NUTRITION ASSESSMENT

HAWD OF HARGEISA- Balli-Gubadle AND Salahley SOMALILAND

Food Security Analysis Unit (FSAU/FAO)
United Nations Children's Fund (UNICEF)

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Abbreviations and acronyms

ARI	Acute Respiratory Infections
FAO	Food and Agriculture Organisation
FSAU	Food Security Analysis Unit
GAM	Global Acute Malnutrition
HAZ	Height- for- Age Z scores
HDDS	Household Dietary Diversity Score
HFA	Height for Age
IDP	Internally Displaced Person
KM	Kilo Metres
MCH	Maternal and Child Health
MT	Metric Tonnes
MUAC	Mid Upper Arm Circumference
NCHS	National Centre for Health Statistics
NGOs	Non-Governmental Organisations
PWA	Post War Average
LNGO	Local Non-Governmental Organisation
INGO	International Non-Governmental Organisation
NIDs	National Immunisation Days
RR	Relative Risk
SMART	Standardised Monitoring & Assessment of Relief and Transitions
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commission of Refugees
VAD	Vitamin A Deficiency
UNICEF	United Nations Children's Fund
WAZ	Weight for Age Z Scores
WFP	World Food Programme
WHO	World Health Organisation
WHZ	Weight for Height Z scores

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

The Hawd of Hargeisa is located in Waqooyi Galbeed region and has an estimated population of 33,850 (WHO, 2005 NIDS figures further verified by the assessment team). The Hawd of Hargeisa has three livelihoods but is predominantly pastoral (85%) with the remaining being urban (10%) and agro-pastoral (5%). The agro-pastorals are mainly involved in rain-fed farming.

A recent rapid nutrition assessment conducted in the Hawd of Hargeisa in December 2005 (end of Deyr 05/06 season) recorded acute malnutrition rates (Weight for height < -2 z scores or oedema) of 11.4% and severe acute malnutrition rate (WHZ < -3Z scores or oedema) of 1.8%. The Hawd of Hargeisa had experienced below average rains in the Gu'06 and preceding seasons, this placed the majority of the population who are mainly pastoralists into chronically food insecure situation. The Hawd of Hargeisa unlike other parts of North-west region experienced below average rains (Deyr'05 and GU'06). It was therefore important to assess the nutrition situation after a series of interruption to livelihoods.

Between 11th to 19th November 2006 an interagency nutrition and mortality assessment was conducted by FSAU/FAO, UNICEF, SRCS WFP and MOHL. Using a two-stage (30x30) cluster sampling methodology, a total of 945 children, aged 6-59 months and/or measuring 65-109.9 cm in height/length were surveyed. A total of 903 households were surveyed for mortality and child data collected from 475 of these households.

The global acute malnutrition rate (weight for height <-2 Z score or oedema) was **8.1%** (CI: 6.5-10.1) while the severe acute malnutrition (weight for height <-3 Z score or oedema) was **1.9%** (CI: 1.2-3.1) with no cases of oedema reported. These results indicate an alert nutrition situation according to WHO classification and are consistent with the long term estimates of GAM (5-10%) for the area. These results also indicate an improvement from the previous assessment conducted in December 2005 where a GAM of 11.4% was reported, although a different methodology was applied so a direct comparison is not possible. Malnutrition showed significant associations with morbidity and was higher among those who had reported an illness in the two weeks prior to the assessment ($p=0.05$) especially with suspected malaria/febrile illness ($p=0.00002$) and ARI ($p=0.0006$). Overall, about 29.3% of the assessed children reported to have suffered from one or more communicable childhood diseases during the two weeks prior the assessment. The crude mortality rate was **0.33** (0.15-0.51) while under-five mortality rate was **0.75** (0.21-1.28) deaths/10,000/day respectively. Crude mortality rate and under-five mortality rate both indicates acceptable levels according to WHO classification. Morbidity, in particular ARI, diarrhoea, measles and malaria was the main cause of mortality.

About 93% of the households had consumed 4 or more food groups in the preceding two weeks, reflecting a diverse diet. Two- thirds (62.8%) of the children aged 6-24 months were not breastfeeding at the time of the assessment. Nearly half (49.4%) of the children aged 6-24 months were introduced to complementary foods at the age of 1 to 3 months and only 4.7% were fed for the recommended five or more times in a day. About 97.6% of the assessed children had been immunized against polio, while measles and vitamin A supplementation coverage were quite low, at (34.4%) and (36.2%) respectively. Measles and vitamin A supplementation coverage are below the recommended 95% (SPHERE 2004).

The mitigating factors to nutrition situation include the dietary diversity due to improved access to livestock products especially milk. Following sufficient Gu"06 and Deyr'06/07 rainfall which contributed to good pasture and water, livestock production improved contributing to improved income access at household level. Morbidity and poor childcare practices are the main factors aggravating the nutrition situation.

Based on the analysis of findings, the assessment team in collaboration with partners recommends: Provision and enhanced coverage of health services in the district; intensified health and nutrition education targeting the mothers, safe water for consumption and sanitation

especially provision of sanitary facilities; finally to introduce measures to diversify food sources such as poultry farming, bee-keeping both in the short and medium term.
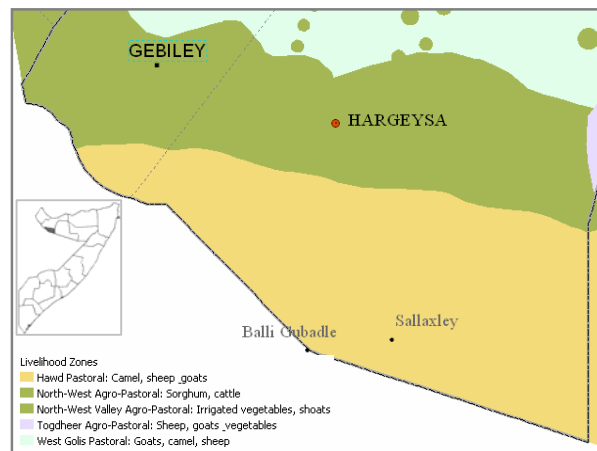
Table 1:   Summary of findings

Indicator	No	% (95% CI)
Total number of households surveyed	475	100
Total number of children assessed	945	100
Global Acute Malnutrition (WHZ<-2 and or oedema)	77	**8.1** (6.5-10.1)
Severe Acute Malnutrition (WHZ<-3 and or oedema)	18	**1.9** (1.2-3.1)
Oedema	0	0
Global Acute Malnutrition (WHM<80% and or oedema)	43	4.6 (3.4 -6.1)
Severe Acute Malnutrition (WHM<70% and or oedema)	10	1.1 (0.5 – 2.0)
Proportion of malnourished pregnant women (MUAC≤23.0; N=101)	23	12.9 (5.5-26.0)
Proportion of non pregnant women who were malnourished (N=380)	1	0.3 (0.0 – 1.7)
Proportion of children aged 6– 24 months who were breastfeeding (N=344)	128	37.2 (32.1 – 42.6)
Proportion of children introduced to solid food before 6 months (n=324)	271	78.8 (CI: 74.0-82.9)
Proportion of children reported to have suffered from diarrhoea in 2 weeks prior to assessment	149	15.8 (13.5- 18.3)
Proportion of children reported to have suffered from ARI within 2 weeks prior to assessment	162	17.1 (14.0 – 19.7)
Proportion of children reported to have suffered from with febrile illness in 2 weeks prior to assessment	7	0.7 (0.3 – 1.6)
Proportion of suspected measles cases within one month prior to assessment (N=896)	7	0.8 (0.3 – 1.7)
Children (9-59 months) immunised against measles (N=896)	309	34.5 (31.4 – 37.7)
Children who have ever received polio vaccine (N=945)	922	97.6 (96.3 – 98.4)
Children who received vitamin A supplementation in last 6 months or before	342	36.2 (33.1 – 39.4)
Household Dietary Diversity (N=475)		
Proportion consuming ≤3 Food groups	35	7.4 (5.3 – 10.2)
Proportion consuming ≥4 Food groups	440	92.6 (89.8 – 94.7)
Households using open wells/berkads as the main source water	422	88.8 (85.5 – 91.5)
Proportion of households who used the bush for faecal disposal	369	77.7 (73.6 – 81.3)
Under five Death Rate (U5DR) as deaths/10,000/ day	0.75 (0.21-1.28)	
Crude Death Rate (CDR) as deaths/10,000/ day	0.33 (0.15-0.51)	

1.0   INTRODUCTION

Fig 1 Map showing the assessement area

The Hawd of Hargeisa comprises of Balli-gubadle and Salaxley Districts and is located in Hargeisa region. Both districts have an estimated population of 33,850 (WHO, 2006 NIDS figures further verified by the assessment team). The two districts have three livelihoods but are predominantly pastoral (85%) and the rest are urban (10%) and agro-pastoral (5%) These agro-pastoralists in the Hawd of Hargeisa are mainly involved in rain-fed farming. Pasture and water have consistently been average to poor in North-west region of Somaliland due to mixed performance of rains in the Gu' 06 and preceding (GU, Deyr and Heys '05) seasons. However the Hawd of Hargeisa experienced below-average rain conditions, limited water and rangeland resources, (FSAU, 2006 Post Gu' Analysis).

1.2   Survey Justification

According to FSAU's long term range estimates of malnutrition from 1999 – 2005, the Hawd of Hargeisa has persistently shown rates of malnutrition (GAM < 2 Z score or oedema) rates of between 5-10%. However, most recent rapid nutrition assessment conducted in the Hawd of Hargeisa in December 2005 (end of Deyr 05/06 season) recorded acute malnutrition rates of 11.4% and severe acute malnutrition rate of 1.8%. The Hawd of Hargeisa had experienced below average rains in the Gu'06 and preceding seasons, this placed the majority of the population who are mainly pastoralists into chronically food insecure situation. The Hawd of Hargeisa unlike other parts of North-west region experienced below average rains (Deyr'05 and GU'06). It was therefore important to assess the nutrition situation after a series of interruption to livelihoods.

1.3   Objectives of the study

The specific objectives of the assessments were;

1. To estimate the prevalence of acute malnutrition and nutritional oedema among children aged 6-59 months and with height/length of coverage 65-109.9 cm.
2. To estimate the prevalence of acute malnutrition among adult women aged 15-49 years in the Hawd of Hargeisa
3. To identify factors likely to have influenced malnutrition in young children in the Hawd of Hargeisa
4. To estimate the prevalence of some common diseases (measles, diarrhoea, malaria, and ARI) in the Hawd of Hargeisa
5. To estimate the dietary diversity status of the Hawd of Hargeisa population
6. To estimate measles and polio vaccination and Vitamin A supplementation among children in the Hawd of Hargeisa
7. To estimate the crude and under-five mortality rates in the Hawd of Hargeisa

2.0   BACKGROUND INFORMATION:

2.1   General overview and administration
The Hawd of Hargeisa is located in Woqooyi Galbeed region, Somaliland and neighbours Awdal Region (Gebiley District) to the North-west, Zone Five of Ethiopia to the South and South-west, Togdheer Region (Odweine District) to the East and Hargeisa District to the North and North-East. It has an estimated population of 33,850 (WHO, 2005 NIDS figures further verified by the assessment team). The Hawd of Hargeisa has three livelihood zones: predominantly pastoralists (85%), urban (10%) and agro-pastoralist (5%). The Current Balli-gubadle and Salaxley district administration with responsibilities of decision making was set up by the community through election held May 2002. The administration is composed of the district commissioner and 13 other members and each having specific role in the system

2.2   Humanitarian Interventions
Several humanitarian activities have taken place in the districts and particularly during the drought period experienced in March 2006 after below normal of Deyr 05/06 and *Gu*06. Water trucking was mainly carried out by HAVOYOCO/DRC, Ministry of water resources and minerals and business community from the affected households. WFP has also been supporting with food rations in Balli-gubadle and Salaxley secondary boarding schools in every three months. The health services are supported by Ministry of Health and Labour (MOHL) and essential drugs are supplied bi-monthly from UNICEF Hargeisa.

2.3   Nutrition situation
According to FSAU's historical range estimates of malnutrition from 1999 – 2005, Hawd of Hargeisa has persistently shown rates of malnutrition (GAM = WHZ<-2 or oedema) of between 5-10%. A survey conducted in May 2002 (Mid-Gu season) by FSAU and UNICEF and MOHL recorded malnutrition rates of 8.8% (CI: 7.1-10.9) and severe acute malnutrition of 1.4% (95% C.I 0.6-2.2). The more recent rapid nutrition assessment conducted in the Hawd of Hargeisa in December 2005 (end of Deyr season) recorded acute malnutrition rates of 11.4% and severe acute malnutrition rate of 1.8%. The main nutrition aggravating factors identified in the past were poor child care practices, high morbidity and poor dietary diversity.

2.4   Water Sanitation and Environment

Hawd of Hargeisa like many other parts of Somaliland has been facing frequent problems of water shortage. The main sources of water are *Berkads*, *Balleys* and natural water catchments. These water sources depend on the amount of rainfall received in the region and dries up immediately due to over use by livestock and the people. The quality of water is poor and often leads to episodes of water-borne diseases such as diarrhoea.

The environmental sanitation is poor due to lack of sufficient sanitary facilities such as latrines in the household and in public places such as schools and hospitals. The frequent practice of using the bush for human waste disposal in this area is a health risk due to possible contamination of water sources during rainy season. Garbage disposal is also poor and litter evidently scattered in the environment in both rural and urban areas is posing a health risk. Deforestation of indigenous trees is reported to be on the increase. Large scale charcoal burning and massive cutting of trees especially acacia contributes to environmental degradation, soil erosion and desertification. A research done by the Ministry of Pastoral Environment and Rural development noted that only 30% of the income earned from charcoal burning goes to households while the rest 70% goes to non-essential expenses such chewing khat.

2.5   Health issues

Health services in Hawd of Hargeisa are limited with the only two MCH/OPDs located in Balli-gubadle and Salaxley town and managed by MOHL. This makes it hard for the rural people to access the services. Sick people resort to unreliable means such as use of traditional healers and purchase of drugs from pharmacists. This may partly explain the high prevalence of common communicable diseases in the district that include malaria, diarrhoea, skin problems, intestinal parasite and measles. Health programmes such as immunization, vitamin A supplementation and measles vaccination are implemented by MOHL with the support of UNICEF and WHO. The polio immunization in the two districts was on-going at the time of the assessment.

2.6   Food security

Fig 2 Food Security Situation
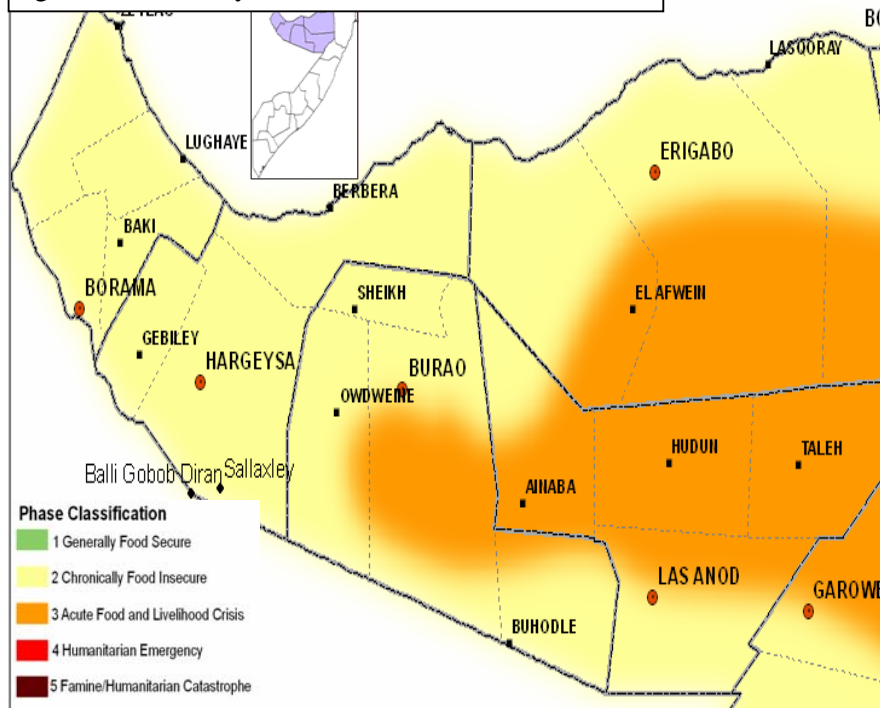
The FSAU Post Gu '06 analysis classified Hawd of Hargeisa, as chronically food insecure (Fig 2). This was primarily due to the mixed performance of Gu '06 rains and preceding (Gu',Deyr and Heys) seasons that were below average resulting in poor pasture and water availability and an overall negative impact on rangeland resources. (FSAU, 2006). This prompted abnormal migration of herders with their livestock towards Zone Five of Ethiopia, Eastern highlands up to Odweine South-east, in search of water and pasture. In Hawd of Hargeisa the main source of income comes from the sales of livestock and their products. However due to below-normal milk production and reduced livestock market prices, income sources were diminished, worsening the food security situation.

3.0   METHODOLOGY

3.1 Assessment design

This was a cross-sectional study among the BALIGUBADLE and Salaxley Districts population in which both qualitative and quantitative techniques were used. Quantitative data was collected through a standard household questionnaire for nutrition (see appendix 2). Retrospective mortality data for 90 days prior to the assessment was also collected among the study households (see appendix 3). Qualitative data was collected from key informants by assessment supervisors through focus group discussions and key informant interviews to provide further understanding of possible factors influencing malnutrition.

3.2 Sampling procedure

Using a two-stage cluster sampling methodology, 30 clusters were randomly selected based on population proportion to size. Initially a sampling frame was constructed from which a representative sample could be drawn. A list of all villages within BALIGUBADLE and Salaxley district, with their respective populations was used to construct cumulative population figures for the assessment area. Using WHO Polio population figures, generated during National Immunization Days (WHO, Jan 2006) and the input of key informants from the region, all settlements/villages were listed in the sampling frame and their population estimates further verified for authenticity by the assessment team. An estimated population of 33,850 from all settlements/villages was obtained from which 30 clusters were randomly selected using the Nutrisurvey software. From the 30 randomly selected clusters, a total of 945 children aged 6-59 months and/ and height/length of 65-109.9 cm from 475 households were surveyed.

In each of the clusters, mortality questionnaires were administered to 30 randomly selected households. The same sampling frame used for nutrition assessment was employed in cluster selection for the mortality assessment. In total, mortality data was collected from 901 households irrespective of whether or not the household had a child under-five.

Study population and sampling criteria

The study population consisted of people living in the Hawd of Hargeisa and comprised all the children aged 6-59 months or measuring 65-109.9 cm in height/length. The sampling procedure as outlined in the Somali Nutrition Working Group Guidelines and incorporating SMART Guidelines was followed in this assessment. On the visit to each cluster, the centre was identified and a pen was spun to determine the direction to follow in moving to the edge of the cluster. On reaching the edge of a cluster, a pen was spun a second time, until the pen pointed inward the cluster/village to determine the direction to follow in the systematic selection of the households with children aged 6 to 59 months. The households in this direction were counted / established as the team crossed to the other edge and given numbers. A random number within the total number of households encountered was drawn to enable random selection of the first household to be visited. From the first household, the team always moved to the right direction to the next household. This procedure was followed until the required 30 children were obtained in a cluster.

All sampled households were visited, the supervisor noting whether it was empty and whether children in the target age group were present or not. In households without children in the target age group only the mortality questionnaires were administered. If a cluster was exhausted of children before the required 30 children had been reached, a neighbouring area with similar characteristics was selected to complete the cluster. All eligible children in the households were measured and if a child or primary caregiver was absent, an appointment was booked for a later visit in the course of the assessment.

3.3 Data collection.

3.3.1   Anthropometric measurements.

The anthropometric data were collected using the procedure stipulated by the WHO (1995) for taking anthropometric measurements. It was ensured that this procedure was adhered to. The protocol used was as follows:

Weight: Salter Scale with calibrations of 100g-unit was used. This was adjusted before weighing every child by setting it to zero. The female children would be lightly dressed before having the weight taken while clothes for the male children were completely removed. Two readings were taken for each child, shouted loudly and the average recorded on the questionnaire.

Height: For height, a vertical or horizontal measuring board reading a maximum of 120 cm and accurate to 0.1cm was used to take the height or length of a child. The child would stand on the measuring board barefooted; have hands hanging loosely with feet parallel to the body, and heels, buttocks, shoulders and back of the head touching the board. The head would be held comfortably erect with the lower border of the orbit of the eye being in the same horizontal plane as the external canal of the ear. The headpiece of the measuring board was then pushed gently, pressing the hair and making contact with the top of the head. Height/length was then read to the nearest 0.1cm. Two readings were recorded and the computed average used in the analysis.

Length: For children aged 6 to 24 months or between 65cm to 84.5cm length instead of height was taken. The child was made to lie flat on the length board. The sliding piece was placed at the edge of the bare feet as the head (with crushing of the hair) touched the other end of the measuring device. Then two readings were taken and the average computed.

Arm Circumference: The Mid Upper Arm Circumference was measured using a MUAC tape to the nearest 0.1 cm. Two readings were taken and the average recorded for each child.

3.3.2   Child age determination

Where useful documents like growth monitoring/clinic attendance cards and birth certificates were available, they were used to determine the child's age. A calendar of events (appendix 4) was also used to estimate the age of the child. Though not entirely accurate, ages estimations are l regarded as important indicators and were approximate/average pointers for identification. The nutrition indicator employed as preference was *weight for height* as the most appropriate nutrition status (acute malnutrition) for emergency and transitory populations.

3.3.3   Oedema

Oedema, defined as bilateral oedema on the lower limbs was assessed by gently pressing the feet to check if a depression is left after at least three seconds. It was confirmed, if present, by the supervisor and then recorded.

3.3.4   Morbidity

Morbidity pattern was assessed by asking about incidences of common communicable diseases i.e. diarrhoea, acute respiratory infection, suspected malaria/ febrile illness and measles in the two weeks prior to the assessment.

Diarrhoea: Diarrhoea was defined as 'three or more loose or watery stools per day'.

Measles: Defined as 'more than three signs of the following: fever, and skin rash, runny nose or red eyes, and/or mouth infection, or chest infection.

Acute Respiratory Infection (ARI): Asked as *oof wareen or wareento* defined as 'cough, rapid breathing and fever'.

Suspected malaria/acute febrile illness: Defined as 'periodic chills, fever, sweating or coma.

3.3.5 Mortality

The mortality assessment was done concurrently with nutrition assessment in which a 30 by 30 cluster sampling methodology was used. The assessment methodology used for the nutrition assessment was adopted with the exception that households were selected as the final sampling unit. At least 30 households were randomly selected in each cluster and the mortality questionnaire (appendix 3) administered to a responsible member of that household. All households within the selected cluster were eligible for inclusion in the mortality assessment, whether there was a child under the age of five or not. Households were systematically surveyed until the 30th household. Each household surveyed was asked the composition of their members in two parts- those members less than 5 years and the total number of household members. The household was then asked how many if any of the household members had died, left or arrived in the last three months. A total of 4609 households were included in the assessment.

The crude and under-five mortality rates were generated automatically by the Nutrisurvey software as deaths per 10,000 persons per day using a recall period of 90 days. If a member had died, the respondent was asked to describe the signs and symptoms of the illness likely to have caused the death and these were recorded.

Mortality rates can be interpreted according to the following reference

- For under-five years old children
  -Under-five mortality rates >= 2 deaths/10,000/day indicate a situation of alert
  -Under five mortality rate >=4 deaths/10,000 children/day indicate an emergency
- For the total population
  -Mortality rates >=1 deaths/10,000 persons/day indicate an alert situation
  -Mortality rates >=2 deaths/10,000 persons/day indicate an emergency.

3.3.6 Dietary Diversity

Dietary diversity (when households consume four or more food groups) was determined by taking a simple count of various food groups consumed in a given household over the past twenty four hours. A total of 12 [1]FAO recommended food groups were considered which included Cereals & cereal products; Roots & tubers; Vegetables; Fruits; Meat and meat products, Eggs; Fish; Legumes; Milk & its products; Fats & oil; Sugar & honey and Miscellaneous.

3.3.7 Vitamin A Deficiency

During the assessment, Vitamin A deficiency (VAD) prevalence was estimated by assessing if any member(s) of the households experienced night blindness.

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[1] Cereals, Meat,Roots & Tubers, Egg, Milk, Pulses, Fruits, Vegetables, Fish& sea food, Oil/fats, Sugar & Honey, Miscellaneous

3.4 Description of assessment activities

Table 2: Chronology of activities for the Hawd of Hargeisa Nutrition Assessment

Major Activity	Dates
Preparation of tools, methodology & review of secondary data (Nairobi) Resource mobilization; Joint planning meetings with partners	1st–30th November, 2006
Training of enumerators, pre-testing questionnaire and cluster Identification	11th – 14st November, 2006
Collection of data	15th – 19th November , 2006
Entry of data	20th– 22rd November, 2006
Data cleaning and analysis	23rd -25th November, 2006
Presentation of preliminary results to partners	28th November, 2006
Circulation of draft report	5th February, 2007
Circulation of final report	26th February 2007

Six teams each consisting of two enumerators and one supervisor conducted the assessment with each team handling one cluster in a day. An elder from each village/cluster assisted the teams in ground identification of the cluster and introduction to the community, its centre and boundaries. Supervisors were seconded from some of the participating partners namely; FSAU, SRCS, and WFP. Overall support, supervision and co-ordination were done by two FSAU nutrition project officers. The enumerators were selected on the basis of their experience with previous assessments, need for participation in future nutrition activities and ability to learn nutrition assessment procedures during training.

3.5 Quality Control Procedures.

A comprehensive training of enumerators and supervisors was conducted covering interviewing techniques, sampling procedure, inclusion and exclusion criteria, sources and reduction of errors, taking of measurements, standardisation of questions in the questionnaire, levels of precision required in measurements, diagnosis of oedema and measles, verification of deaths within households, handling of equipment, and the general courtesy during the assessment.

Standardisation of measurements and pre-testing of the questionnaire and equipment was carried out in three villages in the outskirts of Hargeisa town. Pre-testing involved familiarising assessment teams with village/cluster entry; administering the questionnaire, sampling procedure, correct taking of measurements and recording. After the field exercise, views were exchanged to address the difficulties identified; appropriateness of the questions reviewed and necessary changes made.

Quality of data was also ensured through (i) crosschecking of filled questionnaires on daily basis and recording of observations and confirmation of measles, severe malnutrition and death cases by supervisors. All households sampled were visited and recorded including empty ones (ii) daily review undertaken with the teams to address any difficulties encountered, (iii) progress evaluation was carried out according to the time schedule and progress reports shared with partners on regular basis, (iv) continuous data cleaning upon and after entry which made it easy to detect any outliers/ mistakes and to replace or repeat households depending on magnitude of error (v) monitoring accuracy of equipment (weighing scales) by regularly measuring objects of known weights and (vi) continuous reinforcement of good practices. Moreover, the CHECK program of EPI 6 computer package was used to control and eliminate errors during data entry by setting conditions such that any data outside the range was automatically rejected eg. A child's age was set to have values from 6 to 59 and values outside this range were automatically rejected. All measurements were loudly shouted by both the enumerators reading and recording them to reduce errors during recording.

3.6 Data Processing & Analysis

3.6.1   Data entry, cleaning, processing and analysis

Data was entered and analysed using Nutrisurvey and EPI6 computer based packages. Running and tabulating all variable frequencies was carried out as part of data cleaning. The Nutrisurvey Anthropometry and EPINUT programmes were 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). Cleaning and analysis of certain variables was undertaken in Microsoft Excel.

3.6.2   Characteristics of assessment population and other variables

Frequencies and cross-tabulations were used to give percentages, confidence intervals, means, standard deviations and associations in the descriptive and statistical analysis and presentation of general household and child characteristics.

3.6.3   Creation of nutritional status indices

The anthropometric measurement of weight and height were used to compute the WFH nutritional status indicators of the studied children. Weight for Height (WFH) expressed the weight of the child as a percentage of the expected weight for the standard child of that height as given by NCHS. WFH measures acute malnutrition or wasting. Using EPINUT, Z-scores were generated and the anthropometric indicator, WFH, was used to classify children into categories of nutritional status as follows:

< -3 Z-Scores or oedema	= Severe acute malnutrition
-3 Z-Scores $\leq$WFH< -2 Z-Scores	= Moderate acute malnutrition
<-2 Z-score or oedema	= Global/total acute malnutrition
$\geq$ -2Z-Scores	= Normal

Similarly, MUAC measurements were also used to classify children into categories of nutritional status and mortality risks as follows according SACB Nutrition assessment guidelines:

<11.0 cm	= Severe malnutrition
>=11.0 < 12.5	= Moderate malnutrition
>=12.5 -- < 13.5	= At risk of Malnutrition
>=13.5 cm	= Normal

For adults, the following categories were used (FSAU Guidelines, Sphere 2004)
   a) For non pregnant women:

< 16.0 cm	= Severe Acute malnutrition
< 18.5 cm (with oedema)	= Severe acute Malnutrition
$\leq$ 18.5 cm	= Global (Total) Acute Malnutrition
> 18.5 cm	= Normal

   b) For pregnant women: (Sphere 2004)

$\leq$ 20.7 cm	= Severe risk of growth retardation of the foetus
$\leq$ 23.0 cm	= Moderate risk of growth retardation of the foetus
> 23.0 cm	= Normal

4 ASSESSMENT RESULTS

4.1 Household Characteristics of Study Population

The nutrition assessment covered a total of 475 households with a mean household size of 6.3 (SD= 2.4) persons. The mean number of the under fives per household was 2.1 (SD=0.8).

Table 3: Household Characteristics

Characteristics	n	%	95% CI
Total number of HHs assessed	475	100	
Household Size	Mean= 6.3		SD= 2.4
Number of Underfives	Mean= 2.1		SD= 0.8
Residential status: (N=475)			
Residents	465	97.9	96-98.9
Internal Immigrants	5	1.2	0.4-2.6
Returnees	3	0.6	0.2-2.0
IDP's	2	0.4	0.1-1.7
Origin (N=10)			
Within the same district	3	30	6.7-65.2
Within Waqooyi Galbeed	5	50	18.7-81.3
Southern Somalia	2	20	2.5-55.6
Duration of Stay (N=10)			
1 months	2	20	2.5-55.6
2 -18 months	8	80	29.8-98.9
	Mean = 2.2		SD = 0.78
Reason for Migration (N=10)			
Seeking jibs	4	40	12.2-73.8
Food shortage	1	10	0.3-44.5
Pasture/ water shortage	5	50	18.7-81.3

Most (97.9%) of the assessed households were residents[2] and the rest of the households were internal immigrants, IDPs and returnees as shown in Table 3. The non residents were all from within the Waqooyi Galbeed region including the 30% from Hawd of Hargeisa.

Overall the non residents had stayed in their current locations for an average of about 2.2 months with most (80%, n=10) of them having arrived into the locations 2-18 months prior to the assessment. The main reasons for movement were food pasture/water shortage (50%, n=10) and seeking for jobs (40%; n=10).

Table 4: Distribution of households by means of livelihood and Source of Income

Livelihoods (N=475)		
Pastoral	404	85.1 (81.5-88.1)
Urban	48	10.1 (7.6-13.3)
Agro-pastoral	23	4.8 (3.2-7.3)
Main Source of Income (N=475)		
Animal sales	349	73.5 (69.2-77.3)
trade	51	10.7 (8.2-14)
Casual labour	32	6.7 (4.7-9.5)
Crops sales	22	4.6 (3-7)
Salaried/ wage employment	14	2.9 (1.7-5)
Remittances/ gifts/Zakat	7	1.5 (0.6-3.1)

Majority of the surveyed households were pastoralist (85.1%), followed by urban and agro-pastoral households. Sale of animals and their products (73.5%) and petty trade (10.7%) were the two main sources of income to the households. Casual labour and crop sales were also sources of income to a significant number of households as indicated in table 4.

4.2 Water Access and Quality
Most households drew water from unprotected sources that included Berkads (88.8%) and water catchments (5.1%). Only 5.3% drew water from protected sources.

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[2] Residents were taken as those who dwelt in the places of their residences for an extended period or permanently

Table 5: Water Access and Quality

Water access and Quality	N	(%)
Main source of drinking water (N=475):		
Berkads	422	88.8 (85.5-91.5)
Piped/ taped water	25	5.3 (3.5-7.8)
Protected wells	4	0.8 (0.3-2.3)
Water catchments(Balli)	24	5.1 (3.3-7.5)
Distance to nearest water point (N=475):		
≤ 500 meters	176	37.1 (32.7-41.6)
501m - < 1 km	163	34.3 (30.1-38.8)
1 – 3 km	93	19.6 (16.2-23.5)
<3 km	43	9.1 (6.7-12.1)
Number of clean water containers		
1 - 2 containers	246	51.8 (47.2-56.2)
3 - 4 containers	165	34.7 (30.5-39.2)
≥ 5 containers	64	13.5 (9.5-18.6)
Method of water storage:		
Covered containers	300	63.2 (58.6-67.5)
Open containers	134	28.2 (24.3-32.5)
Constricted neck (*Ashun*)	41	8.6 (6.3-11.6)

Although the water sources generally did not provide good quality water, one-third of the households (37.1%) were within a distance of ≤500 metres to the sources as recommended by Sphere guidelines (2004). Households also had insufficient clean water storage and collecting containers. This implies that they require frequent trips to fetch water. About 51.8% of the households have only 1-2 containers for fetching or storing water. Sphere (2004) guidelines recommend a minimum of 2 clean containers of 10-20 litres for water collection alone, in addition to enough storage containers to ensure there is always water in the household. Most households (63.2%), stored water in covered containers. However, a significant number of the households (28.2%) stored water in open containers, posing the risks of water contamination at the point of storage.

4.3 Sanitation and Hygiene Practices

Most (77.7%) of surveyed households had no access to sanitation facilities and used the bush for human waste disposal Traditional pit latrines (18.9%) and improved ventilated pit latrines (3.4%) were reported as the commonly used sanitation facilities. Among the households that had access to sanitary facilities, most (80%) of these facilities were located in a distance of more than 30 meters from water sources as internationally recommended (Sphere, 2004).

Table 6: Distribution of households by sanitation & Hygiene

Sanitation and hygiene	n	% (CI)
Access to Sanitation facility (N=475)		
No latrine at all (Bush)	369	77.7 (73.6-18.3)
Traditional pit latrine	90	18.9 (14.2-24.6)
VIP latrines	16	3.4 (2.0-5.5)
Distance from latrine to water source (N=102)		
< 30meters	22	21.6 (14-30.8)
≥30 meters	80	78.4 (69.2-86)
Type of washing agents used		
Soap	211	44.4 (39.9-49)
None	178	37.5 (33.1-42)
Ash	38	8 (5.8-10.9)
Shampoo	29	6.1 (4.2-8.8)
Plant extract	19	4 (2.5-6.3)
Method of Food Storage (N=537)		
Don't store	168	35.4 (31.1-39.9)
Put in covered containers	163	34.3 (30.1-38.8)
Put in pots beside fire	98	20.6 (17.1-24.60
Suspended in hooks/ropes	46	9.7 (7.2-12.8)

The assessed households were using some form of washing agents, with about (45%) using soap. Other washing detergents used are shown in table 6. This is a positive indication of better hygiene standards. About 35.1% of the households assessed did not store any food with 34% of households storing foods in covered containers as shown in table 6. Even though this is a good practice that protects against external contaminants and nutrient losses, it is also risky as it increases the rate of deterioration by micro-organisms especially for high protein foods.

4.4 Health Seeking Behaviour

About 29.3% of all the children reportedly fell sick during the two weeks prior to the assessment. Nearly one-third of them (28.9%) sought health care assistance from private clinics/pharmacy. Traditional healers (23.5%), public health facilities (18.5%) and own medication (5.4%) were also significant places where health care was sought. Unfortunately, nearly one-third of the children who fell sick didn't seek for any health assistance.

Table 7: Health seeking behaviour (N=984)

	n	% (CI)
Child fell sick?		
Yes	277	29.3 (26.4-32.3)
No	668	70.7 (67.7-73.6)
Where assistance was sought (N=277)		
Private clinic/ pharmacy	80	28.9 (23.6-34.6)
Traditional healer	65	23.5 (18.6-28.9)
No assistance sought	65	23.5 (18.6-28.9)
Public health facility	52	18.8 (14.3-23.9)
Own medication	15	5.4 (3.1-8.8)

4.5   Formal and informal support

Table 8: Formal and informal support

Only 11.4% of the households reported having received some informal support during three months prior to assessment. Most of the social support was mainly in the form of *zakat* (5.5%) from better off households and remittances from abroad (3.8%).

Other forms of support received included loan (3.2%), gifts (2.1%) and remittances from within Somalia (1.1%). Most of the households were reported to have received more than one form of support

	N	% (CI)
Informal support (N = 475)		
Received:		
Yes	54	11.4 (8.7-14.7
No:	421	88.6 (85.3-91.3))
Type of support		
Zakat from better off households	26	5.5 (3.7-8)
Remittances within abroad	18	3.8 (2.3-6)
Loans	15	3.2 (1.8-5.3)
Gifts	10	2.1 (1.1-4)
Remittances from within Somalia	5	1.1 (0.4-2.6)
Formal support (N = 475)		
Received:		
Yes	36	7.6 (5.4-10.4)
No	439	92.4 (89.6-94.6)

Formal support was received by equally small proportion (7.6%) of the assessed households and was only in form of food for work/asset.

4.6   Characteristics of assessment children

Table 9: Distribution of children according to age and sex

Age	Boys		Girls		Total		Ratio Boys: Girls
	n	*%*	*N*	*%*	*n*	*%*	
6-17 months	131	24.7	92	22.2	223	23.6	1:1.2
18-29 months	120	22.6	89	21.4	209	22.1	1:1.1
30-41 months	124	23.4	103	24.8	227	24.0	1:1.2
42-53 months	88	16.6	68	16.4	156	16.5	1:1.2
54-59 months	67	12.6	63	15.2	130	13.8	1:1.1
Total	530	56.1	415	43.9	945	100	1:1.2

A total of 945 children were surveyed from 475 households of whom 56% were boys and 44% were girls. The ratio of boys to girls was 1:1.2. Each age group as shown in table 9 represented between 16.5% and 24% except those over 54 months who had a lowest representation (13.8%) because of the narrow age bracket.

Fig 3: Age-sex Pyramid for assessed children
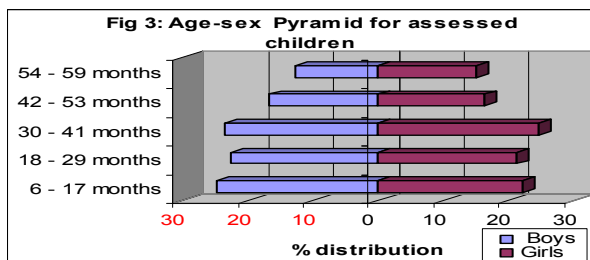
Figure 3 illustrated that the pyramidal shape is typical for a normal population indicating that there was no bias in the selection of children by age.

4.7 Nutritional status of assessment children using anthropometry

Table 10: Summary of Global Acute malnutrition and Severe Acute Malnutrition

Malnutrition Rates	No	Proportion
Global Acute Malnutrition (<-2 Z score or oedema)	77	8.1(6.5-10.1)
Severe Acute Malnutrition (<-3 Z score or oedema)	18	1.9 (1.2-3.1)
Oedema	0	0.4 (0.1-1.1)

The global acute malnutrition using WFH Z score (<-2 z-scores or oedema) was **8.1**% (CI: 6.5 – 10.1) while severe acute malnutrition (<-3 z-score or oedema) was **1.9%** (CI: (1.2 – 3.1) and no oedema cases was reported. Distribution of the weight-for-height scores (mean;-0.72 median=--0.67; SD=1.1) were skewed towards the left depicting a poorer nutrition situation according to international (WHO standards, Fig 4).

Fig 4 Weight for Height Z score Distribution curve
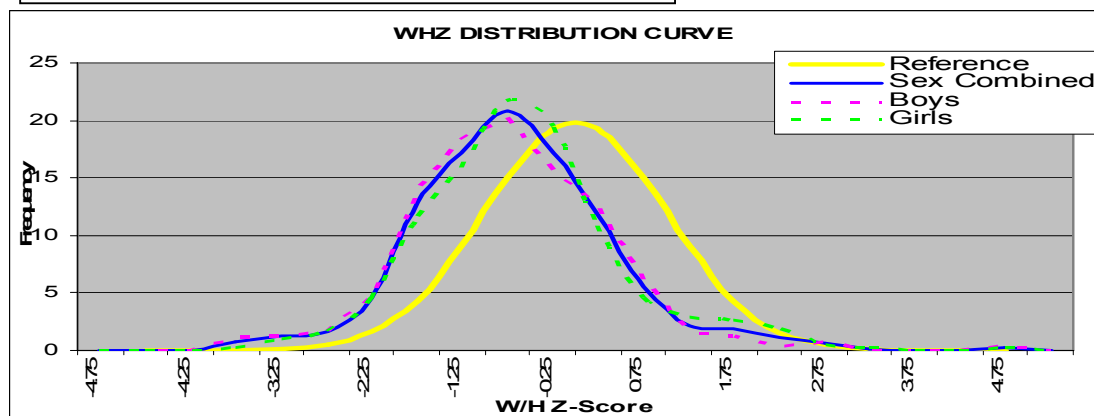
Table 11: Distribution of children by nutritional status (WHZ-score or oedema) and child sex

Nutrition status categories	Males		Females		Total	
	No	% (CI)	No	% (CI)	No	% (CI)
Global acute malnutrition (WFH<-2 z score/oedema)	46	8.7 (6.5-11.5)	31	7.5 (5.2-10.5)	77	8.1 (6.5-10.1
Severe acute malnutrition (WFH <-3 z score/oedema)	13	2.5 (1.4-4.3	5	1.2 (04– 3)	18	1.9 (1.2 – 3.1)
Oedema	0	0	0	0	0	0

About 8.7% of boys and 7.5% of girls were acutely malnourished in the assessed Hawd of Hargeisa population using weight for height <-2 Z score. More boys 2.5% than girls (1.2%) were also severely malnourished. However, there was no statistical difference between the two groups (p≥0.5).

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Table 12: Distribution of Acute Malnutrition by Age

Age groups	Severe (WH<-3Z)	Moderate (WH>=-3Z<-2Z)	GAM (Total malnourished-WH<-2Z	Normal (WH>=-2Z	Total
6-17 months	1 (0.4)	9 (4.0)	10 (4.5)	213 (95.5)	223 (23.6)
18-29 months	3 (1.4)	15(7.2)	18 (8.6)	191 (911.4)	209 (22.1)
30-41 months	5 9(2.2)	18 (7.9)	23 (10.1)	204(89.9)	227 (24.6)
42-53 months	4 (2.6)	8 (5.9)	12 (7.7)	144 (92.3)	156 (16.5)
54-59 months	5 (3.8)	9 (6.9)	14 (10.8)	116 (89.2)	130 (13.8)
Total	18 (1.9)	59 (6.2)	77 (8.1)	868 (91.9)	945 (100)

The age group category (54 – 59 months) had the highest (10.8%) percentage of malnourished children while category (6 – 17 months) had the lowest proportion of malnourished children. An analysis of distribution of malnutrition between age group 6-24 months and age group 25-59 months however, showed no statistical difference (p≥0.21).

Table 13: Malnutrition prevalence using WFH percentage of median categories

Nutrition status categories	Males		Females		Total	
	No	*Proportion (%)*	*No*	*Proportion (%)*	*No*	*Proportion (%)*
Global acute malnutrition (WFH<80% or oedema)	26	4.9 (3.3 – 7.2)	17	4.1 (2.5 – 6.6)	43	4.6 (3.4 – 6.1)
Severe acute malnutrition (WFH<70% or oedema)	7	1.3 (0.6 – 2.8)	3	0.7 (0.2 – 2.3)	10	1.1 (0.5 – 2)

The global acute malnutrition among children aged 6 – 59 months using weight for height <80% of median or presence of oedema was 4.6% (CI: 3.4 – 6.1), while severe acute malnutrition <70% of median or presence of oedema was 1.1% (CI: 0.5 – 2.0%).

The chronic malnutrition rate based on Height for age, HAZ<-2 was 42.4% (39.3 – 45.5) while underweight rate based on weight for age, WAZ<-2 was 41.0% (CI 37.9-44.1)

Using mid upper arm circumference (MUAC) measurements for children aged 12-59 months, a total of 10.7% (CI: 8.6 – 12.8) of the children were identified as acutely malnourished (MUAC<12.5 cm or oedema). About 1.3% see below table (CI: 0.6– 2.3) were identified as severely malnourished (MUAC<11.0 cm or oedema) while 21.4% (CI: 18.6 – 24.2%) were at risk of acute malnutrition (MUAC 12.5-<13.5 cm).

Table 14: Nutrition status of Children (12-59 months) by MUAC, N=836

Malnutrition	Males		Females		Total (N=836)	
	N	%	N	%	N	% (95% CI)
Severe (MUAC <11 cm) or oedema	23	4.9	20	5.4	43	5.1 (3.8-6.9)
Moderate (11≤MUAC<12.5 cm)	18	3.9	13	3.5	31	3.7 (2.6-5.3)
Total (MUAC <12.5 cm) or oedema	41	8.8	33	3.9	74	8.9 (7.1-11)
At risk (MUAC 12.5- <13.5 cm)	1	0.2	2	0.5	3	0.4 (0.1-1.1)
Normal (MUAC >=13.5 cm)	372	80	292	75.7	664	79.4 (76.5-82.1)
Total	414		327		741	100

4.8 Morbidity, measles immunisation, polio vaccination and vitamin A supplementation

The assessment revealed that about 29.3% of the children reported an illness from one or more childhood diseases two weeks prior to the assessment, which included ARI (17.1%), diarrhoea (15.8%) and febrile illness (0.7%). The incidence of measles among children aged 9-59 months one month prior to the assessment was reported to be 0.8%.

Table 15: Morbidity, measles immunisation, polio vaccination and vitamin A supplementation

	No.	%(CI)
Incidence of reported major child illnesses (N=945)		
ARI within two weeks prior to assessment	162	17.1 (14-19.7)
Diarrhoea within two weeks prior to assessment	149	15.8 (13.5-18.3)
Febrile illness (suspected malaria) within 2 weeks prior to assessment	7	0.7 (0.3-1.6)
Measles within one month prior to the assessment (N=925)	7	0.8 (0.3-1.7)
Immunization Coverage		
Children (9-59 months) immunised against measles (N=896)	309	34.5 (31.4-37.7)
Children who have ever received Polio dose	922	97.6 (96.3 – 98.4)
Vitamin A		
Children who received Vitamin A supplementation in past 6 months or before	342	36.2 (33.1-39.4)
Micronutrients Deficiencies (N=475)		
Households who reported night blindness (N=475)		
Total	10	2.1 (0.9-3.7)
24-71 months	1	0.2 (0.0-1.4)
≥ 72 months	9	1.9 (0.9-3.7)

Measles vaccination coverage for eligible children (9-59 months old) was 34.5%. Most (97.6%) of the children aged 6-59 months had received at least a dose of polio vaccine. About 36.2% of the assessed children had received Vitamin A supplementation in the 6 months prior to the assessment. Estimated measles immunization coverage and vitamin A supplementation was relatively low, while polio immunization coverage was high as a result of the recent campaigns by UNICEF, WHO and local partners.

4.9   Vitamin A Deficiency
About 2.1% of the households reported cases of night blindness, which is a proxy indicator of vitamin A deficiency with 1.9% of these night blindness cases reported among people aged more than five years. The other cases of night blindness were reported children less than five years. See below the international references for Vitamin A deficiency. The prevalence of night blindness among the children aged 24-71 months (i.e. if it is <1%) indicate a public health problem according to Sphere, 2004

4.10   Feeding practices
Two-third (62.8%) of the children aged 6-24 months were not breastfeeding at the time of assessment. This indicates that most children in Hawd of Hargeisa are breastfed for less than 24 months. Two-thirds (68.8%) of these children who were breastfeeding at the time of assessment were breastfed on demand as recommended. About half of the children (50%) had stopped breastfeeding, before eleven months of age, 33.5% before twenty four months while 0.9% was never breastfed.

Table 16: Children feeding practices

Children aged 6-24 months (N=344)	N	% (CI)
Is child breastfeeding?		
Yes	128	37.2 (32.1-42.6)
No	246	62.8 (57.4-67.8)
Breastfeeding frequency (N=128)		
1-2 times	3	2.3 (0.5-6.7)
3-6 times	37	28.9 (21.2-37.6)
On demand	88	68.8 (60-76.6)
Age stopped breastfeeding (N=224):		
0 - 5 months	27	12.1 (8.1-17.1)
6 - 11 months	112	50 (43.3-56.7)
12 – 18 months	75	33.5 (27.3-40.1)
More than 18 months	8	3.6 (1.6-6.9)
Never breast fed	2	0.9 (0.1-3.2)
Introduction of Complementary feeding (N=344)		
0 - 3 months	170	49.4(44-54.8)
4 – 5 months	101	29.4 (24.7-34.5)
6 Months	57	16.6 (12.9-21)
7 or more months	16	4.7 (2.8-7.6)
Feeding frequency:		
Once	30	8.7 (6.1-12.3)
2 times	90	26.6 (21.7-31.2)
3 – 4 times	203	59 (53.6-64.2)
5 or mores times	21	6.1 (3.9-9.3)

Nearly half (49.4%) of the children aged 6-24 were introduced to foods other than breast milk early in life 0-3 months. About 29.4% were introduced to complementary feeding at 4-5 months and only 16.6% were correctly introduced to complementary feeding at the recommended 6 months of age. The rest (4.7%) were initiated to complementary feeding late at 7 months or more.

Children were mainly fed on milk feeds with the majority of them fed three to four times in a day (59%). Only 6.1% were fed at the recommended frequency of 5 or more times (Facts for Life, 2002), which suggests suboptimal feeding practices for children while 8.7% of the children were fed only once.

4.11   Dietary Diversity

Table 17: Distribution of dietary diversity among households

No of food groups consumed (N=475)	N	% (CI)
2 food groups	15	1.8-5.3
3 food groups	20	2.7-6.5
4 food groups	207	39.1-48.2
5 food groups	125	22.5-30.6
6 food groups	77	13.1-19.9
7 food groups	23	3.2-7.5
8 food groups	4	0.3-2.3
9 food groups	3	0.2-2.0
10 food groups	1	0.0-1.4
1-3 food groups	35	7.4 (5.3-10.3)
≥ 4 food groups	440	92.6 (89.8-94.7)
Mean HDDS	4.7	SD=1.2
Main source of food (N=537)		
Own production	58	10.4 (8-13.3)
Purchasing	487	87.3 (84.2-89.9)
Gifts from friends	4	0.7 (0.2-2)
Bartered	8	1.4 (0.7-2.9)
Borrowed	1	0.2 (0.0-1.2)

As shown on table 17, the majority 39.1% of the households had consumed four food groups in the previous 24 hours. Overall, the majority (92.6%) of the households had consumed a diversified diet with 4 or more food groups, while the rest (7.4%) of the households had consumed less diversified food groups (Fig 5). Overall, households consumed an average (HDDS) of 4.7 food groups (SD=1.2) with the number of food groups consumed ranging from two to ten.

The majority (87.3%) of the households assessed mainly obtained their food through purchasing. About 10.4% got food through 'own' production while the rest obtained their food as gifts (0.7%) or through batter trading (1.4%) and borrowing (0.2%) respectively. It should be noted that milk was principally obtained through 'own' production.

Fig 5: Dietary Diversity among households

- 3 or less food groups
- 4 or more food groups
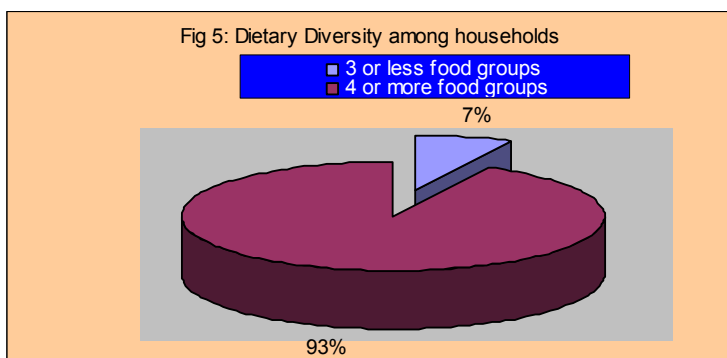
Cereals provide the bulk of the food in the household diet. Figure 6 shows that cereal-based diets were consumed by 99.6% of the assessed households. Other food items commonly consumed were milk (95.8%), sugar as tea (91.8%) and oil/fat (90.8 %). The food groups that were consumed the least were eggs (6.3), fruits (4.2) and tubers/roots (9.2)

Fig 6: Percentage of the households consumed specific food groups
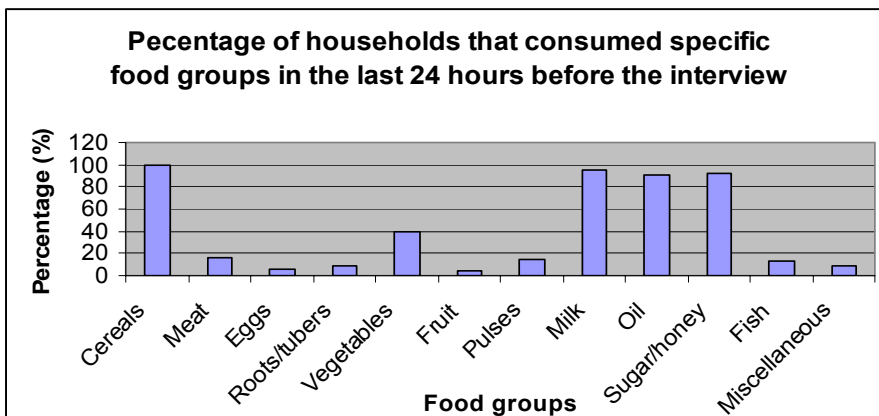
4.12   Adult Malnutrition by MUAC
Table 18:   Adult nutrition status by MUAC

	N	%	95% CI
Total mothers assessed	475	100	
Total non mothers assessed	6	100	
Total women assessed	481	100	
Non Pregnant (N=380)			
Severe acute malnutrition (MUAC<16.0 cm)	0	0	
Global acute malnutrition (MUAC≤18.5)	1	0.3	0.0-1.7
Normal	374	99.7	98.3 – 100
Pregnant women (N=101)			
Severe Risk (MUAC≤20.7 cm)	1	0.3	
Total at risk (MUAC≤23.0 cm)	13	13	7.1-21.2
Normal	87	87	78.8-92.2

About 0.3% of non-pregnant women (aged 15-49 years) were malnourished (MUAC≤18.5cm), while a total of 13% of pregnant women were at risk of malnutrition (MUAC≤ 23.0 cm) with 0.3% at severe risk of malnutrition (MUAC≤20.7 cm).

4.13 Relationship between malnutrition and other factors

Table 19: Risk factors and relation to total malnutrition (WHZ<-2)

Exposure variable	N	(%)	Crude RR	95% CI	p-value
Child sex:					0.5
Male	46	8.7	1.16	0.75-1.80	
Female	31	7.5			
Age group					0.21
6-24 months	23	6.7	0.74	0.47-1.19	
25-59 months	54	9.0			
Morbidity patterns					
Illness					
Yes	**30**	**10.8**	**1.54**	**1-2.38**	**0.05***
No	**47**	**7**			
ARI					
Yes	**24**	**14.8**	**2.19**	**1.39-3.44**	**0.0006***
No	**53**	**6.8**			
Diarrhoea:					
Yes	11	7.4	0.89	0.48-1.65	0.7
No	66	8.3			
Suspected Malaria/febrile illness:					
Yes	**4**	**57.1**	**7.34**	**3.73-14.5**	**0.00002***
No	**73**	**7.8**			
Measles:					
Yes	5	71.4		5.39-15.2	0.6
No	7	7.90	9.07		
Health programmes					
Vitamin A Supplement:					
Yes	26	7.6	0.90	0.57-1.41	0.6
No	51	8.5			
Measles vaccine (N=896)					
Yes	22	7.1	0.79	0.49-1.27	0.3
No	53	9			
Dietary & feeding patterns					
Breastfeeding (N=344)					
Yes	6	4.7	0.60	0.24-1.47	0.25
No	17	7.9			

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Morbidity was the main factor that showed a significant association with acute malnutrition (p=0.05). This indicated children reported to have been sick in the preceding two weeks were 1.5 times more likely to be malnourished than those who were not (RR=1.54).

With the exception of diarrhoea (p=0.7) and measles (p=0.6) other specific illness including ARI (p=0.0006), and suspected malaria (0.00002) had a significant association with acute malnutrition of children aged 6-59 month.

Other factors including age, sex, health programme coverage, breastfeeding and dietary diversity did not show any significant statistical association with malnutrition (p>0.05).

4.14   Mortality rates

A total of 903 households were surveyed for mortality indicator with a recall period of 90 days prior to the assessment being used. The results generated by the Nutrisurvey software were as presented below:

Death rates;
For children aged 0-59 months (under-five mortality or death rate)

$$\text{0-5DR} = \left(\cfrac{\cfrac{\text{Number of deaths of children 0-5 years}}{\text{Mid point Population* of children 0-5}}}{10,000} \right) \times \text{Time interval} = \text{Deaths/10,000/day}$$

* Mid point population = (Population at present + Population at beginning of recall)/2
  Population at beginning of recall = (population present + left + deaths) – (joined + births)

Under five population (mid point) in surveyed households	=1,066
Number of under fives who joined the households	= 32
Number of under fives who left the households	= 20
Number of births	= 49
Number of under five deaths	= 7

Under five death rate (deaths /10,000 children per day)   = **0.75** (CI: 021-1.28)

For the total population (Crude mortality/death rate):

$$\text{CDR} = \left(\cfrac{\cfrac{\text{Number of deaths}}{\text{Total Mid point Population}}}{10,000} \right) \times \text{Time interval} = \text{Deaths/10,000/day}$$

Total population in surveyed households	= 4609
Total people who joined the households	= 36
Total people who left the households	= 227
Total number of births	= 49
Total number of deaths in the households	= 14

CMR as deaths per 10,000 persons per day =**0.33** (CI: 0.15-0.51)

Both under-five and crude mortality rates reflect a normal situation according to the international standards (WHO classification). The causes of death among the under-five in the order of significance were, ARI, diarrhoea, measles and malaria.

4.15   Qualitative information

Qualitative information was collected from observations, focus group discussions and key informants. A total of 15 focus group discussions were held, with mothers and with men (elders). The discussions were centred on feeding and care practices, health care, food security, and water and sanitation issues.

4.15.1 Care and feeding practices
Introduction of other foods other than breast milk, mainly sugar solution, within the first two days of life for the child and discarding of colostrums is a newly acquired practice becoming popular mainly in the cities and spreading to the rural communities. The children are usually breastfed for 12 months from birth and the common foods normally given to children below two years as complementary food included canjera, porridge, tea and milk. Children are mainly fed three to four times in a day.

4.15.2 Change in dietary consumption 3 months before the survey.
A general improvement in food consumption particularly cereals and milk was reported in the area from Gu' and Deyr06. This was attributed to good Deyr 06/07 and the preceding Gu' 06 rains therefore enhanced availability of water and pasture, improved livestock conditions and hence increased milk availability. For a second consecutive month, high prices of all livestock lead to a favourable term of trade for the pastoralist; this trend is explained partly by reduced supply of livestock to domestic markets. The income source has increased and they purchase food and non-food. Charcoal Burning is another source of income which is used to purchase basic needs including food.

4.15.4. Water and sanitation

The main sources of water in the district are unprotected sources especially Berkads and water catchments which provide water for both domestic use such as food preparation, washing of utensils and personal hygiene and for livestock. Food preparation and hygiene practices are generally suboptimal. Common practices like covering of food are reportedly overlooked by most households. Hygiene standards are low with most households not accessing latrines and instead using bush or open field to dispose human faecal waste. The water availability is high following a good *Deyr* rains but of poor quality.

4.15.5. Main income sources.
Sale of livestock and livestock products and petty trade was major income source at the time of assessment in the Hawd of Hargeisa. Furthermore charcoal burning was an important source of income for some households. In addition, remittances from relatives from within Somalia and from abroad complimented income in a few households but not an important source of income for the population.

4.15.6. Common illnesses
Among the adults in the region the most common illnesses include malaria, skin disease and anaemia. Diarrhoea, measles, Acute Respiratory Infection (ARI) and malaria were reported as the most common illnesses affecting children. Stagnant water in many sites in the districts provided breeding sites for mosquitoes especially during the prevailing rainy season contributes to malaria prevalence among children and adults. Moreover poor sanitation and unclean water can lead to increased morbidity particularly diarrhoea, intestinal parasites and skin diseases.

.4.15.7 Food security situation

Climate
The overall Deyr '06 (Oct-Nov) rainfall situation Hawd of Hargeisa could be described as relatively normal following the sufficient *Deyr* '06 rains. At the time of the assessment some rains were reported in number of villages in the district. All water catchments have been filled by the rains and many berkads and dams burst their banks due to reduced holding capacity due to situation and increased volume of water.

Livestock

The quality and quantity of pasture and browse in the livelihood zone improved significantly and, the pasture and browse has potential of supporting the livestock even to next rainy season. With the realization of the rains, the regeneration of pasture and browse is expected to continue and resulting to marked improvements in terms of livestock body condition which will in turn result to good market prices for livestock and therefore improve pastoralist purchase power.

The availability of milk and improved purchasing power has greatly improved the food security situation of the population. However, there were few households that were faced with food insecurity in the last three months prior to the assessment and reportedly used the coping strategies outlined below.

Coping strategies:
Most of the households, particularly poor wealth groups faced with food shortages in the last three months prior to the assessment and used the following coping mechanisms, i.e.
- Reduce home milk consumption and increased sale of milk produced
- Shift to less preferred/less expensive cereal foods ,
- Borrow food on credit from other households *(Aamah)* and from traders *(credit),*
- Rely on food donations (gifts) from the clan/ community*.*

5.0   DISCUSSION

5.1   Nutrition Situation

The assessment results indicate Global Acute Malnutrition (Weight-for-Height <-2 Z score or oedema) of **8.1% (CI: 6.5-10.1)** and a Severe Acute Malnutrition of **1.9% (CI: 1.2-3.1).** These results indicate an alert nutrition situation according to WHO classification and are consistent with the six year estimates (1999 2005) estimates of GAM (5-9.9%) for the area. These results also indicate an improving trend from the previous assessment conducted in December 2005 where a GAM of 11.5% was reported. Although a different methodology was applied and so a direct comparison of rates is not feasible, it is still useful for monitoring trends. It is also important to note that the two assessments were carried out during the same seasons *Deyr* 05/06 and *Deyr* 06/07. Both the crude and under-five mortality rates of **0.33 (CI: 0.15-0.51)** and 0.75 **(CI: 0.21-1.28)** deaths/10,000/day respectively indicate a situation that is acceptable according to WHO classification.

The nutrition situation has been potentially mitigated by the increased access to and consumption of milk and other livestock products and improved purchasing power for most of the households in the area following sufficient Deyr'06/07 rains. Increased availability and access to cereals and milk in the district has directly influenced dietary diversity with the majority (93%) of the households having consumed four or more food groups in the last twenty four hours prior to the assessment.

Morbidity was also a major factor that aggravated the nutrition situation in the area. Overall, 29.3% of the assessed children reportedly suffered one or more of the common illnesses in the two weeks prior to the assessment. There was a significant relationship between malnutrition and morbidity with the children who had been ill being one and half times more likely to be malnourished than those who were not (p<0.05; RR=1.54). In particular, ARI (p=0.0006) suspected malaria/febrile illness (P= 0.00002) had a statistically significant association with malnutrition. The synergy between infection and malnutrition is well documented in most other studies around the world. High morbidity may be explained by lack of health facilities given that the Hawd of Hargeisa is served by only two MCH/OPD managed by MOHL and supported by UNICEF. Health services are therefore not easily accessible to the majority of the people. Moreover, these MCHs are located in the urban centres making them inaccessible by the large rural population. The assessment showed that nearly a third (28.8%) of the people sought health assistance from private clinic/Pharmacy

5.2 Child Feeding, Food Consumption and Food Security

Child feeding practices especially breastfeeding and complementary feeding are suboptimal. The children are either not exclusively breastfed long enough or complementary feeding is introduced too early. The assessment findings revealed that approximately 62.5% of the children aged 6- 24 months were not breastfeeding at the time of the assessment and that most children. The mainly cereal- based diets given to children do not meet their complete nutritional requirements. The quality of the meal is therefore only enhanced when milk is available. At the time of the assessment milk availability was good and this may have improved the quantity and quality of the children's food. However, it was noted that most families near the urban centers are selling most of the milk produced at the expense of the domestic consumption mostly they due to luxury such as Khat while other they by sugar. This practice may have a negative impact on the nutrition situation in the long run. Generally there was a remarkable improvement in the quality and quantity food access in the two districts from the last assessment and may be attributed to high milk production and improved purchasing power.

5.3. Water, Sanitation and Health issues

Most of the population (88.8 %%) draws water from Berkads which are unprotected sources making them prone to contamination. This could explain the high prevalence of diarrhoea (15.8%) in the district. In addition, only 37.1% of the water sources are located within the recommended distance of ≤ 500 meters. Moreover households had insufficient water holding containers implying that they require frequent trips to fetch water yet the distance is long. Slightly above half (51.8%) of the households have 1-2 containers for fetching or storing water yet Sphere (2004) guidelines recommend a minimum of 2 clean containers of 10-20 litres for water collection alone, in addition to enough storage containers to ensure there is always water in the household. Availability of few containers implies that households have to spend more time making frequent visits to water sources hence using scarce time which could have otherwise been used in productive activities.

The general sanitation of the population's residential areas is poor. Access to sanitation facilities is very low with majority (77.7%) using the bush for human faecal disposal. Human waste is often washed into the water sources during rainy seasons. This is particularly risky given that most households get water from unprotected sources and may partly explain the high incidences of diarrhoea. The use of washing detergents by a large proportion of the household is a positive factor in enhancing general body hygiene and cleanliness of the households' equipment. However a significant number of households (37.5%) did not use any washing agent and which may exacerbate unhygienic conditions. These factors are the other contributory aspects to incidences of diarrhoea which was significantly associated with malnutrition.

6.0   RECOMMENDATIONS

Following discussions held after sharing the results with partners in Hargeisa and detailed data analysis, both short- and long-term recommendations were made;

6.1   Short term recommendations:
1. Enhanced provision of health services through such means as mobile clinics
2. Rehabilitation of acutely (moderate and severe) malnourished children, through existing health centres or community based care program.
3. Intensified health, nutrition and childcare education through women groups and in social gatherings – to emphasis child-feeding and complementary feeding practices.

6.2   Long-term Recommendations
1. Increased health services coverage by establishing new health posts in rural areas.
2. Campaign for community involvement in environmental cleaning
3. Education for women and other care-givers on safe and improved health, nutrition and childcare practices
4. Additional efforts on the under-lying causes of Malnutrition such as the provision of safe clean water with appropriate technology and explore of improved and safe ways to rain water catchments
5. Establishment of mobile health care teams for immunization coverage and basic health services since Hawd of Hargeisa is highly at risk area and lacking basic health facilities.
6. Training of additional community health workers and TBAs for the area to improve the welfare of these pastoral communities
7. Strengthening the communal de-silting dam projects and rehabilitation of roads destroyed by floods and water run-offs through livelihoods support activities such as Food for Assets

7.0   APPENDICES

Appendix 1

Assignment of Clusters

Geographical unit	Population size	Assigned cluster	
BALI GUBADLE	3000	1,2,3	
BALI CABANE	1000	4	
BALI SHIRE	200	5	
cunaqabad	800	6	
dhinbilriyeele	400	7	
gumburaha	1000	8	
habaale	500	9	
hunduli	500	10	
ina guuxa	600	11	
kurxinta	350	12	
lebi sagaale	1500	13,14	
qoolcaday	1000	15	
qool bulale	1200	16	
Salaxley	3000	17,18,19	
sala Galbeed	800	20	
Sala Bari	1000	21	
Warta Cas	800	22	
Uubaale	600	23	
Ina Cunaaye	1000	24	
Warta M Fanac	450	25	
Kaam Tuug	500	26	
Gumar	1400	27	
Beebeega	600	28	
Balay Samatar	800	29	
Laanta Qaloocan	600	30	

APPENDIX 2

HAWD OF HARGEISA NUTRITION ASSESSMENT HOUSEHOLD QUESTIONNAIRE, 2006

Date_____   Team Number _____   Cluster Number _____   Name   of   enumerator

_____

Name of Village _____   District _____   Household Number _____   Name   of   the   Respondent

_____

Q1-8 Characteristics of Household

Q1   How many people live in this household (Household size)[3] ?   _____

Q2   How many children are below five years in this household (Number of < 5 years)?   _____

Q3 What is your present household residence status?   1= Resident[4]   2=Internally displaced person (IDP)[5]   3=Returnees[6] 4=Internal immigrant[7]   5=Other (specify) _____

If answer to the above is 1, then move to Question 7.

Q4 Place of origin   1= Within Hargeisa District   2= Within W. Galbeed region   3= South Somalia   4=   Other   areas,   specify

_____

Q5 Duration of stay (in months)   _____

Q6   Reason for movement: 1= Civil insecurity/ fighting   2=Seeking jobs   3= Food shortage 4= Pasture/water shortage   5= Seasonal/climatic 6=

Others; specify_____

Q7   What is the <u>main</u> livelihood systems used by this household?   1= Pastoral   2=Agro-pastoral   3=Urban   4= Destitute   5=

Others; specify_____

Q8.   What is the household's <u>main</u> source of income?   1= Animal & animal product sales   2= Crop and crop sales   3= Trade   4=

Casual labour

5= Salaried/wage employment   6= Remittances/gifts/zakat   7=   Others,   specify

_____

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[3] *Number of persons who live together and eat from the same pot at the time of assessment*

[4] *A person who dwells in a particular place permanently or for an extended period*

[5] A *person or groups of persons who have been forced or obliged to flee o to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights, or natural or human-made disasters, and who have not crossed an internationally recognized State Border" source, guiding principles on internal displacement*

[6] *Refugees who have returned to their country (Somalia) or community of origin, Somalia, either spontaneously or through organized repatriation [UNHCR definition*]

[7] *A person who moves (more or less permanently) to a different administrative territory due to a wide range of reasons (e.g. job related, security)*

Q9-16   Feeding and immunization status of children aged 6 – 59 months (or 65 – 109.9 cm) in the household.

First Name	Q9 Age in months (6-59 months) (*if child is more than 24 months old answer Q9 and then **skip** to Q15*)	Q10 (If 6-24 months) Are you breastfeeding[8] the child? (*if no, skip to Q12*) 1=Yes 2=No	Q11 (If 6-24 months) If breast feeding, how many times/day? 1=2 times or less 2=3-6 3=On demand	Q12 (If 6-24 months) 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 5= Never breastfed	Q13 (If 6-24 months At what age was child given water/ foods other than breast milk? 1=0-3 months 2=4-5 months 3=6 months 4=7 months or more.	Q14 (If 6-24 months) How many times do you feed the child in a day *(besides breast milk)*? 1= Once 2= Twice 3= 3-4 times 4= 5 or more times	Q 15 Has child been provided with Vitamin A in the last 6 months? *(show sample)* 1=Yes 2=No	Q16 (If ≥9 months old) Has child been Vaccinated against measles in the last 6 months? 1=Yes 2=No	Q17 Has the ever be given po vaccine orally? 1=Yes 2=No
1									
2									
3									
4									

Q17-27 Anthropometry and morbidity for children aged 6 – 59 months or (65 – 109.9cm) in the household

First Name *Follow same order as per table on page 1*	Q18 **Child Sex** 1=Male 2=Female	Q19 **Oedema** 1=yes 2=no	Q20 **Height (cm)**	Q21 **Weight (kg)**	Q22 **MUAC (cm)**	Q23 Diarrhoea[9] in last two weeks 1= Yes 2= No	Q24 Serious ARI[10] in the last two weeks 1=Yes 2=No	Q25 Febrile illness/ suspected Malaria[11] in the last two weeks 1=Yes 2=No	Q26 (If ≥9 month) Suspected Measles[12] in last one month 1=Yes 2=No	Q27 [Applicable for a child who suffere of the diseases in Q23 – 26) Where did you seek healt assistance when (Name of child sick? 1=No assistance sought 2=Own medication 3=Traditional healer 4=Private clinic/ Pharmacy 5= Public health facility
1										
2										

---

[8] *Child having received breast milk either directly from the mothers or wet nurse breast within the last 12 hours*
[9] Diarrhoea is defined for a child having three or more loose or watery stools per day
[10] *ARI asked as oof wareen or wareento. The three signs asked for are cough, rapid breathing and fever*
[11] *Suspected malaria/acute febrile* illness: - the three signs to be looked for are periodic chills/shivering, fever, sweating and sometimes a coma
[12] *Measles (Jadeeco): a child with more than three of these signs– fever and, skin rash, runny nose or red eyes, and/or mouth infection, or chest infection*

3										
4										

28: Anthropometry (MUAC) for adult women of childbearing age (15-49 years) present at the household

Sno	Name	Age (years)	MUAC (cm)	Physiological status 1=Pregnant 2=Non pregnant	Illness in last 14 days? If yes, what illness?	Codes for adult illnesses
1	*Mother:*					0= None 1= ARI 2=Diarrhoreal 3=Malaria/febrile 4=Joint 5=Urinal 6=Organ 7=Anaemia 8= Reproductive 9=Other, specify
2						
3						

Q29   Does any member of the household have difficulty seeing at night or in the evening when other people do not? 1= 2- <6 years 2= ≥ 6 years   3= None

Q30-33 Access to water (quality and quantity)
Q30 Main source of drinking water 1 = Tap/ piped water   2= Protected wells, boreholes   3 = Unprotected open /shallow wells or berkads
   4=Others, specify _____
Q31 Average distance to the nearest water point   1= ≤500 meters   2=501m – 1 km   3= 1-3 km   4= more than 3 km
Q32 Number of water collecting and storage containers of 10-20 litres in the household: 1=1-2 containers   2= 3-4 containers   3=4-5 containers
   4= more than 5
Q33 What is the method of water storage in the household?   1=Covered containers   2=Open containers   3=Constricted neck/end *(Ashuun)*

Q34-37 Sanitation and Hygiene (access and quality)
Q34 Type of toilet used by most members of the household: 1= Flush toilets   2= Improved pit latrine (VIP)   3=Traditional pit latrine/ Open pit   4=Bush
(If Bush skip to Q36)
Q35 Distance between toilet and water source   1=0- 30 metres   2=30 metres or more
Q36 what washing agents do you use in your household? 1=Soap   2=Shampoo   3=Ash   4=Plant extracts   5=None
Q37 How do you store prepared food?   1= Suspend in ropes/hooks   2=Put in pots beside the fire   3= Put in covered containers   4= Don't store
   5= Other, specify _____

Q 38 Food Consumption & Dietary Diversity
Twenty four-hour recall for food consumption in the households: The interviewers should establish whether the previous day and night was usual or normal for the households. If unusual- feasts, funerals or most members absent, then another day should be selected.

Food group consumed: What foods groups did members of the household consume in the past 24 hours (from this time yesterday to now)? Include any snacks consumed.	Did a member of your household consume food from any these food groups in the last 24 hours? 1=Yes	*Codes:* 1= Own production 6=Borrowed 2=Purchases 7=Gathering/wild 3=Gifts from friends/families 8=Others, specify_____ 4=Food aid 9=N/A

Type of food		What is the main source of the dominant food iter consumed? (Use codes above)?
	5=Bartered	
1. Cereals and cereal products *(e.g. maize, spaghetti, pasta, caanjera, bread)*?		
2. Meat, poultry, offal *(e.g. goat/camel meat, beef; chicken/poultry)*?		
3. Eggs?		
4. Roots and tubers *(e.g. potatoes, arrowroot)*?		
5. Vegetables *(e,g, green or leafy vegetables, tomatoes, carrots, onions)*?		
6. Fruits *(e.g. water melons, mangoes, grapes, bananas, lemon)*?		
7. Pulses/legumes, nuts *(e.g. beans, lentils, green grams, cowpeas)*?		
8. Milk and milk products *(e.g. goat/camel/ fermented milk, milk powder)*?		
9. Oils/fats *(e.g. cooking fat or oil, butter, ghee, margarine)*?		
10. Sugar and honey?		
11. Fish and sea foods *(e.g. fired/boiled/roasted fish, lobsters)*?		
12. Miscellaneous *(e.g. spices, chocolates, sweets, etc)*?		
Q39 **In general what is the main source of food in household?** *(*Use codes above)* _____		

Q40   **Total number of food groups consumed** *(filled by enumerator)***:**   **_____**

Q41 - 44 Informal and formal Support or Assistance in last three months
Q41   Did you receive any informal support within the last three months? 1=Yes   2=No
Q42   Which of these informal supports did you receive within the last three months if any?   *(Circle all options that apply)*
        1=Zakat from better-off households   2=Remittances from Abroad   3=Remittances from within Somalia (
        4=Gifts   5=Loans   6=None   7=   Other   (specify)
_____

Q43   Did you receive any formal support within the last three? 1=Yes   2=No
 Q44   Which of this formal international or national aid support did you receive within the last three months if any? *(Circle all options that apply)*
   1= Free cash   2=Free food/aid   3=Cash for work   4=Food for work   5=Supplementary food
   6=Water subsidy   7=Veterinary care   8= Other (specify) _____

Checked by supervisor (signed): _____

Appendix 3: Hawd OF Hargeisa   Mortality Questionnaire November, 2006
Household No: _____   Date: _____ Team No: ____ Cluster No: ____ Enumerator's Name: --------
_____

No.	1: First Name	2: Sex *(1=M; 2=F)*	3: Age (yrs)	4: Born since - / 08/ 2006	5: Arrived since / /08/ 2006	6: Reason for leaving	7: Cause of death
a) How many members are present in this household now? List them.							
b) How many members have left this household (out migrants) since **August --, 2006**? List them							
c) Do you have any member of the household who has died since **August__ 2006**? List them							

Codes

Reason for migration

1= Civil Insecurity	6= Hospitalised
2= Food Insecurity	7= In school
3= Employment	8= Other, specify
4=Divorce	
5=Visiting	

Cause of death

1= Diarrhoeal diseases	6= Anaemia
2= ARI	7= Birth complications
3= Measles	8= Accident/ physical injuries
4= Malaria	9= Other, specify
5= HIV/AIDS	

Summary*

	Total	U5
Current HH Members		
Arrivals during the Recall period		
Number who have left during Recall period		
Births during recall		
Deaths during recall period		

* For Supervisor Only

Appendix 4. Traditional Calendar of events for Nutrition Survey in Hawd of Hargeisa, 2006

Month	Season	2002	2003	2004	2005	2006
Jan	Jilaal bilowgii	59 Arafo/Haj	47 Arafo/Haj	35 Arafo/Haj	23 Arafo/Haj	11 Arafo/Haj
Feb	Jilaal bartami hii	58 XAJ	46 XAJ	34 XAJ	22 XAJ	10 Sako/ Biyo dhaamis
March	Jilaal dhama adkii	57 Safar (Dago)	45 Safar Dagalkii Ciraq	33 Safar	21 Safar	9 Safar
Apr	Gu' bilowgii	56 Mawlid	44 Mawlid Doorashadii Madaxweyne Riyaale	32 Mawlid	20 Mawlid	8 Mowliid
May	Gu' bartami hii	55 Rajal Hore Geeridii Mohammed Ibrahim Cigaal	43 Rajal Hore	31 Rajal Hore Doorashada Deegaanka	19 Rajal Hore	7 Rajal Hore
Jun	Gu' dhama adkii	54 Rajal Dhexe	42 Rajal Dhexe	30 Rajal Dhexe	18 Rajal Dhexe	6 Rajal Dhexe
Jul	Karin bilowgii	53 Rajal Dhambe Dabshid	41 Rajal Dhambe Dabshid	29 Rajal Dhambe Dabshid	17 Rajal Dhambe Dabshid	5 Rajal Dhambe Dabshid Dabshid
Aug	Karin bartami hii	52 Rajab	40 Rajab	28 Rajab	16 Rajab	4 Rajab
Sep	Karin dhama adkii	51 shacbaan	39 shacbaan	27 shacbaan	15 shacbaan/ Doorashadii Barlamaanka	3 shacbaan
Oct	Deyr bilowgii	50 Ramadhan day	38 Ramadhan	26 Ramadhan	14 Ramadhan	2 Ramadaan
Nov	Deyr bartami hii	49 Eid Fidr	37 Ramadhan	25 Eid Fidr	13 Eid Fidr	1 Eid Fidr
Dec	Deyr dhama adkii	48	36 Abaar tu ku qood	24 Suraam	12 Siditaal	

Jiilaal	
IGU'	
Xagaa	
Deyr	

Appendix 5: The Hawd of Hargeisa Nutrition Assessment Team.

Name	Agency	Responsibility/Role
1. Joseph Waweru 2. Mohammed Borle	FSAU	Overall Coordination and Report Writing
1. Nura Mohamoud Gureh		
2. Fuad Hassan Mohammed	FSAU	
3. Hassan Haileh		
4. Asha Osman Ismail	SRCS	Supervisors (nutrition)
5. Mohamed Farah Ahmed	MOHL	
6. Asha	WFP	
1. Mahdi Gedi Qayad	FSAU	
2. Muse Warsame	WFP	Supervisors (Food security)
1. Ahmed Yusuf Shabeel	New Hargeisa MCH	
2. Ahmed Sulub Abdi	Balay-gubadle MCH	
3. Ali Meygag Muse	Sheikh-Nur	
4. Abdirahman Moh"ed A/rahman	MOH/L	
5. Mohamed Hassan Nor	Dami-MCH	Enumerators
6. Khadar Abdi Omar	SRCS	
7. Nimco Ismail Sh Ibrahim	Hawadle MCH	
8. Ubah Farah Osman	MOH/L	
9. Zakia Abdi Deria	MOH/L	
10. Fadumo Abdi Ali	Sahardid MCH	
11. Nura Ibrahin Mohammed	RHO	
12. Nuura Ismail Ibrahim	Hargeisa Group Hospital	
Grainne Moloney Ahono Busili	FSAU	Managerial and technical support

Appendix 7:   Child Referral Form

REFERRAL FORM FOR MALNOURISHED CHILDREN

Name of the village: _____   Date:_____

Name of the child:_____   Sex of child: _____

Age of child: _____   Name of caretaker:
_____

Child diagnosed with (state the condition):
_____

Child referred to: _____

Child referred by: _____

……………………………………………………………………………………………………

4REFERRAL FORM FOR MALNOURISHED CHILDREN

Name of the village: _____   Date:_____

Name of the child:_____   Sex of child: _____

Age of child: _____   Name of caretaker:
_____

Child diagnosed with (state the condition):
_____

Child referred to: _____

Child referred by: _____

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