

REPORT

NUTRITION SURVEY

**KISMAYO DISTRICT
LOWER JUBBA REGION
SOUTH SOMALIA**

May 2003

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We would also like to acknowledge the co-operation of the communities surveyed especially the Women's Groups, the mothers and caregivers in administration of the questionnaires, and participation in the focus group discussions.

EXECUTIVE SUMMARY

In May 2003, UNICEF conducted a nutrition survey in Kismayo District, Lower Jubba Region in South and Central Somalia in collaboration with MUSLIM AID-UK, FSAU and SRCS. The main objective of the survey was to determine the level of wasting and oedematous malnutrition among children below five years, and some of the disease and environmental factors that may be contributing to child malnutrition in the district using the two-stage random cluster sampling methodology.

A total of 913 children between age 6-59 months or measuring 65-110 cm were examined. Qualitative information was also collected prior to the fieldwork with some key informants and a group of mothers on issues relating to household food security and childcare practices in order to gain understanding of factors affecting nutrition in the district. Three month retrospective mortality rates (crude and under 5) were also assessed during this survey.

The prevalence of total and severe acute malnutrition in children is 12.3% (CI 9.6% - 15.6%) and 1.9% (CI 1.1% - 3.0%) respectively. The situation in Kismayo district appears to be better compared to results of surveys conducted within the last two years in other areas like Jamame in the same region, Rabdure in Bakool and Beledweyne in Hiran regions in CSZ that indicated total wasting rates of 14.3%, 14.8% and 21% respectively. The rates, nevertheless, are poor vis-à-vis the WHO standards.

Retrospective under five mortality rate since February 2003 was 2.2/10,000/day, and crude mortality rate 1.9/10,000/day. The deaths were attributed to diarrhoea, ARI and malaria. Both the under five and crude mortality rates indicate a situation of alert which needs to be closely monitored. Almost all (93%) of families seek assistance when their children fall sick, and the preferred choice of health care is the MCH facility. The overall incidence of diarrhoea, ARI and malaria among under-fives was 25%, 41% and 12% respectively with high episodes observed in the first two years of age. For the six-month period prior to the survey, measles immunisation coverage was 70% compared to a national average of 16%¹, and 89% of children had received Vitamin A supplements. The high coverage rates can be attributed to recent EPI acceleration and NIDs activities in Kismayo.

Complementary feeding practices are fairly sound, with 84% of all the under fives receiving three meals and above, daily. However, exclusive breastfeeding for the first six months is poor, with 10.3% of mothers doing so at 4 months. On further investigation, lack of awareness among teenage mothers, and the inability of women to devote adequate time to care practices because of their preoccupation with livelihood activities were sited as the main causes.

The survey depicts domestic use of unsafe water and poor faecal disposal as the major factors contributing to diarrhoea and child malnutrition especially in Shakalaha section and IDP camps of Kismayo town. A longer-term plan to further improve the nutritional status of the population needs to be developed and supported covering improvements in household hygiene and exclusive breastfeeding practices with the active participation of youths, pregnant mothers,

¹ UNICEF Somalia Consolidated Donor Report, January - December 2002

fathers and other caregivers in order to sustain any improvements in the nutrition situation in Kismayo district.

The poor and the displaced households will continue to purchase their daily food needs for as long as the current food security situation remains constant. Providing more opportunities in income generation, training and empowering them is the likely way forward to this scenario.

SUMMARY FINDINGS

Indicator	Number	Percentage
Under five children screened during the survey.	913	100
Number of boys in the sample	443	48.5
Number of girls in the sample	470	51.5
Global acute malnutrition according to Weight For Height Index in Z-Score or presence of oedema	112	12.3
Severe acute malnutrition according to Weight For Height Index in Z-Score or presence of oedema	17	1.9
Global acute malnutrition according to weight for height % of median or presence of oedema	67	7.3
Severe acute malnutrition according to weight for height in % median or presence of oedema	5	0.5
Proportion of children with diarrhoea in two weeks prior to the survey.	226	24.8
Proportion of children with ARI in two weeks prior to the survey.	371	40.6
Proportion of children with Malaria in the last two weeks prior to the survey.	113	12.4
Proportion of children with Measles in the last one month prior to the survey.	38	4.2
Proportion of children supplemented with Vitamin A in the last month prior to the survey.	810	88.7
Proportion of children immunised against Measles (ⁿ =863)	638	70
Proportion of children exclusively breastfeeding at 4 months	85	10.3
Proportion of children breastfed 18 months and more (ⁿ =786)	181	23.0
Proportion of children fed 3 times a day and above	767	84
Proportion of female-headed households.	72	15.3
Under 5 mortality rate	27	2.2/10000/day
Crude mortality rate	53	1.9/10000/day
Main source of food: Purchases	379	80.6
Other source of food: Household crop production	41	8.7
Main source of income: Casual work	249	53.0
Other source of income: Petty trade	99	21.1
Coping strategy: Source of income: Borrowing	204	43.4
Other coping strategy: Purchases	191	40.6
Source of water: Open hand dug well	371	78.9
Source of water: River	36	7.7
Faecal disposal: Pit latrine	364	77.4
Faecal disposal: Bush/Open ground	98	20.9
Access to health services: Private clinic/Pharmacy (n=459)	172	37.5
Access to health services: Public health facility	257	56

1 INTRODUCTION

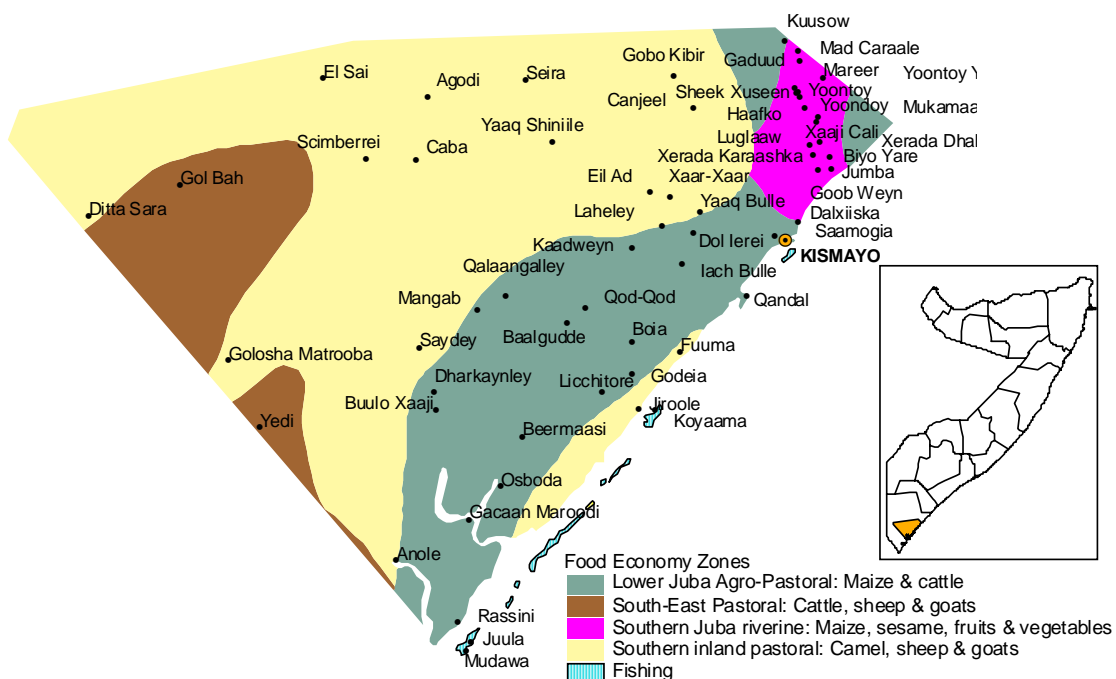
1.1 Background Information

Kismayo is one of the five districts in lower Juba region of southern Somalia. The other four districts are Jamame, Badade, Afmado and Hagar. The current population estimate is 80,000, although there is high in-migration from other parts of the country of people seeking labour and employment. There is a large seaport and airport that can harbour and land bigger ships and planes. In spite of the fact that the ecology is favourable for farming and livestock rearing, fishing and petty trading seem to be the main sources of livelihood in the district.

The political and socio-economic scenario in the district continues to be complex and volatile, characterised by civil unrest, frequent inter-clan fighting, manmade and natural floods along the Jubba Valley River, and successive crop failures. The ElNino floods of 1997 seriously affected the Lower Jubba region compromising the productive capacity of Kismayo district in particular. Analysis of recent food security reports indicates improvements in rainfall, food production and grazing patterns.

Since the collapse of the government in 1991, the district has not had the network of administrative institutions required for developing policies and programmes that would ensure adequate access to basic services. However, since the Jubba Valley Alliance took over control of the region in 1999, they have continued to solicit support from humanitarian agencies and ensure a fairly stable environment for the delivery of humanitarian assistance to the communities.

1.2 Food security context



1.2.1. Food economy zones

There are five primary FEZ in the district listed below in order of relative importance. The internally displaced people in Kismayo, however, do not belong to any of these FEZ.

Food economy zone	Proportion
a) Urban: trade and labour	37
b) Southern Inland Pastoral: camel, shoat	10
c) Lower Juba Pastoral: cattle and shoat	15
d) Lower Juba Agro-pastoralists: Cattle, maize	20
e) Sea-food: fishing and trade	15
f) Juba Riverine Pump Irrigation: Maize, tobacco, onion	3

In the urban food economy zone, people possess land and few livestock, but their major income source is from trade and employment. Trade in mirrah (chat) is the sole livelihood for some of the households within the middle and rich wealth groups.

The southern inland pastoral FEZ people depend mainly on camel and shoat for food and income sources. The zone stretches from the north to west and all the way to south –west of the district.

The Lower Juba agro-pastoral FEZ covers many areas in the west and portions in the extreme southwest. Their economy depends on crops mainly maize and other cash crops such as sesame and cowpea. Cattle are the main sources of food and income.

The Lower Juba Pastoral FEZ is found in the north and in the west of the district. The people in this zone depend on cattle and shoats for their livelihood.

The Juba Riverine pump irrigation FEZ lies almost in the north along both sides of the river. The economy depends on marketing of irrigated crops, mainly maize, onion and tomato, and other vegetable crops, banana, papaya, and mango. The produce is marketed in Kismayo where the demand is high.

The seafood FEZ covers the east to all south of the district. The economy depends on fishing, mainly fish and lobster for food and income source.

Historical Timeline

Year	Ranking - (very poor/poor/normal/ good/very good)	Reasons for that ranking and coping strategies
2002	Good	The Deyr and Gu rainfall were average-good Livestock and agricultural production was good, as well as pasture and grazing condition; cereal price (50,000 ssh/50 kg bag) were low and the terms of trade were favourable both to pastoralists and agro-pastoralists (1 local goat could be exchanged for 5 bags of cereal 50 kg). The prices of imported food commodities were reasonable.
2001	Slightly below normal	Combined Deyr and Gu rainfall was low. Crop yields were poor; cereal price 70'000-80'000 ssh per 50kg higher than the normal price. Security situation was relatively calm. Terms of trade - 1 local goat: 4.5 bags/50kg favourable to pastoralist & agro-pastoralist. SRRC/JVA conflict
2000	Normal	Seasonal rainfalls were normal. Crops and other livestock production were on the average. Cereal prices were 60'000sh-70'000/50kg. Security situation was relatively normal. Terms of trade favourable to the pastoralist & agro-pastoralist. (1 local goat: 5 bags/50kg of cereal)
1999	Poor	Poor rainfall, poor livestock and crop production' cereal price 100'000-120'000ssh/50kg. Terms of trade favourable to pastoral and agro-pastoral (1 local goat: 3.5 bags of cereal). Security situation was bad because of fighting between the SPM and the JVA.
1998	Normal	Pasture, crop and milk production were on the average. Cereal price 60'000-70'000/50kg. Security situation was bad because of fighting between the SPM and the JVA.
1997	Bad year	ELNino flood. Houses, underground food stocks submerged, human life devastated.

1.2.2: Internally Displaced Persons (IDPs)

The internally displaced people in Kismayo are a multi-ethnic group of people who do not belong to either food economy groups described above. They originated from various districts in the country such as Sako, Barawe, Buale, Dinsor, Jamame, Koban, Kamsuma, Jilib and Mogadishu. Ethnically they are all Somalis from the Jareer (Bantu) and non-Bantu clans. The first group came in 1991 because of insecurity in their original homeland where their people were killed and all their belongings looted. The other group came in 1997 due to the disastrous effects of the ELNino floods. On arrival in Kismayo they moved to settle in ruined governmental premises, even though they had no suitable houses to live in. They quickly established traditional sheltered huts. Having lost assets and access to farmland, they depend on self-employment and casual labour for their livelihood. Most of these IDPs are reluctant to

return home even if the security is resolved because they have adapted to urban life and are working hard to earn more income. This is a similar livelihood adopted by the urban poor, with the exception that the latter have assets (land and livestock).

There are 25 camps in Kismayo town housing an estimated 2,627 families. The average household size in these camps is estimated at 6.5. They are among the vulnerable people in Kismayo who have neither assets nor reserves. Their livelihood depends on petty trading and income from casual labour mainly in the charcoal trade.

1.3 Health Context

The only district hospital in Kismayo town run by MSF-B until 2001, has remained closed due to lack of community support for its administration and management, and disagreement relating to overstaffing at the hospital. There are four MCHs in the district that are functioning. These are the Farjano MCH in Kismayo town and Bulo-Haji MCH run by SRCS, and two MCHs in Fanole section run by Muslim Aid UK and the Juba Aid Foundation. Apart from the MCHs, there is a clinic in Fanole section recently established by a private practitioner, and several private pharmacies providing health services to the community. However, a recent report on a health area demarcation exercise conducted by all health partners in the district indicates that only an estimated 70% of the population mostly resident in Kismayo town and Bula-Haji village have access to basic health services. There are no health posts in the entire district.

In addition to conducting two rounds of NIDs and vitamin A supplementation campaigns in the district, the health partners conducted EPI acceleration activities in Kismayo town in September 2002 and March 2003 in order to increase the low immunization coverage recorded from the routine static EPI strategy in previous years. Through the house-to-house mobilisation strategy employed with the active involvement of religious leaders, the team succeeded in increasing EPI coverage from 30% to 80%.

UNICEF continues to support the four functioning MCHs in the district with the distribution of essential medical equipment and drugs, Cold Chain equipment and supplies for immunization, insecticide treated bed nets, clean delivery kits and micronutrient supplements in support of reproductive health care, control of diarrhoeal diseases, malaria control and disease/nutrition surveillance. Monthly food demonstration sessions have been established as an integral part of MCH services. This is used as an opportunity for interacting with mothers and local authorities at MCH and community level on issues relating to exclusive breastfeeding and appropriate complementary feeding practices. Recent morbidity reports from the MCHs indicate that diarrhoea and ARI are the diseases common among children seen.

1.4 Water and environmental sanitation

Communities in Kismayo district rely on open hand dug wells and the river as the main water sources. There are about 2,000 of such wells in the district. The potable Yontoy water supply system, which catered for the 100,000 inhabitants of Kismayo town, and bore wells that supplied water to nomads and their animals collapsed with the downfall of the government in 1991. Many villages in nomadic areas have been deserted due to lack of water, and the people have resettled close to the river. Toilets constructed by humanitarian aid organisations in the

IDP camps in the early nineties have collapsed because of poor maintenance, and almost all the hand pumps that were installed on shallow wells were transferred to private houses.

In 2001 UNICEF supported rehabilitation of 10 open public wells with Afridev hand pump installations in Kismayo town, and two bore wells in Abdidore and Laheley in partnership with the community. Two additional bore wells and 25 shallow wells will be rehabilitated in the district in 2003. The open wells are routinely chlorinated especially during the dry season when there is a high risk of cholera outbreak in the district.

2 SURVEY JUSTIFICATION

Frequent inter-clan fighting in the district from 1991-1999 prevented access by humanitarian agencies to Lower Juba region and Kismayo town in particular. The situation improved following the capture of Kismayo town by the JVA in 1999, and establishment of local administrative machinery and some social networks to maintain a stronghold and some sense of stability in the district.

IDPs and the urban poor, live in deplorable conditions, both in terms of housing, overcrowding, lack of water and toilet facilities within their camps. These predispose them to diseases and malnutrition. Also, there have been repeated concerns among humanitarian aid organisations about access to food and basic services among the destitute and IDPs in Kismayo district. UNICEF incorporated a plan to conduct a nutrition survey in the district in the project plan of action for 2003 in order to have a general overview of the issues affecting children.

In March 2003, FSAU undertook a rapid mid upper arm circumference assessment of the under fives in the IDP camps and found malnutrition rates (MUAC below 12.5 cm) to be 21%. This figure was significantly high (despite the inaccuracy of MUAC as a tool) compared to 13.4% in November 2002. On liaison with UNICEF, a nutrition survey (based on the accurate indicator of weight for height) was scheduled for May 2003.

2.1 Survey Objectives

1. To determine the levels of malnutrition in Kismayo district through anthropometric measurement using the Weight for Height of children between 6-59 months or 65-110 cm.
2. To determine the coverage of measles vaccination and Vitamin A supplementation in children under five years in Kismayo district.
3. To determine the incidence of diarrhoea, measles and ARI in children under five years two weeks prior to the survey.
4. To describe the possible causes of malnutrition in Kismayo district.
5. To determine the levels of retrospective crude and under five mortality rates since the first of February 2003

3 METHODOLOGY

3.1 Study Design

This study was both descriptive and analytical in nature. It utilized cross-sectional data collected through a standard questionnaire (see appendix). Additional qualitative data were collected during the study, through eight focus group discussions designed to further understand the underlying causes of malnutrition (health, care practices and food security), and capture diversity within the population groups.

3.2 Sampling procedure

Study population and sampling criteria

For the nutrition survey, the study population consisted of people living in the district and comprised of all children aged 6-59 months (or heights between 65 – 110cm). In order to provide valid estimates of the prevalence of malnutrition in children with a 95% confidence, a minimum of 900 children were to be examined, 30 children being randomly selected from each of the 30 clusters. With regard to mortality, 901 households, (30 households randomly selected from 30 clusters) were to be studied.

3.3 Sampling methodology

The two-stage cluster sampling methodology was used. A list of villages with population estimates for all villages in Kismayo district was obtained from the NIDs Secretariat in CSZ. A table of cumulative population and attributed numbers was developed, and clusters selected based on population proportional to size. The sampling interval was determined by dividing the total population by 30. The calculated cluster interval was **2526**. (*See Annex: 1*). A random number selected within the cluster interval was used to determine the location of the first cluster. The next and subsequent clusters were determined by adding the cluster interval to the preceding random number selected. A total of 24 clusters were from Kismayo town including 3 IDP camps, 5 clusters were from villages and 1 cluster from Island.

The second stage of sampling was carried out in the cluster to select the first and subsequent households. Each team went to the middle of the cluster assigned guided by survey guides selected from the community, and determined a random direction by spinning a pencil. All households along the direction selected to the border of the cluster were counted and assigned numbers on a piece of paper. The survey guide randomly selected the first household to be visited from among those numbers. Subsequent households were selected on the basis of proximity following a clockwise direction. All eligible children in each household visited were measured and weighed, and the mortality questionnaire administered. If a caregiver or child was absent an appointment was made and the household revisited until the child was examined. The mortality questionnaire was administered in all randomly selected households, including those that did not have an under five.

A total of 913 children were examined for weight for height and, their caregivers interviewed as to whether the children had received Vitamin A or Measles vaccination in the past 6 months,

or had suffered from diarrhoea or ARI diseases two weeks prior to the survey. A total of 901 households responded to the questions on mortality.

Child age determination

Difficulties were encountered in determining the exact ages of children. Calendars of events were also used as proxies to accurate age determination. Children ages were still regarded as important indicators though not used for anthropometric analysis and were approximate/average pointers. The nutrition indicator employed the weight for height as interest was in wasting status (acute malnutrition).

3.4 Description of survey activities

Major Activity	Period
Preparation of tools and methodology	29 th April – 30 th April 2003
Identification of enumerators	2 nd May – 3 rd May 2003
Training of enumerators	5 th May – 7 th May 2003
Cluster Identification	7 th May 2003
Collection of cross-sectional data and qualitative survey	8 th May – 13 th May 2003
Entry of data from cross-sectional survey	8 th May – 15 th May 2003
Analysis of data and preparation of draft report	16 th May – 22 nd May 2003

Six teams collected data. Each team had two enumerators and one supervisor. Enumerators were selected based on their experience with previous nutrition surveys. MUSLIM AID-UK, SRCS, Juba Aid Foundation, and the Kismayo District Commissioner assisted in the identification of qualified persons. The team leaders were health and nutrition professionals from UNICEF, FSAU and Muslim Aid.

3.5 Quality control procedures

A comprehensive training of enumerators and supervisors was conducted covering interview techniques, sampling procedure inclusion and exclusion criteria, sources of errors taking of measurements, standardising the questions in the questionnaire, levels of precision required in measurements, diagnosis of oedema, handling of equipment, interview techniques and the general courtesy during the survey.

Rigorous pre-testing of the questionnaire and equipment was carried out in one of the IDP camps (not selected for data collection). These involved familiarisation in village/cluster entry, exercising the questionnaire, sampling procedure, correct taking of measurements and documentation. After the field exercise, views were exchanged to address the difficulties identified, appropriateness of the questions reviewed and appropriate changes were made.

Quality of data was also ensured through; close monitoring of fieldwork by UNICEF, FSAU, Muslim Aid-UK and SRCS, cross-checking of filled questionnaires on daily basis and daily reviews undertaken with the team leaders to address any difficulties encountered. Progress evaluation was carried out according to the time schedule and progress reports shared with partners on regular basis. Continuous data cleaning after entry in the field made it easy to detect

outliers and mistakes in data collection. Accuracy of equipment was also monitored through checks by measuring objects of known weights.

3.6 Variables examined

Age – Only children between 6-59 months were selected for examination. The age of a child was determined from the mother/caregiver's recall, the under fives card, or from a local events calendar (*See Annex 2*) when the birth date was not stated.

Weight – UNICEF electronic scales were used to weigh children to the nearest 0.1 kg or 100g.

Height – Children were measured barefooted and bareheaded using height measuring boards graduated to the nearest 0.5cm. Children with height < 85 cm were measured lying, while those equal to or >85 cm were measured standing.

Oedema – Children were examined for the presence of bilateral pedal oedema. The occurrence of pitting as a result of thumb pressure on the foot or leg for 3 seconds was indicative of nutritional oedema.

Diarrhoea – Mothers/caregivers were interviewed regarding any episode of three or more loose, watery stools in a day, within the preceding two weeks.

Acute Respiratory Infections (ARI) – collected by asking the mother/caregiver whether the child had "*oof wareen or wareento*", a local term for pneumonia, two weeks prior to the survey. This term was validated, by further asking if the child had cough, fever and rapid breathing.

Malaria– collected from interviewing the mother/caregiver whether the child had malaria two weeks prior to the survey, followed by some probing by the health worker in the team to exclude other infections.

Measles immunisation status – the information was either provided by the mother or recorded from the child's vaccination card.

Measles prevalence– collected from interviewing the mother/caregiver whether the child had measles in one-month period prior to the survey.

Vitamin A supplementation - the information was collected from interviewing the mother or recorded from the child's vaccination card.

Residential status – In all households visited, the mother/caregiver was asked whether they were originally resident from the village/town, or if they were displaced from elsewhere.

Sex of household head – The mother/caregiver was asked to state the sex of the person who takes decisions regarding welfare of all household members.

Feeding – Introduction of breastfeeding and weaning practices and times feed to children assessed by interviewing mother/caregiver to all children.

Mortality – a household was defined as a group of people living together and sharing food from the same pot. Being a polygamous community, unless in exceptional situations, the respondent was the female.

The same methodology used in identification of the under fives for the nutrition survey (i.e. 30 clusters x 30 children) was used for the mortality survey with the exception that in each of the 30 clusters, 30 households were selected. The team went to the household, assessed all eligible under fives, and administered the questionnaire on mortality. However, in the absence of under fives, the mortality questionnaire was still administered. The nearest household in the selected direction was then selected both for the under five and mortality assessment. The questionnaire on mortality was administered irrespective of whether or not there was an eligible under five for anthropometric measurements, until a total of 30 households had been covered.

3.7 Data entry, cleaning, processing and analysis

Data was entered and analysed using EPIINFO computer based package. Running and tabulating all variable frequencies was carried out as part of data analysis. The “EPINUT” programme was used to convert the measurements (weight and height) into nutritional indicators and comparison made with the National Centre for Health Statistics (NCHS) references as designed by WHO (1983).

4 SURVEY RESULTS

4.1 Characteristics of the Study Population

Of the 470 households interviewed, the majority (85%), were headed by males. Nine hundred and thirteen (913) children were surveyed, out of which 443 (48.5%) were boys and 470 (51.5%) girls, with a sex ratio of 0.9. The difference in proportions is insignificant indicating an unbiased sample selection.

Table 1: Distribution of sample by age groups (in months) and sex

Age categories	Boys		Girls		Total		Sex ratio
	No.	%	No.	%	No.	%	
6 – 11	38	8.6	43	9.1	81	8.9	0.9
12 – 23	95	21.4	98	20.9	193	21.1	1.0
24– 35	90	20.3	117	24.9	207	22.7	0.8
36– 47	99	22.3	101	21.5	200	21.9	1.0
48– 59	121	27.3	111	23.6	232	25.4	1.1
Total	443	48.5	470	51.5	913	100	0.9

4.2 Anthropometric analysis

The prevalence of total and severe acute malnutrition in children in Kismayo district is 12.3% (CI 9.6% - 15.6%) and 1.9% (CI 1.1% - 3.0%) respectively. This situation appears to be better compared to other areas like Jamame in the same region, Rabdure in Bakool and Beledweyne in Hiran regions in CSZ that indicated total wasting rates of 14.3% in 2001, 14.8% in 2002, and 21% in 2002 respectively. The previous surveys conducted in the district by UNICEF and other agencies in 1995 and before cannot be comparable at this time.

Table 2: Malnutrition prevalence using W/H z-score categories by sex

Sex	Total children		> -2 Z-score		< -2 and \geq -3 Z-score		< -3 Z-score or oedema	
	No.	%	No.	%	No.	%	No.	%
Male	443	48.5	379	85.6	54	12.2	10	2.3
Female	470	51.5	422	89.8	41	8.7	7	1.5
Oedema	0	0	0	0	0	0	0	0
Total	913	100	801	87.7	95	10.4	17	1.9

A total of 14.5% of the boys and 10.2% of girls were malnourished. Further analysis indicates that there is no association between sex and global acute malnutrition ($p=0.14$).

Figure 1. Distribution of the W/H z-scores

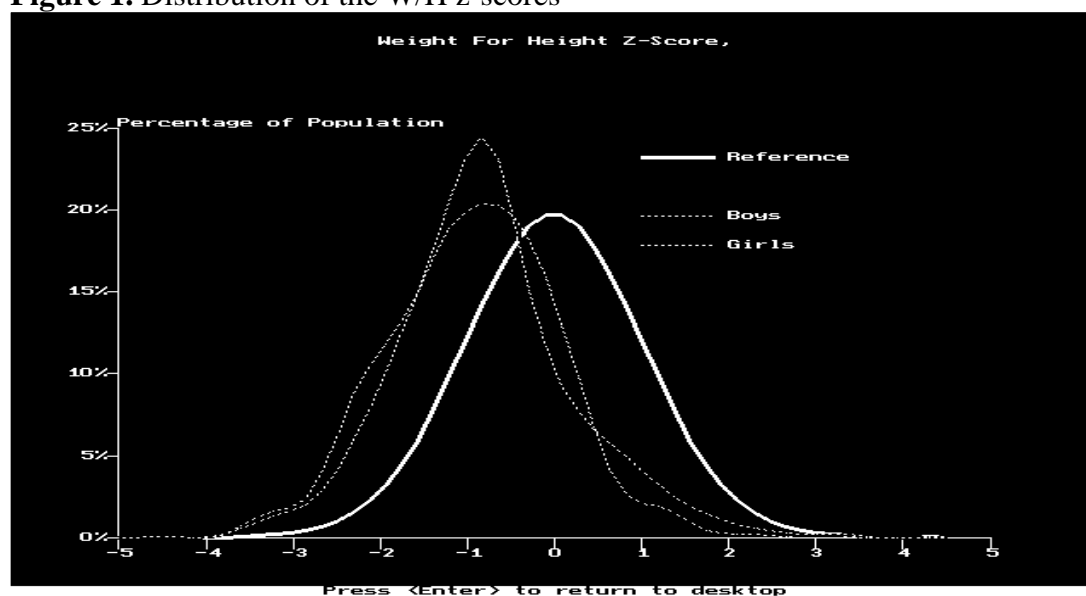


Table 3: Nutrition status (W/H z scores) according to age group

Age group mnths	Total No. of children	≥ -2 Z-score		< -2 and ≥ -3 Z-score or oedema		< -3 Z-score or oedema		Total Malnutrition	
		No.	%	No.	%	No.	%	No.	%
6 – 11	81	73	90.1	7	8.6	1	1.2	8	9.8
12 – 23	193	160	82.9	26	13.5	7	3.6	33	17.1
24– 35	207	183	88.4	20	9.7	4	1.9	24	11.6
36– 47	200	175	87.5	22	11.0	3	1.5	25	12.5
48– 59	232	210	90.5	20	8.6	2	0.9	22	9.5
Total	913	801	87.7	95	10.4	17	1.9	112	12.3

Fifteen percent (15%) of the children aged between 6-23 months were malnourished while 11% of the children aged between 24-59 months were malnourished. Further analysis suggests no association between age group and global acute malnutrition ($p=0.15$).

Table 4: Nutrition status as percentage of the Median

Age	6-59 months	6-23 months	24-59 months
Global acute malnutrition	7.3% (CI: 5.5% - 10.1%)	9.1% (CI: 6.0% - 13.2%)	6.6% (CI: 4.5% - 9.8%)
Severe acute malnutrition	0.5% (CI: 0.2% -1.4%)	0.7% (CI: 0.1%-2.6%)	0.5% (CI: 0.1% - 1.5%)
Oedema	0	0	0

Chi-square test of association indicated significant association with acute global malnutrition for children aged between 6-23 months ($p=0.00$).

4.3 Mortality rates

A standard questionnaire on mortality was administered to 901 households during the survey. Following were the findings:

a). Under five mortality rate

In the last 90 days preceding the survey, a total of 26 children aged below five (15 girls and 11 boys) died within the (under five) survey population of 1,335. The deaths were attributed to: diarrhoea (14 cases), ARI (2 cases), malaria (6 cases) and other diseases (5 cases). This translates to an under five mortality rate of 2.2/10,000/day.

b). Crude mortality rate

In the last 90 days preceding the survey, a total of 53 deaths occurred within the survey population of 3,037 people. The causes of the deaths were diarrhoea, tetanus and bleeding. This translates to Crude mortality rate of 1.9/10,000/day.

Both the under five and crude mortality rates of 2.2/10,000/day and 1.9/10,000/day respectively, indicate a situation of alert (Moren, 1995).

4.4 Health, feeding practices and immunization coverage

Table 5: Disease prevalence, immunization and vitamin A coverage

Age group - Mnth	Total No.	Diarrhoea - last 2 wks		ARI - last 2 wks		Malaria - last 2 wks		Measles - last 1 mnth		Measles vaccination - last 6 mnth		Vit A Supplement - last 6 mnth	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6 - 11	81	34	42	36	44	9	11	0	0	32	40	63	78
12 - 23	193	72	37	96	50	22	11	7	4	125	65	173	90
24 - 35	207	47	23	83	40	25	12	10	5	157	76	186	90
36 - 47	200	39	20	78	39	27	14	10	5	152	76	173	87
48 - 59	232	34	15	78	34	30	13	11	5	172	74	215	93
Total	913	226	25	371	41	113	12	38	4	638	70	810	89

The overall incidence of diarrhoea, ARI and malaria among under-fives was 25%, 41% and 12% respectively, with high episodes observed in the first two years of age. Diarrhoea and ARI were found to be significantly associated with wasting in children ($p=0.00$).

Based on mother's recall and U5 card verification, 70% of the children had been vaccinated for measles, and 89% had received vitamin A supplements the six-month period prior to the survey.

Child Feeding Practices

According to the survey, only 10% of the children were exclusively breastfed for 4 months. 27% of children were breastfed for less than 6 months, 21% were breastfed for 6-11 months, 19% were breastfed for 12-18 months, while 33% were breastfed for more than 18 months.

Ninety percent (90%) of children were introduced non-breast milk food before 4 months. 84% of the children were fed at least 3 times a day, 15.3% fed twice a day, and only 0.7% of them were fed once a day.

4.5 Main sources of income, food, drinking water, and coping strategies

Table 6: Household Head sex, residential status, livelihood, source of drinking water, access to health services

Sex of Household Head	Number	Percentage
Female headed households	72	15.3
Male headed households	398	84.7
Total	470	100
Two main source of income		
Casual work	249	53.0
Petty trading	99	21.1
Two main source of food		
Purchases	379	80.6
Household crop production	41	8.7
Two main coping strategies during food shortage		
Borrowing	204	43.4
Purchases	191	40.6
Two main source of drinking water		
Open hand dug well	371	78.9
River	36	7.7
Two main source of treatment when a child is sick		
Private clinic/Pharmacy (n=459)	172	37.5
Public health facility	257	56

5 SUMMARY OF FOCUS GROUP DISCUSSIONS

Focus group discussions were conducted in randomly selected settlements in Kismayo town and Gobweyene village. This was done in order to obtain additional qualitative information that would throw light on the household food security, water and sanitation situation, and the care behaviours that enhance or hinder the nutrition of children, as well as capture any diversity within the population groups. The main targets were women's groups, traditional birth attendants, petty traders, the water and sanitation committee, the health committee, and representatives of the local administration.

5.1 The household food security situation

- Following the harvest in Deyr (February 2003), the current food security situation in the various food economy zones is normal and compares well with the last normal year (the year 2000).
- Locally produced cereals and imported food commodities are readily available in the markets.
- The storage system is traditionally good. In the field, farmers store the cereal well fumigated under ground granaries (Bakaara) and others, particularly traders, keep them in drums. In market town, traders utilize powerful insect killers in storage to reduce damage particularly weevils, moulds.

- Availability of milk in market level is less, but almost normal. The recent rains improved milk production and encouraged trading them to Kismayo market.
- Overall accessibility of food is affected by the market price and cost of labour. Food is mainly accessed through purchase and household crop production, while income is mainly accessed through casual work and petty trade.
- The coping strategy being engaged by the destitute residents or IDPs in accessing food and/or income is borrowing or begging.
- Currently, the terms of trade in Kismayo seems to be favourable to the pastoral and agro-pastoral people as one local goat (300'000s-350'000s/head) can be exchanged with three bags of maize/50 kg each. This is also true for those poor and displaced households who depend on casual labour.

5.2 Infant and young child feeding

Only 10% of children screened during the survey were exclusively breastfed. Below are some of the reasons attributed to the low rate of exclusive breast feeding.

- Because of the prolonged nature of the civil unrest and the limited employment opportunities for men, women have been forced to play non-traditional breadwinning roles, which compete with their child caring roles. They lack the community support needed to practice exclusive breastfeeding.
- Frequent pregnancies especially among teenage mothers. It is common practice for women to stop breastfeeding as soon as they become pregnant.
- Lack of knowledge on appropriate child feeding practices among young mothers.
- Prolonged bleeding during labour and diseases suffered by mothers after delivery cause early introduction of non-breast milk foods and fluids to their infants.
- Women have the urge to preserve the aesthetic value of their breast as their husbands place a high value on firm breasts. A lot of mothers are knowledgeable about the importance of exclusive breastfeeding to the nutritional status of the child but fail to apply it.

With regard to intra-household food distribution, children are given priority both in terms of quality and quantity, and in times of stress. Over 80% of the children were fed three or more meals a day.

6 DISCUSSION OF RESULTS

6.1 Food security

a). The situation since January 2003

Since the Deyr 02/03 harvest, the food security situation in Kismayo district has remained normal and compares well with year 2000, which has been identified as the last normal year for whole the Juba Valley region. Both cereal and imported food commodities were available in the market. Surplus food is being stored both in the urban and rural areas. The recent rains and improved pastures enhanced milk production to almost-normal quantities and encouraged its trade in Kismayo market.

Most of the households reported purchase and own crop production (81% and 9% respectively) as their main sources of food. Casual work and petty trade together remained important sources (contributing 74%) of income for these households. At the time of the survey, animal condition was stable with relatively good exchange rates for cereal. The terms of trade are favourable to the pastoral and agro-pastoral groups as one local goat (300'000s-350'000s/head) can be exchanged with three bags of maize/50 kg each.

The key determinants of access to food are: the market prices, and labor rates, both of which are also currently favourable to the poor and the displaced. The major of income for the poor and displaced people is casual work and petty trade (pushing of hand cart, collection and sale of bush products, shoe polishing, sale of water). This provides daily cash income of ranging from ssh. 4,000 - 10,000. With regard to intra-household food distribution, children received priority. This could explain why the levels of malnutrition were relatively low.

These factors: ample Deyr harvest, favourable terms of trade, access to income by most of the households through casual work and petty trade helped to control malnutrition rates in Kismayo district.

b). Coping mechanisms

Borrowing (43%) and purchase (41%) are the two main strategies for coping with food shortages and could imply gradually diminishing food stocks from own production. This also explains why mothers are engaged in petty trade and casual work, to support livelihoods activities, at the expense of child care practices such as exclusive breastfeeding, resulting in a relatively poor nutrition situation. The huge proportion of households depending on borrowing poses a considerable risk (43%) for the pastoralists and agro-pastoralists whose stocks may be dwindling. Households resorting to borrowing may find it difficult to repay the borrowed assets if the income accrued from casual work and petty trade becomes insufficient. This could result in a major drain in their assets that could offset the food security balance.

6.2 Health and sanitation

A majority of the population in the district seem to have access to health services, and almost all families (93%) seek assistance when their children fall sick, with the MCH clinics offering free services to the communities being the preferred choice for consultations. Acute respiratory infections (41%), diarrhoea (25%) and malaria (12%) were the main diseases affecting children at the time of the survey, with high episodes observed in the first two years of life. ARI and diarrhoea were found to be significantly associated with wasting in children ($p=0.00$).

Unfortunately, 79% of the population draw their drinking water from open hand dug wells and only 23.4% of them have access to potable water. Although 77% of the population use pit latrines, a good proportion living in IDP camps and overcrowded areas like Shaqaalaha section of Kismayo town dispose faecal matter indiscriminately around their shelters. These happen to be the common play areas for young children. It is not therefore surprising that diarrhoea is one of the main diseases affecting the children and contributing significantly to the levels of malnutrition recorded in this survey.

As the security situation improves, vitamin A supplementation in children, pregnant and lactating women will continue through the NIDs and with EPI acceleration activities in order to

offer a good proportion of these high risk groups some protection from these communicable diseases.

6.3 Child care practices

Complementary feeding practices are fairly sound, with 84% of children receiving three or more meals in a day. Kismayo being an urban settlement and with most mothers having access to the MCHs. Experienced mothers are knowledgeable about proper feeding practices and appreciate the importance of frequent feeding and varied diets for young children. Some of them received training both before and after the government. Also, there are several varieties of food in the markets, and most families can afford at least three meals a day for their children. The problem seems to lie with teenage mothers who are not aware of the principles of exclusive breastfeeding and appropriate complementary feeding practices. Majority of mothers also spend a lot of time on livelihoods and dedicate less time to child feeding practices.

The practice of feeding sugar and water mixture to children during the first days of life is common. About 90% of the children in this survey had received food other than breast milk during the first four months of life. This practice undoubtedly has negative influence on the nutritional status and has the potential to increase the incidences of morbidity amongst the children. Young teenage mothers enjoy being frequently pregnant, and place high regard on the aesthetic value of their breast (which presumably is affected by prolonged breastfeeding).

6.4 Nutritional status

With a total and severe malnutrition rate of 12.3% (CI 9.6% - 15.6%) and 1.9% (CI 1.1% - 3.0%) respectively, the situation is poor though it appears to be better compared to other areas like Jamame in the same region, Rabdure in Bakool and Beledweyne in Hiran regions in CSZ that indicated total wasting rates of 14.3%, 14.8% and 21% respectively. Fifteen percent (15%) of the children aged between 6-23 months were malnourished while 11% of the children aged between 24-59 months were malnourished, with further analysis suggesting no association between age group and global acute malnutrition ($p=0.15$).

The data shows some overrepresentation of the older age group (48-59 months) representing at least a quarter of the children measured. While accurate determination of age is a common problem in situations where documentation is rare and literacy is low, the lack of significance in differences in malnutrition rates among age groups means that this overrepresentation does not affect the results of the survey. Of significance however, was association with acute wasting for children aged between 6-23 months than their older counterparts. This reinforces the argument of inadequate childcare practices to be more associated with malnutrition this point in time than any other factor. The higher number in the older age category would however suggest that a number of children who qualified within the height criteria were in fact over the age of five years and most likely stunted in growth.

6.5 Mortality rates

Both the under five mortality rate of 2.2/10,000/day and crude mortality rate of 1.9/10,000/day were high and indicate a situation of alert. These were mainly attributed to high incidences of diarrhoea and malaria. Diarrheal diseases are greatly associated with consumption of unsafe contaminated water from open wells and the river, coupled with late presentation of diarrheal (and also malaria). High death rates from preventable these diseases correlates well with

limited access to health services (which are only found in Kismayo town and Bulohaji village), lack of knowledge on management of the diseases which results in late presentation of cases for medical treatment.

That diarrhoea is the major cause of mortality and malnutrition, indicates the magnitude of poor water and environmental sanitation in Kismayo district.

7 CONCLUSION

The prevalence of global acute and severe acute malnutrition in children 6-59 months in Kismayo district were 12.3% (CI 9.6% - 15.6%) and 1.9% (CI 1.1% - 3.0%) respectively. This situation is far from satisfactory though it appears to be better compared to other areas like Jamame in the same region, Rabdure in Bakool and Beledweyne in Hiran regions in CSZ that indicated total wasting rates of 14.3%, 14.8% and 21% respectively.

Exclusive breastfeeding and sound complementary feeding practices are crucial for enhancing the nutritional and health status of infants and young children. However, a significantly high proportion (90%) of children were introduced to food other than breast milk before four months of their life. This could greatly compromise a child's nutritional status.

The survey has shown that the nutritional problem in Kismayo district does not emanate from factors relating to household food security and health care, but rather to the common practice of feeding children foods and fluids other than breast milk before the recommended age of six months and poor hygienic practices at the household level.

Although the food security situation seems to be favourable, necessary precautions need to be put in place to safeguard the dwellers of Kismayo district from hunger once the current food stocks are exhausted. This, not only includes routine monitoring, but also, investment into livelihood activities that are sustainable and beneficial to the whole community in the long run. This should exclude environmental degradation activities through charcoal burning, that most casual workers and petty traders depend on.

The poor levels of total malnutrition are consistent for a population, whose main source of income are petty trade and casual work, and whose coping strategies are based on purchase and borrowing. Their situation could deteriorate further if food security indicators deteriorate with depleting food stocks, and access to the healthcare services, potable water, sanitary environment and childcare practices continue to be threatened by insecurity as was observed during the survey.

8

RECOMMENDATIONS

- As in any other parts of south and central Somalia, a secure environment is of critical importance for any humanitarian response. Interventions geared towards conflict resolution between warring factions and peace building would greatly facilitate the reconstruction process.
- The health and nutrition partners in the district (Muslim Aid UK, SRCS and Juba Aid Foundation) should step up education activities around household sanitation and personal hygiene and actively promote exclusive breastfeeding, targeting in particular, teenage mothers, youth groups, religious leaders, and the local authorities.
- The SACB/NWG should advocate for medium- and long term- projects that address the poor sanitation situation in Kismayo district. These should be developed in consultation with the Women's Groups and the local administration. Community mobilization should be an integral part of any effort to address the situation in order to promote proper management of water and sanitation facilities especially in the camps and other IDP settlements.
- The SACB/NWG should also advocate for more opportunities for income generation and skills training interventions in Kismayo district as more sustainable ways of guaranteeing livelihoods.

APPENDICES

Appendix 1: Current Population Estimates from WHO NIDs Secretariat

Kismayo District

Location	Number of families	Number of people	Cumulative	Clusters identified
Farjano	1770	10620	10620	1-4
Haidetoty	30	180	10800	
Badar A	35	210	11010	
Badar B	35	210	11220	
Dhumase	60	360	11580	
Olympic	20	120	11700	
Baranwaa	30	180	11880	
Daaqa qaranka	50	300	12180	
Warshada galeyda	20	120	12300	
Xaashi camp	80	480	12780	5
Camp 1	35	210	12990	
Camp 2	30	180	13170	
Camp 3	35	210	13380	
Warshadda Hargaha & Samaha	30	180	13560	
Nux Camp	250	1500	15060	6
Centerka Farjano	30	180	15240	
Wamo School	40	240	15480	
Mumino Marketi	20	120	15600	
Fanole	2233	13398	28998	7-11
Qaburaha Hindida	40	240	29238	
Dugsiga Jamal Cabdinasir	30	180	29418	
Tuni/UNICEF Camp 1	25	150	29568	
Tuni/UNICEF Camp 2	25	150	29718	
Cascasey Camp	25	150	29868	
Cabdi warsame	20	120	29988	
Burashadley	60	360	30348	12
Gobe Camp	30	180	30528	
Shaqalaha	2550	15300	45828	13-18

Calanley	2583	15498	61326	9-24
Gobweyn	333	1998	63324	25
KhamKham	139	834	64158	
Yontoy	128	768	64926	
Bulo-Gudud	370	2220	67146	26
Kamjiron	117	702	67848	
Cabdidhore	60	360	68208	27
Canjeel	100	600	68808	
Janiabdalla	91	546	69354	
Kalil	42	252	69606	
Berhani	60	360	69966	
Birole	83	498	70464	
Dhalaje	67	402	70866	28
Madoa	252	1512	72378	
Bulo-Haji	267	1602	73980	29
Usbo	67	402	74382	
Istanbuul	33	198	74580	
Jawai	58	348	74928	
Jula	58	348	75276	
Istarani	83	498	75774	30

<i>Sampling Interval</i>	2526
<i>Random Sampling</i>	2383

Appendix 2: Traditional Calendar for Kismayo District Nutrition Survey

Month	Events	1998	1999	2000	2001	2002	2003
Jan.	Beginning of Jiilal		52 Soonfur	40 Soonfur	28 Soonfur	16 Soonfur	4 Soonfur
Feb.	Mid of Jiilaal		51 Siditaal	39 Siditaal	27 Siditaal	15 Siditaal	3 Siditaal
Mar.	End of Jiilaal		50 Arafo/Dul-Xaj	38 Arafo/Dul-Xaj	26 Arafo/Dul-Xaj	14 Arafo/Dul-Xaj	2 Arafo/Dul-Xaj
Apr.	Beginning of Gu'		49 Sako	37 Sako	25 Sako	13 Sako	1 Sako
May	Mid of Gu'		48 Safar	36 Safar	24 Safar	12 Safar	
Jun.	End of Gu'	59 Mawliid	47 Mawliid	35 Mawliid	23 Mawliid	11 Mawliid	
Jul.	Beginning of Xagaa	58 Malmadoone	46 Malmadoone	34 Malmadoone	22 Malmadoone	10 Malmadoone	
Aug.	Mid of Xagaa	57 Jamadul-Awal	45 Jamadul-Awal	33 Jamadul-Awal	21 Jamadul-Awal	9 Jamadul-Awal	
Sep.	End of Xagaa	56 Jamadul-Akhir	44 Jamadul-Akhir	32 Jamadul-Akhir	20 Jamadul-Akhir	8 Jamadul-Akhir	
Oct.	Beginning of Deyr	55 Rajab	43 Rajab	31 Rajab	19 Rajab	7 Rajab	
Nov.	Mid of Deyr	54 Shacbaan	42 Shacbaan	30 Shacbaan	18 Shacbaan	6 Shacbaan	
Dec.	End of Deyr	53 Ramadan	41 Ramadan	29 Ramadan	17 Ramadan	5 Ramadan	

Jiilaal

GU'

Xagaa

Deyr

Appendix 3: Standard Nutrition Survey Questionnaire

Date _____ Team Number _____ Cluster Number _____ Name of Supervisor _____

Name of Village/Town _____ Name of section _____

Household Number _____ Name of the household head _____

Q1 Sex of the household head? 1=M, 2=F

Q2 Household size _____

Q3 Number of < 5 years _____

Q4. Household residence status: 1= Residents 2= Internally displaced 3=Returnees 4=Other (specify) _____

If answer to the above is 1, then move to Question 8.

Q5 Place of origin _____

Q6 Duration of stay _____

Q7 Reason for movement: 1= Insecurity 2=Lack of jobs 3= Food shortage 4=Water shortage

5=Others; specify _____

Q8-12 Household background information

<p>Q8 Households main food source?</p> <p>1=Animal products from own production 2=Household crop production 3=Purchases 4=Remittances/Gifts 5=Begging 6=Wild foods collection 7= Others Specify</p> <p>_____</p>	<p>Q9 Households main income source</p> <p>1=Small business 2=Casual work 3=Salaried employment 4= Sale of crops 5=Sales of animals and animal products 6=Remittances/Gifts 7=Others specify</p> <p>_____</p>	<p>Q10 How does this household survive during food shortages (coping strategies)?</p> <p>1=Remittances/Gifts 2=Sale of more livestock 3=Splitting of the family 4=Begging 5=Borrowing 6=Food aid 7=Purchases 8=Wild food collection 9=Others specify _____</p>	<p>Q11 Source of drinking water</p> <p>1=Borehole 2=Open wells 3=Protected wells 4=Berkads 5=Catchments/pond 6=Stream/river 7=Muscid 8=Tap/piped water 9=Tanker/truck vendor 10=Others specify _____</p>	<p>Q12.Sanitation Facility</p> <p>1= Pit latrines 2=Flash toilets 3=Bush/Open ground <u>Observation</u> Q12b Condition of the facility if 1 above. 1=Used and clean 2=Unused 3=Used and dirty 4=Others-----</p>	<p>Q13. When your child is sick, do you seek assistance? 1= Yes 2= No If yes; Where? 1.Traditional healer 2.Private clinic/pharmacy 3.Public health facility 4.Others;Specify If no why? _____</p>
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Appendix 4: Mortality Questionnaire

Date _____ Team Number _____ Cluster Number _____ Name of Interviewer _____
 Name of Village/Town _____ Name of section _____
 Household Number _____ Name of the household head _____

CHILD: <i>(This questionnaire should be preferably administered to all women in the household)</i>	
1. Have you ever given birth? <i>(Birth- a child who ever breathed or cried or showed signs of live even if he/she lived only a few minutes or hours)</i>	Yes..... No.....
2. Have you any other child in this household who is not your biological child?	Yes..... No.....
3. If yes to Q1 and/or Q2, then how many? If No to both Q1 & 2, then go to Q11	No. below 5 years No. above 5 years
4. Have you any live birth between the first day of the 2002 Ramadan and now?	Yes..... No..... If yes, how many?.....
5. Have you any under five child other than your own in your household coming in since the first day of the 2002 Ramadan? (6th Nov. 2002)	Yes..... No..... If yes, how many?.....
6. How many Under 5yrs children were living in this household as on the first day of the 2002 Ramadan?	Number.....
7. How many Under 5yrs children live with you now?	Sons at home.....Daughters at home
8. Have you any Under 5yrs children born alive but do not live with you now?	Yes.....No..... If yes then, how many? No. of sons No. of daughters
9. Do you have any Under 5yrs child who has died since the first day of the 2002 Ramadan?	Yes.....No.....If yes, then Sons dead Daughters dead.....
10. If there has been death of an Under 5yrs child in this household, then what were the signs and symptoms of death?/suspected cause of death?	Child1..... Child2..... Child3..... Child4
ABOVE FIVE YEARS OLD IN THE HOUSEHOLD	
11. How many above five years old were living in this household as on the first day of the 2002 Ramadan?	Number >5yrs.....
12. Has there been any above 5yrs old who has come to the household since the first day of the 2002 Ramadan?	Yes..... No..... If yes, then how many.....
13. Has there been any above 5yrs old who has left the household since the first day of the 2002 Ramadan?	Yes..... No..... If yes, then how many.....
14. How many above 5 yrs live in this household now?	Number.....
15. Do you have any over 5 years old person in this household who has died since the first day of the 2002 Ramadhan? (6th Nov.2002)	Yes.... No..... If yes, no. >5yrs.....
16. If there has been death of >5yrs person in this household, then what were the signs and symptoms of death?	Peron1..... Person2..... Person3..... Person4

Appendix 5: List of participants

Appendix 6: References

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