

# NUTRITION SURVEY REPORT

## ELBERDE DISTRICT BAKOOL REGION SOUTHERN SOMALIA

APRIL 2004



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## **ACKNOWLEDGEMENT**

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We would also like to acknowledge the co-operation of the decision makers in all the communities assessed especially the Traditional Birth Attendants, and the mothers and other caregivers who provided responses for completion of the questionnaires, and for their participation in the focus group discussions.

## EXECUTIVE SUMMARY

The population in Elberde district like those in the other 4 districts in Bakol region has been experiencing strains and stresses in trying to cope with the food deficits resulting from poor rainfall and two consecutive seasons of crop failure. At the peak of the dry season, the majority of them who are pastoralists had to abandon their settlements and move with their livestock into Kurajome in the north-eastern side of the district, and into Ethiopia in search of pasture, while the rest re-settled in Elberde town. UNICEF conducted an assessment of the nutrition situation in the district in March 2004 in collaboration with FSAU, in order to evaluate the impact of the developments within the district on the health and nutritional status of children using an exhaustive survey methodology.

In addition to measuring all children 6-59 months for acute malnutrition, some of the factors relating to diseases, feeding, and access to basic services which contribute to malnutrition in children were examined through household interviews and consultations with key informants.

For a total of 707 children assessed, the prevalence of global acute malnutrition was 15.7%, while the severe acute malnutrition rate was 1.3%. The implication is that the nutrition situation in the population is critical, in spite of an on-going dry supplementary feeding programme run by IMC since 2001.

Recent food security assessments conducted in the area indicate difficulties in accessing food. An analysis of the potential risk factors investigated for this survey has also demonstrated that the problem of global acute malnutrition in the district is related to disease factors. Children who suffered from acute respiratory infection, suspected malaria, and measles two weeks prior to the survey were two times more likely to be wasted. The overall incidence of diarrhoea, ARI and fever among under-fives was high (16%, 41% and 12% respectively). Unlike ARI and suspected malaria, diarrhoea was more prevalent in children 6-23 months. These diseases were reported to be the major causes of deaths in children and population as a whole, and malnutrition may have been an aggravating factor for some of these deaths.

The majority of households (86.9%) seek health care when their children are sick, with 55% preferring the public health facility, and 31.2% preferring private clinics or pharmacies. The acceptance and coverage of preventive health measures like vaccination and vitamin A supplementation were quite remarkable. On the other hand, the use of insecticide treated mosquito bed nets as a preventive measure for malaria control is unheard of in most of the communities and it has not been introduced even at the MCH level. Exclusive breastfeeding rates are extremely low at 2.7% of children at 6 months.

Responses to focused interviews on how to prevent some of the common childhood diseases indicated that the majority of the people are familiar with appropriate methods of preventing diseases like diarrhoea and malaria, though some caregivers seem to rely on prayer or recitation of Koran verses as a source of cure.

Access to safe water and sanitation facilities is not widespread, although open field defecation does not seem to present an immediate sanitary hazard, probably because of the low population density and wide-open fields. However, considering that diarrhoeal diseases are carried by vectors associated with solid waste and water, the problem of

inadequate sanitation and contaminated water supplies in the district present a major challenge to disease prevention and control efforts in the health sector.

The level of global acute malnutrition in Elberde district (15.7%) is considered critical and justifies continuation of the supplementary feeding programme, while other mechanisms are being pursued to address the underlying causes.

Behaviour change communication efforts should continue to address the necessity of prompt and exclusive breastfeeding in the first 6 months, timely introduction of complementary foods, and active feeding of children particular during illness.

## SUMMARY FINDINGS

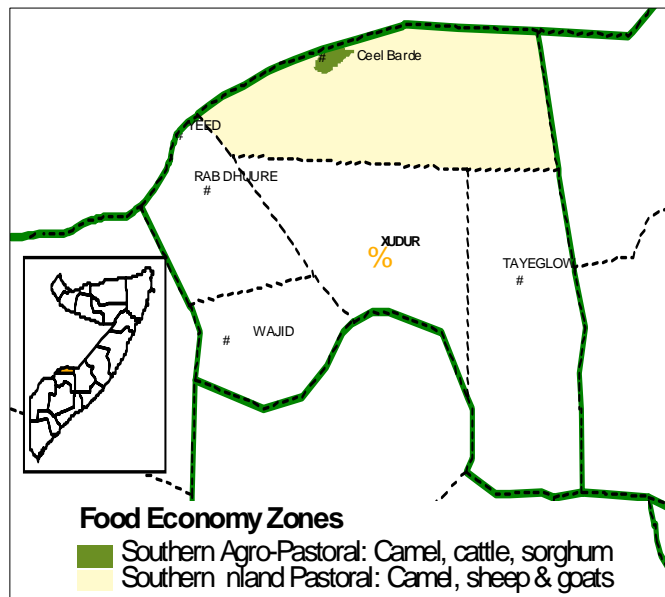
Indicator	Number	Percentage	
Under five children screened during the survey.	707	100	
Number of boys in the sample	360	50.9	
Number of girls in the sample	347	49.1	
Global acute malnutrition according to Weight For Height Index in Z-Score +/-oedema	111	15.7	
Severe acute malnutrition according to Weight For Height Index in Z-Score +/- oedema	9	1.3	
Global acute malnutrition according to Weight For Height Index in percentage of the media +/-oedema	62	8.8	
Severe acute malnutrition according to Weight For Height Index in percentage of the media +/-oedema	7	1.0	
Proportion of children with diarrhoea in two weeks prior to the survey.	111	16	
Proportion of children with ARI in two weeks prior to the survey.	287	40.6	
Proportion of children with fever (suspected malaria) in two weeks prior to the survey.	85	12.0	
Proportion of children with Measles in the last one month prior to the survey.	25	3.5	
Proportion of children immunised against Measles ( <sup>n</sup> =662)	568	80.0	
Proportion of children supplemented with Vitamin A in the last month prior to the survey.	532	75.2	
Proportion of children exclusively breastfeeding at 6 months	19	2.7	
Proportion of children fed 3 times a day and above	579	81.9	
Under five mortality rate (per 10,000 per day)	9	1.06	
Crude mortality rate (per 10,000 per day)	31	0.94	
Access to health services	Private clinic/Pharmacy (n=359)	112	31.2
	Public health facility	200	55.7
Main source of water	Open hand dug well	370	96.1
Faecal disposal	Bush/Open ground	246	63.9
	Pit latrine/flush toilet	139	36.1
Main source of income	Casual work	172	44.6
	Petty trade	95	24.6
Main source of food	Purchases	266	69.6
	Wild food collection	56	14.7
Main coping strategies in times of stress	Collection of wild foods	114	29.5
	Sale of livestock	68	17.6

## **1 INTRODUCTION**

The basic social services infrastructure throughout Somalia has been dismantled by a civil war that has lasted for over a decade, with the central and southern regions of the country being the worst affected. Regions and districts in these areas remain under the control of various faction leaders, who lack the resources to support services that would guarantee a decent livelihood for populations under their control. Several localised surveys in these regions have reported global acute malnutrition rates exceeding 15%. Continued intermittent civil unrests, coupled with severe drought and famine has caused humanitarian organisations to intensify programme responses in Bakool, Gedo, Hiran and Bay regions where the situation has been much worse than other regions in the central and southern zone.

El Berde district is one of the 5 districts in Bakool region, having approximately 6 main villages and 39 settlements with a total estimated population of 9,000. It is located 90km west of Hodur town and 18km southwest of Beledweyne, and shares a northern boarder with Ethiopia. It has a semi-arid savannah acacia bush landscape, with about 75% of the population being pastoralists, 10% agro-pastoralists, while the rest belong to an urban food economy group engaged in small business.

Since the collapse of the district administrations in 1992, Bakool region has been under the control of the Rahawayne Resistance Army (RRA), dominated by the Rahawayne clan. The



inhabitants of Elberde district who are predominantly Ogadens and Jijele, minority clans in the region, have fostered political alliances with the Jijele in Beletweyne district in the neighbouring Hiran region, and the communities bordering Ethiopia, and the district has remained politically more stable than other districts in the region.

IMC has been implementing a primary health care programme in the entire region since 1998. In August 2000, IMC conducted an assessment of the health and nutrition situation in Elberde district, which found 13.7% of children under five suffering from acute malnutrition. Following this finding, UNICEF and WFP supported IMC to implement a supplementary feeding programme with a family ration distribution component to prevent a deterioration of the situation.

Recent food security assessments conducted in the area by FSAU reported that Bakool region, and Elberde district in particular experienced two consecutive seasons of crop failure for the 2003/4 Deyr seasons. The Gu 2003 harvest was also below normal. This caused migration of the pastoralists into Kurajome in the north-eastern side of the district, and into Ethiopia, while the rest re-settled in Elberde town. UNICEF conducted this survey in collaboration with FSAU, in order to evaluate the impact of these developments within the district on the health and nutritional status of children.



## 2 OBJECTIVES

- To determine the prevalence of acute malnutrition in children less than five years of age
- To estimate the two-week cumulative prevalence of diarrhoea, acute respiratory infection and measles in children less than five years of age
- To determine the coverage of measles vaccination and Vitamin A supplementation in children less than five years of age
- To describe the possible causes of malnutrition in Elberde district
- To determine the crude and under five mortality rates in Elberde district
- To make recommendations for actions required to address the nutrition situation in Elberde district.

## 3 BACKGROUND INFORMATION

### 3.1 Food security context

75% of the Elberde population derives its livelihood from pastoralism and rears camels, sheep and goats, 10% derives its livelihood from agro-pastoralism, rear camels and cattle, and cultivate sorghum and 15% are urban. The district is therefore categorized into three zones highlighted on the map above:

- i. The southern inland pastoral food economy zone, occupied by pure pastoralists and
- ii. The southern agro-pastoral food economy zone occupied by agro-pastoralists.
- iii. The Urban food economy zone.

Despite the food economy zones, livestock/livestock production, labour/self-employment and market exchange are the most important means of accessing food and income for the population group.

Rains for the Deyr secondary season for 2003/4 were poor, localized and inadequately distributed within the district. The rain gauge in the town recorded only 2 days rainfall of 18 mm in total for the entire season. The overall rainfall for the season is considered extremely below-normal. This impacted negatively on crop production and no yields were realized during this Deyr cropping season.

Besides crop production, pasture and grazing conditions were seriously affected by the poor rains and were relatively poor within the district. Water availability and access became a serious issue as well, with most of the open wells drying up. As a result, many herds of livestock have moved, over the months, to far areas along the borderline and to inside Ethiopia; Ironically, livestock from Huddur and Tayeglow districts (where rainfall, water and pasture conditions were worse off due to the poor Deyr season) have moved into parts of

Elberde district, an abnormal phenomenon at this time of year, and further contributed to depletion of the minimal available pasture.

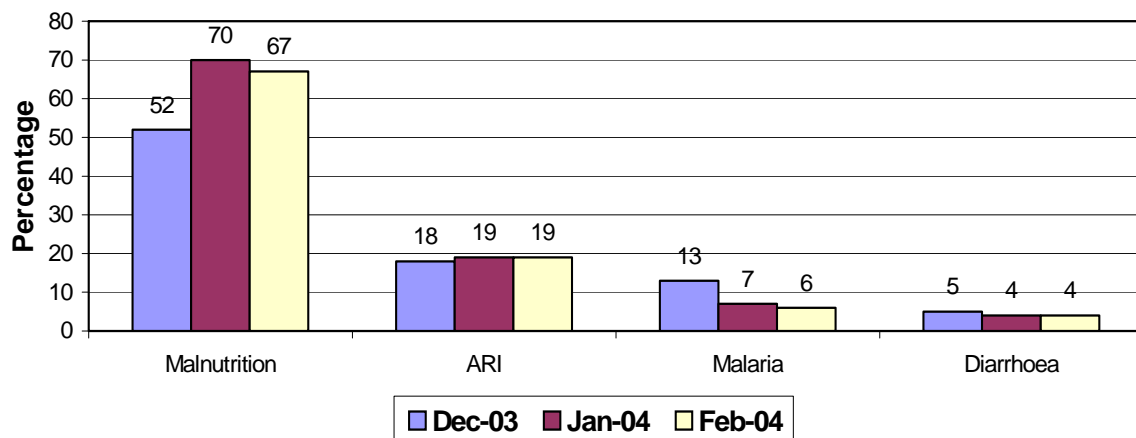
In an effort to mitigate the poor food security situation and prevent deterioration of the nutrition status of the people in Elberde, WFP in partnership with Unicef and IMC Elberde, complements the 10 kg supplementary feeding ration provided to malnourished under five children, with a family ration of 63 kg: 50 kg of maize, 10 kg of pulses and 3 kg of vegetable oil a month. Each eligible child/family benefits from this program for a maximum of three months.

### 3.2 Health context

IMC is the main provider of health services in Elberde district. It started operation in the district in 1999, immunising children and women through outreach teams. By the end of that year they expanded their services to a comprehensive primary health care programme through an MCH centre in Elberde town, and a health post in Kurajome. Acute respiratory infections are the most common childhood diseases presented at the health facilities, followed by diarrhoea and malaria. A dry ration supplementary feeding programme was added on in 2000 when nutrition screening reports showed increased proportions of malnourished children presented at the MCH.

UNICEF supports IMC with essential medical equipment and drugs, Cold Chain equipment and supplies for immunization, kits and micronutrient supplements in support of reproductive health care, control of diarrhoeal diseases, malaria control and disease/nutrition surveillance, and food and non-food supplies for the supplementary feeding programme. Monthly food demonstration sessions have been established as an integral part of MCH services. The figure below is a presentation of recent morbidity statistics for ARI, diarrhoea, malaria and cases of malnutrition reported at the MCH.

**Figure 1. IMC MCH Morbidity Surveillance**



## **Water and sanitation Context**

The main water sources in the district are borewells, dug wells and surface catchments. The climate varies from arid to semiarid, with a mean annual rainfall of 200mm. There are four main seasons—jilaal dry season between January and March; gu rainy season from April to June; haggaa dry season from July to September; and deyr rainy season from October to December. Evaporation exceeds 2,000mm/y.

The area suffers from acute water shortage and the average distance to a water source for any given location is 45km<sup>2</sup>. Almost all drilling schemes in the past had been unsuccessful. The average depth required to reach the borehole aquifers is 220m, and even at this depth the quality and yield of water is poor with EC range between 4,900-2,400 /cm and PH range between 6.9-7.5, like in other parts of the region. In times of stress, the average yield falls below 5m<sup>3</sup>/h, and for the past 4 years the extended dry spells have aggravated the situation. The communities rely on seasonal water sources which are contaminated.

There are about 10 dug wells in the district, most of them in the El Berde vicinities and in Qura Jome area. The low number of shallow wells is due to the subsurface formation of fragile limestone intercalated with siltstones that tend to cave in with depth, making the construction of dug wells extremely difficult and risky. The average depth of dug wells in the district is 12m. Poor sanitary conditions can be observed at most of the sources. The dug wells are usually lined with timber logs, and most of them are constructed in fissures, resulting in poor water quality, and high salinity and turbidity.

About 10 surface catchments exist in the district. Because of the geological constraints related to the area's predominant limestone formations, construction of catchments is not very common. Besides the water quality of these sources being poor, their storage duration is very short, 2 months or less, as most of the water is generally lost through subsurface seepage in the porous formations. Their storage capacities range between 1,500-7,000m<sup>3</sup>.

ADRA rehabilitated the borewell in El Berde town, along with other shallow wells in the area. Currently, the borewell is not functioning due to lack of aquifer recovery and technical malfunction of the installed power and pumping units. The only functioning water source is 1 shallow well 4km west of the town, where the pressure for domestic use and drinking by both humans and livestock is high and the sanitary conditions are deplorable. The price of water tripled from its normal 6,000s at the time of the survey.

## **4 METHODOLOGY**

### **a. Survey Design**

The survey was designed to generate quantitative data on nutritional status of children, the prevalence of associated morbidities common among young children, and selected child care practices collected through a standard questionnaire (see annex -), as well as qualitative information collected through eight focus group discussions, that would enable some understanding of the nutrition situation and possible causes.

## b. Study population

Because a good number of households had migrated to Ethiopia and other districts in the region, the team felt that it was unlikely to capture the required number of children to be surveyed through a cluster sampling methodology. Consequently, an exhaustive survey methodology was used covering all children aged 6-59 months (or heights between 65 to less than 110cm) in all the villages in the district.

The Somali versions of the standard nutrition and mortality data collection tools developed by the SACB/Nutrition Working Group for Somalia (Annex --) were used for this survey and administered to all households.

## c. Description of assessment activities

Major Activity	Period
Preparation of tools and methodology	5 <sup>th</sup> – 7 <sup>th</sup> February 2004
Identification of enumerators	5 <sup>th</sup> – 7 <sup>th</sup> February 2004
Training of enumerators	7 <sup>th</sup> – 9 <sup>th</sup> March 2004
Collection of cross-sectional data and qualitative assessment	10 <sup>th</sup> – 14 <sup>th</sup> March 2004
Entry of data from cross-sectional assessment	10 <sup>th</sup> – 21 <sup>st</sup> March 2004
Analysis of data and preliminary results	21 <sup>st</sup> – 26 <sup>th</sup> March 2004
Feedback to communities and IMC health staff	5 <sup>th</sup> April 2004
Draft report production	28 <sup>th</sup> April 2004

IMC national staff and the Local Authorities in Elberde District assisted in identification of experienced enumerators. Six teams participated in data collected, each team having two enumerators and one supervisor. The supervisors introduced the team to the elders in areas surveyed, obtained the necessary consents, and ensured correct and complete examination for all variables on the data collection forms by the enumerators as demonstrated during the training.

## e. Quality control procedures

The training of enumerators and supervisors included standardisation of anthropometric techniques in which all survey teams weighed and measured heights of the same children to estimate inter-observer variability, levels of precision required in measurements, sources of errors in taking measurements, handling of equipment and monitoring accuracy by measuring objects of known weights. It also included inclusion and exclusion criteria, standardising the questions in the questionnaire, diagnosis of oedema, roles and responsibilities of enumerators and supervisors, and the general courtesy to be respected during the survey. Pre-testing of the questionnaire and equipment was carried out at the MCH, after which views were exchanged in plenary to address the difficulties identified, and how they can be resolved. Health staff and nutrition monitors on contract with UNICEF and FSAU did spot checks to monitor the performance of the teams throughout the field work.

## f. 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.

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 assessment. 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 assessment, followed by some probing by the supervisor 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 assessment.

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

Pregnant women - the information was collected from interviewing the mother or caretaker.

*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.*

In addition to measuring the degree to which these variables are prevalent, focus group discussions and key informant interviews were conducted to provide background information that could be used to describe relationships between acute malnutrition and some of the causal factors.

## g. Data entry, cleaning, processing and analysis

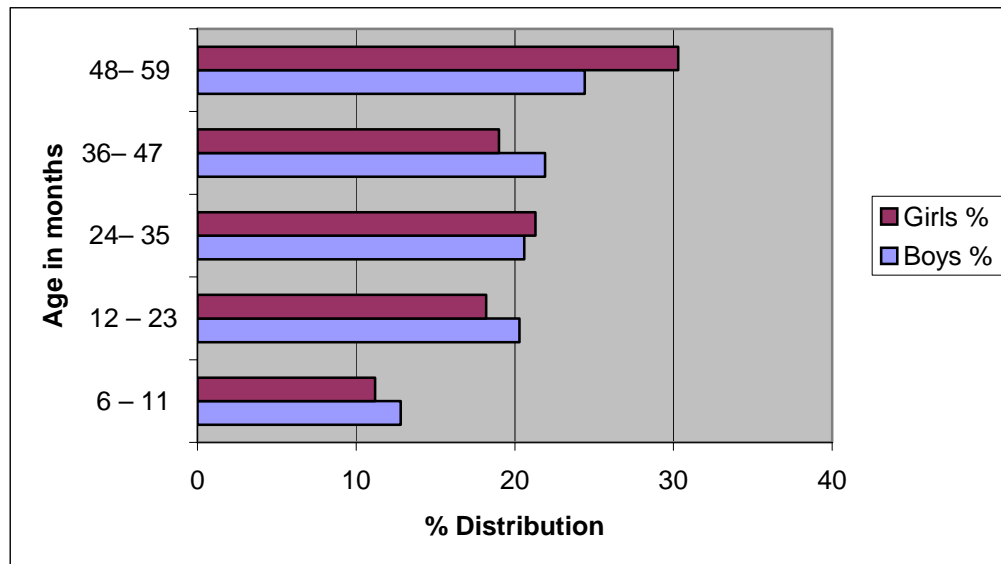
Data were keypunched and analysed using EpiInfo version 6.04b. Running and tabulating all variable frequencies was carried out as part of data analysis. The EpiNut module was used to convert the measurements of weight and height into nutritional indicators and comparison made with the National Centre for Health Statistics (NCHS) references as designed by WHO (1983).

## 5 RESULTS

### a. Description of survey population

The survey population included 386 households, which yielded 707 eligible children for the anthropometric measurements. Only 15 households could not be included in the survey because of non-compliance of the household heads. The distribution of children surveyed by age and sex is presented in Table 1.

**Figure 1.** Distribution according to age and sex, children 6-59 months, Elberde district.



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

Age categories	Boys		Girls		Total		Sex ratio
	No.	%	No.	%	No.	%	
6 – 11	46	12.8	39	11.2	85	12.0	1.2
12 – 23	73	20.3	63	18.2	136	19.2	1.2
24 – 35	74	20.6	73	21.3	148	20.9	1.0
36 – 47	79	21.9	66	19.0	145	20.5	1.2
48 – 59	88	24.4	105	30.3	193	27.3	0.8
Total	360	50.9	347	49.1	707	100	1.0

Out of a total of 707 children examined, 360 (50.9%) were boys and 347 (49.1%) girls, presenting a sex ratio of 1.0. There is no significant difference in the representation of the sexes, indicating an unbiased sample selection.

## b. Acute malnutrition

**Table 2:** Prevalence of acute malnutrition based on W/H in Z score by category and sex in children 6-59 months, Elberde district.

Anthropometric Index	Total		Males		Females	
	No	%	No	%	No	%
Global acute malnutrition W/H < -2 Z score	111	15.7	62	17.2	49	14.1
Severe acute malnutrition W/H < -3 Z score +/- oedema	9	1.3	7	1.9	2	0.6
Oedema	3	0.4	2	0.6	1	0.3

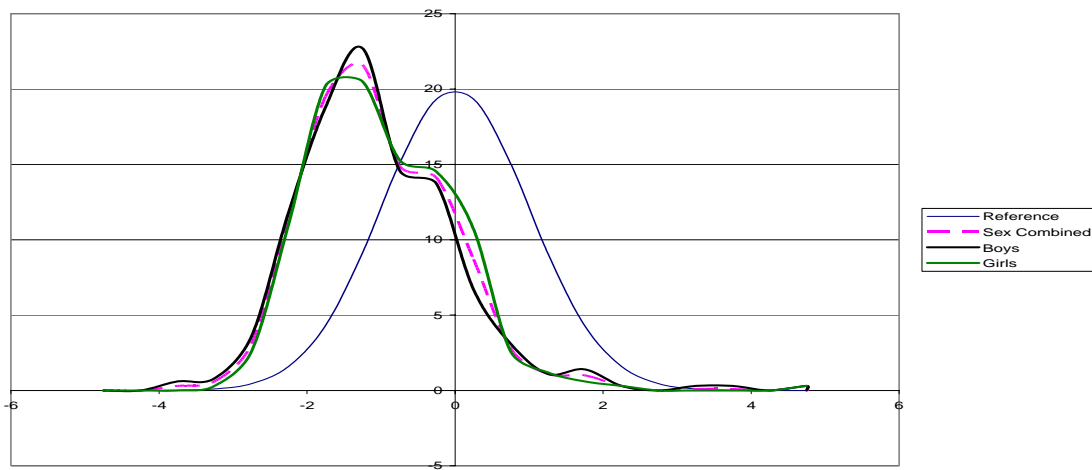
The global acute malnutrition rate is 15.7, with CI 13.1% - 18.6%, and severe acute malnutrition rate is 1.3%, CI 0.6% - 2.5%. According to the WHO classification (1999), the nutrition situation in Elberde district still appears to be critical. The difference in malnutrition rates for boys and girls is insignificant.

**Table 3:** Prevalence of acute malnutrition based on W/H in percentage of the median by category and sex in children 6-59 months, Elberde district.

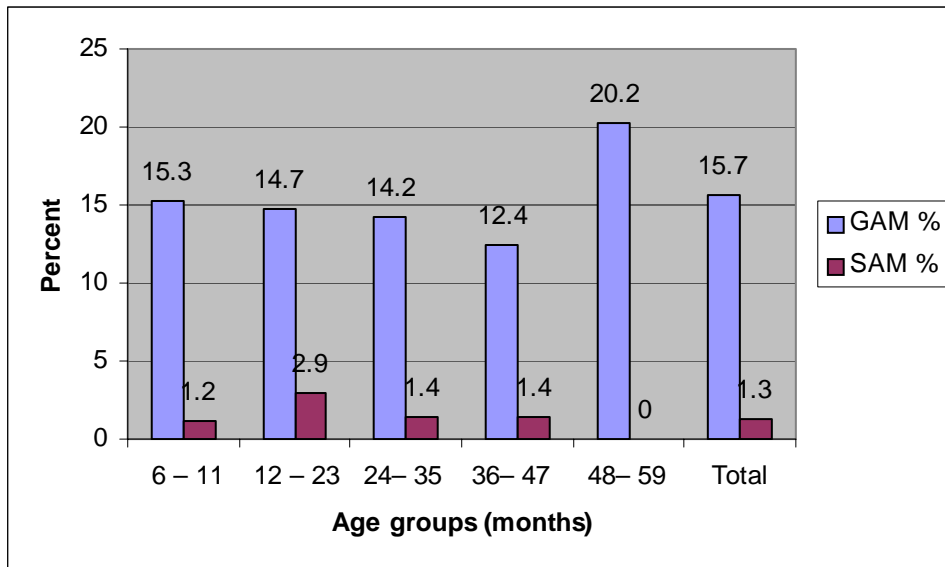
Anthropometric Index	Total		Males		Females	
	No	%	No	%	No	%
Global acute malnutrition W/H < 80% of the median	62	8.8	35	9.7	27	7.8
Severe acute malnutrition W/H < 70% of the median +/- oedema	7	1.0	5	1.4	2	0.6
Oedema	3	0.4	2	0.6	1	0.3

According to percentage of the median index, the global acute malnutrition rate is 8.8%, with CI 6.8% - 11.2%, and severe acute malnutrition rate is 1.0%, CI 0.4% - 2.1%.

**Figure 2.** Distribution of the W/H z-scores



**Figure 3.** Prevalence of acute malnutrition by age groups



**Table 4:** Nutrition status (W/H in Z scores) according to age groups

Age group mnths	Total No. of children	≥ -2 Z-score		< -2 and ≥ -3 Z-score		< -3 Z-score +/- oedema		Total Malnutrition	
		No.	%	No.	%	No.	%	No.	%
6 – 11	85	72	84.7	12	14.1	1	1.2	19	15.3
12 – 23	136	116	85.3	16	11.8	4	2.9	20	14.7
24 – 35	148	127	85.8	19	12.8	2	1.4	21	14.2
36 – 47	145	127	87.6	16	11.0	2	1.4	18	12.4
48 – 59	193	154	79.8	39	20.2	0	0.0	39	20.2
<b>Total</b>	<b>707</b>	<b>596</b>	<b>84.3</b>	<b>102</b>	<b>14.4</b>	<b>9</b>	<b>1.3</b>	<b>111</b>	<b>15.7</b>



### c. Child health situation, measles vaccination and vitamin A supplementation

**Table 5:** Prevalence of common childhood diseases by age group

Age group - Mnth	Total No.	Diarrhoea – last 2 wks		ARI – last 2 wks		Fever – last 2 wks		Measles – last 1 mnth	
		No.	%	No.	%	No.	%	No.	%
6 – 11	85	15	18	34	40	7	8	1	1
12 – 23	136	43	32	66	49	23	17	8	6
24 – 35	148	23	16	59	40	21	14	3	2
36 – 47	145	16	11	51	35	11	8	5	3
48 – 59	193	14	7	77	40	23	12	8	4
<b>Total</b>	<b>707</b>	<b>111</b>	<b>16</b>	<b>287</b>	<b>41</b>	<b>85</b>	<b>12</b>	<b>25</b>	<b>3.5</b>

The overall incidence of diarrhoea, ARI and fever among under-fives was 16%, 41% and 12% respectively, with high episodes observed in the first two years of age. Further analysis suggests that children 6-23 months were at a significantly increased risk (risk Ratio of 2.4, p value 0.000) of having diarrhoea compared with older children.

86.9% of households seek health care for sick children, with 55% preferring the public health facility, and 31.2% preferring private clinics or pharmacies.

**Table 5:** Coverage, measles immunization and vitamin A supplementation by age group.

Age group - Mnth	Total No.	Measles vaccination								Vit A Supplmt - last 6 mnth	
		Never		With U5 Card		Mother's recall		Total			
		No	%	No	%	No	%	No	%	No.	%
6 – 11	85	60	70.6	17	20.0	8	9.4	25	29	54	64
12 – 23	136	28	20.6	71	52.2	37	27.2	108	79	94	69
24– 35	148	19	12.8	79	53.4	50	33.8	129	87	123	83
36– 47	145	9	6.2	76	52.4	60	41.4	136	94	114	79
48– 59	193	23	11.9	85	44.0	85	44.0	170	88	147	76
<b>Total</b>	<b>707</b>	<b>139</b>	<b>19.7</b>	<b>328</b>	<b>46.4</b>	<b>240</b>	<b>33.9</b>	<b>568</b>	<b>80</b>	<b>532</b>	<b>76</b>

The vaccination coverage is estimated at 80%, 46.4% verified by the under fives card, and 33.9% based on mother's recall. 76% of the children had received vitamin A supplements six-months prior to the assessment.

### d. Child Feeding Practices

Exclusive breastfeeding for 4 months is very rare, reported for only 2.7% of the children. Most children are fed colostrums, although initiation of breastfeeding is delayed until the second or third day after delivery. The traditional practice is to feed the child sweetened water at birth because of the widespread belief that the mother's breast has no milk. This reduces the full potential of the child receiving maternal antibodies, and exposes the child to gastrointestinal infections.

It is quite encouraging that about 82% of the children were fed at least 3 times a day, which is an indication that there is enough food at the household level, in spite of the food security risks experienced in the district as a result of two successive years of poor harvests. The survey

indeed found that about 70% of households were accessing food through purchase from the market. According from the responses of household heads, only about 14% of the children were registered in the supplementary feeding programme.

**e. Main sources of income, and food, and the coping strategies of households in times of stress.**

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

<b>Sex of Household Head</b>	<b>Number</b>	<b>Percentage</b>
Female headed households	60	15.5
Male headed households	326	84.5
Total	386	100
<b>Two main source of income</b>		
Casual work	172	44.6
Petty trading	95	24.6
<b>Two main sources of food</b>		
Purchases	266	69.6
Wild food collection	56	14.7
<b>Two main coping strategies during food shortage</b>		
Wild food collection	114	29.5
Sale of animals	68	17.6
<b>Two main source of treatment when a child is sick</b>		
Private clinic/Pharmacy (n=359)	112	31.2
Public health facility	200	55.7

**Qualitative Information on The Food Security Situation**

The negative impact of the Deyr 2003 rain failure on water availability and access, crop production, pasture availability and livestock production was aggravated by the dry spell of the Jilaal (January through March) 2004 season. Although the condition of camels and shoats seemed close to normal, cattle population in the district continued to experience insufficient access to fodder and water, resulting in deteriorating body condition. Food insecurity was evident among the poor wealth groups, while the other wealth groups faced the risk of being affected in the medium- and longer term.

Despite normal supplies and marketing activities in the district, the terms of trade were generally poor. This was attributed to the higher than normal cereal prices and the lower-than-normal prices of livestock, especially shoats (that are lower than normal): A local quality goat currently exchanges for 1 kg of sorghum which implies that one goat in exchanges for approximately 60 kg of sorghum. In a normal year, one quality goat would fetch about 150 kg of sorghum. This is not favourable to either the pastoral or agro-pastoral wealth groups as both are heavily dependent on livestock for their livelihood.

In March 2004, each of the 145 registered, malnourished children received a supplementary food ration of 10 kg of unimix and a complementary family ration of 63 kg of family ration (50 kg of maize, 10 kg of pulses and 3 kg of vegetable oil). Each eligible child received the ration for a period of three months, after which their nutrition and health situation was reviewed.

## f. Mortality

### Under five mortality rate

Total under five population in survey = 942  
 Number of under five deaths = 9  
 Survey period = 91 days  
 Under five mortality rate =  $9/942/91$  days  
 =  $0.100/942/\text{day}$   
 =  $1.06/10,000/\text{day}$

The under five mortality rate is within the acceptable range, based on World Health Organization categorization. These deaths were attributed to the following causes:

Acute respiratory infection	= 5 (56%)
Diarrhoea	= 2 (22%)
Malaria	= 2 (22%)

### Crude mortality rate

Population in surveyed households = 3611  
 Total number of deaths = 31  
 Survey period = 91 days  
 Crude mortality rate =  $31/3611/91$  days  
 =  $0.34/3611/\text{day}$   
 =  $0.94/10,000/\text{day}$

The crude mortality rate is within the acceptable range, based on World Health Organization categorization. The deaths in the general population were attributed to the following causes:

Acute respiratory infection	= 15 (48.4%)
Diarrhoea	= 10 (32.2%)
Malaria	= 6 (19.4%)

## 6 ANALYSIS OF POTENTIAL RISK FACTORS

**Table -:** Description of risk factors and results of bivariate analysis with respect to prevalence of global acute malnutrition

<i>Exposure variable</i>	<i>n</i>	<i>(%)</i>	<i>Crude RR</i>	<i>95% CI</i>	<i>p-value</i>
<i>Household head sex:</i>					
Male	90	(14.8)	0.72	0.46-1.11	0.186
Female	20	(20.6)			
<i>Sanitary facility:</i>					
Pit latrine	37	(13.9)	0.85	0.59-1.23	0.446
Bush/open ground	69	(16.3)			
<i>Child sex:</i>					
Male	62	(17.2)	1.22	0.86-1.72	0.303
Female	49	(14.1)			
<i>Age group:</i>					
6-23	33	(14.9)	0.93	0.64-1.35	0.789
24-59	78	(16)			
<i>Diarrhoea:</i>					
Yes	20	(18)	1.18	0.76-1.83	0.556
No	91	(15.3)			
<i>ARI:</i>					
<b>Yes</b>	<b>57</b>	<b>(19.9)</b>	<b>1.54</b>	<b>1.10-2.17</b>	<b>0.016</b>
<b>No</b>	<b>54</b>	<b>(12.9)</b>			
<i>Suspected Malaria:</i>					
<b>Yes</b>	<b>25</b>	<b>(29.4)</b>	<b>2.13</b>	<b>1.45-3.12</b>	<b>0.000</b>
<b>No</b>	<b>86</b>	<b>(13.8)</b>			
<i>Measles:</i>					
<b>Yes</b>	<b>8</b>	<b>(32)</b>	<b>2.12</b>	<b>1.16-3.85</b>	<b>0.0453</b>
<b>No</b>	<b>103</b>	<b>(15.1)</b>			
<i>Vitamin A:</i>					
Yes	83	(15.6)	0.98	0.66-1.44	0.995
No	28	(16)			
<i>Breastfeeding:</i>					
Yes	16	(12.1)	0.73	0.45-1.20	0.262
No	95	(16.5)			

Only few of the potential risk factors analysed namely ARI, fever (suspected malaria) and measles demonstrate significant statistical association between with global acute malnutrition: children who suffered from these diseases 2 weeks prior to the survey were at a two-fold increased risk of being acutely malnourished.

There exists no evidence of association with global acute malnutrition for: household head sex, sanitary facility, child sex, age group, diarrhoea, vitamin A supplementation, and breastfeeding.

## 7 DISCUSSION AND CONCLUSIONS

In spite of intensification of humanitarian activities in the Elberde district over the last 3-4 years, a global acute malnutrition of 15.7% implies that a significant proportion of the children are experiencing severe stress that is causing significant weight loss. This usually happens as a consequence of acute starvation or severe disease, or a combination of both. Both the retrospective under five and crude mortality rates of 1.06/10000/day and 0.94/10000/day respectively, were within acceptable norms (WHO). However, crude mortality rate was approaching an 'alert' phase and close monitoring is required. The high level of global acute malnutrition was attributed to high morbidity, lack of access to safe water, poor child feeding practices and general food insecurity. Mortality was attributed to acute respiratory tract infections, diarrhoea and malaria.

Analysis of potential risk factors found significant statistical association between presence of disease, specifically, ARI ( $p=0.016$ ,  $RR=1.54$ ), suspected malaria ( $p=0.000$ ,  $RR=2.13$ ) and measles ( $p=0.0453$ ,  $RR=2.12$ ) with malnutrition. Thus, about 41% of the children suffering from ARI, 30% from suspected malaria and 32% from measles were twice as likely to be malnourished compared to their healthy counterparts. The sex of household head, child sex, age group, diarrhoea, water and sanitation facility, and feeding practices did not show any association with global acute malnutrition.

The population had limited access to safe water, mainly relied on water from un-chlorinated open hand dug wells. The practice of faecal disposal in the bush or open ground by a significant proportion of the population further exposed the water from open hand dug wells to contamination and predisposed the population to diarrhoeal diseases, intestinal parasites and malnutrition. The overall incidence of diarrhoea (16%) was therefore significantly high. Unlike ARI and suspected malaria, diarrhoea was more prevalent in children aged 6-23 months. According to verbal autopsy and discussions with staff from the MCH centre, diarrhoea (in addition to ARI and malaria) was a major cause of deaths in children and in the population as a whole, and malnutrition may have been an aggravating factor for some of these deaths.

Poor child feeding practices, reflected through the low proportion of the assessed children who had been exclusively breastfed for at least four months and continuing to breastfeed at 18 months, might also have contributed to malnutrition. Nevertheless, further wasting was controlled through the commendable practice of feeding most of the children, at least three times a day. The relatively high proportion of children accessing health services both from private and public health institutions (about 87%), coupled with vitamin A supplementation coverage of 75% may have also controlled the malnutrition level. Thus, whereas a significant proportion of children had suffered from ailments including ARI prior to the survey, prompt treatment and vitamin A status may have minimized deterioration of their nutritional status.

Household food stocks have greatly declined, while food access remains a challenge to the poor households. Dependence on credit is on the increase. Other coping strategies included collection of wild food, casual work, sale of water and bush products such as construction poles (a practice that continues to have negative impact on the environment) for income. In this situation however, the IMC/UNICEF/WFP supplementary feeding program registered and

provided the moderately malnourished children with a dry SFP ration and a family ration for three months. In January and February 2004, 152 and 140 moderately malnourished children respectively, were registered for supplementary feeding. The dry ration constituted 10 kg of unimix a month, while the family ration comprised of 50 kg of maize, 10 kg of pulses and 3 kg of vegetable oil a month. This program has helped to control levels of malnutrition. Severely malnourished children are referred to MSF Huddur therapeutic feeding program.

The majority of households (86.9%) seek health care when their children are sick, with 55% preferring the public health facility, and 31.2% preferring private clinics or pharmacies. On the other hand, the use of insecticide treated mosquito bed nets as a preventive measure for malaria control is not heard of in these communities and it has not been introduced even at the MCH level.

Responses to focused interviews on how to prevent some of the common childhood diseases indicated that the majority of the people are familiar with appropriate methods of preventing diseases like diarrhoea and malaria, though some caregivers seem to rely on prayer or recitation of Koran verses as a source of cure.

## **8 RECOMMENDATIONS**

- The level of global acute malnutrition in Elberde district (15.7%) is considered serious and justifies continuation of the supplementary feeding programme, while other mechanisms are being pursued to address the underlying causes.
- Behaviour change communication efforts should continue to address the necessity of prompt and exclusive breastfeeding in the first 6 months, timely introduction of complementary foods and increased feeding to children with diarrhoea.
- Given the high prevalence of ARI and other common childhood diseases that are undermining nutritional status and contributing to deaths in the district, IMC needs to train their staff at the MCH in integrated management of childhood illnesses, and also introduce promotion of the use of insecticide treated bed nets as part of the minimum package of health services offered in the district, in collaboration with WHO and UNICEF
- A review of the water situation in Elberde district, followed by an appropriate response was found essential. Subsequently, during the data collection phase, the team contacted UNICEF/water section and ADRA/Huddur, who responded immediately. Options such as rainwater harvesting may need to be explored by partners involved in water and sanitation activities in the district as a possible solution to the perennial water problem.
- Monitoring of the food security and nutrition situation are recommended.

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## **ANNEXES**



**TRADITIONAL CALENDAR FOR NUTRITION SURVEY**

Month	Events	1999	2000	2001	2002	2003	2004
Jan.	Beginning of Jiilal		50 Soonfur	38 Soonfur	26 Soonfur	14 Soonfur	2 Soonfur
Feb.	Mid of Jiilaal		49 Siditaal	37 Siditaal	25 Siditaal	13 Siditaal	1 Siditaal
Mar.	End of Jiilaal		48 Arafo/Dul-Xaj	36 Arafo/Dul-Xaj	24 Arafo/Dul-Xaj	12 Arafo/Dul-Xaj	
Apr.	Beginning of Gu'	59 Sako	47 Sako	35 Sako	23 Sako	11 Sako	
May	Mid of Gu'	58 Safar	46 Safar	34 Safar	22 Safar	10 Safar	
Jun.	End of Gu'	57 Mawliid	45 Mawliid	33 Mawliid	21 Mawliid	9 Mawliid	
Jul.	Beginning of Xagaa	56 Malmadoone	44 Malmadoone	32 Malmadoone	20 Malmadoone	8 Malmadoone	
Aug.	Mid of Xagaa	55 Jamadul-Awal	43 Jamadul-Awal	31 Jamadul-Awal	19 Jamadul-Awal	7 Jamadul-Awal	
Sep.	End of Xagaa	54 Jamadul-Akhir	42 Jamadul-Akhir	30 Jamadul-Akhir	18 Jamadul-Akhir	6 Jamadul-Akhir	
Oct.	Beginning of Deyr	53 Rajab	41 Rajab	29 Rajab	17 Rajab	5 Rajab	
Nov.	Mid of Deyr	52 Shacbaan	40 Shacbaan	28 Shacbaan	16 Shacbaan	4 Shacbaan	
Dec.	End of Deyr	51 Ramadan	39 Ramadan	27 Ramadan	15 Ramadan	3 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><b>Q8</b> 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><b>Q9</b> 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><b>Q10</b> 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><b>Q11</b> 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><b>Q12.</b> Sanitation Facility</p> <p>1= Pit latrines 2=Flash toilets 3=Bush/Open ground <u>Observation</u> <b>Q12b</b> Condition of the facility if 1 above. 1=Used and clean 2=Unused 3=Used and dirty 4=Others-----</p>	<p><b>Q13.</b> When your child is sick, do you seek assistance?</p> <p>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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**Q14-18** Anthropometry for children aged 6 – 59 months (or 65 – 110cm) in the household.

Serial No	Name	Q14 Sex (F/M)	Q15 Age in mtths	Q16 Oedema (Yes/No)	Q17 Height (cm)	Q18 Weight (kg)	Q19. Ever admitted in SFP in last 6 months 1.Card 2.History 3.No	Q20. If No, Why? 1.Child does not need. 2.Too far 3.Disqualified 4. DK about SF	Q21. If yes, How long in the SFP? 1. Less than 3 months. 2. 3 months 3.More than 3 months
1									
2									
3									

**Q19-28** Morbidity, feeding and immunization status of children aged 6 – 59 months (or 65 – 110cm) in the household.

Sno	Name	Q19 Diarrhoea in last two weeks  1= Yes 2= No	Q20 ARI in the last two weeks  1=Yes 2=No	Q21 Malaria in the last two weeks  1=Yes 2=No	Q22 Measles in last one month  1=Yes 2=No	Q23 Vaccinated against measles  1=In past six months (by card) 2=In past six months (Recall) 3=Before six months (by card) 4=Before six months (Recall) 5= None	Q24 Vitamin A provided in the last 6 months  1=Yes 2=No	Q25 Are you breast feeding the child?  1=Yes 2=No	Q26 If not breast feeding, how old was the child when you stopped breast-feeding?  1= Less than 6 months 2= 6 – 11 months 3=12 – 18 months 4=18 months or more 5=Never	Q27 At what age was child givenwater/ foods other than breast milk  1=0-3 months 2=4-6 months 3=7 months or more. _____	Q28 How many times do you feed the child in a day?  1= Once 2= Twice 3= 3-4 times 4= 5 or more times
1											
2											
3											

**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 \_\_\_\_\_

<b>CHILD:</b> <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 <b>yes</b> to Q1 and/or Q2, then how many? If <b>No</b> to both Q1 & 2, then go to Q11	No. below 5 years ..... No. above 5 years .....
4. Have you any live birth between <b>10<sup>th</sup> December 2003 and now</b> ?	Yes..... No..... If yes, how many?.....
5. Have you any under five child other than your own in your household coming in since <b>10th December 2003</b>	Yes..... No..... If yes, how many?.....
6. How many Under 5yrs children were living in this household as on <b>the 10th December 2003</b>	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 <b>10th December 2003</b>	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 .....
<b>ABOVE FIVE YEARS OLD IN THE HOUSEHOLD</b>	
11. How many above five years old were living in this household as on the <b>10th December 2003</b>	Number >5yrs.....
12. Has there been any above 5yrs old who has come to the household since the <b>10th December 2003</b>	Yes..... No..... If yes, then how many.....
13. Has there been any above 5yrs old who has left	Yes..... No..... If yes, then how

the household since the <b>10th December 2003</b>	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 <b>10<sup>th</sup> December 2003</b>	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 .....