officials travelled to the centre of the village. The team tosses a pen/bottle on the ground and then moves in the pointed direction listing all the households up to the edge of the village. The first household to be sampled was then randomly chosen from the listed households. Every subsequent nearest household was visited until at least 20 (6 – 59 months old) children for Mandera districts and 13 children for Wajir districts had been assessed. All children in a household who were between 6 – 59 months old were assessed. If there were no children in the household that qualified for assessment, the mortality questionnaire was administered but not the general household questionnaire. This resulted in a total of 617 children sampled in Mandera districts and 596 children sampled in Wajir districts.

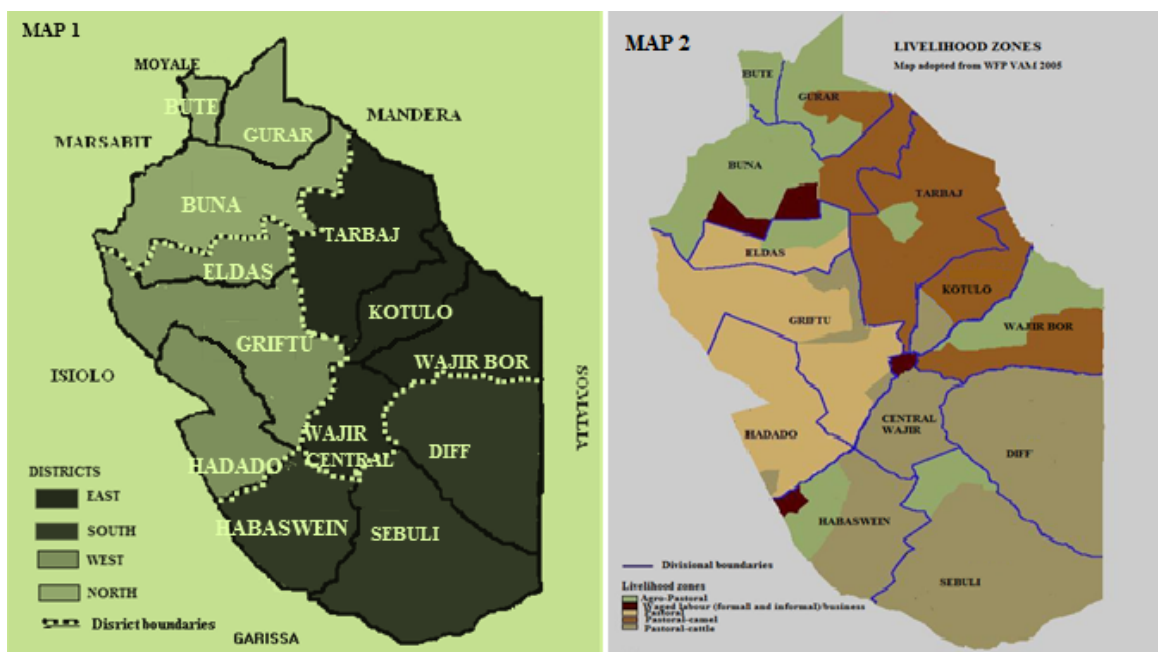
3.2 SURVEY AREAS

The one survey area in Mandera covered the two entire districts of Mandera East and Mandera North with a total of 10 divisions namely Laffey, Warankara, Fino, Hareri, Libehia, Khalalio and Central in Mandera East and Ashabito, Rhamu and Rhamudumtu in Mandera North. In Wajir, The other survey area in Wajir covered the two entire districts of Wajir North and Wajir with a total of 7 divisions namely Bute, Buna and Gurar in Wajir North and Eldas, Griftu, Hadado and Ademasajida in Wajir West (see maps below of the survey areas).

MANDERA DISTRICTS



WAJIR DISTRICTS



3.3 TRAINING OF FIELD STAFF

Training of the survey personnel for the two districts were done separately and with each training taking 3 days including pre-testing of the tools. Each training consisted of enumerators for the household survey, team leaders and supervisors from IRK and MOPHS. For purposes of field work, the enumerators were organized into teams (6 in Mandera and 10 in Wajir). The training included the following aspects:

- Objectives of the survey
- Definitions of Nutrition and malnutrition
- Causes of malnutrition
- Indicators of malnutrition
- Anthropometric measurement techniques/equipment standardization
- Reading and Recording of anthropometric measurements
- Development of calendar of events
- Administration of household questionnaire

- Translation of some aspects of the household questionnaire
- Survey methodology
- Fieldwork procedures and cluster mapping
- Field pre-testing
- Survey planning

The household questionnaire that was used for the survey was adapted from the national guidelines for Nutrition and Mortality Assessments in Kenya. The training involved translation of some aspects of the questionnaire into Somali language for purposes of standardizing the administration of it.

3.4 DATA COLLECTION

At the household level, anthropometric data (weight, height and MUAC) was collected for all children aged 6 – 59 months. MUAC measurements were also taken for the caregivers aged 15 – 49 years. Other data concerning children as well as household variables were collected using a structured questionnaire. The variables included in the questionnaire were; morbidity, vaccination, vitamin A supplementation, complementary feeding, de-worming, demography, school attendance, household water source and consumption, sanitation facilities and practice, use of mosquito nets, food consumption, sources of food, coping mechanisms for food insecurity, food aid, Livelihood ownership and main sources of income. Mortality data was collected using a 90 days recall period.

The field survey processes, including initial preparations and training, ran from 25th April to 9th May 2011.

3.5 QUALITY CONTROL AND DATA ANALYSIS

Quality control during data collection started during the pre-testing with spot checks comparing the data collected from the enumerators, field supervisors and the consultant. During the actual data collection process, data was sampled on a daily basis by the field supervisors and tested for its plausibility. Where there were discrepancies, enumerators were asked to go back to the affected households. Data was entered in ENA for SMART and Excel and analyzed using ENA for SMART and SPSS version 12.0. Plausibility checks were carried in the ENA for SMART. Frequency distributions were computed, cross-tabulations between variables were performed using standard cut offs i.e.

less than -2.0 WHZ (weight for height z-score) for GAM and less than -3.0 WHZ (weight for height z-score) for SAM.

4. 0 SUMMARY RESULTS FOR THE TWO SURVEYS

Variable	Results	
	Mandera districts	Wajir districts
Mean household size	6.56	6.1
GAM	26.9 %	27.9 %
SAM	5.6 %	6.8 %
BCG coverage	90.4 %	89.0 %
Pentavalent	87.6 %	85.9 %
Measles	79.3 %	76.4 %
De-worming	31.9 %	19.9 %
Vitamin A coverage at least once in a year (6 – 11 months)	59.5 %	68.7 %
Vitamin A coverage twice in a year – effective coverage (6 – 11 months)	21.4 %	21.6 %
Vitamin A coverage at least once in a year (12 – 59 months)	53.2 %	51.7 %
Vitamin A coverage twice in a year – effective coverage (12 – 59 months)	35.0 %	15.3 %
Morbidity level	48.8 %	46.1 %
Use of public health facilities in dealing with sickness	46.8 %	54.2 %
SFP coverage	13.8 %	16.9 %
OTP coverage	20.6 %	15.0 %
Introduction of complementary foods before 6 months	83.3 %	90.0 %
Children having at least 5 meals/day	34.4 %	22.5 %
Crude mortality (deaths/10,000 persons/day)	0.68	0.70
Under-five mortality (deaths/10,000 children/day)	0.78	1.15
<i>Water sources:</i>		
1. Boreholes	39.1 %	27.8 %
2. Water taps	25.0 %	2.9 %
3. Tankers	12.1 %	13.7 %
4. Public pans	2.5 %	5.9 %
5. Dams	0 %	21.1 %
6. Un-protected wells	6.6 %	26.9 %
Households taking less than or equal to 30 minutes to and from the water source	59.1 %	40.5 %
Households with per capita water consumption equal to or more	51.6 %	31.6 %

than 15 litres/day		
Households buying water	84.6 %	59.0 %
Households with access to toilet facilities	61.9 %	35.0 %
Households with mosquito nets	43.3 %	23.2 %
Households with under-fives sleeping under a mosquito net	36.4 %	19.8 %
<i>Main food sources:</i>		
1. Market	55.4 %	65.3 %
2. Own production	13.4 %	9.7 %
Households receiving food aid	56.2 %	39.0 %
<i>Coping strategies:</i>		
1. Reducing the meal sizes	88.3 %	94.9 %
2. Purchasing food on credit	86.6 %	94.2 %
3. Borrowing food	83.2 %	86.3 %
4. Swapping to less preferred food	82.5 %	79.4 %
Households with decreased livestock numbers	82.2 %	92.0 %
<i>Main household income source:</i>		
1. Wage labour	47.0 %	21.1 %
2. Sale of livestock	41.2 %	60.8 %
3. Sale of livestock products	16.9 %	17.6 %
4. Petty trade	11.6 %	5.3 %

5.0 RESULTS AND DISCUSSIONS – MANDERA DISTRICTS

5.1 GENERAL HOUSEHOLD CHARACTERISTICS

Table 1: Household size, sex and education status

Variable	
Household size	6.56
Sex: Male	55.0 %
Female	45.5 %
Education: In school	82.0 %
Not in school	18.0 %

There appeared to be more males in the sampled population than female. This trend is consistent with the population census of 2009 which may require investigations why this is so.

Table 2: Reasons for not attending school

n = 135

Reason	% of cases
Others	43.7
Not enrolled	41.5
Family labour responsibilities	7.4
Too poor to buy school items	2.2
Insecurity	2.2
Teacher absenteeism	1.5
Currently sick	0.7
Other social responsibilities	0.7

For the 18 % of the children who were not in school, 41.5 % had not been enrolled at all in school while another huge proportion of them (43.7 %) did not have reasons disclosed. This being a border region with an unstable Somali, further careful investigations may be required to establish the real reasons which may include immigrants.

Table 3: Occupation

Occupation	% of cases
Student	43.1
Housewife	21.6
Livestock herding	10.2
Others	6.7
Waged labour – casual	6.4
Petty trade	2.9
Un-employed	2.9
Agricultural labour	2.6
Domestic help	1.3
Employed – salaried	1.1
Charcoal burning	0.5
Merchant/trader	0.4
Own farm labour	0.1
Weaving/basketry	0.1

A part from the greater part of the population being students at 43.1 %, the next higher proportion of the population occupation-wise is housewives. The reasons for higher women being housewives may be rooted in cultural or religious factors.

5.2 CHILD HEALTH AND NUTRITIONAL STATUS

ANTHROPOMETRIC RESULTS (BASED ON WHO STANDARDS 2006):

Table 4: Distribution of age and sex of sampled children

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	60	54.1	51	45.9	111	18.0	1.2
18-29	90	58.8	63	41.2	153	24.8	1.4
30-41	88	53.7	76	46.3	164	26.6	1.2
42-53	72	51.4	68	48.6	140	22.7	1.1
54-59	24	49.0	25	51.0	49	7.9	1.0
Total	334	54.1	283	45.9	617	100.0	1.2

Summary of anthropometric results and mortality

- GAM: 26.9 % (21.6 - 33.1 95% C.I.)
- SAM: 5.6 % (3.6 - 8.7 95% C.I.)
- CMR: 0.68 (0.35-1.34) (95% CI)
- U5MR: 0.78 (0.43-1.39) (95% CI)
- At risk of malnutrition (MUAC < 13.5 cm): 16.6 %
- At risk of malnutrition and risk of mortality (MUAC < 12.5 cm): 3.7 %
- Severe malnutrition and at high risk of mortality (MUAC < 11.5 cm): 1.0 %

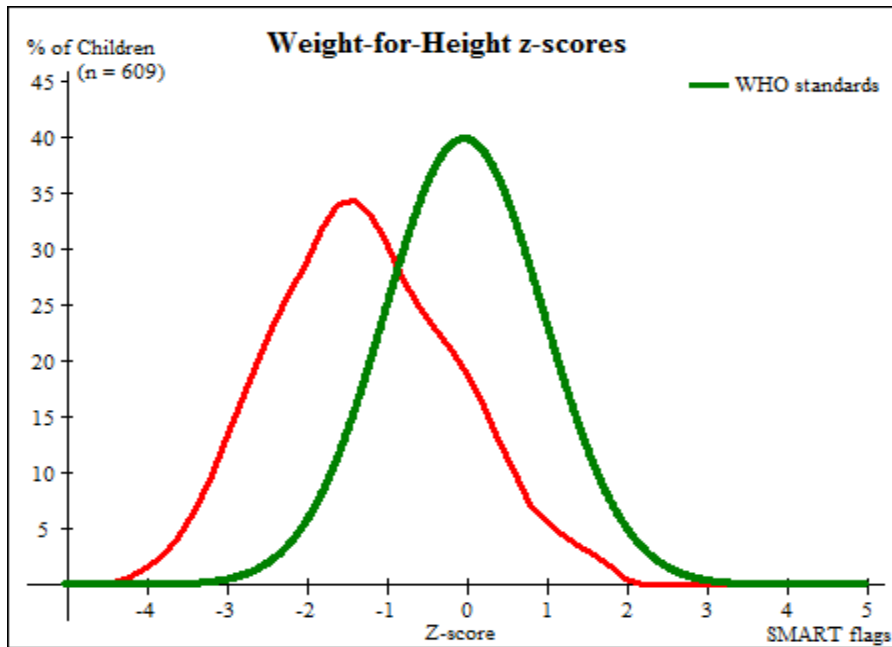


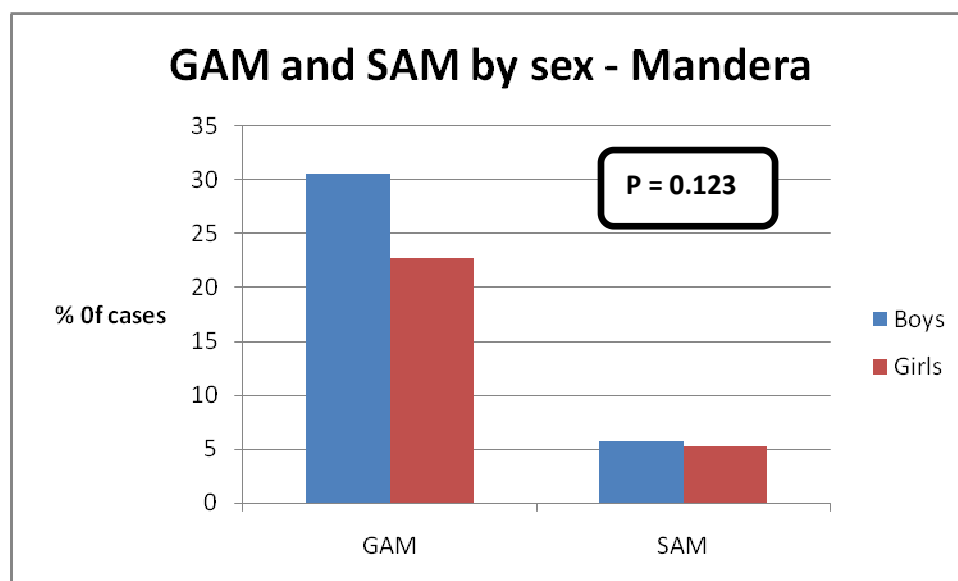
Table 5: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 609	Boys n = 327	Girls n = 282
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(164) 26.9 % (21.6 - 33.1 95% C.I.)	(100) 30.6 % (24.3 - 37.6 95% C.I.)	(64) 22.7 % (17.0 - 29.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(130) 21.3 % (17.1 - 26.2 95% C.I.)	(81) 24.8 % (19.6 - 30.8 95% C.I.)	(49) 17.4 % (12.9 - 22.9 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(34) 5.6 % (3.6 - 8.7 95% C.I.)	(19) 5.8 % (2.9 - 11.4 95% C.I.)	(15) 5.3 % (3.0 - 9.2 95% C.I.)

The prevalence of oedema is 0.0 %

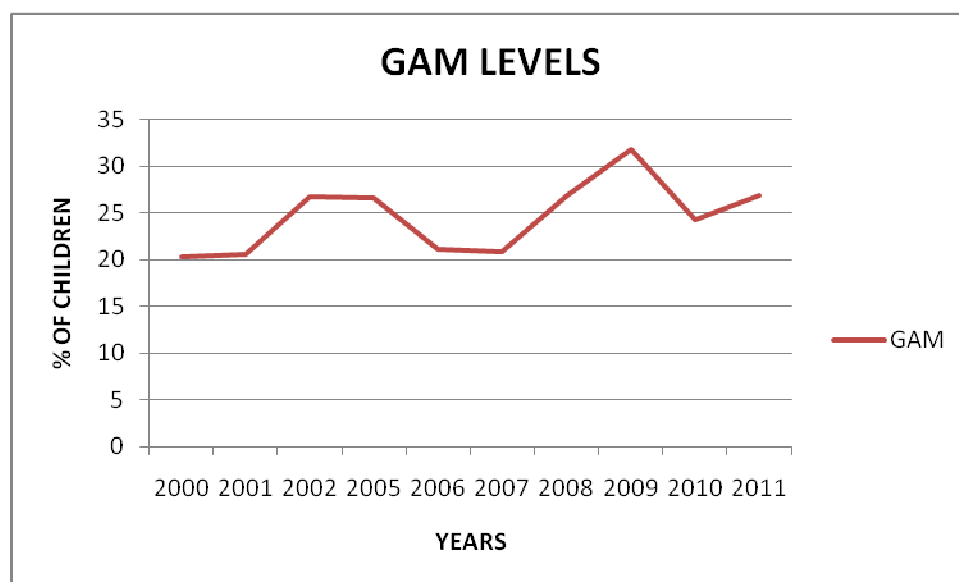
Table 6: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	110	9	8.2	21	19.1	80	72.7	0	0.0
18-29	150	5	3.3	33	22.0	112	74.7	0	0.0
30-41	162	8	4.9	35	21.6	119	73.5	0	0.0
42-53	138	7	5.1	31	22.5	100	72.5	0	0.0
54-59	49	5	10.2	10	20.4	34	69.4	0	0.0
Total	609	34	5.6	130	21.3	445	73.1	0	0.0



The GAM level was at 26.9 % while SAM was at 5.6 %. Although the GAM level among boys appeared higher than that among girls, it was not statistically significant. As can be seen in the figure below, the GAM levels have been steadily increasing and consistently in the 20s since the year 2000.

The drop in 2010 could be attributed to the blanket supplementary feeding program in 2010 and the fair weather then.



VACCINATION AND DEWORMING

Table 7: Vaccination coverage and de-worming

Type of vaccination	% of children			
	Confirmation by card	Confirmation by recall	Not received	Don't know
BCG (N=616)	59.1	31.3	9.6	0
Pentavalent 3 (N=617)	56.6	31.0	12.5	0
Measles (N=586)	48.6	30.7	20.5	0.2
De-wormed within the last 6 months (N=614)	9.1	22.8	68.1	0

As seen in table 7, BCG coverage was at 90.4 %, pentavalent coverage at 87.6 %, measles coverage at 79.3 % and de-worming coverage at 31.9 %. BCG vaccination has consistently remained high compared to the previous year (90.0 % for 2010). There seemed to have been a slight drop for measles coverage which was 88.1 % in a 2010 KAP survey. De-worming coverage seemed to be higher compared to the previous years¹ (21.3 % - 2009 and 11.3 % for 2010)

¹ The previous surveys had not been validated

VITAMIN A SUPPLEMENTATION

Table 8: Vitamin A supplementation

	% of children that received in the last 1 year		
	None	Once	Twice
6 – 11 months (n=42)	40.5	38.1	21.4
12 – 59 months (n=575)	46.8	18.3	35.0

As can be deduced in table 8, Vitamin A supplementation with at least one doze within the previous one year stood at 59.5 % and 53.2 % for children 6 – 11 months and 12 – 59 months respectively. In the previous surveys, Vitamin A coverage was assessed for the previous six months only which stood at 48.3 % (2009) and 43.8 % (2010).

MORBIDITY LEVELS AND HEALTH SEEKING BEHAVIOUR

Table 9: Morbidity levels

N = 617

STATUS	% of cases
Not sick	51.2
Sick:	48.8
Diarrhoea	14.3
Vomiting	12.3
Fever – Chills like Malaria	19.1
Fever – Cough/difficult breathing	17.5
Stomachache	3.7
Others	2.9

48.8 % of the children had been sick in the previous two weeks with a majority of them having exhibited fever with chills like malaria symptoms (at 19.1 %) and coughs/difficult breathing (at 17.5 %). In the previous surveys, morbidity was recorded at 61.5 % for 2009 and 76.6 % for 2010.

Table 10: Health seeking behavior

n = 301

Health seeking behavior	% of cases
Public Health Facility	46.8
Private clinic	14.0
Traditional healer	13.3
No assistance sought	11.6
Community Health Worker	10.0
Shop/kiosk	5.6
Relative/friend	1.0
Mobile clinic	0.7

A majority of the cases that was sick (46.8 %) was taken or referred to the public health facilities with 11.6 % of the cases not seeking any assistance. This means that effective and efficient operations of the public health facilities are critical in the management of morbidity levels in the survey communities.

PROGRAMME COVERAGE

Table 11: SFP and OTP coverage

Nutritional level	Number of children	No. in respective programs (SFP or OTP)	% coverage
Moderately malnourished (SFP)	130	18	13.8
Severely malnourished (OTP)	34	7	20.6
Total (GAM)	164	46	28.0

There seemed to be markedly low coverage levels for both SFP (13.8 %) and OTP (20.6 %). Several reasons can be advanced for this that requires further investigations; there could be severely malnourished children who are under SFP and vice versa hinting to a wrong targeting for a few children. There is also a possibility that some respondents answered in the negative when their moderately or severely are actually in the respective programmes fearing that if they responded in affirmative no more food would be forth coming.

BIVARIATE ANALYSIS

Table 12: Bivariate analysis

Variables		Nutritional status		Statistical significance with a Chi-square test
		Normal	GAM	
BCG vaccination	Yes	74.2	25.8	P=0.048
	No	62.1	37.9	
On feeding programs	Yes	58.2	41.8	P=0.000
	No	76.2	23.8	
Measles vaccination	Yes	74.9	25.1	P=0.063
	No	66.9	33.1	
Vitamin A supplementation	Yes	72.0	28.0	P=0.533
	No	74.3	25.7	
De-wormed	Yes	69.1	30.9	P=0.142
	No	74.8	25.2	

Statistical significance was observed when GAM levels were analysed against feeding programmes (p=0.000) with higher levels being associated with those children enrolled in the feeding programmes. Similarly there was statistical significance with BCG vaccination (p=0.048) with higher levels associated with children that were not vaccinated. Association with the other variables was not significant. It is not surprising that children in the feeding programmes were associated with higher GAM levels because they ideally started at GAM levels of 100 %. This only points to the fact that the situation has not normalized.

INFANT AND YOUTH CHILD FEEDING

Table 13: Introduction of complimentary foods

n = 84

	% Of children
Less than 1 week	44.0
Between 1 week and 1 month	34.5
Between 1 month and 5 months	4.8
At least 6 months	16.7

For the mothers with children less than one year, they were asked when they introduced other food items for the first time beside breast milk. As observed in table 13, it is only in 16.7 % of the cases that other food items other than breast milk were introduced for the first time after 6 months.

Conversely, in 83.3 % of the cases, other food items other than breast milk were introduced before the sixth month.

Table 14: Frequency of feeding (for children 6 – 23 months)

Frequency of feeding	% of responses
Once	12.9
Twice	15.2
Thrice	21.0
Four times	16.6
At least five times	34.4

The proportion of children that were having at least five meals per day was 34.4 %. Hence 65.6 % of the children were not having the optimal frequency of feeding per day. Since children are expected to feed more frequently per day (at least five times), the situation here indicates that there is acute food stress in the majority of households hence are unlikely to provide the required food to the children.

5.2 MORTALITY

A total of 5,526 persons were reported to have been living in survey households at time of the survey period. Of these, 1,848 were reported to be children under five of age. In total, 34 persons were reported to have died in the recall period of which 13 were children under 5 years of age. The point estimate for the crude mortality rate during this period was 0.68 (0.35-1.34: 95% CI) deaths/10,000 persons/day while the under-five mortality rate was 0.78 (0.43-1.39: 95% CI) deaths/10,000 children/day. The under-five mortality rate was below the emergency benchmark of 2/10,000 children/day. With the high GAM levels however, it could be just a matter of days before this situation deteriorates for the worst if the current drought situation persists. The major causes of mortality were delivery complications and un-identified causes.

5.3 WATER AND SANITATION

Table 15: Water sources for household use

N = 396

WATER SOURCE	% of households
Borehole	39.1
Water tap	25.0
Tanker	12.1
River	8.3
Un-protected well/spring	6.6
Protected well	5.6
Public Pan	2.5
Others	0.8

As seen in table 15, 39.1 % of the households sourced their water from boreholes followed by water from taps at 25.0 % of the households. Water from boreholes seems to be becoming the most familiar source with the previous year's survey recording 37.8 % of households getting water from boreholes. Ownership and sustainability of boreholes should therefore be a major agenda of the communities and the development agencies in the area.

Table 16: Other water variables

Variable	% of households
% of households taking less than 30 minutes to and from the water source (N = 396)	59.1
% of households where the per capita water consumption is equal to or more than 15 litres/day – SPHERES cut off (N = 395)	51.6
% of households buying water (N = 396)	84.3
% of households not treating water (N= 396)	86.6

The proportion of households that were taking less than 30 or less minutes to and from the water source (which is the recommended SPHERE indicator) was 59.1 %. In 51.6 % of the households, the per capita water consumption was equal to or more than 15 litres/day, 84.3 % of the households were buying water and 86.6 % of the households were not treating water.

Table 17: General sanitation features

Variable	% of households
% of households with access to toilet facilities (N = 394)	61.9
% of households where faeces is scattered in the compound (N = 390)	7.7
% of households where caregivers wash their hands after defecation (N = 390)	81.3
% of households where caregivers wash their hands before feeding children (N = 388)	82.7
% of households where the compound was clean - subjective through observation (N =387)	78.8

Over half of the households sampled (61.9 %) had access to toilet facilities. Nevertheless, 38.1 % of households without access to toilet facilities is still a high number. The results seem to suggest that a majority of the caregivers wash their hands after defecation (81.3 %) as well as wash their hands before feeding their children (82.7 %). However, it was not clear whether the respondents indicating what they know or the actual practice. This would require more specific assessments.

Table 18: Type of toilet facilities

n = 253

Type of toilet	% of households
Traditional Pit latrine	55.3
Ventilated Improved Pit latrine	42.7
Others	1.2
Bucket	0.8

Although the majority of those with toilet facilities have traditional pit latrines, there was a sizable number (41.7 %) having ventilated improved pit latrines.

Table 19: Alternatives to toilet facilities

n =142

Alternative	% of households
Bush	74.6
Open field	11.3
Behind the house	1.4
Others	12.7

For the majority of households without access to toilet facilities, the bush (74.6 %) remain the most preferred alternative pointing to an environmental sanitation challenge that should be addressed appropriately.

5.4 MALARIA CONTROL

Table 20: Ownership and use of mosquito nets

	% of households
% of households with mosquito nets (N = 393)	43.3
% of households where under five-year olds slept under a mosquito net – last night (N = 396)	36.4
% of households where mothers slept under a mosquito net – last night (N = 396)	31.6
% of households where fathers slept under a mosquito net – last night (N = 396)	20.7

Although 43.3 % of the households reported having mosquito nets, just above a third of them (36.4 %) had their under five year old children sleeping under a mosquito net the previous night. This is lower than the national level where according to the KDHS 2008-09, the proportion of households with at least one net was 59.6 % and the proportion of children sleeping under a mosquito net the previous night was 47.2 %. In this survey, the majority of those having mosquito nets (64.3 %) had sourced them from the shops.

Table 21: Sources of mosquito nets

n = 168

Source	% of households
Shop	64.3
NGOs	7.7
Ministry of Health	28.0

5.5 FOOD SECURITY AND LIVELIHOODS

Table 22: Types of foods consumed the previous day
N = 396

Type of food	% of households
Food from grains (maize, sorghum, millet rice, wheat etc)	86.6
Tea with sugar or honey	81.3
Plain water	73.2
Fats and oils	62.1
Breast milk	53.3
Milk	34.3
Pulse/legumes	26.5
UNIMIX	18.2
Meat/poultry	15.2
Vegetables	14.9
Water with glucose or sugar	4.5
Fruit juice	2.8
Milk products	2.8
Fruits	2.3
Eggs	0.3

The Majority of the households (86.6 %) had consumed food from cereals beside tea with sugar (81.3 %) the previous day and quite a high proportion (62.1 %) had consumed fats and oils. Although, this is a pastoral community hence presumed to survive on livestock products, only 34.3 % of the households had consumed milk the previous day.

Table 23: Main food sources

N = 2,614 responses

Main food source	% of households
Market	55.4
Own production	13.4
Free relief food	12.1
Gift from relative, others	8.3
Market and relief food	6.3
Others	2.3
Both market and own production	2.0
Food-for-work	0.1
Wild food	0.1

The majority of the households were dependent on the market for their food source with 55.4 of the items reportedly sourced from the market followed by 13.4 % from own production most of it being breast milk. This indicative of how precarious the situation is given that the general economic status of households is low in these marginal areas.

Table 24: Food AID received

	% of households
Received food aid in the last 3 months (N = 395)	56.2
Received less than 1 month ago (n = 211)	74.4
Received between 1 - 2 months ago (n = 211)	22.3
Received over 2 months ago (n = 211)	3.3

Over half of the households (56.2 %) had received food aid within the previous three months with 74.4 % of those who received having received it within the previous one month. For those who received food, only 46.9 % had received cereals. Having more than half of the households depending heavily on food aid should be of great concern to all the stakeholders in the area.

Table 25: Types of food received

n = 211

Type of food	% of households
CSB	76.3
Cereals	46.9
Pulses	94.3
Fats & Oil	90.5

Table 26: Coping strategies

N=396

Coping strategies	% of households
Reducing meal size	88.3
Purchasing food on credit	86.6
Borrowing food	83.2
Swapping consumption to less preferred food	82.5
Reducing the no. of meals	81.3
Skipping food an entire day	80.3
Restricting consumption for adults	70.2
Feeding working members preferably	59.2

As part of the coping strategies, a lot of households reduced meal sizes (88.3 %), purchased food on credit (86.6 %) and borrowed food (83.2 %).

Table 27: Possession of livestock

Type of livestock possessed	% of households
Goats (N = 394)	73.6
Sheep (N = 394)	65.2
Donkey (N = 394)	49.0
Cows (N = 394)	37.6
Poultry (N = 393)	28.0
Camels (N = 393)	24.2
Bulls (N = 394)	21.8
Oxen (N = 394)	10.2

Goats are possessed by 73.6 % of the households followed by sheep (65.2 % of the households). More than three-quarters of the households (82.2 %) had experienced a reduction in the livestock sizes and the major reason for the reduction was death as a result of the prolonged drought (in 74.3 % of the households).

Table 28: Changes in livestock size

n = 315

Nature of change	% of households
Decreased	82.2
Increased	14.3
Remained the same	3.5

Table 29: Reasons for changes in livestock

n = 315

Reason	% of households
Death because of drought	74.3
Sold	17.1
Death because due diseases	15.9
Animals gave birth	12.7
Bought	4.1
Given out	1.0

Table 30: Main household income sources

N=396

	% of households
Wage labour	47.0
Sale of live stock	41.2
Sale of livestock product	16.9
Petty trade	11.6
Charcoal/firewood	6.6
Remittance	4.8
Sale of own crop	1.8
Others	1.3
Basket weaving	1.0
Sale of ration food	0.3

For almost half of the households (47.0 %), the main household income source was wage labour followed by sale of livestock at 41.2 %. The wage labour is most likely arising from the demand by business men in Mandera town which is a border town.

6.0 RESULTS AND DISCUSSIONS - WAJIR DISTRICTS

6.1 GENERAL HOUSEHOLD CHARACTERISTICS

Table 31: Household size, sex and education status

Variable	
Household size	6.1
Sex: Male	51.1
Female	48.9
Education: In school	81.3
Not in school	18.7

There are slightly more males in the sampled population than females. Although the difference is not big and the trend is consistent with the population census of 2009 also placing the number of males as higher than females, this is inconsistent with other normal populations where females are usually slightly higher than males.

Table 32: Reasons for not attending school

n = 142

Reason	% of cases
Not enrolled	84.5
Family labour responsibilities	8.5
Poor health generally	2.1
Household not valuing schooling	1.4
Others	1.4
Too poor to buy school items	0.7
Lack of parental control	0.7
Currently sick	0.1

For the 18.7 % of the children who were not in school, 84.5 % had not been enrolled in any school at all. This is definitely a high proportion that requires further investigations.

Table 33: Occupation

Occupation	% of cases
Student	36.5
Housewife	25.5
Livestock herding	16.9
Domestic help	5.3
Un-employed	5.2
Waged labour – casual	4.5
Others	1.6
Employed – salaried	1.4
Petty trade	1.3
Charcoal burning	1.1
Merchant/trader	0.4
Agricultural labour	0.2
Own farm labour	0.1

A part from the greater part of the population being students at 36.5 %, the next higher proportion of the population occupation-wise is housewives. The reasons for higher women being housewives may be rooted in cultural or religious factors.

6.1 CHILD HEALTH AND NUTRITIONAL STATUS

ANTHROPOMETRIC RESULTS (BASED ON WHO STANDARDS 2006):

Table 34: Distribution of age and sex of sampled children

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	53	48.6	56	51.4	109	18.3	0.9
18-29	71	48.3	76	51.7	147	24.7	0.9
30-41	96	53.3	84	46.7	180	30.2	1.1
42-53	52	42.6	70	57.4	122	20.5	0.7
54-59	16	42.1	22	57.9	38	6.4	0.7
Total	288	48.3	308	51.7	596	100.0	0.9

Summary results of anthropometry and mortality

- GAM: 27.9 % (24.5 - 31.6 95% C.I.)
- SAM: 6.8 % (4.9 - 9.5 95% C.I.)
- CMR: 0.70 (0.50-0.98) (95% CI)
- U5MR: 1.15 (0.71-1.86) (95% CI)
- At risk of malnutrition (MUAC < 13.5 cm): 30.9 %
- At risk of malnutrition and risk of mortality (MUAC < 12.5 cm): 7.9 %
- Severe malnutrition and at high risk of mortality (MUAC < 11.5 cm): 1.5 %

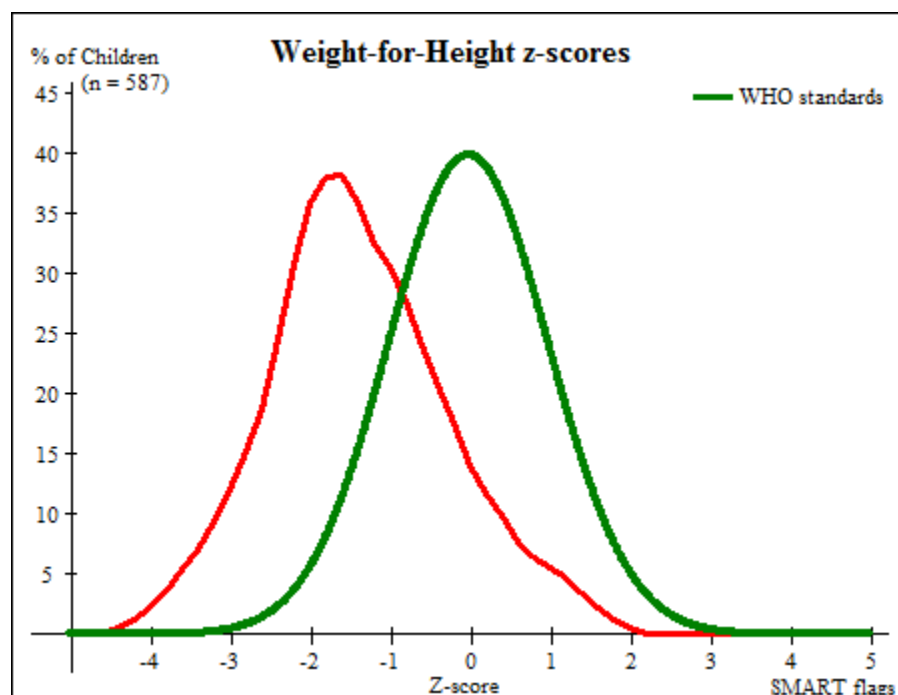


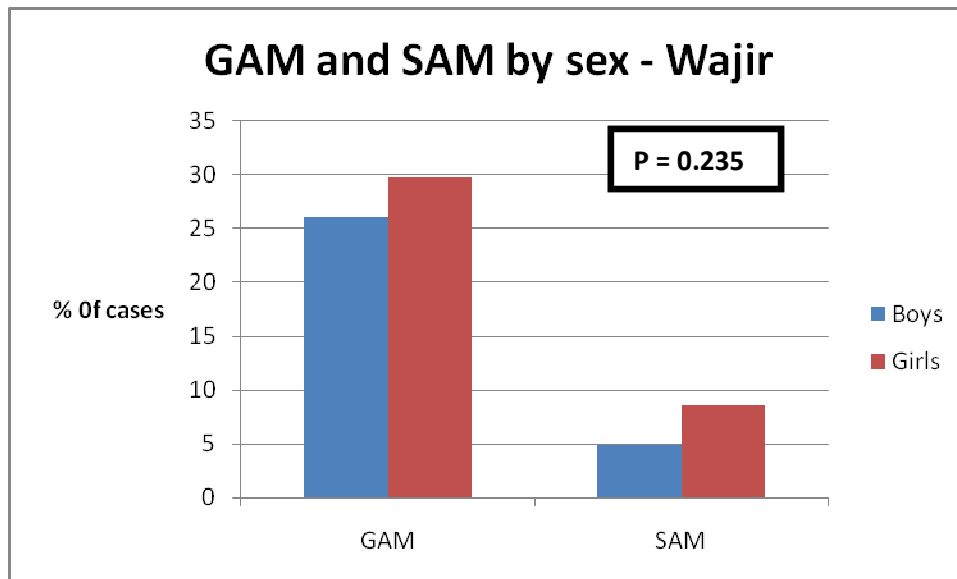
Table 35: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 587	Boys n = 284	Girls n = 303
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(164) 27.9 % (24.5 - 31.6 95% C.I.)	(74) 26.1 % (21.2 - 31.6 95% C.I.)	(90) 29.7 % (24.2 - 35.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(124) 21.1 % (18.3 - 24.3 95% C.I.)	(60) 21.1 % (17.6 - 25.2 95% C.I.)	(64) 21.1 % (16.9 - 26.1 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(40) 6.8 % (4.9 - 9.5 95% C.I.)	(14) 4.9 % (2.9 - 8.3 95% C.I.)	(26) 8.6 % (5.2 - 13.8 95% C.I.)

The prevalence of oedema is 0.0 %

Table 36: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	106	7	6.6	13	12.3	86	81.1	0	0.0
18-29	145	8	5.5	21	14.5	116	80.0	0	0.0
30-41	179	9	5.0	41	22.9	129	72.1	0	0.0
42-53	120	11	9.2	41	34.2	68	56.7	0	0.0
54-59	37	5	13.5	8	21.6	24	64.9	0	0.0
Total	587	40	6.8	124	21.1	423	72.1	0	0.0



The GAM level was at 27.9 % while SAM was at 6.8 %. Although the GAM level among girls appeared higher than that among boys, it was not statistically significant. GAM levels for Wajir North

and Wajir West were 19.8 % and 16.5 % respectively in 2010, the survey of which had been done just after a blanket supplementary feeding program. In actual fact, the previous survey in 2009 had posted GAM levels of 23.1 % and 21.0 % for Wajir West and Wajir North respectively. It therefore seems like the GAM levels in 2010 were only only a temporal drop which was not sustainable.

VACCINATION AND DEWORMING

Table 37: Vaccination coverage and de-worming

Type of vaccination	% of children			
	Confirmation by card	Confirmation by recall	Not received	Don't know
BCG (N=596)	28.9	60.1	11.1	0
Pentavalent 3 (N=596)	27.3	58.6	13.6	0.5
Measles (N=596)	25.2	51.2	23.2	0.5
De-wormed within the last 6 months (N=595)	3.9	16.0	79.0	1.2

As seen in table 37, BCG coverage was at 89.0 %, Pentavalent coverage at 85.9 %, measles coverage at 76.4 % and de-worming coverage at 19.9 %. BCG in the previous year² (2010) was over 95 % for both Wajir West and Wajir North. Measles coverage was in the previous years was also higher (over 95 % in 2010 and 80.4 % and 88.7 for Wajir West and Wajir North respectively). De-worming during the 2010 survey was over 80 %.

VITAMIN A SUPPLEMENTATION

Table 38: Vitamin A supplementation

	% of children that received in the last 1 year		
	None	Once	Twice
6 – 11 months (51)	31.4	47.1	21.6
12 – 59 months (544)	48.3	36.4	15.3

As seen in table 38, Vitamin A supplementation with at least one doze within the last one year stood at 68.7 % and 51.7 % for children 6 – 11 months and 12 – 59 months respectively. In the previous surveys, Vitamin A coverage was assessed for the previous six months only and the results were as shown below:

² Survey had not been validated

	2009	2010
Wajir West	58.0	86.8
Wajir North	63.0	96.1

MORBIDITY AND HEALTH SEEKING BEHAVIOUR

Table 39: Morbidity levels

N = 596

STATUS	%
Not sick	53.9
Sick:	46.1
Diarrhoea	16.6
Vomiting	11.7
Fever – Chills like Malaria	22.5
Fever – Cough/difficult breathing	11.9
Stomachache	7.9
Skin infections	5.0
Others	2.5

46.1 % of the children had been sick in the previous two weeks with a majority of them having exhibited fever with chills like malaria (at 22.5 %) followed by Diarrhoea at 16.6 %. In the previous survey (2010), morbidity stood at 38.5 % for Wajir West and 45.7 for Wajir North.

Table 40: Health seeking behavior

n = 275

Source of health service	% of cases
Public Health Facility	54.2
No assistance sought	39.3
Private clinic	1.1
Traditional healer	0.7
Community Health Worker	0.7
Shop/kiosk	0.7
Mobile clinic	0
Relative/friend	0

The majority of the cases that were sick (54.2 %) were taken or referred to the public health facility with a relatively high proportion of 39.3 % of the cases not seeking any assistance. Long distances to the public health facilities could be contributing to this scenario.

PROGRAMME COVERAGE

Table 41: SFP and OTP coverage

Nutritional level	Number of children	No. in respective programs (SFP or OTP)	% coverage
Moderately malnourished (SFP)	124	21	16.9
Severely malnourished (OTP)	40	6	15.0
Total (GAM)	164	39	23.8

The coverage levels for both SFP and OTP seemed to be a markedly low at 16.9 % and 15.0 % respectively. Reasons advanced for this scenario could include: severely malnourished children being under SFP and vice versa hinting to a wrong targeting for a few children; a possibility that some respondents answered in the negative when their moderately or severely were actually in the respective programmes fearing that if they responded in affirmative no more food would be forthcoming.

BIVARIATE ANALYSIS

Table 42: Bivariate analysis

Variables		Nutritional status		Statistical significance with a Chi-square test
		Normal	GAM	
BCG	Yes	72.1	27.9	P=0.906
	No	71.4	28.6	
On feeding programs	Yes	52.4	47.6	P=0.000
	No	75.2	24.8	
Measles vaccination	Yes	71.8	28.2	P=0.939
	No	72.2	27.8	
Vitamin A supplementation	Yes	70.7	29.3	P=0.447
	No	73.5	26.5	
De-wormed	Yes	65.0	35.0	P=0.064
	No	73.6	26.4	

Statistical significance ($p=0.000$) was observed when GAM levels were analysed against feeding programmes with higher levels being associated with those children enrolled in the feeding programmes. Association with de-worming status was almost significant ($p=0.064$) but not significant at all with all the other variables.

INFANT AND YOUTH CHILD FEEDING

Table 43: Introduction of complimentary foods

n = 82

	% Of children
Less than 1 week	58.5
Between 1 week and 1 month	28.0
Between 1 month and 5 months	2.4
At least 6 months	11.0

For the mothers with children less than one year, they were asked when they introduced other food items for the first time beside breast milk. As seen in table 43, it is only in 11.0 % of the cases that other food items other than breast milk were introduced for the first time after 6 months. Therefore, in 90.0 % of the cases, other food items other than breast milk were introduced before the sixth month.

Table 44: Frequency of feeding (for children 6 – 23 months)

Frequency of feeding	% of responses
Once	11.8
Twice	33.5
Thrice	22.4
Four times	9.8
At least five times	22.5

The proportion of children that were having at least five meals per day was 22.5 %. Hence 77.5 % of the children were not having the optimal frequency of feeding per day an indication of an acute food stress in the majority of households which are unlikely to provide the required food to the children.

6.2 MORTALITY

A total of 5,233 persons were reported to have been living in survey households at time of the survey period. Of these, 1,539 were reported to be children under five of age. In total, 33 persons were reported to have died in the recall period of which 16 were children under 5 years of age. The point estimate for the crude mortality rate during this period was 0.70 (0.50 -0.98: 95 % CI) deaths/10,000 persons/day while the under-five mortality rate was 1.15 (0.71 – 1.86: 95% CI) deaths/10,000 children/day. The under-five mortality rate was below the emergency benchmark of 2/10,000 children/day. The major causes of mortality were delivery complications, vomiting and old age.

6.3 WATER AND SANITATION

Table 45: Sources of water for household use

N = 454

WATER SOURCE	% of households
Borehole	27.8
Un-protected well/spring	26.9
Dam	21.1
Tanker	13.7
Public Pan	5.9
Water tap	2.9
Protected well	1.8

As seen in table 45, 27.8 % of the households sourced their water from boreholes followed by those sourcing water from un-protected wells (26.9 %) and dams (21.1 %). In the previous survey (2010) an average of 30.6 % sourced from public pans, 26.2 % from boreholes and 21.4 % from dams. The drastic drop in water source from the public pans and dams is indicative of the severity of the drought this year.

Table 46: Other water variables

Variable	% of households
% of households taking equal to or less than 30 minutes to and from the water source (N = 454)	40.5
% of households where the per capita water consumption is equal or more than 15 litres/day - SPHERES cut off (N = 452)	31.6
% of households buying water (N = 451)	59.0
% of households not treating water (N = 454)	93.4

The proportion of households that were taking less than 30 minutes to and from the water source (which is the recommended SPHERE indicator) was 40.5 %. In 31.6 % of the households, the per capita water consumption was 30 or more 15 litres/day, 59.0 % of the households were buying water and 93.4 % of the households were not treating water. These are generally poor features of water quality and availability which has continued to deteriorate compared to the previous survey. In the previous survey (2010), the proportion of households that were taking less than 30 minutes to and from the water source (which is the recommended SPHERE indicator) was 52.0 %, 55.0 % of the households were buying water and 95.2 % of the households were not treating water.

Table 47: General sanitation features

Feature	% of households
% of households with access to toilet facilities (n=452)	35.0
% of households where faeces is scattered in the compound (n=448)	11.8
% of households where caregivers wash their hands after defecation (n=449)	99.6
% of households where caregivers wash their hands before feeding children (n=449)	100.0
% of households where the compound was clean - subjective through observation (n=444)	72.1

Just almost a third of the households sampled (35.0 %) had access to toilet facilities. The results also seemed to suggest that almost or all caregivers wash their hands after defecation (99.6 %) as well as wash their hands before feeding their children (100.0 %). It was however not clear whether the respondents were indicating what they know or the actual practice.

Table 48: Type of toilet facilities

n = 151

Type of toilet	% of households
Traditional Pit latrine	86.8
Ventilated Improved Pit latrine	9.9
Others	2.0
Bucket	1.3

The majority of those with toilet facilities (86.8 %) had traditional pit latrines.

Table 49: Alternatives to toilet facilities

n = 297

Alternative	% of households
Bush	96.6
Open field	1.3
Behind the house	0.3
Others	1.7

For almost all the households without access to toilet facilities, the bush (96.6 %) was the most preferred alternative.

6.4 MALARIA CONTROL

Table 50: Ownership and use of mosquito nets

	% of households
% of households with mosquito nets (n=448)	23.2
% of households where under five-year olds slept under a mosquito net – last night (n=454)	19.8
% of households where mothers slept under a mosquito net – last night (n=454)	17.6
% of households where fathers slept under a mosquito net – last night (n=454)	7.9

23.2 % of the households reported having mosquito nets and less than one-fifth of them (19.8 %) had their under five year old children sleeping under a mosquito net the previous night. This is much lower than the national level where according to the KDHS 2008-09, the proportion of

households with at least one net was 59.6 % and the proportion of children sleeping under a mosquito net the previous night was 47.2 %. The majority of those having mosquito nets (47.7 %) had sourced them from the shops.

Table 51: Sources of mosquito nets

n = 107

	% of households
Shop	47.7
NGOs	22.4
Ministry of Health	29.9

6.5 FOOD SECURITY AND LIVELIHOODS

Table 52: Types of foods consumed the previous day

N = 454

Type of food	% of households
Tea with sugar or honey	95.2
Food from grains (maize, sorghum, millet rice, wheat etc)	89.9
Plain water	89.6
Breast milk	40.3
Fats and oils	40.1
Pulse/legumes	30.2
Milk	24.9
UNIMIX	23.1
Meat/poultry	1.3
Eggs	0.7
Milk products	0.4
Water with glucose or sugar	0.2
Vegetables	0.2

The Majority of the households (95.2 %) had taken tea with sugar followed by food from grains (89.9 %) the previous day. Only 24.9 % of the households had consumed milk the previous day although this is a pastoral community hence presumed to survive on livestock products.

Table 53: Main food sources

N = 2,067 responses

Main food source	% of households
Market	65.3
Others	10.6
Free relief food	10.5
Own production	9.7
Gift from relative, others	2.7
Market and relief food	0.9
Both market and own production	0.1

The majority of the households were dependent on the market for their food source with 65.3 % of the items reportedly sourced from the market. Other sources here represent water sources.

Table 54: Food aid received

	% of households
Received food aid in the last 3 months (n=451)	39.0
Received less than 1 month ago (n=176)	77.8
Received between 1 - 2 months ago (n=176)	11.9
Received over 2 months ago (n=176)	10.2

Only 39.0 % of the households had received food aid within the previous three months with 77.8 % of those who received having received it within the previous one month. For those who received food, only 36.4 % had received cereals. Households on general food distribution were comparatively low.

Table 55: Types of food received

n = 176

Type of food	% of households
CSB	79.5
Cereals	36.4
Pulses	79.0
Fats & Oil	73.3

Table 56: Coping strategies

N = 454

Coping strategies	% of responses
Reducing the no. of meals	94.9
Reducing meal size	94.9
Purchasing food on credit	94.2
Borrowing food	86.3
Skipping food an entire day	79.6
Swapping consumption to less preferred food	79.4
Restricting consumption for adults	47.3
Feeding working members preferably	22.2

As part of the coping strategies, a lot of households reduced the number of meals (94.9 %), reduced meal sizes (94.9 %), purchased food on credit (94.2 %) and borrowed food (86.3 %).

Table 57: Possession of livestock

Type of livestock possessed	% of households
Goats (n=450)	81.3
Sheep (n=451)	71.8
Donkey (n=450)	52.0
Poultry (n=449)	47.2
Cows (n=450)	37.8
Camels (n=451)	37.7
Bulls (n=450)	8.2
Oxen (n=450)	0.4

Goats are possessed by 81.3 % of the households followed by sheep (71.8 % of the households). More than three-quarters of the households (92.0 %) had experienced a reduction in the livestock sizes and the major reason for the reduction was death as a result of the prolonged drought (in 89.5 % of the households) and selling off (49.0 %). Over half of the households (60.8 %) had their main household income source as sale of livestock followed by wage labour (21.1 %).

Table 58: Changes in livestock size

n = 437

Nature of the change	% of households
Increased	0.7
Decreased	92.0
Remained the same	7.3

Table 59: Reasons for changes in livestock

n = 437

Reason	% of households
Death because of drought	89.5
Sold	49.0
Death because due diseases	34.1
Stolen	2.1
Animals gave birth	1.6
Bought	1.1
Given out	0.7
Others	0.2

Table 60: Main household income sources

N = 454

Income source	% of households
Sale of live stock	60.8
Wage labour	21.1
Charcoal/firewood	20.7
Sale of livestock product	17.6
Petty trade	5.3
Others	2.4
Remittance	1.8
Sale of ration food	0.9
Sale of own crop	0.7
Basket weaving	0.7
Sale of fish	0

7.0 MAIN CONCLUSIONS

- Levels of acute malnutrition are very high
- Not all the children eligible to be on the appropriate feeding programs (OTP/SFP) are enrolled pointing to programmatic challenges on the ground
- The situation on the ground seem to be becoming quite dire that targeted feeding may not be practical at this stage
- There was generalized food scarcity at the household level with majority of households recording reduced number of meals and skipping meals

- Almost all households recorded reduced livestock numbers
- Majority of households are relying on the market for their food needs a clear indication that their traditional livelihood system is fast collapsing
- The time allocated to the survey was not sufficient to carry out comprehensive data collection on IYCF
- Complementary foods are introduced too early among the children

8.0 MAIN RECOMMENDATIONS

- Blanket supplementary feeding may be required in the short run
- There is need to review programmatic challenges on the ground in order to increase the level/coverage of appropriate feeding programs (OTP and SFP)
- Need to increase the level of awareness in the community with regard to the rationale for targeted feeding
- More work on livelihood initiatives required particularly geared towards stabilizing livestock numbers (fodder and water projects)
- Carry out independent surveys for each district in future
- There is need for more harmonized guidelines within the national guidelines for incorporating IYCF surveys into the normal health and nutrition assessments
- There is need for more concerted effort among implementing agencies on the ground to come up with more effective educational or training material on IYCF that is relevant, convincing and acceptable to the mothers

9.0 ANNEXES

OVERALL DATA QUALITY – MANDERA DISTRICTS

Plausibility checks - WHO standards 2006

Criteria	Score	Quality of data
Missing/ Flagged data	0 (1.3 %)	Excellent
Overall sex ratio	4 (p=0.040)	Accept
Overall age distribution	4 (p=0.001)	Accept
Digit preference-Weight	0 (5)	Excellent
Digit preference- Height	2 (10)	Good
Standard Dev. WHZ	2 (1.13)	Good
Skewness WHZ	0 (0.19)	Excellent
Kurtosis WHZ	0 (-0.38)	Excellent
Poisson distribution WHZ-2	3 (p=0.002)	Accept
Overall score WHZ	15 %	Accept

OVERALL DATA QUALITY – WAJIR DISTRICTS

Table 28: Plausibility checks - WHO standards 2006

Criteria	Score	Quality of data
Missing/ Flagged data	0 (1.5 %)	Excellent
Overall sex ratio	4 (p=0.413)	Excellent
Overall age distribution	10 (p=0.000)	Age clustered
Digit preference-Weight	0 (3)	Excellent
Digit preference- Height	2 (9)	Good

Standard Dev. WHZ	2 (1.10)	Good
Skewness WHZ	0 (0.28)	Excellent
Kurtosis WHZ	0 (-0.05)	Excellent
Poisson distribution WHZ-2	0 (p=0.955)	Excellent
Overall score WHZ	14 %	Accept

CLUSTERS SAMPLED - MANDERA DISTRICTS

DIVISION	VILLAGES	POPULATION OF UNDER-FIVES	CLUSTER NO.
ASHABITO			
	Ashabito	1,884	1
	Guticha	2,235	2
	Kajaja	1,297	
	Marothile	1,142	3
	Ogorweini	778	
	Olla	1,298	
	Sarman	1,152	4
	Shirshir	1,373	
RHAMU			
	Girissa	1,350	5
	Jabbar	872	
	Rhamu	2,780	6
	Shantoley	2,634	7
RHAMUDUMTU			
	Garsey	1,289	8
	Kalicha	918	
	Mado	669	
	Rhamudumtu	2,545	9
	Yabicho	1,166	10
LAFFEY			
	Alango gor	2,545	11
	Laffey	3,958	12

	Kamora lebani	511	13
	Kabo	1,907	
	Damasa	2,382	14
WARANGARA			
	Bambo	303	
	Barmilla	564	15
	Warankara	1,529	
	Safo	492	
	Gari	1,543	16
FINO			
	Fino	1,645	17
	Hareri-Tur	1,349	
	Arabia	3,163	18
	Omar Jillow	795	19
HARERI			
	Jabi East	586	
	Sala	460	
	Qumbiso	747	
	Hareri	900	20
	Aresa	1,374	
LIBEHIA			
	Oda	245	
	Bambo	149	
	Qurader	1,931	21
	Libehia	2,170	22
	Harari	276	
	Sarohindi	431	
	Farey	519	
KHALALIO			
	Gedudiye	333	23
	Khalalio	200	
	Lumadid	197	
	Gingo	176	
	Darika	275	
	Bella	190	
	Matasafara	149	
	Sharif	89	
	Burabor	554	
	Bula Haji	67	
	Floow	165	

	Garbagoley	493	24
	Karow	311	
	Sedajiro	163	
	Hareri Hosle	137	
	Benda	71	
	Kamaro-ele	133	
CENTRAL			
	BP1	882	
	Bulla power	1,367	25
	Bulla Jamhuria	1,139	
	Bulla nguvu	522	
	Central	2,655	26
	Township	1,599	27
	Kamor	1,413	28
	Bulla mpya	1,686	
	Barwako	297	
	Bokolow	437	29
	Shafshefy	2,449	30
	Nebor	1,338	

CLUSTERS SAMPLED – MANDERA DISTRICTS

Geographical unit	Population size (6-59 months)	Assigned cluster
Bute:		
Bute	3550	1,2,3
Dugow	1196	4
Olgoji	611	
Adadijore	651	5
Godoma	1272	6
Buna:		
Buna	1638	7
Lakole north	475	8
Korondile	2184	9
Leinsayu	1115	10
Malkaguf	558	11
Ingirir	502	
Batalu	1023	12
Kurow	459	
Gurar:		
Gurar	2275	13,14

Ajawa	1479	15,16
Danaba	2563	17,18
Quadama	1436	19
Garse Sare	654	
Sake Gamantha	749	20
Eldas:		
Eldas	2744	21,22
Dela	1521	23
Abdiwako	705	24
Kilkiley	734	25
Lakoley south	1342	26
Anole	1569	27
Griftu:		
Basir	705	
Arbajahan	1640	28,29
Jagaher	638	
Griftu	1081	30
Tulatula	1482	31
Elnur	871	32
Dotha	182	
Wagalla	1633	33,34
Barmish	451	
Ganyure	1072	35
Kukala	659	
Bojiheri	490	36
Garsekoftu	1636	37
Matho	1610	38
Hadado:		
Arthibohol	647	39
Hadado north	1673	40
Lolikuta north	336	41
Logboga north	812	
Ademasajida:		
Lolikuta south	839	42
Hadado south	1966	43
Ademasajida	2013	44,45

Nutrition and Food Security Survey Questionnaire

Name of District	Name of Division	Name of Village	of Cluster No	Household Number	Date of Interview (dd/mm/yy)	Name of Interviewer	of Name of Team Leader
					_ / _ / _		

1 Household data

How many people live in this household together and share meals? (Household size)

1.1 Age Group	1.2 Person ID and Name	1.3 Approx.* Age		1.4 Child's age verified by	1.5 Sex	1.6 Main Occupation (enter code from list)	1.7 If over 5 and under 18 is child attending school?	1.8 Reason for not attending School (enter code from list)
		Enter months for children under 5 years	and years for over 5's					
		Yrs	Mths					
Under 5	1							
	2							
	3							

	4							
5 to 18	5							
	6							
	7							
	8							
	9							
Over 18	10 (HH)							
	11							
	12							
	13							

2. Children aged 6 – 59 months data

2.1 Child ID	2.2 MUAC To the nearest 0.1 cm	2.3 Oedema in both feet? (U5 only)	2.4 Height to nearest 0.1 cm (U5 only)	2.5 Weight to nearest 100 gm (U5 only)	2.6 Is the child currently enrolled in a feeding program? (Confirm by a card if the child is currently enrolled)	2.7 Has child received BCG vaccination?	2.8 Has child received pentavalent 3/OPV3?	2.9 Has the child received measles immun- ization? (enter cod e) (U5 only)	2.10 How many times did the child receive Vitamin A the last one year? (U5 only) (Show the mother the capsule so that she recalls or understand)	2.11 At what age in WEEKS did child start to receive food other than breast milk? (U5 only) (Food includes water, juice, syrup, porridge, fruits etc)	2.12 De- worming status of the child with the last 6 months? (Enter Code)	2.13 Sick-ness in the last 2 weeks (Enter code) (More than one response possible) 1=Not applicable, not sick 2= Diarrhea 3=Vomiting 4=Fever with chills like malaria 5=Fever, cough, difficult in breathing 6=Intestinal Parasite 7= Measles 8=Eye infections 9=Skin infections 10= Accident 11=Malnutrition 12=Stomachache 13=Toothache 14=other (specify)	2.14 When the child was sick did you seek assistance? (enter code) (U5 only) If YES, where (More than one response possible) 1=Traditional healer 2=Community health worker 3=Private clinic/ pharmacy 4=Shop/kiosk 5=Public clinic 6=Mobile clinic 7=Relative or friend 8=No assistance sought	
1														
2														
3														
4														

3. Household water consumption

3.1. What is your main current water source for household? 1=River 6=Protected 2=Lake 7=Public pan 3=Water tap 8=Tanker 4=Borehole 9=Dam 5=Unprotected well 10=Laga 11=Other _____	3.2 How long does it take to go to the main source of water and come back (in minutes)	3.3 On average, how many LITRES of water does the household use per day?	3.4. How much do you pay for a 20lt jerrican (enter zero if water is free)	3.5 What is your main source of drinking water? 1=River 6=Protected 2=Lake 7=Public pan 3=Water tap 8=Tanker 4=Borehole 9=Dam 5=Unprotected well 10=Laga 11=Other _____	3.6. Do you do anything to the water before drinking it? 1=Boiling 2=Use traditional herbs 3=Use chemicals 4=Filters/Sieves 5=Decant 6=Nothing		
(Main source)							

4. Sanitation – Toilet facility

4.1. Does your household have access to a toilet facility?	4.2. If yes, what type of toilet facility is it?	4.3. If No, where do you go/use? (probe further)	4.4 How is children’s faeces disposed (OBSERVE)	4.5 Do you wash your hands after defecation?	4.6 Do you wash your hands before you feed your child?	4.7 Is the compound clean?
1=Yes 2=No	1=Bucket 2=Traditional pit latrines 3=Ventilated improved pit latrine 4=Flush toilet 5=Other _____ Specify _____	1= Bush 2=Open field 3.=Near the river 4.=Behind the house 5.=Other specify) _____ (1= disposed of immediately and hygienically 2= Not disposed (scattered in the compound)	1 = Yes 2 = No	1 = Yes 2 = No	1 = Yes 2 = No (by observation)

5. Food Consumption

<p>5.1 Beginning yesterday when people woke up, what foods/drinks have the members of the household consumed i.e. in the past 24 hours? Include any snacks consumed including breast milk.</p> <p>1=Breast milk (Probe)</p> <p>2=Plain water (Probe)</p> <p>3= water with glucose or sugar</p> <p>4= Fruit juice</p> <p>5=Infant formula</p> <p>6=Milk (Cow's, goat's, camel, packet, sour)</p> <p>7=Milk products (cheese, yoghurt, ghee, butter)</p> <p>8=Food from grains (maize, sorghum, millet, rice)</p> <p>9=Fruits</p> <p>10= Vegetables</p> <p>11=Foods made from roots/tubers</p> <p>12=pulse/legumes (lentils, beans, Soy, Peanut, Kunde, Mbaazi, Ndengu)</p> <p>13=Meat/poultry</p> <p>14=Fish</p> <p>15=Eggs</p> <p>16=Blood</p> <p>17=Unimix</p> <p>18=Tea with sugar or honey</p>	<p>5.2 How many times was each of these foods eaten by each group?</p>	<p>5.3 Where did the food your family ate yesterday come from? (Probe – then enter codes for the three MAIN sources of food in order of importance):</p> <p>1=Market</p> <p>2=Own production</p> <p>3=Both: market and own production</p> <p>4=Gifts from relatives, neighbour, others</p> <p>5=Food-for-work</p> <p>6=Free relief food</p> <p>7=Market and relief food</p> <p>8=Wild food</p> <p>9=Other (specify) _____</p>
--	---	--

19=Fats and oils 20=Other						
Type of food	Frequency (6 to 23 months)	Frequency (24 to 59 months)	Frequency adults (>5 yrs)	Source 1	Source 2	Source 3
5.1						
5.2						
5.3						
5.4						
5.5						
5.6						
5.7						
5.8						
5.9						
5.10						
5.11						

6. Food Aid

6.1. Have you received food aid in the last **three (3)** months? (Please circle) 1 = Yes 2 = No (If no go to section 7)

6.2. If Yes when? (Please circle) 1= less than 1 month ago 2= 1 and 2 months 3= Over 2 months

Please indicate the food commodities received in the last distribution, quantity received, how it was utilized and duration each food item lasted.

		6.5 Of the food aid received, what proportion was used for each of these purposes? (Use proportionate piling to determine the proportions where necessary)					6.6 How many days did each food commodity last?
6.3 FOOD AID COMMODITY	6.4 QUANTITY (KGS) verify by using distribution cards)	Resold in the market	Bartered for other item	Shared with kin	Saved for seed	Consumed by household members	

7. Coping Strategies

	7.1. In the previous month, has the household done any of the following? Tick as appropriate	Relative Frequency				
		Never	Hardly	Sometimes	Often	Always
7.1	Reduction in the number of meals per day					

7.2	Skip food consumption for an entire day					
7.3	Reduction in size of meals					
7.4	Restrict consumption of adults to allow more for children					
7.5	Feed working members at expense of non-working					
7.6	Swapped consumption to less preferred or cheaper foods					
7.7	Borrow food from a friend or relative					
7.8	Purchase food on credit					
7.9	Consume wild foods (normal wild food)					
7.10	Consume immature crop					
7.11	Consume decomposed fish					
7.12	Consume toxic/taboo foods (acacia pod/bitter fruit)					
7.13	Food consumption of seed stock					
7.14	Send household members to eat elsewhere					
7.15	Withdraw child(ren) from school					
7.16	Begging or engaging in degrading jobs					
7.17	Individual migration out of the area					
7.18	Household migration out of the area					
7.19	Sale of farm implements					
7.20	Sale of milking livestock					
7.21	Sale of household goods					

7.22	Disintegration of families					
7.23	Abandonment of children or elderly					
7.24	Sell of charcoal and/or fire wood					
7.25	Part of family migrating with animals to look for grazing					
7.26	Others					

8. Malaria

<p>8.1 Does this household have a mosquito net?</p> <p>1 = Yes</p> <p>2 = No</p> <p>IF NO, GO TO Q9)</p>	<p>8.2 Where did you get it from</p> <p>1 = A Shop</p> <p>2 = An agency</p> <p>3 = Ministry of Health</p> <p>4 = Others (specify).....</p>	<p>8.2 If you got it from the shop, have you ever treated your net (soaked or dipped it in dawa or chemical to repel mosquito or insects)?</p> <p>1 = Yes</p> <p>2 = No</p>	<p>8.3 If YES, When did you last treat it? Enter code</p> <p>1) Less than one month ago</p> <p>1) Between one and six months ago</p> <p>2) More than six months ago</p> <p>3) Cannot remember</p>	<p>8.4 Who slept under the mosquito net last night?</p> <p>(Probe - enter all responses mentioned)</p> <p>1) Children less than 5 years</p> <p>2) Children over 5 years</p> <p>3) Pregnant woman</p> <p>4) Mother</p> <p>5) Father</p> <p>6) Nobody uses</p>					

9. *Adults nutritional status*

QUESTIONS TO BE ANSWERED IF CARE GIVER IS A FEMALE:		
<ul style="list-style-type: none"> • Measure MUAC of caregiver only if a child from her household was measured in <u>SECTION 1.2</u> • Caregiver must be female between 15 and 49 years of age • If there are multiple caregivers, interview only the one who is a primary caregiver 		
<p>9.1. How old are you?</p> <p>_____ years</p>	<p>9.2. What is the woman's current physiological status? (Ask carefully and Circle)</p> <p>1 = Currently pregnant</p> <p>2 = Breastfeeding (<6months infant)</p> <p>3 = Breastfeeding (6-24months)</p> <p>4 = Pregnant and breastfeeding</p> <p>5 = Not pregnant/not breastfeeding</p>	<p>9.3. MUAC (CM), left arm (To the nearest 0.1 cm), do not round up</p> <p>_____ . _____ cm</p>

10 Wealth Ranking/Source of income

Does your household own any of the following Assets?

	Item	Please Tick
10.1	Type of House (Please Observe)	
	Grass Thatch	
	Plastic sheet roof	
	Iron Roof	
	Mud Wall	
	Plastic sheet wall	
	Brick/stone wall	
	Iron sheet wall	
	Stick-wall	
	Mud floor	
	Plastic sheet floor	
	Concrete floor	
10.21	Water Tank	
10.22	Drip Bucket	
10.23	Paraffin Stove	
10.24	Pressure Lamp	
10.25	Bicycle	
10.26	Hand Grain Miller	
10.27	Ox-Plough	
10.28	Donkey Cart	
10.29	Motorized Vehicle	
10.30	Beds	

10.31	Food Granary	
10.32	Radio	
10.33	Tape player/ recorder	
10.34	Television	
10.35	Television and video player	
10.36	Mobile phone	
10.37	Shop/kiosk	
10.38	Shallow well	
10.39	Solar panel	
10.40	Others (specify)	
10.41		
10.42		
10.43		

		How many? Please indicate (Number/size
10.5	Number of Rooms in the dwelling place	
10.6	Number of co-wives	
10.7	Cultivated Land (acres) last season	
10.8	What is the size of your live stock? 0=no livestock, 1=little, 2=small, 3=medium,4=Large)	

10.81	Bulls	
10.82	Cows	
10.83	Oxen	
10.84	Camels	
10.85	Goats	
10.86	Sheep	
10.87	Donkeys	
10.88	Chicken	

10.9	Has the size of your livestock herd changed since last rain? (1=increased, 2=reduced, 3=remained the same)		
10.91	If increased/decreased what are the reasons (1=animals gave birth, 2=bought, 3=given, 4=death because of drought, 5=death because diseases, 6=sold, 7=raid, 8=Other (specify)		

10.10	Source of income		
	<p>What were your sources of income the last three months (please indicate the three most important in order of priority)</p> <p>1=sell of live stock, 2=sale of livestock product, 3= sale of fish, 4=sale of ration food, 5=sale of own crop, 6=wage labor, 7=Remittance 8= charcoal/firewood, 9=basket weaving, 10=petty trade, 11=Others(specify)</p>		

MORTALITY QUESTIONNAIRE

Name of Division	Cluster No	Household Number	Date of Interview (dd/mm/yy)	Name of Team Leader
			_ / _ / _	

HH no.	Total people in HH	Total under 5 in HH	Total deaths after _____	No. of deaths >= 5 years old after _____	No. of deaths < 5 years old after _____	Causes of death in people >= 5 years old	Causes of death in people < 5 years old
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							

18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Causes of death

1=Ethnic conflict/cattle raid	6=Fever, cough, difficult breathing	11=Old age
2= watery Diarrhea	7= Measles	12=Poisoning
3=bloody diarrhea	8=Accident	13=Malnutrition
4=Vomiting	9=delivery complications	14=Un identified causes
5=Fever with chills like malaria	10=Heart attack/stroke	15=other (specify

LOCAL CALENDAR OF EVENTS

MONTH	SEASONS	2005	2006	2007	2008	2009	2010
JANUARY (JITOKO, BISHA KOWAD)	ORAHED BIRA(HOT&DRY SEASON)		IDD ARAFAT(HAJJ) ₃₀	BAN ON MEAT IN N.E P PROVINCE ₂₂	POST VIOLENCE ELECETION/CLOSE OF STAR FM ₁₂		SOLASAR ECLIPSE ₁
FEBRUARY(JIDAMA, BISHA LABAD)			IRK OPENS OFFICE IN MANDERA/AAH ARIVAL IN MALKAMAR ₁₂₉		PEACE AGREEMENT BETWEEN ODM AND PNU, LOCALS MIGRATES FROM DOWN COUNTRY TO MANDERA ₁₁		
MARCH(JISADIHI, BISHA SADAHAD)			CONFLICT BETWEEN GARE &MURULLE ₃₄		LIFT OF BAN IN MEAT ₂₁		
APRIL(JIAFURI, BISHA AFARAD)	GU'U GAN(LONG RAINS)	RELIGIOUS PEACE COMMITTEE LED BY SHEIKH UMAAL IN MANDERA ₃₃	MARSABIT PLANE CRASH/AAH ARIIVES IN BANISA ₂₈	SOLAR ECLIPSE ₂₀	FORMATION OF COALITION CABINET ₁₀	PROLONG DROUGHT FROM APRIL 09 UNTIL SEP.09 ₅	
MAY(JISHANI, BISHA SHANAD)			CHOLERA OUTBREAK IN MANDERA TOWN ₂₇	FLOODING OF RIVER DAUA ₁₉			
JUNE(JIJAHA, BISHA LIHAD)	HAGAY ADOLES(COLD SEASON)		SIEZE OF POWER BY ICCU IN SOMALIA ₂₆	STONE THROWING RHAMU, CONVLICT BETWEEN GARE&DEGODIA ₁₈			

JULY (TORBA ,BISHA TODOBAD)				KILLING OF TWO KENYANS BY SOMALI MILITA ₁₇	PO,INTERNAL MINISTER AND MANDERA PEACE LEADERS MEETING ₉	ACF STAFF HIJACKED/SAFARICOM NETWORK LAUNCHED IN ARABIA AND LAFEY ₄	
AUGUST(JISADEDI, BISHA SADEDAD)				END OF UNKNOW CAMEL DISEASE ₁₆		RAMADHAN/ NATIONAL CENCUS EXERCICE ₃	
SEPTEMBER(JISAGALI, BISHA SAGALAD)	JILAL BON(DRY SEASON)		RAMADHAN ₂₅	CELTEL NETWORK LAUNCHED IN RHAMU ₁₅	2 ND CONFLICT BETWEEN GARRE&MURULE, STARTS OF RAMADHAN ₉		
OCTOBER(JIKUDAN, BISHA TOBANAD)	DERR AGAY(SHORTRAINS)	SOLAR ECLIPSE ₃₃	ATAKKS OF IRK STAFF INHAGARSU/IDUL HAJJ/STARTS OF HEAVY RAINS ₂₄	RAMADHAN ₁₄			
NOVEMBER(JIKUDANI, BISHA KOW ITOBANAD)		NATIONAL REFRUNDUM/IDUL FITR ₃₂			OBAMA ELECTED US PRESIDENT/MILITARY OPERTION IN MANCDERA ₇	IDUL HAJJ(ARAFAT) ₂	
DESEMBER(JIKUDLAMA, BISHA LABAITOBANAD)		SEVERE DROUGHT BIGINS / VISIST BY PRESIDENT KIBAK ₃₁	IDUL ARAFAT/RIFTVALLY FEVER/EXCECUATION OF SADAM HUSSEIN ₂₃	GENERAL ELECCIONS/IDUL HAJJ(ARAFAT) ₁₃	IDUL HAJJ(ARAFAT) ₆		