LUUQ DISTRICT NUTRITION SURVEY

GEDO REGION

SOMALIA

OCTOBER 2004

FSAU/UNICEF/CARE/GHC

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ACKNOWLEDGEMENT

FSAU acknowledges the collaborative partnership with UNICEF, CARE and Gedo Health Consortium in conducting the Luuq District interagency survey between 10th and 19th Oct 2004. The exercise would not have succeeded without the support from the administrations of Luuq district. The support granted GHC and CARE in the field preparation and with information on their interventions is highly appreciated. The commitment of the survey team in data collection is worth recording, particularly the nominees seconded by the sponsoring agencies. The cooperation the CARE food distribution teams gave in changing their plans for intervention for the sake of survey is appreciated and a demonstration of the desire to achieve quality survey data.

The community's contribution of the guides to accompany the teams during the survey undertaking cannot be taken for granted. The input on recommendations from the partner agencies and the enthusiasm of the SACB member in the Luuq situation gave the survey team the strength to seek objective information from the Luuq population.

Much gratitude specifically goes to the key informants, mothers, fathers and caregivers whose co-operation and support helped the survey team achieve its objective.

EXECUTIVE SUMMARY

Northern Gedo and Luuq District in particular, has had recurrent seasons of insufficient rains as well as persistent civil insecurity. These have negatively affected the pastoral and agro-pastoral livelihoods and further predisposed the population to food insecurity, households' asset losses and significantly high malnutrition, mainly among children. In luuq District, the main livelihoods groups are the riverine, agro-pastoral, pastoral and the urban.

Luuq District has experienced closure of humanitarian programmes due to insecurity despite existence of clear indications of the population's suffering or needs. ACF closed the feeding programmes in the year 2002 while VSF-Swiz, CARE and Gedo Health Consortium (GHC) continue to experience interruptions during their relief programme implementation (VSF-Swiz offer veterinary services, CARE support free food and food for work programmes while GHC support health services delivery). Insecurity has also limited the number of trucks transporting goods through Luuq, thus denying the population income accrued through tax and casual jobs of loading and off loading of goods. Also affected is the increased price of imported commodities like fuel which has in turn increased production cost of foods through irrigation. The high fuel cost has contributed to abandonment of pump irrigation by a significant proportion of riverine farmers. The regular incidences of conflicts within Northern Gedo have led to fleeing of some people from their original areas to settle in Luuq town as internally displaced persons. (The IDPs have settled in Luuq town, close to their clan affiliates.) The IDPs and some destitute families mainly depend on the relief food distributed by CARE.

Northern Gedo, and Luuq District in particular, has been highlighted to be under humanitarian emergency. About 57% of the Luuq population is in need of urgent humanitarian emergency (FSAU Post Gu Analysis, Sept 2004). Nutrition assessment conducted in Luuq indicated 15.2% (MUAC<12.5 cm or oedema) malnutrition rates (April 2004, Nutrition Update). There has been however a need for updated nutrition information to facilitate effective planning. This led to FSAU, in partnership with CARE, UNICEF and GHC to conduct a nutrition survey in Luuq District. The nutrition survey was conducted between 10th and 19th Oct 2004 and aimed at determining the levels of malnutrition and mortality rates among Luuq population, the underlying causes of malnutrition and mortality and examine how these factors can be addressed.

A total of 920 children aged 6-59 months and measuring 65-110 cm were surveyed using two stage (30x30) cluster sampling methodology. The 920 children came from 438 households. The results indicate global acute malnutrition rate (W/H<-2 z score or oedema) of 25.4% (CI: 22.7 – 28.4) and a severe acute malnutrition rate (W/H<-3 z score or oedema) of 5.0% (CI: 3.7 – 6.7). These malnutrition rates indicate critical nutrition situation in urgent need for humanitarian interventions. The crude mortality rate was 1.5/10,000/day while the under-five mortality rate was 3.7/10,000/day. High disease prevalence were recorded. About 28% of the children had suffered diarrhoea two weeks prior to the survey, 43% had had acute respiratory infection (the high prevalence was associated with to the wet weather conditions in the district at the survey time) and about 25% of the children had had malaria. About 8% of the children had measles one month before survey. About 62% of the children were taken to a medical practitioner when sick (47% of the children were taken to public health facility and 15% were taken to private clinics or pharmacy). GHC operates one hospital and two MCHs, situated in Luuq town and Elbon village. There was

Indicator	**No.**	**%**
Children aged 6-59 months surveyed	920	100
Global acute malnutrition (W/H<-2 z score or oedema)	234	25.4
Severe acute malnutrition (W/H<-3 z score or oedema)	46	5.0
Oedema	3	0.3
Children with diarrhoea, 2 weeks prior to the survey	253	27.5
Children with ARI, 2 weeks prior to the survey	399	43.4
Children with malaria, 2 weeks prior to survey	229	24.9
Children with measles, 1 month prior to the survey	74	8.0
Measles immunisation coverage (n=862, aged 9-59 months)	523	60.7
Children fed 1-2 meals in a day	582	63.3
Children not exclusively breastfed in first 6 months of age	901	97.9
Source of drinking water: River	527	57.3
Unprotected wells	365	39.9
Boreholes	26	2.8
Children not accessing toilet (for faecal disposal)	689	74.9
Crude mortality rate (per 10,000/day)	1.5	
Under five mortality rate (per 10,000/day)	3.7	

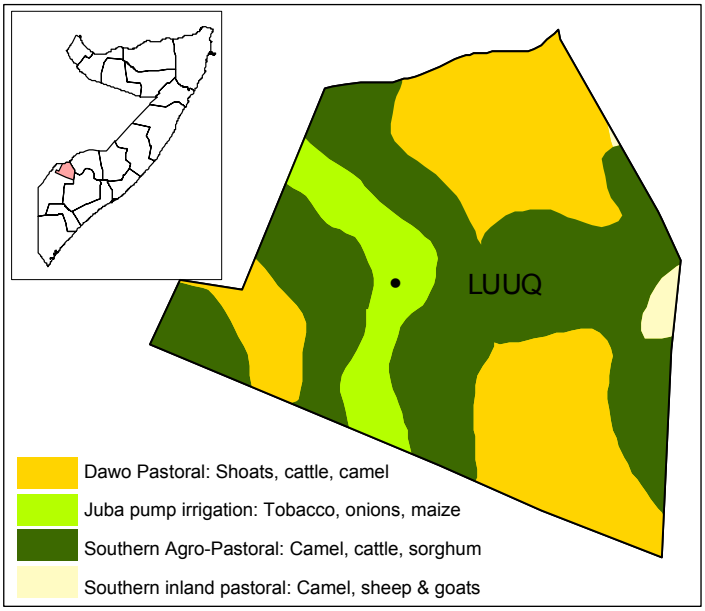
statistically significant association between measles coverage and age categories, with children aged 9-11 months having lowest immunisation coverage compared to the other age categories (X^2=59.9, p<0.05). About 98% of the children had not been exclusively breastfed in their first 6 months of life. Consumption of poor quality water was common with about 97% of the children coming from households depending on river or unprotected water wells as the main water sources. Water for domestic use is not treated or boiled before use. About 75% of the children came from households not accessing toilet thus the poor faecal disposal continue to depress the sanitation condition in the district. Considering the dependency of the population on river and unprotected wells as the main water sources, there is increased risk for diarrhoeal diseases to the Luuq population.

Though the global acute malnutrition rates in Northern Gedo has usually been above 20%, the high levels of both global and severe acute malnutrition in Luuq District (GAM of 25.4% and SAM of 5.0%) together with the alert mortality rates indicate deterioration of the situation. The acute malnutrition rates are significantly high above the usual range. The situation has the potential to further deteriorate considering the aggravating factors prevailing. Though there is no significant association between malnutrition and risk factors like livelihood systems and food security indicators, high disease prevalence, sanitation and feeding habits, the qualitative information indicate them to contribute to the recorded critical nutrition situation. Severe food insecurity particularly in the light of asset loss (compared to the baseline), increased food prices and increased expenditure on food purchases, limited social support, reduced income opportunities, unsustainable coping strategies like bush product collection (self employment), increased debt burden, reduced land under cultivation and the shift from food production to fodder production for sale of riverine farmers contribute to the deteriorating nutrition situation.

The humanitarian activities by GHC, CARE and VSF-Swiz avert increased asset loss, population suffering and more deaths of the Luuq population. However, the population wellbeing seem under threat and increased mitigation addressing issues on water and sanitation, sustainable food security, disease and other health interventions, environmental degradation, promotion of natural resources exploitation like the Juba river and salt mining (in Bohol Garas village) are required. There is need for targeted supplementary feeding programme and enhanced management of the severe malnutrition in the rehabilitation unit or establishing a therapeutic feeding programme. Regular targeted food distribution needs also to be enhanced. It is however, notable that the interventions can only occur in a secure environment; hence inter-clan peace promotion is paramount in Luuq District.

1: **INTRODUCTION**

Luuq district is one of the Northern Gedo districts in south western Somalia. The district is traversed by the Juba river which also forms basis for a livelihood to a significant population of Luuq District. The district's population rely on the four main livelihoods which include the riverine, agro-pastoral, pastoral and the urban livelihood.



The livelihoods in Luuq have regularly been threatened by increased incidence of insecurity, which have hindered free flow of trucks into/through the district, as well as climatic conditions which have affected the crop production potential, pasture and water availability. High fuel prices have led to reduced crop production through pump irrigation due to unaffordable operational costs. Crops are most of the time harvested for fodder instead of being let to mature. Fodder has better economic returns in some of the seasons. Recent intermittent shocks (insecurity and drought) have negatively affected the livelihoods capacity to sustain life and coping strategies like bush product collection have been adopted.

Due to persistent shocks, humanitarian agencies have been offering essential services and relief aid despite the access limitations caused by insecurity. The presence of militiamen within the district indicates insecurity experienced by humanitarian agencies in pursuit for their intervention goals.

1.1 Survey Justification

Northern Gedo, and Luuq District in particular, has been experiencing food insecurity and civil insecurity that have jeopardized peoples' livelihoods. Nutrition and food security assessment that have been conducted in the district indicate deterioration of the situation and of the population wellbeing. Concrete information on the nutrition wellbeing of the Luuq population has been lacking despite the multiple shocks encountered by the population. The last nutrition surveys in Luuq District were conducted in April 2000 where 14.9% and 20% global acute malnutrition rates in the town population and the internally displaced population respectively, were documented. The need for updated information on the nutrition situation in Luuq has been long overdue and humanitarian agencies and other partners need an update of the situation. Further, mitigation activities have been ongoing amidst security challenges but their impact has not been well documented. With the closure of intervention programmes by ACF at the peak of a crisis in the year 2002, the impact of the programme on the community could not be documented thus widening the gap on information of the population wellbeing.

In addition to establishing the population nutrition status, there was need for documenting factors underlying the persistent poor nutrition status among Luuq population as well as proposing appropriate recommendations to address the underlying causes of malnutrition in Luuq District.

1.2 Survey Objectives

1. To determine the prevalence of acute malnutrition in Luuq District population through the anthropometrical measurement and identification of oedema in children aged 6-59 months or measuring 65-110cm.
2. To determine the food security situation
3. To determine the health situation, including the coverage of measles vaccination and Vitamin A supplementation among the Luuq District community
4. To determine the incidence of some common disease two weeks prior to the survey
5. To determine the retrospective crude and under-five mortality rates.

2: BACKGROUND INFORMATION

2.1 Political and Social Situation of Luuq District

Luuq District is situated in Gedo Region, south western Somalia. The district borders Ethiopia and Rabdure (Bakool Region) to the North, Wajiid District (Bakool) and Berdaale District (Bay Region) District to the East, Garbaharey District to the South and Beled Hawa and Dolow Districts to the West. The district has an estimated geographical area of 8,258 km^2 and an estimated population of about 35,000.

The district is mainly inhabited by the Marehan, (the dominant clan), Rahanweyn, Dir, Gabaaweyn, Sheikhaal and Gasara-Gude clans. It also hosts internally displaced populations from other districts/ regions and they live in Luuq town, currently. The political instability in Northern Gedo always affects the Luuq population with fighting taking place sometimes within Luuq town.

The district hosted refugees during the 1977/78 Ethiopia/Somalia war some of whom integrated with the residents. There were about eight refugees' camps which received relief assistance from the UN and international NGOs as well as the Somalia government before its collapse in 1991. The government assistance, which mainly consisted of food, had attracted poor household from Bay Region, Bakool Region and Southern Gedo Districts. With the collapse of the government, some of the then refugees returned back to Ethiopia while others were integrated with the residents.

Civil insecurity and the accompanying high tax extortion has led to reduced trucks passing though Luuq with resultant losses in job opportunities to casual labourers and in taxes. This has led to high prices of imported goods, including irrigation pump fuel used in crop production along the riverine farms.

2.2 Luuq District potential of unexploited resources

Luuq has one of the largest and well equipped hospitals in Somalia which was established in 1983 by the AMREF doctors. The hospital has been a referral centre for all those years. Currently, the hospital is managed by Gedo Health Consortium (a consortium made by Cordaid/Memisa, Trocaire and the AMREF) and has a bed capacity of 90.

The district has an all weather airstrip and a road connecting Baidoa to Dolow and Beled Hawa border towns. These make the district has the trade links potential and easy access by the humanitarian agencies.

The main livelihoods of Luuq District are based on the land's potential. In addition the district has a river which the population uses for drinking water, irrigation and fishing. Few households do fishing to supplement their diet. Pump irrigation along the river enables increased utilization of the riverine land in crop production. Production of food crops like maize and vegetables, fodder and cash crops (onions and lemon) can contribute in bridging deficits in income and food. The expansive pastoral land has the capacity to support livestock with high returns. This is favourable considering access to Garissa livestock markets. The salt mining conducted in Bohol Garas could also have increased returns for the district if fully exploited. Bohol Garas is a fast growing centre with many trucks currently passing through to Ethiopia.

2.2 Humanitarian assistance

2.2.1 Health

Currently, humanitarian operations are continuing despite the access difficulties associated with civil insecurity. GHC managed hospital continues to serve the district population free of charge. In addition, GHC manages two MCH centres in Luuq town and Elbon as well as a mobile EPI team which offers immunization and disease management services. Common diseases like malaria, diarrhoea and acute respiratory infection are reported affect the Luuq population. (Increased cases of suspected TB were identified in Luuq hospital in Sept and Oct 2004). It is notable that distance to the health facilities limits access to the health services offered among the rural population.

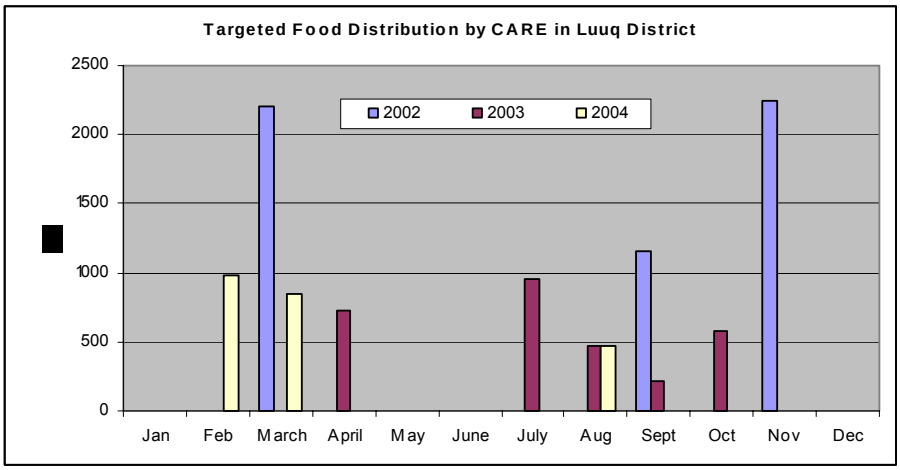
2.2.2 Nutrition

The nutritional assessments conducted by FSAU and partners have shown a poor nutrition situation in Luuq District. A nutrition situation review by FSAU in April 2004 indicated about 15% malnutrition rate using Mid Upper Arm Circumference (MUAC<12.5cm or oedema). Surveillance data from the GHC managed Luuq MCH indicate that about 35% of the average 200 children screened monthly are malnourished. Qualitative information collated in the regular FSAU surveillance activities associate the poor nutrition situation with consumption of limited food variety, limited income, insecurity which hinders business activity and high prevalence of communicable diseases.

GHC has established a severe malnutrition rehabilitation unit within the Luuq hospital paediatric ward to take care of the severely malnourished children identified. Cases of malnutrition have continued to be reported since the closure of the therapeutic feeding programmes by ACF in mid 2002. By the time of the TFC closure, there were severely malnourished under treatment in the feeding centres and the therapy was brought to an abrupt end. The rehabilitation unit also aimed at following up the children in the ACF-managed TFC before the closure. Therapeutic milk (F100 and F75) are used in the management of the cases.

2.2.3 Food Security

Luuq District has had recurrent seasons of insufficient rains as well as security incidences that have impacted negatively on people's livelihoods and their wellbeing too. The asset loss has been significant on comparison of current livestock in district to the baselines. Destitution has also been noted in the recent past and the proportion of the poor population seems to have increased. The middle income group are also on the decline. The high fuel cost for pump irrigation has made pump irrigation unaffordable thus increasing dependency on rainfed crop production or shared cropping system (pump owner and the land owner join together to produce the crop).



About 57% of the Luuq population were in need of urgent humanitarian emergency after the 2004 Gu season (FSAU Post Gu Analysis, Sept 2004).

CARE implements targeted free food distribution in Luuq district and the food for work activities in Elbon area. CARE has been distributing cereals (sorghum or maize), pulses and oil to about 8500 individuals representing households. However, delays in food distribution are sometimes experienced (graphs) due to insecurity at the field level that hinders food delivery as well as food distribution. Double rations are sometimes distributed when difficulties are anticipated or when rations are missed for the previous months. Insecurity and food pipeline issues have been contributing to the major gaps between one food distribution and another. During wet weather conditions, food transportation is carried out with difficulties due to poor infrastructure.

Currently VSF-Swizz is implementing a veterinary programme in Luuq in an effort to recover asset losses.

2.2.4 Water and Sanitation

River and unprotected wells are the main water sources for Luuq population. Use of roadside water pools as water sources during rainy seasons, particularly by the rural households has been reported in the past. This predisposes the population to consumption of contaminated water.

Like most rural Somali population, improper waste disposal is common thus compromising the hygienic standard of the population.

3: SURVEY METHODOLOGY

3.1 Survey design

The descriptive information as well as data collected in this survey was obtained using standard questionnaires (attached in the appendix). Two types of questionnaires were used, one with household details, food security questions and child's anthropometrical and health details; and the other, a mortality questionnaire. Additional qualitative data were collected through focus group sessions and key informant interviews as well as visits to the villages and markets. Data collection took place between 14th and 19th Oct 2004.

3.2 The sampling procedure

A two-stage cluster sampling methodology was applied whereby 30 clusters were randomly selected from the entire Luuq District population sampling frame (Appendices). This list of villages and distinct sections of Luuq town, with their respective populations was used to construct cumulative population figures for Luuq District. Initially a sampling frame was constructed, using revised WHO NIDs population figures whereby all the villages in Luuq were considered. The population figures were received from the WHO population estimates and the verification/ review conducted jointly by FSAU, GHC, CARE and UNICEF team and the survey enumerators. An estimated population of 34,250 (WHO, December 2003) was used from which a cluster interval of 1142 was calculated. (The 34,250 was the Luuq District population used in the survey after the NID population figure was discussed by the survey team). Using random number tables generated by the Nutrisurvey statistical software (August 2004 version) random number of 772 was chosen within the cluster interval to determine the first cluster (random table, in the appendix). The subsequent clusters were determined systematically by adding the cluster interval (1142) to the first randomly selected number (see appendix) until all the 30 clusters was selected. A total of 920 children between the heights/length of 65 and 110cm and 6-59 months old were assessed from the 30 randomly selected clusters. Out of the total, 6 clusters were from Luuq town while 2 clusters were from the IDP population residing in one part of the Luuq town.

In each of the clusters, mortality questionnaires were exercised to 30 households. Same sampling frame was used in cluster selection hence the same clusters selected for the nutrition data were also used for the mortality data. In total, mortality data was collected from 900 households irrespective of whether the households had an under-five or not (details of household selection, below).

3.3 Study population and sampling criteria

The study population consisted of people living in the district and comprised all the children aged 6-59 months and/or measuring 65-110 cm for height/length. On the visit to each cluster, the centre for the clusters was identified and a pen was spun to determine the direction to follow in the selection of the households with children aged 6 to 59 months. The total number of the households from the centre to the end was established and given numbers to enable random selection of the first household with a child of the required age or height. From the first household with a child aged 6-59 months, the same direction was followed to get the next household. On reaching the edge of the cluster the right-hand direction (clockwise direction) was followed until details of 30 children were collected from that cluster. If a cluster was exhausted of children before the required 30 children had been reached, a neighbouring village was randomly selected. All eligible children in the randomly selected household were measured and if a child or primary caregiver was absent, an appointment was booked for a later visit in the course of survey. In case a randomly selected child was found to be admitted in the hospital based nutrition rehabilitation centre, thus absent from the house, follow up was made to assess the child.

With reference to mortality, the data was collected retrospectively with the first questionnaire being exercised on the first randomly selected household irrespective of presence of an under-five child or not. (The entire population was included in the mortality rates determination). Same direction (which has been randomly picked by spinning a pen) as indicated above was followed. But unlike the survey for children where only households with children were visited for interview, the mortality questionnaire was exercised in every household in the identified direction irrespective of whether there was a child or not. The survey team turned to the right side on reaching the cluster edge, until 30 households were assessed from the cluster.

3.4 Data collection

Anthropometrical measurements

The anthropometrical data were collected using the procedure stipulated by the WHO (1995) for taking anthropometrical measurements. Adherence to this procedure was ensured. 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 when the weighing pant was on. The female children would be lightly dressed before having the weight taken while clothes for the male children were removed. Two readings were taken for each child and the average recorded on the questionnaire. The measurements were taken to the nearest 0.1kg.

Height: For height, a vertical measuring board reading a maximum of 132cm and capable of measuring 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, crushing the hair and making contact with the top of the head. Height 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 84.9cm length instead of height was taken using a horizontal measuring board. 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. The measurements were taken to the nearest 0.1cm

Oedema: Defined as bilateral oedema on the lower limbs detected by gently pressing the feet to check if a depression is left after at least three seconds of pressing. All children were checked for oedema first before being taken their height or weight.
Children identified to be in critical condition (2 oedema cases) were advised to visit the GHC sponsored hospital in Luuq for medical assistance

Child age determination

Difficulties were encountered in determining the exact ages of children. Useful documents like growth monitoring/clinic attendance cards, or any other viable formal card were used when available. Luuq District calendar of events (see in the appendix) was also used as a proxy to accurate age determination. Though not entirely accurate, ages were still regarded as important indicators and were used in the analysis of stunting and underweight rates. The nutrition indicator that was emphasised on was weight for height as interest was in the wasting status (acute malnutrition), though stunting and underweight rates were analysed.

Morbidity terminologies

Diarrhoea: Diarrhoea was defined for a child having three or more loose or watery stools per day.
Measles: A child with more than three signs of the following was considered having measles: 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.* The signs asked included cough, rapid breathing, pneumonia, bronchitis and fever or any other respiratory illness.
Suspected malaria: The signs to be looked for are periodic chills, fever, sweating and sometimes a coma.

3.5 Description of survey activities

Table 1: Chronology of activities for the Luuq District Assessment

Major Activity	Period
Preparation of tools, methodology & review of secondary data (Nairobi)	Sept 27th - Oct 6th
Survey planning meeting and confirmation of the equipment and staff	Sept 27th – Oct 7th
Training of enumerators and pre-testing of questionnaire	Oct 11th to 13th
Cluster Identification	Oct 13th
Collection of data and entry	Oct 14th to 27th
Qualitative data summary shared with community leaders	Oct 20th
Data cleaning and analysis using both EPI-Info 6 and Nutrisurvey programs	Oct 27th –Nov 3rd
Presentation of draft report	Nov 24th

Six teams consisting of two enumerators and one supervisor conducted the survey with each team handling one cluster in a day. An elder from a particular village/cluster assisted the teams in identification of the cluster boundaries and its centre. Supervisors were seconded from the participating organizations; namely; FSAU, CARE, UNICEF and GHC, while the enumerators came from GHC and the local community. The survey team consisted of qualified enumerators who were selected on the basis of their experience with previous nutrition assessments or surveys. Some of the nominees from the community were former employees of ACF who had experience in nutrition screening in the feeding centre. Qualitative food security information was collected by FSAU food security analyst in coordination with a food security and livelihood analyst from FSAU. Overall support, supervision and co-ordination was done by FSAU nutritionists.

3.6 Quality control procedures

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

The survey teams were also taken to the field to familiarize with village/cluster entry; administering the questionnaire, sampling procedure, correct taking of measurements and documentation. After the field exercise, views were exchanged to address the difficulties identified; appropriateness of the questions reviewed and necessary changes were made.

Quality of data was also ensured through (i) crosschecking of filled questionnaires on daily basis (ii) daily review undertaken with the enumerators 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 after entry in the field that made it easy to detect any mistakes and to replace or repeat households depending on magnitude of error and (v) monitoring accuracy of equipment (weighing scales) by regularly measuring objects of known weights. Further checking was also done with the data entry and analysis being conducted using two different software programs, namely Nutrisurvey (under development) and the EPI-Info 6.04. Comparison was made on the results using the two software programs.

3.7 Data analysis

Entry, cleaning, processing and analysis

Data was entered and analyzed using EPIINFO 6.04 as well as the Nutritsurvey computer packages. Running and tabulating all variable frequencies was carried out as part of data cleaning. The EPINUT programme was used to convert the measurements (weight and height) into nutritional indicators and comparison made with the National Centre for Health Statistics (NCHS) references as designed by WHO (1983).

General characteristics of study population
Frequencies and cross-tabulations were used to give percentages, means and standard deviations in the descriptive analysis and presentation of general household and child characteristics.

Creation of nutritional status indices
The anthropometrical measurement of weight and height were used to compute the nutritional status indicators of the studied children. Weight For Height (W/H) 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 anthropometrical 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 ≤WFH< -2 Z-Scores = Moderate acute malnutrition
<-2 Z-score or oedema = Global/total acute malnutrition
≥ -2Z-Scores = Normal

Other nutrition status indicators used were the stunting (height for age) and underweight (weight for age) and the National Centre for Health Statistics (NCHS) references as designed by WHO (1983) were used

3.8 Mortality data collection and analysis

The mortality data was collected retrospectively from 900 households through a questionnaire using the methodology described above. Each household assessed was asked the composition of their members in two parts: (i) those members less than 5 years and (ii) the total number of household members. The number of deaths three months prior to the survey and the cause for death was also investigated and documented.

Mortality data analysis
Using the formula for calculating mortality (below), the under-five mortality rates were calculated.
Formula (steps):

- Total the deaths for a given number of days (n)
- Divide the total deaths (n) by the mid period population size $[(n+ N_1 +N_2)/2]$
- Divide the outcome with recall period (p)
- Multiply by 10,000 for a daily under-five mortality rate

The formula summary: Under-five mortality rate= {[n/ (n+ N +N)/2]/p}*10,000
Same formula was applied in the calculation for crude mortality rate.

4: SURVEY RESULTS

4.1 Characteristics of the study population

Out of the 920 children assessed from the 438 households, 451 (49%) were males and 469 (51%) were females with the ratio of males to females being 0.96: 1. About 91.8% of the children came from male headed households while the rest 8.2% were from female headed households. The mean household size in Luuq District population is 7 (SD= 2.3).

Majority of the children (91.6%) were from households currently staying in their indigenous residential area while 8.4% were from internally displaced households. Food insecurity and civil insecurity were the main reasons for movement of the IDP households surveyed in Luuq District. About 64% of the children had had their families move as IDPs due to food shortage while about 31% of the children had had their families move due civil insecurity. Most of the IDPs have lived as IDP for a period ranging between one month and 5 years. This indicates that the population movement to settle as IDPs in Luuq is still occurring.

Table 2: Distribution of the sample population by sex and age groups

Age categories	Males	Females	Total	Ratio
6-11	62 (49.6%)	63 (50.4%)	125 (13.6%)	0.98
12-23	119 (55.3%)	96 (44.7%)	215 (23.4%)	1.24
24-35	85 (50.0%)	85 (50.0%)	170 (18.5%)	1.0
36-47	76 (47.8%)	83 (52.2%)	159 (17.3%)	0.92
48-59	109 (43.4%)	142 (56.6%)	251 (27.3)	0.77
Total	451 (49.0%)	469 (51.0%)	920 (100%)	0.96

4.2 Water and Sanitation

River and the unprotected wells are the main water sources used by Luuq population for both drinking and washing (Table 3). The water is readily available but of poor quality. Qualitative information indicates no water treatment is done before consumption. The river collects a lot of dirt through the run-off, especially during the rainy season. Most of the silt does not settle on the river bed before the water is collected for use or people draw the water from the river thus compromising the water quality.

Table 3: Sources for water for drinking and hygiene

Water sources	Drinking water	Hygiene water
River	527 (57.3%)	527 (57.3)
Unprotected wells	365 (39.9%)	368 (40.0%)
Borehole/protected wells	26 (2.8%)	25 (2.7%)

The sanitation condition was poor with improper waste disposal being practiced in the area. About 80% of the children came from households not accessing toilets. Faecal matter disposal is poorly done in the bush and open grounds, some of which are close to homestead. Most of the children came from households using over 15 litres of water per day though of poor quality. Additionally, about half of the children came from households with only one or two water collecting container. The water containers are not thoroughly washed and the household members spend much time regularly visiting the water points.

4.3 Livelihood and asset holding

Most children came from households depending on self employment and casual labour (43.2%) as their main livelihood. Most of the households are currently engaged in bush product collection and search for casual labour after shifting from the former livelihoods like riverine crop production or agro-pastoral livelihood. About 24% of the children came from agro-pastoral households while 14% and 9% were from households depending on rain fed and commercial pump irrigation fro their livelihoods.

About 57% of the children came from households that had no cultivated land. About 13% of the children came from households which had one to three hectares of cultivated land. Only about 17% of the children came from households with over 10 hectares of land under cultivation. Most riverine farmers have abandoned or reduced their cultivated land due to high cost of pump fuel and high maintenance cost of the pumps. Share-cropping is being practiced with the pump owner and land owner getting together to carry out riverine farming.

Asset loss was noted, with significant proportion of children coming from households which neither had cattle nor shoats. About 77% and 52% of the children came from households with no cattle and shoats respectively. This asset ownership is far below the asset ownership in the FSAU baseline for the Luuq livelihood groups.

Table 4: Distribution of children by household livelihoods and asset ownership

		No	%
Livelihood	Casual labour/self employment	397	43.2
	Agro-pastoral	218	23.7
	Rain-fed riverine	129	14.0
	Pump irrigated commercial crop	86	9.3
	Business	76	8.3
	Pastoralist	14	1.5
Cultivated land size	0 hectares	521	56.6
	1-3 hectares	120	13.0
	4-6 hectares	45	4.9
	7-10 hectares	74	8.0
	Over 10 hectares	160	17.4
Cattle owned	Zero	705	76.6
	1-3 cattle	115	12.5
	4 and above	100	10.9
Shoats owned	Zero	481	52.3
	1-5 shoats	140	15.2
	6 and above	299	32.5
Toilet	With access to toilet	192	20.9
Healthcare assistance	Seeking healthcare services	797	86.6
Source of help	Public health facilities	432	47.0
	Traditional healers	231	25.1
	Private clinic	134	14.6
	Prayers to the sick	123	13.4

4.4 Health services

Majority of the assessed children (87%) were taken for health care assistance when sick. About 62% were taken to a public health facility or a private clinic for medical assistance. About 47% were taken to the two MCH centres (Elbon and Luuq), the Luuq hospital or to the health posts located in the main villages within Luuq District. About 15% were attended at the private clinics and pharmacies located within the district. It is note worth that private and public health facilities are situation in relatively bigger villages thus compelling the health service seekers to travel for long distance or to turn to alternative health services being offered (traditional healers).

4.5 Nutritional status

Table 5: Prevalence of acute malnutrition based on W/H Z-score and/or oedema in Luuq District

	Males		Females		Total	
	%	No	%	No	%	No
Global acute malnutrition (W/H<-2 z score + oedema)	29.9 (95% CI:25.6 – 34.2)	135	21.1 (95% CI: 17.2 – 24.7)	99	25.4 (95% CI:22.7 – 28.4)	234
Severe acute malnutrition (W/H<-3 z score + oedema)	6.0 (95% CI: 3.9 – 8.4)	27	4.1 (95% CI: 2.2 – 5.9)	19	5.0 (95% C.I: 3.7-6.7)	46
Oedema	0.2	1	0.4	2	0.3	3

The prevalence of global acute malnutrition defined as W/H<-2 Z score or oedema was 25.4% (95% C.I. 22.7- 28.4) while the prevalence of severe acute malnutrition, defined as W/H<-3 Z score or oedema, was 5.0% (95% CI. 3.7- 6.7). There was 0.3% of oedema.

Table 6: Prevalence of acute malnutrition based on W/H % of median and/or oedema in Luuq District

	Males		Females		Total	
	%	No	%	No	%	No
Global acute malnutrition (W/H<80% of med/ oedema)	19.7 (95% CI:16.0-23.5)	89	13.4 (95% CI: 10.2 – 16.5)	63	16.5 (95% CI: 14.2 – 19.1)	152
Severe acute malnutrition (W/H<70% of med/ oedema)	1.6 (95% CI:0.5 – 3.0)	7	2.6 (95% CI:1.1 – 4.0)	12	2.1 (95% C.I: 1.3 – 3.3)	19
Oedema	0.2	1	0.4	2	0.3	3

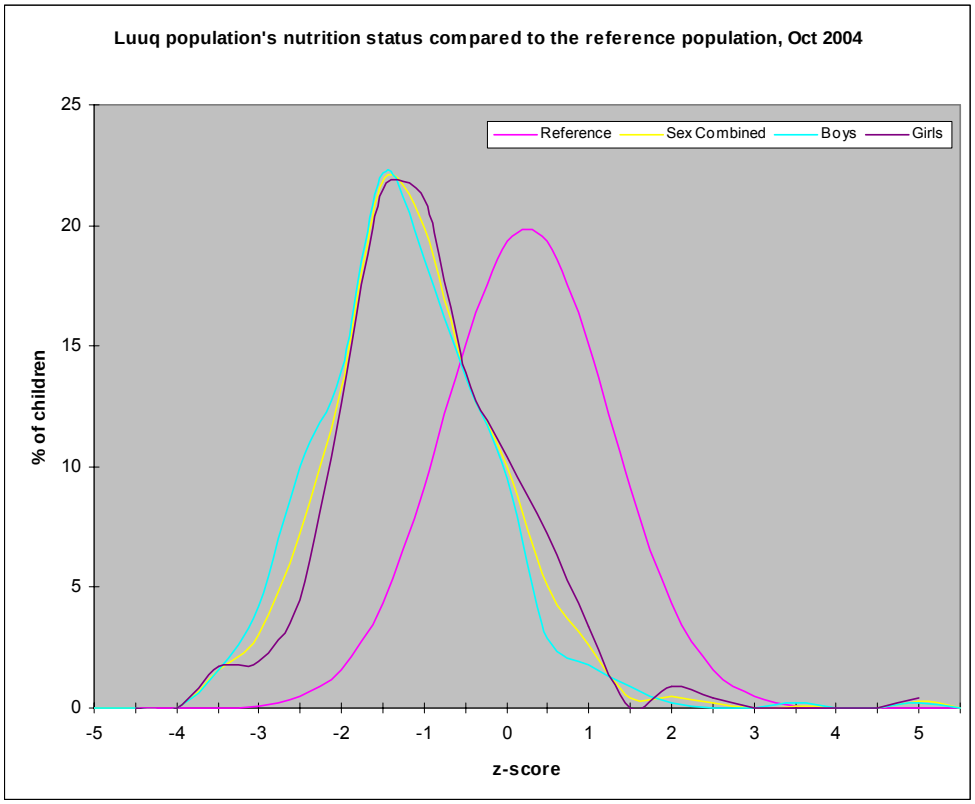
The prevalence of global acute malnutrition defined as W/H<80% or oedema was 16.5% (95% C.I. 14.2-19.1) while the prevalence of severe acute malnutrition, defined as W/H<70% or oedema, was 2.1% (95% CI. 1.3- 3.3).

Table 7: Distribution of global acute malnutrition prevalence (based on Z-score or oedema) by sex

	Severe (W/H<-3 z-scores+ oed)	Moderate (-3 Z-Sc. ≤WFH< -2 Z-Sc.)	GAM (W/H<-2 z-sc. + oed.)	Normal (W/H≥ -2Z-Sc.)
Males	27 (6.0%)	108 (23.9%)	135 (29.9%)	316 (70.1%)
Females	19 (4.1%)	80 (17.1%)	99 (21.1%)	370 (78.9%)
Total	46 (5.0%)	188 (20.4%)	234 (25.4%)	686 (74.6%)

The difference in malnutrition between sexes was statistically significant with more males being malnourished than females children, *(X^2 = 9.46, df=2, p=0.0088).*

4.5.1 Comparison of the Luuq District population's nutrition status and the reference population



Measures of central tendency and the graph on population distribution indicate a general shift to the left of the population nutrition status visa vis the reference population. This implies that the Luuq District population's nutrition status was poor when compared to the reference population. The aggregate mean z-score for Luuq population was -1.33 and the median was -1.42.

Table 8: Prevalence of acute malnutrition by specific age categories, based on W/H z-score and/or oedema

	Severe **(W/H<-3 z-scores+ oed)**	Moderate **(-3 Z-Sc. ≤WFH< -2 Z-Sc.)**	GAM **(W/H<-2 z-scores+ oed)**	Normal **(W/H>=-2 z-scores)**
6-11 months	6 (4.8%)	21 (16.8%)	27 (21.6%)	98 (78.4%)
12-23 months	15 (7.0%)	42 (19.5%)	57 (26.5%)	158 (73.5%)
24-35 months	11 (6.5%)	37 (21.8%)	48 (28.3%)	122 (71.7%)
36-47 months	2 (1.3%)	29 (18.2%)	31 (19.5%)	128 (80.5%)
48-59 months	12 (4.8%)	59 (23.5%)	71 (28.3%)	180 (71.7%)

The relationship between malnutrition and age categories was not statistically significant with all age groups being more or less equally affected by malnutrition. None of the age category was exceptionally affected by malnutrition.

Risk for malnutrition and mortality among adult women in Luuq

Using Mid Upper Arm Circumference, the nutrition status of all adult women found in the random selected households was assessed. A total of 427 women were assessed and using the Sphere Guidelines classification of adult MUAC, the prevalence adult malnutrition was determined. About 28% (124) of the assessed women were pregnant, 54% (230) lactating and 17% (73) were neither lactating nor pregnant. All women who were neither lactating nor pregnant were not at risk of malnutrition or mortality (MUAC>18.5cm). About 0.4% of the lactating women were at moderate risk of malnutrition and mortality (16.0cm ≤ MUAC≤ 18.5cm). There was no lactating woman at severe risk or malnutrition and mortality (MUAC<16.0cm).

Table 9: Summary of MUAC measurement for pregnant women

MUAC category	Frequency	CI
≤20.7cm	27 (21.5%)	14.9-30.1
20.8cm<MUAC≤23.0cm	45 (36.3%)	27.8-45.4
>23.0cm	52 (41.9%)	33.1-51.1
Total	124 (100%)	

About half of the pregnant women were at risk of malnutrition and mortality (MUAC≤23.0 cm). About 21% of the pregnant women were at severe risk of malnutrition and mortality while 36% were at moderate risk of the same.

4.6 Health, feeding practices and immunisation coverage

Table 10: Disease prevalence, immunisation and childcare issues in Luuq District

Characteristics	Proportion	Number
Disease prevalence & immunisation		
Children with acute respiratory infection two weeks prior to survey	43.4	399
Children with diarrhoea two weeks prior to survey	27.5	253
Malaria cases two weeks prior to survey	24.9	229
Measles cases one month prior to survey	8.0	74
Vitamin A supplementation 6 months prior to survey	54.1	498
Measles immunisation (N=862, aged 9-59 months)	60.7	523
Children who have ever received polio vaccine in life	74.3	683
Child feeding		
Frequency of feeding in a day		
➢ Once	18.2	167
➢ Twice	45.1	415
➢ 3-4 times	26.7	246
➢ Five and above	10.0	92
Child's age at introduction to complementary food		
0-3 months	821	89.2
4-6 months	80	8.7
7 months and above	19	2.1
Age of stopping breastfeeding (N=746)		
Less than 6 months	4.7	35
6-11 months	18.0	134
12-18 months	49.1	366
Above 18 months	25.7	192
Never Breastfed	2.5	19

The prevalence of ARI, diarrhoea, malaria and measles was high in the survey population. About 43% of the surveyed children had a respiratory infection[1] , 27.5% with diarrhoea and 25% with suspected malaria two weeks prior to the survey while 8% had measles one month prior to the survey. About 54% of the assessed children had received Vitamin A supplementation 6 months prior to survey, 61% of children of immunisable age had been vaccinated against measles while about 74% had received at least one dose of polio vaccine during the polio campaign.

About 63% of the children were receiving one or two meals in a day. Additionally about 37% of the children received meals which mainly consisted of about two food groups or types (results below). About 89% of the children in Luuq District were introduced to other foods other than breast milk within their first three months of age. About 23% of the children who are not breastfeeding stopped breastfeeding in their first year of life.

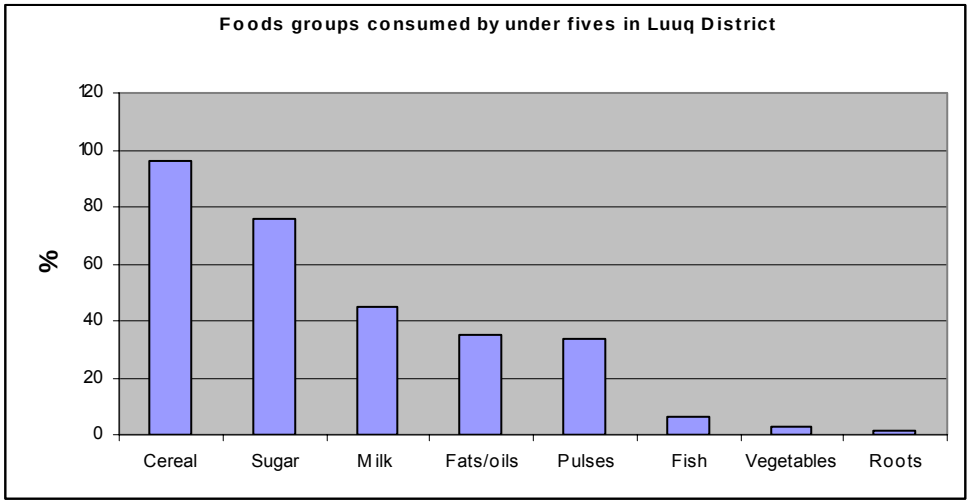
Relationship between malnutrition and other factors

- There was no significant relationship between malnutrition and household livelihood system, acute respiratory infection, malaria, diarrhoea, polio coverage, age of introduction of weaning foods, frequency of feeding, access to toilet facilities and source of drinking water.
- The relationship between malnutrition and child sex was statistically significant with more males being malnourished than the females *(X^2 = 9.46, df=2, p=0.0088)*
- There was significant relationship between measles immunization and the age of the children with relatively low coverage being recorded among the young age category, *(X^2 = 59.88, df=16; p=<0.05).*

4.7 Dietary diversity

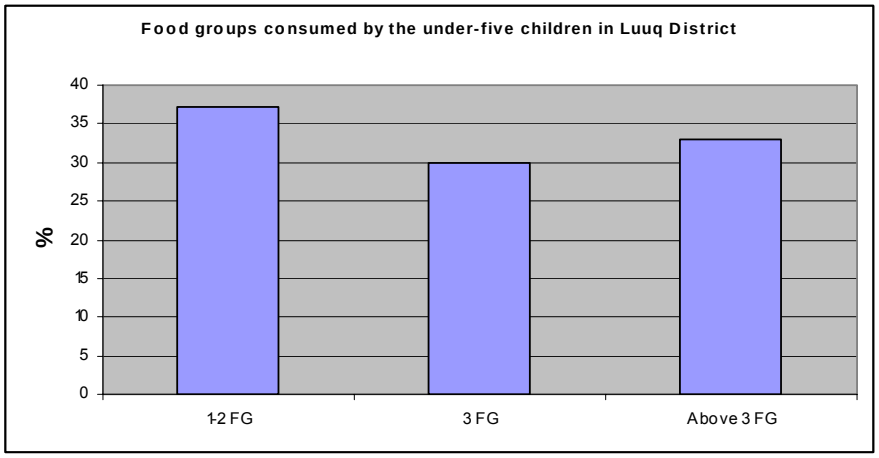
The FAO food group classification was adopted to establish the level of food diversification in the study group in the previous 24 hours. The main food groups used were as follows: 1) Cereals, 2) Beans and other pulses 3) Meat and meat products, fish, sea foods and eggs; 4) Roots and tubers, 5) Vegetables, 6) Fruits, 7) Fats and oil, 8) Dairy products, 9) Sugars and honey, 10) beverages, spices & other products.

During this survey, the data collection period overlapped with Ramadhan season and on that ground, the consumption patterns for the adults had varied from the normal. The data was considered invalid. Data on the under five eating habits was found not to be affected by the Ramadhan festivities and this was verified and confirmed by qualitative information.



Cereals (96%) are the most common food type consumed in Luuq, followed by sugar (76% of children), milk (46%), fats (35%) and pulses (34%). The proportion of children consuming or accessing other food types (fish, meat, eggs, vegetables and fruits, roots) is negligible despite the district's potential to exploit the river and to produce diverse food types. Qualitative information indicates that cereals, fats and pulses distributed as relief contribute significantly to the Luuq District population's diet.

1 -Respiratory infection includes coughs, rapid breathing, pneumonia, bronchitis or any other respiratory illness



About 37% of the children consumed one or two food groups a day prior to the survey while about 30% had consumed three food groups. However, cereals, sugar and milk were the food types that were mainly consumed. The data indicate consumption of relatively limited food diversity by the under five year old children in Luuq.

There was no significant relationship between malnutrition and the food groups consumed by the under five children.

4.8 Coping strategy

To survive, households employ different coping strategies to meet their daily foods. Most of the households used the summarised coping strategies (below) 30 days prior to the survey. Households employed more than one strategy. The summary of the children who came from households using these strategies is as below.

Table 11: Summary of main coping strategies employed by the Luuq population

Coping strategies	**% of children from Households adopting (N=920)**	
	%	No
Reduce number of meals eaten in a day	88.4	813
Limit portion size at mealtimes	78.8	725
Purchase food on credit	77.5	713
Switch from high quality to low quality less expensive foods	68.6	631
Skip entire day without eating	66.8	615
Restrict consumption of adults in order the small children to eat	61.4	565
Borrow food, or rely on help from a friend or relative	59.5	547
Send household members to eat elsewhere	46.6	429
Deplete assets to get food, i.e. sell land, jewelry, etc)	40.7	374
Consume seed stock held for next season	37.7	347
Gather wild food, hunt, or harvest immature crops	32.9	303
Send household members to beg	25.8	237
Feed working members of HH at the expense of non-working members	18.5	170

Reducing the number of meals, limiting food amounts and dependency on food got through credit are the three most common strategies employed. All the surveyed children came from households that had adopted at least one of the coping strategies 30 days prior to survey. The Luuq nutrition survey was the fourth in Somalia (Sool, Jilib and Galgadud) where coping strategy data collection is being piloted in the development of the coping strategy index for Somalia, upon which subsequent surveys will adopt to generate coping strategy index of the different livelihoods.

4.9 Mortality

The retrospective mortality survey (90 days) was done concurrently with nutrition survey in which a 30 by 30 cluster sampling methodology was used. The survey methodology used for the nutrition survey was adopted in the mortality survey with the exception that households were selected as the second sampling unit. The selection of clusters and households were the same as for nutrition survey. At least 30 households were randomly selected in each cluster and the mortality questionnaire administered to a responsible member of that household. All households within the selected cluster were eligible for inclusion in the mortality survey irrespective of whether an under five year old child

was present or not. Households were randomly assessed until the 30th household was assessed. Each household assessed 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 in the last three months and the associated cause. The mortality questionnaire is appended in the report. A total of 900 households with or without under-five child/children at the time of the survey were included in the survey.

The overall mortality was calculated by taking the total number of deaths multiplied by a factor (10,000). This was divided by the mid population of the assessed households using the formulae below:

MR=n/{[(n+N)+N]/2}
Where n=total number of persons reported dead in the households assessed
N=total number of people living in those households at the time of survey

The retrospective mortality rate was calculated based on a recall period covering between July 14th and October 14th 2004. Mortality rates per 10,000 persons per day were obtained by dividing the figure above by 90 days that was used as the recall period then multiplied by the 10,000. Calculation of under-five mortality rates was done using the same formulae but with a denominator of under-five children in the assessed households.

In case a member had died, the household was asked to explain the signs and symptoms of the illness before death.

Mortality rates are interpreted according to the following WHO reference

For under-five years old children
-Under-five mortality rates < 2 deaths/10,000/day indicate an acceptable rate
-Under-five mortality rates ≥ 2 and <4 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 (crude mortality rate)
-Crude Mortality rates <1 deaths/10,000 persons/day indicate an acceptable rate
-Crude Mortality rates ≥1 and <2 deaths/10,000 persons/day indicate an alert situation
-Crude Mortality rates ≥2 deaths/10,000 persons/day indicate an emergency.

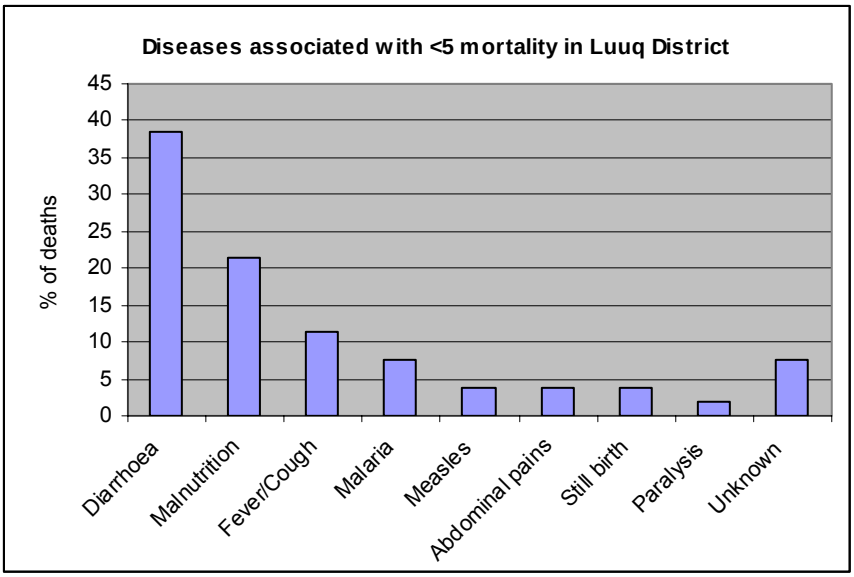
Mortality Rates
A total of 900 households were assessed for mortality indicator with a follow-up period of 90 days prior to the survey. The results are presented below:

Under Five Mortality rate;
For children aged 0-59 months (under-five mortality rate)

Under five population in assessed households (Average of population at the beginning and end of the 90 days)	= 1563
Number of under five deaths in 90 days	=52
Under five mortality rate	= {52 deaths/1563/ 90 days}*10,000
	= 3.696594/10,000/day
	=3.7/10000/day

The under five mortality rate is therefore approximately 3.7 deaths per 10,000 under fives per day. This rate is indicates an alert situation according to WHO classification. The causal factors are summarised in the graph below.

Diarrhoea (38.6%), malnutrition (21.3%), fever with cough (11.5%) and malaria (7.6%) are the main diseases associated with mortality among under-fives in Luuq district. Others are measles, abdominal pains and paralysis.



Crude Mortality Rate

Total population in assessed households (average at the beginning and end of the 90 days) = 5254

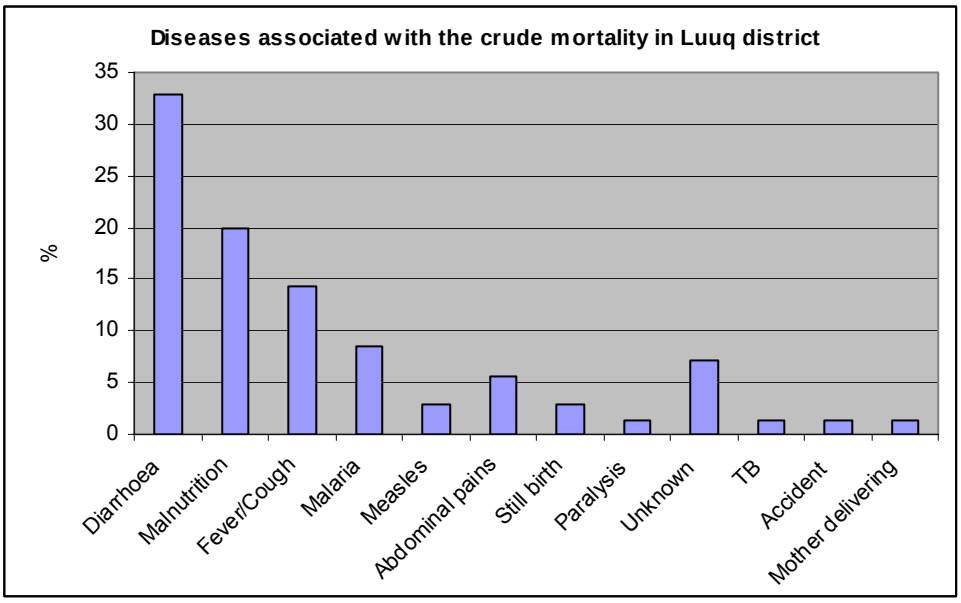
Total number of deaths in the households = 70

Crude mortality rate = {70 deaths/5254/90 days}*10,000

= 1.4803535/10,000/day

= 1.5/ 10,000/ day

Crude mortality rate is therefore approximately 1.5 deaths per 10,000 persons per day. This rate indicates an alert situation according to WHO classification. The causal factors associated with the crude mortality rate are summarised below.



Diarrhoea (32.9%), malnutrition (20%), fever combined with cough (14.3%) and malaria (8.6%) are the main diseases associated with crude mortality in Luuq population. Others include measles, abdominal pains, paralysis and TB.

Qualitative information

Qualitative information indicates dependence on relief food particularly among the poor households in Luuq town and the Luuq IDP. With reference to cereal availability, relief food through free food distribution and food for work, by CARE- Somalia, assist in providing food to the needy households as well as in the stabilization of food prices. The IDP and the poor wealth group depend on casual work and sale of bush product collection for their income. In addition, poor households also collection of *ali goroob* (fruits of acacia trees) for sale as feed for shoats. Women on the other hand seek casual employment as house help to earn income.

Except for the middle wealth group's households, most of the households consume one or two meals in a day which mainly consist of cereals. Impact of past years of inadequate rains (2000 – 2002) continues to be felt with many households owning few or no livestock (reduced asset holding). The milk availability and accessibility is poor. Usually many livestock travel long distances from main villages in search of pastures. At the time of the survey, most households had no food stocks.

The poverty levels in Luuq District have deteriorated with the livestock ownership declining while on the other hand the land under cultivation greatly diminishing. Death of livestock during the past drought periods followed by low reproduction rates were reported. The high cost of fuel and high maintenance cost for irrigation pumps has led to reduced production potential for the rievrine community.

With reference to water and sanitation, shallow wells (unprotected) and river are the main water sources. Some of the water points have saline water which is sometimes unpalatable during dry season (high concentration of salt). Poor water condition has been associated diarrhoeal diseases. Other high prevalent diseases are ARI and malaria.

4.10 Food security data summary

Luuq district and Northern Gedo in general, has had severe and recurrent food insecurity periods in the past four years. The following factors have contributed significantly to the level of the crises in the district:

- Limited livestock asset and its related benefits
- Poor economic status and availability
- Frequency inter-clan fighting and poor educational status
- Degradation of environments and dependence of food aid

Food aid agencies and CARE in particular, are up against bad weather, poor roads and infrastructure, ongoing threats of civil insecurity and funding shortages in their operations. However, perhaps, the most serious obstacle of all is the scale of crisis in the area. Most of the active family members in the district have migrated to either Mandera in Kenya or Zone V of Ethiopia in search of employment or creation of self-employment opportunities which also proved to be difficult according to the family members left behind. The general food distribution was not found to be proportional to the number of families according to key informants in Luq. Furthermore, as the families were relying heavily on the relief food distribution by CARE, it was found that the ration was not able to fulfill all of the household's needs for the period of time that it was required to.

Destitution is increasing and the poor are getting poorer. In many randomly selected clusters in Luuq district, a new category of extremely poor households has emerged in the last four years. Better-off groups are shrinking in numbers and in wealth, which is contributing to destitution at the community level, because these groups used to provide assistance and access to resources such as irrigation pumps for the resource poor farmers. Similarly, vulnerable households have increased dramatically in 2004. This means that according to key informants more than half the households in Luuq are now at serious risk of becoming destitute in the near future. This is further supported by the fact that hundreds of displaced children have abandoned routine activities like schooling, while health services are overburdened. The crisis has seriously disrupted agriculture and trade, increasing general poverty. Host families are struggling to support IDPs.

Some vulnerable population groups, in particular IDPs are still at risk from widespread clan-based tensions. Large numbers of people were displaced by fighting, thus compromising their survival and coping mechanisms. Poor households have lost almost all of their camels and currently hold 0-1 cattle, instead of 0-5 in a reference baseline year. These people have been exploiting all coping mechanisms that they are able to, just to maintain a "basic" level of survival. Extremely high levels of malnutrition confirm the severity of the ongoing food and livelihood crisis.

Effects on livelihood Assets

Natural capital: While the current Deyr 2004 rains moderately replenished pasture and grazing lands, several seasons of erratic rainfall and crop failure in Luuq have aggravated conflict over potential area for farming and grazing. Environmental degradation and deforestation mainly for charcoal production and construction materials is on the rise (ref to photo). Reduced number of irrigation pumps, high price of fuel for irrigation also discouraged resource poor riverine farmers to produce both food and cash crops such as maize, tobacco and onion. The Jubba River remained the main water source followed by water catchments and hand dug wells. The river is also unsafe and crocodile attacks are common.

Physical capital: Inadequate health facilities (one hospital and two MCHs in the district) is limiting access to basic health care and contributing to reduced manpower. Poor access during rainy season, due to deteriorating transport infrastructure and increased road blocks, is restricting the smooth flow of services and commodities, and leading to 50% price increases for sorghum (SoSh 1,333/50kg to 2000/50kg). High staple food prices are creating severe food access problems as many are reliant on the market for basic staple foods.

For several consecutive seasons now, the Jubba Pump irrigation Livelihood Zone farmers have shifted from food crops to lemon tree plantations and onions. Maize is increasingly grown as a fodder crop and is sold in the market for livestock feed. This shift of traditional maize crop cultivation for food to fodder is mainly attributed to ever increasing farm input prices, namely expensive fuel for irrigation, increased irrigation times as a result of rain failures and expensive irrigation pumps and their spare parts.

The results show that many pastoralists' households from the Dawa Pastoral Livelihood have lost most, if not all, of their livestock. In the farming areas of Jubba Pump irrigation Livelihood zone reduced or no crop production is ongoing. The livelihoods are not sustainable and the community may take a while to recover. Shelters are made of branches and sparse pieces of old carrier bags and often old clothing in some rural and urban periphery villages. Majority of the shelters are likely to collapse with the onset of seasonal rains.

Social capital: According to key informant and group discussions held with various villages in Luuq belonging different livelihood zones, very few families receive internal remittances from Mandera/Kenya, Bossaso and Galkacyo (as well as abroad) as active members migrated to those places in search of labor opportunities. Social support networks are strained due to persistence of the humanitarian and livelihood crisis. Though limited, the main support comes through humanitarian agencies like CARE free food distribution, VSF (Vet services), GHC (health services) with limited support, among others.

Financial capital: Essential foods' prices have increased and are attributed partly to increased road blocks between Mogadishu and Luuq and as a result of successive rain failure. These factors are leading to high levels of indebtedness due to prolonged borrowing of food stuffs and cash from the small number of traders in the district. For example, in more than three villages' group discussion, a range of 20-40% business closed due to inability to recover borrowed money (in term of food staff) from poor and middle class households in the district. Bush product sales like fire woods, fences, poles, grasses remain the main income source for poor households and the second income source is livestock sale. Commodity prices continue to rise as the hard currency exchange fluctuates. Similarly, high levels of unemployment contribute further to low income for the whole population. As mentioned above, income from livestock and production and sale has declined due to poor body condition (see photo beside), low productivity of livestock, and high livestock deaths. Households interviewed had no stock of food or seeds. Personal belongings for the households interviewed consisted mainly of a cooking pot and a five liter jerry can. None of the households interviewed had been able to receive any form of credit within Luuq town.

Human capital: Due to the generalized poverty and lack of international support, only one primary school is functioning in the entire Luuq district. However, there are many Quranic schools in the district. Although Gedo Health Consortium (GHC) is actively working with professional doctors running the district hospital, a high level of malnutrition and disease burden, particularly respiratory infections, diarrhea, dermal diseases and malaria was observed through out the district. In addition, with a GAM of 25.4 plus high prevalence of diseases there is frequent visit to hospitals leading to poor productivity.

Livelihood Strategies –Juba Pump Irrigation Livelihood Zone (JPI LZ)

Food source:

In a normal year, poor households in the Juba Pump Irrigation Livelihood Zone (JPI LZ) access their food through own maize production (1000 kg) that contribute 60-65% of their annual food consumption. An additional 25-30% of the household food consumption is accessed through purchase, particularly sugar, oil and skimmed milk.

Currently, the bulk (50-60%) of food consumed (both staple and non-staple food) by the poor households is accessed through purchase from the market. And the vast majority of them consume sorghum instead of maize in the normal years. Free food aid (sorghum, pulses and oil) from CARE Somalia contributes, currently, around 35-40% of annual household's food consumed. Own maize production and gifts from better off relatives contribute around 15% of households food consumption. Field results show consumption of one meal per

Table 12: Changes in asset holdings by wealth group in the Juba pump irrigation livelihood group

WG	Asset	current	3years ago
Poor	Camels	0	0
	Cattle	0-2	1-3
	Shoats	4-7	2-3
	Donkey	0	0
	Irrigation pump	0	0
	Land cultivation (ha^2)	1-2	2-2.5
Middle	Camels	0	0
	Cattle	3-6	1-2
	Shoats	9-11	3-5
	Donkey	1	0
	Land cultivation (ha)	5-6	7-10
	Irrigation pump	0-1	0-1

2 The poor riverine farmer is required to share half the production to the landlord after all other expenses, including farm inputs and food for work, are excluded. It is reported, that excessive debt in this situation sometimes triggers farmers to flee when the debt is too high to be payable.

day currently. The meal mainly consists of cereals. It was observed throughout the whole period within the IDP Camps that low levels of cooking activities were being carried out, particularly during daytime.

Income source:
In a normal year, the main source of income for the poor households in the Agro-pastoral Livelihood zone is crop sale especially maize, tobacco and onion, which contributed to 75-85% of household annual income. However, currently, the poor households obtain their income through:

- Production of animal feed for sale (maize and cowpea for fodder[3] production) that contribute 30-40% of the household annual income.
- Production of lemon, tomato, onion, bush products and firewood for sale is currently the second income source and accounts for 5-10% of poor household annual income.
- Other income generating activities include sale of food aid distributed which accounts for around 45-50% of poor household annual income.

Expenditure
Contrary to normal reference year's expenditure pattern, 50-60% of annual income is spent on staple food, while 20-30% is spent on non-staple food. However, in a normal year, 30% of the annual income is spent on staple food and 55-65% on non-staple food items. The remaining is spent on medicines and clothing.

Livelihood Strategies for Southern Agro-Pastoral Livelihood Zone (SAP LZ)

Food source:
In a normal year, poor households in the SAP LZ access their food by own production that contribute 50-60% of annual food consumption. Additional 35-45% of their food consumption is purchased from the market including sugar and edible oil. Contrary to normal year food basket, bulk of the food consumed currently (45-55%) is accessed through market purchase. The food obtained was from the sale of firewood; begging; or solidarity among the community in a given cluster. Free food aid from the CARE Somalia contributes 40-45% of annual food consumption. Gifts from better off relatives and own crop production contribute to around 15%

Table 13: Change in asset holdings by wealth group among the southern agro-pastoral livelihood group

	Asset	current	3years ago
Poor	Camels	0	0
	Cattle	0-1	0-1
	Shoats	13-20	11-20
	Donkey	0-1	0-1
	Land cultivation (ha)	0.8-1	2-2.5
Middle	Camels	0	0
	Cattle	2-4	0-1
	Shoats	28-37	27-36
	Donkey	1-2	0-1
	Land cultivation (ha)	04-0.6	0.4-.6

Income source:
The main sources of income for poor household in the Southern Agro-Pastoral Livelihood Zone in a normal year are employment (20-30%), self-employment (15-25%), livestock product sale (20-30%). Currently, the bulk of money is obtained through sale of food aid (50-55%) and the second income generating activity is livestock sale that contribute 45-50% of annual income.

Expenditure:
The largest amount of money (74%) is spent on food purchase of which staple food (sorghum) purchase amounts for 50-60% while 15-24% is spent on non-staple food purchase. In a normal year, the largest amount of money 70-80% is spent on food.

3 Maize and/or cowpea crops are irrigated around 3-4 times and are harvested before they produce seeds or pods for example maize is harvested when 40-50% of plants have tasselled to allow plants to retain palatability as animal feed.

5: DISCUSSION AND CONCLUSIONS

The recurrent seasons of insufficient rains and incidences of civil insecurity are shocks that have predisposed the Luuq population livelihood to vulnerability and persistent risk for malnutrition. There are unacceptable high levels of malnutrition and mortality rates and most of the factors associated with those rates have the potential to depress the population wellbeing more rather than improving the situation.

5.1 High malnutrition rates in Luuq District

A total of 920 representative sample (children) from the 438 households from Luuq District surveyed show critical levels of wasting in the Luuq population [global acute malnutrition rates of 25.4% (CI: 22.7 – 28.4) (W/H<-2 z-score or oedema) and severe acute malnutrition of 5.0 (CI: 3.7 –6.7) (W/H<-3 z-score or oedema)]. The crude mortality and under five mortality rates were 1.5/10,000/day and 3.7/10,000/day respectively. According to WHO, global acute malnutrition rates of above 15% indicate a critical nutrition situation in need of an urgent emergency assistance. Further, crude mortality rates of between 1-2/10,000/day and under five mortality rates of 2-4/10,000/day indicate an alert situation. Northern Gedo region has been a unique case in Somalia where high levels of malnutrition are usually recorded. Malnutrition rate among pregnant women was also at critical levels, an indication of increased vulnerability among other at risk population groups. (About 21% of the pregnant women had MUAC≤20.7cm and 36% had 20.8<MUAC≤ 23.0cm). Even though the malnutrition rates recorded in Northern Gedo are usually above 20%[4], the current global acute malnutrition rates in Luuq District indicate a significantly higher than usual critical nutrition situation. This is further confirmed by the alert situation with reference to mortality rates and prevailing aggravating factors of food insecurity, insecurity, limited access by humanitarian agencies, high disease incidences and limited dietary diversity. In early 2002, high rates of admissions used to be recorded in the ACF sponsored Luuq TFC before its closure in mid 2002. Recent food security and nutrition assessments (March 2004, April 2004 and the July 2004) as well as the partner agencies' reports show deterioration of the nutrition situation. CARE Somalia received an appeal by the Elbon community to resume general food distribution instead of the ongoing food for work programmes.

Most of the IDPs currently residing in Luuq town as well as the destitute families were benefiting greatly from the nutrition programmes in Luuq before mid 2002 as well as by the ongoing relief operations by CARE Somalia and the GHC. Increased cases of severely malnourished children were recorded in October 2004 in the GHC hospital rehabilitation unit in Luuq and indication of the deteriorating nutrition situation. The nutrition situation in Luuq is critical and needs an urgent intervention to avert increased death. Both industrial and locally made fortified foods are needed for the management of severely and moderately malnourished and to avert further deterioration of the population wellbeing and further deaths.

5.2 Morbidity as it relates to the malnutrition rates

Cases of acute respiratory disease (with signs of suspected TB), diarrhoea, malaria and skin rash continue to be recorded in the health facilities within Luuq District. Apart from the GHC sponsored health facilities/services (one hospital, 2 MCHs and a mobile clinic) no other health services exist in Luuq. Some health service seekers travel over 30 km while others turn to alternative health services available like tradition healers. About 62% of the surveyed children were taken to a medical practitioner for treatment, when sick. However, the proportion that was taken to traditional healer or offered prayers was also significant (38%). In addition to the limited health service access, particularly in rural areas among the pastoral and agro-pastoral populations, disease prevalence was high. The prevalence of diarrhoea, ARI, malaria and measles were about 28%, 43%, 25% and 8% respectively. (The high prevalence of ARI and diarrhoea was associated with to the wet weather conditions prevailing in the district at the survey time). These are high prevalence of disease with great potential to negatively affect the immune system of this population. The relatively poor environmental conditions contribute greatly to the increased episodes of diseases, particularly diarrhoea. Diarrhoeal episodes are also associated with the use of unsafe water. Amidst challenges of health service delivery, significant effort has been made in Vitamin A supplementation, measles vaccine and polio

4- In Dec 2001 and Oct 2002, GAM rates of 37.1 and 21.5% respectively were recorded in Beled Hawa District that borders Luuq District.

vaccine administrations where 54%, 61% and 74% programme coverage were recorded respectively. There was statistically significant association between measles coverage and age categories, with children aged 9-11 months having lowest immunisation coverage compared to the other age categories (X^2=59.9, p<0.05).

It is worth noting that though there is no statistical significant association between malnutrition and diseases, qualitative information indicate disease to contribute to the poor nutrition situation in Luuq. Diarrhoea, malnutrition, fever with cough and malaria and measles are associated with the highest case fatality rates for the entire Luuq population and the under fives in particular.

5.3 Poor food security situation depresses the Luuq population wellbeing.

Despite a lot of potential to be food secure, Luuq District has encountered recurrent periods of food insecurity to a level that the population is almost depending on external assistance like the CARE relief food. The social support network in all the livelihoods is also strained. Only few areas like Elbon have sometimes been receiving adequate harvest, otherwise most of the other areas have been receiving below normal produce. The Elbon population has also been affected by the food shortage. The asset base for the population has reduced and the population's capacity to sustain adequate food supply is compromised. This has negatively affected the population's food consumption patterns with an oblivious compromise on household food diversity. Though not significantly associated, food insecurity has contributed to the critically high levels of malnutrition in Luuq District. All the households in the district have adopted at least a coping strategy for survival and had no food stocks at the time of the survey.

The drought in the past recent years (2000-2002) led to death of livestock in most districts of Northern Gedo and the population has not recovered from that shock (drought). VSF – Swizz is assisting the Luuq population with veterinary services in an effort to recover the livestock losses and improve productivity of the remaining ones. Livestock products like milk and meat are in minimal amounts to the extent of being inaccessible to the majority district residents in most of the seasons. Considering that milk consumption among children is important for their growth, its lack of availability and accessibility has negative implication on children's growth.

The high indebt ness of most of the Luuq population has greatly affected the economic activities in Luuq business community. This has obvious negative implication on the food security situation among the credit dependent population. The income of the Luuq population has reduced, while on the other hand expenditure on food has increased. Accessing food through food production has declined significantly on comparison to the baseline data for the Southern agro-pastoral and the Juba pump irrigation livelihoods.

Civil insecurity and the accompanying tax extortion have led to few trucks making through Luuq. This has denied the district income through tax and labour opportunities, during the off-loading of goods. Some of the imported commodities' prices have slightly increased thus further compromising population's access to those commodities. The high cost of fuel has led to some riverine farmers abandoning their primary livelihood of crop production through irrigation. This has directly implication on irrigating farmers' households' food availability as well as income. Most of the farmers are producing cash crop (lemon and onion) or producing fodder for sale (photos in the food security section). The natural capital is not exploited fully. Coping strategies like bush product collection are being adopted despite the detrimental effect on environment. Coping strategies like reducing number of meals, limiting meal portions, reliance on credit, among others, are not sustainable means of survival and therefore there is need for an integrated short term and long term mitigation programmes to harness Luuq District potential and finally improve the food security situation

Relief food distribution by CARE has not been consistent through the years mainly due to delays caused by food pipeline and civil insecurity issues. To a community relying heavily on food relief, delay or deferment of a food distribution has negative implications on household food security situation and the nutritional wellbeing of the population. The relief food contributes significantly to food diversity hence a positive contribution to the nutrition wellbeing of the population.

On overall, severe food insecurity, in light of asset loss (compared to the baseline), increased food prices and increased expenditure on food purchases, limited social support, reduced income opportunities, unsustainable coping strategies, increased debt burden, reduced land under cultivation and the shift from food production to fodder production for sale, has a continuing negative effect on the deteriorating nutrition wellbeing of Luuq population.

5.4 Poor sanitation and childcare

The poor water condition of the river water and unprotected wells is a risk factor to disease incidences. The inadequate disposal of faecal matter and other household wastes only aggravates the situation especially during wet seasons. The limited number of water collecting containers and limit chances of cleaning those containers, thus further increasing the risk of disease transmission. Drinking water is not treated before use, and in a situation that the health facilities are not in close proximity, the incidences of diarrhoeal diseases increases risk for malnutrition.

Inadequate childcare practices were established with about 63% of the under five children receiving one or two meals in a day. Data further indicated that the food diversity was also limited. Children (89%) are introduced to other besides breast milk before they reached 3 months while about 23% of the children not breastfeeding stopped before they reached one year. The disease prevalence were also high and in a situation of poor feeding practices, complementary foods and adequate psycho social environment, likelihood of faltered growth is high. With limited household income opportunities, women's engagement in income search is obvious thus likely to reduce the time spent by some breast feeding mothers with their children.

Immunization coverage was not relatively low. However the measles immunisation coverage in the young age category was low thus predisposing the young children to decreased immunity and higher risk for malnutrition.

Conclusion

The overall population wellbeing in Luuq is critical. The high malnutrition rates, under five and crude mortality rates, high disease prevalence and food insecurity presents an emergency situation in Luuq District population which is accompanied by a wide range of aggravating factors. Though the malnutrition rates in Northern Gedo are usually above 20% GAM, the rates in Luuq are significantly above the usual range. If no emergency interventions are instituted and the climatic conditions continue to be unfavourable, persistent of the emergency situation will continue to prevail. The humanitarian activities by GHC, CARE and VSF-Swiz are averting increased asset loss, population suffering and more deaths, however, establishing targeted supplementary feeding programme and enhancing the management of severe acute malnutrition is necessary. In addition there is need for increased mitigation activities addressing issues like water and sanitation, sustainable food security, disease and other health interventions, environmental degradation, promotion of natural resources exploitation like the Juba river and salt mining (in Bohol Garas village). Regular targeted food distribution also needs to be enhanced. It is however, notable that the interventions can only occur in a secure environment; hence inter-clan peace promotion is paramount in Luuq District.

5.5 Recommendations and possible interventions

Based on the analysis of the situation, the survey team concluded that the nutrition and mortality levels were critical and required urgent interventions to contain further deterioration.

1. Due to the critical nutrition situation and 'emergency' level of mortality, the following interventions are required urgently in order to save life, between now and the next harvest:
    i. Increase the household food basket through provision of food assistance. Short term general food distribution, food for work, supplementary feeding programme, management of severe malnutrition through supporting a nutrition rehabilitation programme or establishing a therapeutic feeding centre. Further, programmes targeting groups at higher risk like pregnant women need to be established.
    ii. Improve the access to health and EPI services. Specific recommendations to increase access to health include
        - Increasing the capacity (technical capacity for the staff, drugs and supplies) of the MCH centres in this area.
        - Regular accelerated EPI campaigns are needed to boost the immunity of the young age categories
    iii. Improve the access to safe water for consumption, including storage issues. Specific interventions include
        - rehabilitation of the existing shallow wells
        - construction/protection of wells in villages which do not have access and rely on river water;
        - Provision of health education for improved sanitation.

2. Improve the immediate environmental sanitation and hygiene at household level as well as hygienic practices like boiling river water before consumption.
3. Opportunities to restore livelihoods include:
    i. Explore on possibility of improving sustainable food production systems to improve produce,
    ii. Establish programmes like re-stocking to improve household herd size
    iii. Provision of farm inputs, (seeds and implements, manually operated water pumps)
    iv. Explore on the potential of exploiting mineral resources (salt) at Bohol Garas
    v. Educate the community of fishing and its potential.
4. Closer monitoring of the situation is essential.
5. Promote peace building among the sub-clans to facilitate interventions implementation.

APPENDICES

Appendix 1: Traditional Calendar for Luuq District Nutrition Survey

Month	Events	1999	2000	2001	2002	2003	2004
Jan.	Beginning of Jiilal		57 Siditaal	45 Siditaal	33 Siditaal	21 Siditaal	9 Siditaal Safari park retreat
Feb.	Mid of Jiilaal		56 Arafo/Dul-Xaj	44 Arafo/Dul-Xaj	32 Arafo/Dul-Xaj	20 Arafo/Dul-Xaj	8 Arafo/Dulxaj
Mar.	End of Jiilaal		55 Sako	43 Sako	31 Sako	19 Sako	7 Sako
Apr.	Beginning of Gu'		54 Safar	42 Safar	30 Safar	18 Safar	6 Safar
May	Mid of Gu'		53 Mawlid	41 Mawlid	29 Mawlid	17 Mawlid	5 Mawlid
Jun.	End of Gu'		52 Malmadoone	40 Malmadoone	28 Malmadoone	16 Malmadoone	4 Malmadoone
July	Beginning of Xagaa		51 Jamadul-Awal	39 Jamadul-Awal	27 Jamadul-Awal	15 Jamadul-Awal	3 Jamadul-Awal
Aug.	Mid of Xagaa		50 Jamadul-Akhir - Carta meeting /election in Djibouti	38 Jamadul-Akhir	26 Jamadul-Akhir	14 Jamadul-Akhir	2 Jamadul-Akhir
Sep.	End of Xagaa		49 Rajab	37 Rajab	25 Rajab	13 Rajab	1 Rajab
Oct.	Beginning of Deyr		48 Shacbaan	36 Shacbaan	24 Shacbaan Start of Edoret reconciliation meeting, Kenya	12 Shacbaan	
Nov.	Mid of Deyr	59 Ramadhan	47 Ramadhan	35 Ramadhan	23 Ramadhan	11 Ramadhan	
Dec.	End of Deyr	58 Soonfur	46 Soonfur	34 Soonfur	22 Soonfur	10 Soonfur	

Jiilaal

GU'

Xagaa

Deyr

* Carta meeting – The Djibouti meeting which culminated to the election of TNG

Appendix 2: Prevalence of chronic malnutrition based on height for age Z-score

	Males		Females		Total	
	%	**No**	**%**	**No**	**%**	**No**
Global chronic malnutrition (H/A<-2 z score)	16.6 (CI: 13.4 – 20.5)	75	14.9 (CI: 11.9 – 18.5)	70	15.8 (CI: 13.5 – 18.3)	145
Severe chronic malnutrition (H/A<-3 z score)	4.0 (CI: 2.5 – 6.4)	18	3.6 (CI: 2.2 – 5.9)	17	3.8 (CI: 2.7 – 5.3)	35

Appendix 3: Prevalence of underweight based on weight for age Z-score

	Males		Females		Total	
	%	**No**	**%**	**No**	**%**	**No**
Underweight malnutrition (W/A<-2 z score)	38.8 (CI: 34.3 – 43.5)	175	30.7 (CI: 26.6 – 35.1)	144	34.7 (CI: 31.6 – 37.9)	319
Severe underweight malnutrition (W/A<-3 z score)	8.0 (CI: 5.7 – 11.0)	36	6.4 (CI: 4.4 – 9.1)	30	7.2 (CI: 5.6 – 9.1)	66

Annex 4: Sampling frame for the 30 clusters for Nutrition and Mortality Survey- Luuq survey- Figures are based on December 2003 NID figures

Fixed Settlements	Temporary Settlements	NID pop estimate	**Reviewed pop estimate**	**Cummulative pop est**	**Cluster number**
Luuq Town	Hillaac	1500	1500	1500	1
Luuq town	Waberi	1500	1700	3200	2-3
Luuq town	Bartammaha	1500	0	3200	
Luuq town	Bulomusley	1500	1200	4400	4
Luuq town	Sh Maxaad	1500	1800	6200	5
Luuq town	Bartammaha	0	0	6200	
Luuq Town	Garoonka	500	800	7000	6
Luuq Town	Jaziira	300	300	7300	
Luuq town	Bulo Qodaxley	1500	300	7600	
IDP camp 2		400	400	8000	7
IDP camp 4		250	300	8300	
IDP camp 1		500	150	8450	
Boyle		400	200	8650	
IDP camp 3		350	270	8920	8
Luuq Town	Aqabuul	500	600	9520	
Luuq Town	Cakaaro	500	0	9520	
	Minyaro	1500	0	9520	
	Maddo	150	0	9520	
	Hilo Shiid	500	30	9550	
Taaganey		600	300	9850	
Luuq Godey		250	300	10150	9
	Gawdhere 2	200	100	10250	
	Sigalow		0	10250	
	Godabay	100	200	10450	
Horseed		2000	300	10750	
	Suul alle	100	20	10770	
	Taleex	400	300	11070	10
	Haradiin		0	11070	
	M/biyo		0	11070	
	Bakooley		0	11070	
	B/Rahma	200	0	11070	
Garsow		300	0	11070	
	Shadiiray	250	0	11070	
	Burcaddey		0	11070	
	Lagadiimo	200	0	11070	
	Dhatajammuli		0	11070	
	Kaah-weyn		0	11070	
	Iskudhoon		0	11070	
	Ceelaheley	250	0	11070	
	Cali Caamir	300	0	11070	
Dogobo		600	0	11070	
	Tamatiyaalle	150	0	11070	
	Madiyaal		0	11070	
	LEBIBOOR		0	11070	

	Dagaalyahan	100	0	11070	
	Lafageri		0	11070	
	Bakaaro		0	11070	
	Teyso abow		0	11070	
	Dabacun		0	11070	
	Food adde		0	11070	
	Goob laanbeere	100	0	11070	
	Hul cillan	200	0	11070	
	Gabangable	150	0	11070	
	Maddawajo	200	0	11070	
	Diiraay		100	11170	
	Geed daaq		0	11170	
	Takaabeeye	450	0	11170	
	Gamaas		0	11170	
	Warcaddey	200	150	11320	
	Garmadow		0	11320	
	Xabadaale/war	100	100	11420	
	Ramalale		0	11420	
	Kaneecaale		0	11420	
	Cagafta		100	11520	
	Gorayofuul		0	11520	
	Burmooye		0	11520	
	Bohol		0	11520	
	Gawaanley		0	11520	
	Garasbarwaaqo		0	11520	
	Dhurwaayaale	100	0	11520	
	Haadfuul		0	11520	
	DHEENTAQONEY		0	11520	
	Abaq qootaa		0	11520	
	Aricaddays		0	11520	
	Koofile		0	11520	
	Bur-libaax 2	200	0	11520	
	Lebijiif		0	11520	
	Sukeelaa		0	11520	
Mudullow		400	170	11690	
	Qooney huqaa	250	0	11690	
	Maddoyaaq		0	11690	
	QURANGOGO		0	11690	
	XAWALOGUDOW2		0	11690	
	BAKAL		0	11690	
	Surtaag	100	0	11690	
	firoweyne		0	11690	
	Baashaaley		0	11690	
	Burdido		0	11690	
	Qurac jiifo		0	11690	
	Boorweyn		0	11690	
	Kelli yarey		0	11690	
	Burjocarab		0	11690	

	Awaaro	100	0	11690	
	Abbiya		0	11690	
	Kellikoobaay		0	11690	
Haanoy		1500	800	12490	11
	Qalloocow		0	12490	
	Burcarab		0	12490	
	Xalal-goo		0	12490	
	Qurac weyne		0	12490	
	Marqaale		0	12490	
Dooryaan		500	500	12990	
	Magdooro	300	0	12990	
	Awaaro	100	0	12990	
	Karantiil	100	0	12990	
	Qaranri	200	0	12990	
	Garabjeelow	150	0	12990	
	Daarow	150	0	12990	
	Laaq xildiidow		0	12990	
	Duuraay	600	0	12990	
	Kelliweyne	50	0	12990	
	Afar-Irdood	100	0	12990	
Dhaydhere/gedo		200	120	13110	
	Dagdheer		0	13110	
	Faadumo dayow	50	0	13110	
	Burbilaan		0	13110	
Maganey		2000	800	13910	12
	Godaa		0	13910	
	Sabaansaa	100	0	13910	
	Gabgabka	180	0	13910	
	Dagdheer	100	0	13910	
	B/sakuro		0	13910	
	Shiisho	100	0	13910	
	Kamorka Ilkoweyne	250	0	13910	
	Hilo Shiid		0	13910	
	Bootimo-libax	200	0	13910	
	Dhexyaal		0	13910	
	Qoolleyle		0	13910	
	Ban-hadile	200	0	13910	
	Laantiir		0	13910	
	Qurac Faadumo	100	0	13910	
	Sandhere		0	13910	
	Suurow		0	13910	
	Baabuuro	100	0	13910	
	Dhuuso dhurwaa		0	13910	
	Kamorka Sagaarogalay	200	0	13910	
	Yaaqillow	100	0	13910	
	BIYOXABIS		0	13910	
	Maddo Urto	150	0	13910	
	Qabriga Cashir	150	0	13910	

	Kullanka		0	13910	
	Boco		0	13910	
	Dheenta M/gaab	350	0	13910	
	Guduudwaale	600	0	13910	
	Kellibaas/Kelikheyr		0	13910	
	X/guudow	50	0	13910	
	Afkaa dheriyow		0	13910	
	Lafoole		0	13910	
	Buulxun		0	13910	
Qaashaaley		250	0	13910	
	Diriirig	100	0	13910	
	Burmaroodile	100	0	13910	
	Labo caloolyaa	100	0	13910	
	Caliyey		0	13910	
	Kili-dhanan	1000	0	13910	
	Sangaale		0	13910	
	Taqraar		0	13910	
	Keligishide	100	0	13910	
	Baanyo	150	0	13910	
	Bashiiro	200	0	13910	
	Buufow	100	0	13910	
	Kabaaley	100	0	13910	
B/Mudule		1000	0	13910	
	Kureed		300	14210	
	Cali Aflow	150	0	14210	
	B/meygaag	100	0	14210	
	Kelli Barkhadle	150	0	14210	
Caracase		1400	500	14710	13
	Galure	150	0	14710	
Dhaydhere		200	40	14750	
Gawdheere		300	0	14750	
	Goomo	100	0	14750	
	Buraaley	400	0	14750	
	Cali jinle	200	0	14750	
Marayle		2000	0	14750	
Bulo-waside		900	400	15150	
	Qooleyle	100	50	15200	
	Gumaro	100	70	15270	
	Gumaro gaabo		0	15270	
	Jafey		0	15270	
	Dhareerow	500	0	15270	
	Labi awaley	1000	0	15270	
	Caruusow	600	70	15340	
	Aw-maadow	400	50	15390	
	Kureed	200	0	15390	
	Xooshow	400	0	15390	
	Wankab		0	15390	
	Kelliguba	50	0	15390	

	iley Rooble	500	0	15390	
	Daahiyey	600	0	15390	
Godabay 1		1000	0	15390	
	Muunye	100	0	15390	
	Xarkuure		400	15790	14
	Jiifdheere		0	15790	
	Dagcaddey		0	15790	
	Saarsaarre		0	15790	
	Raamo		0	15790	
	Kelliguud		0	15790	
	Dhakaley		0	15790	
	Cumar Seedow		0	15790	
	B/xamar	100	0	15790	
	Qoldhash	100	0	15790	
	Dusmo	200	0	15790	
	Godkashiito	100	0	15790	
	Lo,dageen	100	0	15790	
	Dhoorqawaar	150	0	15790	
	Rahle	100	50	15840	
	Geelqalad	150	20	15860	
	Bannaaney	150	0	15860	
	Dabaqaas	400	0	15860	
	Iskudhoon	50	200	16060	
	Maraqasaare	200	0	16060	
	Dhaloolley		0	16060	
Bohol-garas		1500	1200	17260	15
	Tuulobannaan	600	0	17260	
	Baqbaqle	300	150	17410	
	Balley	200	50	17460	
	Xarun	150	0	17460	
	Shanle	600	200	17660	
	Diido Canaano	600	200	17860	
	Garasure/Ceelure	150	40	17900	
	Qanseyle	100	0	17900	
	Quracbuul		0	17900	
	Ceelburde	150	0	17900	
	Doonguduud	100	0	17900	
	Canjiidle	150	0	17900	
	Burqalinle	100	30	17930	16
	Cagaraar	300	150	18080	
	Sanka jeerinka	150	0	18080	
	Goobbo	200	0	18080	
	Kormaganbi	400	0	18080	
	Goryaale	300	70	18150	
Qooney		1500	800	18950	
	Raagow	150	50	19000	
	Gurguur	100	0	19000	
	Wadwaad	100	50	19050	17

	Leyloon	100	80	19130	
	Dibiro	200	0	19130	
	Abaqley		80	19210	
	Gadudo		0	19210	
	Burdacar	30	80	19290	
	Cilmi Cigaal	50	0	19290	
	Qabriga shariifka	150	0	19290	
	Cali Mataan	150	0	19290	
	Xaranka	100	0	19290	
	Guurguur		0	19290	
	Ceeldhanan	200	0	19290	
Karaban		500	1000	20290	18
	Xirsi Bile		0	20290	
	Toosifeyn	50	0	20290	
	Dhooble	100	0	20290	
	Raaxoole	50	50	20340	
	Farseerey	150	0	20340	
	Dagiiranle	50	0	20340	
	Afardhagood	250	0	20340	
	Subxaanalla	20	0	20340	
	CALI MATAAN		0	20340	
	Masiirka		0	20340	
	Qasaalow		0	20340	
	Guraan	50	0	20340	
	Washaaqo	20	0	20340	
	Warcaddey	150	0	20340	
	Dulmurux	350	100	20440	
	Gawaanley		0	20440	
	Shimbiroole		0	20440	
	Toosiley	200	0	20440	
	Hareeri-boor		0	20440	
	Lawareeg		0	20440	
	Fadhifayle		0	20440	
	Guduudo		0	20440	
	Owhorow		0	20440	
	Togtugeer		0	20440	
	Madeydeer		0	20440	
	Manaanta	550	0	20440	
	Boholdher	100	0	20440	
	Cowsweyn	100	0	20440	
	Lafmargad/Bakool	50	0	20440	
	Samasa	100	0	20440	
Dhaysiyow		1000	100	20540	
Cadaley		1100	100	20640	
	Baarkale	100	0	20640	
	Biyo cadde	50	0	20640	
	Jalab	50	0	20640	
	Walabuubow		0	20640	

Shatilow		500	300	20940	
	Weelhensanow		0	20940	
	Q/dameer		0	20940	
Garbolow		2000	500	21440	19
	Mal-malay	50	500	21940	
	Muraad-qabe		100	22040	
	Garas-duleela		0	22040	
Abow		500	400	22440	
	Aroosow	500	80	22520	20
	Shirgalool	300	0	22520	
	Kaah-wayne		0	22520	
	Jaajaanley		0	22520	
	C/kheyr	400	200	22720	
	Afmadoobe	300	80	22800	
Halbo		400	400	23200	
	Qoodhiley		0	23200	
	HILOBAAR		0	23200	
	Abaqley	100	50	23250	
	Shiidle	100	0	23250	
	Qeydar suubow	20	0	23250	
	Qasale	100	0	23250	
	SUULALLE		0	23250	
	kaneecaale	100	0	23250	
Madhawey		1500	300	23550	
	Kiri-kiri		0	23550	
	Lafoole	350	0	23550	
	TULOASHARAF		100	23650	21
	Howdey	300	150	23800	
	Malmalley		0	23800	
	Bur-libaax 1		0	23800	
Akhabul		250	0	23800	
	Qabardun	100	0	23800	
	Burjidle	0	0	23800	
	Wariiryale	1000	350	24150	
Bangare		1500	80	24230	
Cadaley bay		1500	90	24320	
	Masaara jebis		0	24320	
	Mirodhubo	200	300	24620	
Tuulo qaanjeer		250	100	24720	
	Afmadoobe		0	24720	
	Noor Cawaale	250	30	24750	
Yorkut		3000	1500	26250	22-23
Elbon		10000	8000	34250	24-30
	Dhukey		0	34250	
			34250		
	Cluster interval	1141.666667	1142		
	Random Number		772		

Appendix 7: **Random Number table generated by the Nutrisurvey programme**

Range: 1 to 1142, Number: 1142

772	560	569	869	223	317	2	197	48	1142	846	1093	768	1132	471
	555	138	72	14	190	400	498	486	118	13	829	347	180	183
	826	1017	859	835	1075	813	47	928	209	368	336	22	670	578
	703	584	1043	713	394	518	42	15	875	1108	1009	714	1097	1000
	352	1071	856	691	489	441	151	843	824	754	1032	416	659	988
	148	334	177	160	1069	21	26	586	222	399	247	1049	84	401
	291	863	120	181	666	974	1136	246	936	382	602	730	629	11
	1037	85	917	965	985	328	1036	794	107	902	240	820	96	360
	1135	996	390	616	331	634	1114	864	809	241	270	137	680	891
	755	858	333	88	908	536	207	236	921	134	884	272	798	572
	324	757	158	990	1077	588	376	519	949	93	685	998	756	1094
	945	438	913	332	314	1048	279	122	116	521	217	211	796	781
	782	1138	172	12	356	129	16	950	1076	78	242	1062	6	480
	17	504	470	580	904	150	163	170	1123	273	595	1081	408	135
	152	1058	49	392	702	1098	674	230	953	989	201	1112	839	50
	192	132	37	268	684	296	825	746	283	1015	604	663	818	219
	461	487	807	198	289	447	373	429	740	263	978	1116	961	251
	508	86	477	667	244	749	910	417	286	1023	828	420	852	73
	125	591	162	986	797	959	208	983	636	156	865	976	484	627
	108	375	1045	94	19	906	576	51	124	790	514	335	205	346
	493	10	905	1130	285	847	603	92	164	535	819	915	934	850
	111	326	1040	783	319	590	806	1065	97	185	541	1090	771	676
	121	712	310	716	465	669	633	885	612	238	639	450	886	245
	675	446	306	224	483	1073	69	728	126	271	91	695	409	620
	927	795	440	892	297	472	571	99	766	645	745	811	448	619
	35	507	587	696	647	1060	100	227	575	1054	25	1068	1027	458
	265	561	1105	944	70	1029	778	1011	188	305	117	1072	741	24
	981	276	1099	753	517	513	1139	165	1070	280	919	505	559	260
	496	601	547	460	607	570	537	736	732	220	836	292	972	385
	966	1095	234	301	90	1066	565	453	371	123	147	550	640	812
	9	842	442	191	877	762	1016	235	491	79	1022	109	405	761
	187	582	225	248	354	431	199	765	935	532	862	992	3	964
	358	176	103	822	1057	933	61	131	59	963	41	1050	82	340
	393	345	801	1087	254	554	119	1129	213	776	709	800	467	652
	128	311	897	567	468	34	1110	581	253	598	1061	853	599	81
	71	880	243	428	621	237	1111	894	574	459	27	266	937	1119
	110	815	1052	617	481	916	596	793	451	579	77	837	564	500
	23	999	721	907	497	769	127	206	355	216	136	407	1109	218
	20	1012	851	1096	810	874	495	214	542	362	62	1055	1092	834
	464	488	293	951	925	231	377	343	618	867	167	658	982	682
	157	788	1113	32	46	814	5	1134	774	386	693	789	879	403
	43	449	873	83	221	1004	930	952	1101	979	249	734	767	413
	821	991	557	733	780	1018	717	1118	68	954	889	1122	638	308
	184	261	923	1100	1035	145	738	665	275	159	341	844	748	654
	1137	173	975	861	338	1021	622	583	307	466	463	475	102	692
	694	1019	1067	130	955	302	833	750	848	115	946	457	56	74
	391	631	997	28	315	364	724	490	418	926	57	845	597	673
	895	269	327	40	256	718	899	731	1103	922	329	421	1025	1086
	194	67	623	941	804	232	485	411	53	715	530	838	1141	396
	370	313	726	323	708	1034	646	45	348	920	1088	710	95	140
	651	1127	353	881	544	1038	469	785	7	113	911	656	182	660
	436	196	1002	520	193	799	330	688	868	1117	585	476	970	516
	304	849	770	380	984	546	325	531	648	763	563	422	1028	657
	735	779	802	687	389	943	855	649	30	643	412	294	747	705
	706	36	551	1003	630	31	995	372	939	494	397	525	75	637
	625	593	737	942	912	154	359	456	759	282	179	901	719	432
	786	278	133	527	641	608	239	701	683	962	139	600	689	878
	298	698	841	437	378	277	144	967	478	510	114	1044	321	141

482	1124	1063	871	650	1133	200	284	98	605	112	434	739	174
430	538	784	1006	66	1078	509	474	379	1	1010	351	267	686
545	511	1107	374	1064	777	1013	1128	697	526	342	203	987	699
76	1053	320	168	729	672	840	947	384	1083	831	202	212	653
501	832	404	155	1059	195	893	89	890	533	534	655	1082	704
258	1005	4	1014	968	644	817	615	462	299	558	528	44	60
395	189	410	1026	614	635	350	161	515	316	1074	8	361	169
1115	452	204	363	1079	106	1085	677	233	1089	1051	445	857	259
54	1047	929	529	388	758	55	760	339	18	492	969	540	402
548	543	1039	287	1125	876	424	1007	628	524	257	281	552	642
29	866	931	887	415	722	1008	1041	383	398	816	52	613	977
711	566	1056	577	406	322	349	414	252	568	344	1024	1020	743
295	678	1046	764	720	700	808	932	854	143	473	80	918	367
381	312	690	830	210	751	882	671	956	609	229	309	900	33
549	624	792	556	522	146	443	870	439	523	427	300	589	87
425	435	255	357	1042	1091	909	264	632	64	903	337	503	1030
562	38	365	914	105	594	898	971	186	288	940	823	993	502
775	888	455	228	153	303	387	626	101	142	65	872	973	250
512	226	1033	948	506	369	938	1121	860	980	958	1084	318	149
262	1031	883	444	366	592	994	960	104	727	1104	454	58	171
39	742	499	723	664	803	1131	573	479	1001	611	290	610	668
1126	433	606	805	662	426	791	924	1120	827	274	1080	63	752
679	1106	1102	707	423	539	166	896	744	175	787	681	661	215
178	1140	725	957	553	773	419							

Appendix 8: LUUQ DISTRICT 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 _____

Q1-11 Characteristics of Household

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 What is the livelihood systems used by this household? 1= Pump irrigated commercial crop production 2= Pastoral 3=Riverine rainfed 4= Agro- pastoral 5= Business 6=Other (specify) _____
Q9 What is the total size of the land cultivated (ha) _____
Q10 How many cattle does household own (ha) _____
Q11 How many shoats does the household own (number) _____
Q12a:When your child is sick , do you seek assistance 1= Yes 2= No
Q12b: If yes in Q12a, where do you seek assistance: 1= traditional healer 2= private clinic/ Pharmacy 3= Public health facility

Q13-17 Anthropometry for children aged 6 – 59 months (or 65 – 110cm) in the household

Serial No	Name	Q13 Sex *(F/M)*	Q14 Age in months	Q15 Oedema *(Yes/No)*	Q16 Height (cm)	Q17 Weight (kg)	Q18 MUAC (cm)
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 breastfed*	**Q27** At what age was child given water/ 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	**Q29** How many times has the child ever been given polio vaccine orally 1=1-2 times 2=3 and above 3=Never
1												
2												
3												

Q29b:Does any member of the household have difficult seeing at night or in the evening when other people do not? 1=Yes 2=No
Q29c: If yes, specify member: 1= <5 years 2= ≥ 5 years

Q30 Consumption Coping Strategies

In the past 30 days, if there have been times when you did not have enough food or money to buy food, how often has your household had to:	Relative Frequency				
	Never 0*/week	Hardly at all? <1 */ week	Once in a while? 1-2 */week	Pretty often? 3-6 */week	All the time? Every day
a. Switch from high quality to low quality less expensive foods?					
b. Borrow food, or rely on help from a friend or relative?					
c. Purchase food on credit?					
d. Gather wild food, hunt, or harvest immature crops?					
e. Consume seed stock held for next season?					
f. Send household members to eat elsewhere?					
g. Send household members to beg?					
h. Limit portion size at mealtimes?					
i. Restrict consumption of adults in order for small children to eat?					
j. Feed working members of HH at the expense of non-working members					
k. Reduce number of meals eaten in a day?					
l. Skip entire days without eating?					
m. Deplete assets to get food, i.e. sell land, jewelry, etc)					

Q 31 Consumption Diversity

Twenty four-hour recall for food consumption in the households: The interviewers should establish whether the previous day was usual or normal for the households. If unusual- feasts, funerals or most members absent, then another day should be selected or alternatively choose on another household.

Food consumption and source of food, source of income for food purchases What members of this household consumed these foods in the last 24 hours?	Beginning yesterday when people woke up, did any of these members in your household consume these foods. **1=Yes 0=No**	Codes: **0**=none **1**= once **2**= twice **3**=3 times **4**=4 times **5**=5 or more times	
Type of food		**Frequency (<5yrs)**	**Frequency-adults**
a) Cereals/staples (rice, wheat, pasta, sorghum, maize)			
b) Beans and other pulses/legumes			
c) Dairy and dairy products (milk)			
d)Fish/ sea foods, eggs, meat/offal			
e) Sugar in tea and others			
f) Fats/oils/ghee			
g) Roots and tubers			
h) Fruits			
i) Vegetables			
j) Beverages, spices & other products			
Number of food groups			

Food grouping system of dietary assessment

Food groups (and the score)	**Food before morning meal**	**B/fast/morning meal**	**Meal btn morning & midday/Lunch**	**Mid-day meal/ Lunch**	**Between midday & evening meal**	**Evening meal/dinner**	**Meal after dinner**
Vegetables, fruits, juices, beverages, oil, sugar, butter, jam, tomato, sauce, condensed milk **(1)**							

Cereals, tubers, bread, spaghetti, cookies, cakes **(2)**							
Beans, groundnuts, coconuts, other nuts **(3)**							
Meats, fish, shellfish, eggs, fluid milk, cheese, yoghurt, **(4)**							

Q32-37 Access to water (quality and quantity)

Q32 Main source of drinking water 1 = piped 2 = public tap 3 = Tube well/borehole 4= protected well or spring 5 = Rain water 6= unprotect spring and well 7= river 8= other

Q33 Main source of water for cooking and personal hygiene 1 = piped 2 = public tap 3 = Tube well/borehole 4= protected well or spring 5 = Rain water 6= unprotect spring and well 7= river 8= other

Q34 Average household water use per day per person for drinking, cooking and personal hygiene is 1= 0-2 litres 2 = 3 – 5 litres 3 = 6-10 litres 4= 11-15 litres 5= more than 15 litres

Q35 Distance to the nearest water point 1= 0-250 metres 2 = 251 – 500 metres 3= 501 – 750 metres 4 = 751 – 1000 metres 5 = more than 1000 metres

Q36 Water and systems are maintained such that quantities of water are available 1 = never 2 = sometimes 3 = almost always 4= always

Q37 Number of clean water collecting containers of 10-20 litres 1= 1-2 containers 2 = 3-4 containers 3 = 4-5 containers 4= more than 5 containers

Q38-42 Sanitation and Hygiene (access and quality)

Q38 Type of toilet used by most members of the household: 1=Improved pit latrine 2 = Traditional pit latrine 3 =Open pit 4 = Bucket 5= Bush 6= Others (specify)_____

Q39 Number of people who use the same toilet 1= 1-5 people 2= 6-10 people 3 = 11-15 4= 16 – 20 people 5= more than 20 people

Q40 Household members wash their hands after defecation 1= always 2= often 3=sometimes 4= hardly rarely

Q41 Household members wash their hands before eating or food preparation 1= always 2= often 3=sometimes 4= hardly rarely

Q42 Distance between toilet and water source 1 = 0 – 5 metres 2= 6 – 10 metres 3= 11- 20 metres 4= 21 - 29 metres 5= 30 metres or more

Q43 - 44 Formal and Informal Support or Assistance in last three months (circle all options that apply)

Q43 Informal support received in last three months *1= Yes 2=No*

Q43a Amount and Frequency of each

Type of support	**Frequency**	**Amount (Where applicable)**
1=Zakat from better-off households		
2=Remittances from Abroad		
3=Remittances from within Somalia		
4=Gifts		
5=loans		
9=Other (Specify) _____		

Q44 Formal international or national aid support received in last three months *1= Yes 2=No*

Q44a Amount and Frequency of each

Type of support	**Frequency**	**Amount (Where applicable)**
1= Free cash		
2=free food		
3=cash for work		
4=food for work		
5=supplementary food		
6=water subsidy		
7 transportation of animals subsidy		
8=veterinary care		
9=Other (Specify) _____		

LUUQ NUTRITION SURVEY QUESTIONNAIRE –Oct. 2004

Taariikh_____ Nambarka kooxda_____ __Nambarka goobta_____ Magaca Kormeeraha_____ Magaca tuulada/magaalada_____ _____
Magaca xaafadda_____ Nambarka qoyska_____ Magaca madaxa qoyska _____

S1-11 Astaamaha Qoyska
S1 Jinsiga madaxa qoyska 1= Lab 2= Dhedig
S2 Tirada Qoyska _____
S3 Tirada caruurta ka yar shan sano _____

S4 Xaalada deegaan ee qoyska (Goobo geli Jawaab keliya) 1= Deegaan 2 = Soo Barakacay 3 =Dib u soo noqday 4 = Jawaab kale _____
Haddii Jawaabta su'aasha 4aad ay noqoto (1), u gudub su'aasha 8aad.
S5 Meesha uu markii hore ka yimid _____
S6 Mudada uu halkan Joogay (Bil ahaan u qor) _____
S7 Sababta uu u soo guuray 1= Nabadgelyo xumo 2 = Shaqo la'aan 3 = Cunto yaraan 4 = Biyo yaraan 5 = Jawaab kale _____
S8 Waa Maxay qaab nololeedka ugu badan ee qoskani: 1= Beer waraab oo ganacsi (matoor) 2= Reer Guuraa 3. beer wabiyeed roob ku bax 4= Reer Guuraa iyo Beeraleey 5= ganacsi 6= Jawaab kale
S9 waa immisa baaxadda dhulka aad beerato _____

S10 waa immisa tirade lo'da aad`haysato

S11 waa immisa tirada ariga (Ido iyo Riyo) ee qoyskani leeyahay

S12. a: Ma raadsataa kaalmo caafimaad markuu cunug kaa jiran yahay 1= Haa 2= Maya
12b hadii ay haa tahay Xaggee: 1= dhaqtar dhaqameed 2= rug caafimaad gaar ah/farmashiye 3= Rug caafimaad dadweyne

S13-18 Miisaamidda iyo dhererinta ilmaha da'dooda u dhexeyso 6 – 59 bilood (ama 65 – 110cm) ee qoyska

Tirada Taxan	Magac	S13 Jinsi *(L/Dh)*	S14 Da'da oo bilo ah	S15 Barar *(Haa/Maya)*	S16 Dherer (cm)	S17 Miisaan (kg)	S18 Cudud Cabir (cm)
1							
2							
3							

S19-29: cudurada, quudinta iyo Tallaalka ee caruurta 6 – 59 bilood (ama 65 – 110cm).

NR	Magac	S19: **Shuban labadii sitimaan ee la soo dhaafay** 1= Haa 2= Maya	S20 Oofwareen (burukiito) labadii sitimaan ee la soo dhaafay 1= Haa 2= Maya	S21 Duumo labadii sitimaan e la soo dhaafay 1=Haa **2=Maya**	S22 Jadeeco Bishii la soo dhaafay 1= Haa **2= Maya**	S23**Laga tallaalay jadeecada** 1=lixdii bilood ee la soo dhaafay gudahood (Kaar) 2=lixdii bilood ee la soo dhaafay gudahood (Xusuus) 3=Lix bilood ka hor (Kaar) 4=Lix bilood ka hor (Xusuus) 5=Lama tallaalin	**S24** Lixdii bilood ee la soo dhaafay gudahood 1= Haa 2= Maya	**S25** Cunuga ma nuujineysaa hadda 1= Haa **2= Maya**	**S26** Haddii hadda aadan naaska nuujin, imisa jir buu ahaa marka aad ka joojisay 1=lix bilood ka yar 2= 6 – 11 bilood 3= 12 – 18 bilood 4= 18 bilood ama ka badan 5= Lama naasnuujin	**S27** Imisa jir buu ahaa cunuga markii la siiyay biyo/cuntadii ugu horeysay ee aan aheyn caanaha naaska 1= 0-3 bil 2= 4-6 bil 3= 7 bil ama ka badan .	S28 Imisa jeer baad quudisaa cunuga maalintii 1= hal jeer 2 = laba jeer 3 = 3 – 4 jeer 4 = 5 jeer ama in ka badan	**S29** Imisa jeer ayaa afka laga siyey Talalka dabeysha weligiis. 1= 1-2 jer 2 = 3& ka badan 3 = Lama siin weligiis.
1												
2												
3												

S29b Ma jiraa xubin (xubno) qoyska ka mid ah dhibaato xagga aragtida ah qaba habeenkii ama fiidkii, taas oo xubnaha kale aysan la wadaagin ? *1= Haa* *2= Maya*
S29c Hadday **S29b** haa tahay, Caddee *1= < 5 Sano* *2 = > 5 ano*

Q30 Consumption Coping Strategies

30kii maalmood ee tegay marka aadan haysan cunto kugu filan ama lacag aad ku iibsato sidee baad badanaa yeeli jirtey ?	**Relative Frequency**				
	Never 0*/week	Hardly at all? <1 */ week	Once in a while? 1-2 */week	Pretty often? 3-6 */week	All the time? Every day
a) Ka wareegid cuntada tayada sare leh, u leexasho mid leh tayo hoose oo ka jaban?					
b) Deynsasho cunto ama ku tiirsanaan caawinaad ka timaada saaxiib ama qaraabo?					
c) Ku soo gadataa cuntada deyn?					
d) Soo gurasho cuntada duurka laga helo, ugaarsi ama soo gurasho dalagga oo aan bislaan?					
e) Isticmaalid (Cunid) abuurkii loogu tala galey fasalka soo socda ?					
f) U dirid xubno qoyska ka tirsan inay meel kale ka soo cunteeyaan?					
g) U dirid xubno qoyska ah tuugsi?					
h) Yareyn xaddigii la cuni jirey gellinkiiba (saddexda waqtiba)?					
i) Yareyn cuntada la siiyo qaangaarka si carruurta yar yar u helaan waxay cunaan?					
j) Sii waxay cunaan xubnaha shaqeeya ee qoyska ayadoon wax la siinayn kuwaan shaqeyn?					
k) Dhimid inta jeer ee aad maalinkii wax cuntaan?					
l) Iska joogid cunto la'aan maalmo idil?					
m) Dhameysasho hantidaada si aad cunto u hesho sida dhulkaada ood iibsato, dahabkaaga IWM?					

O 31 consumption index:

Cuntada la cunay iyo isha ka soo jeeddo, isha dakhliga cuntada lagu soo gadday ka timaado? Maxay xubnaha qoyskan cuneen 24 kii saac ee la soo dhaafay	laga soo bilaabo shalay maxay xubnaha qoyskani ka cuneen cuntooyinkan 1=Haa, 2=Maya	Code: **0**=waxba **1=** hal mar **2=** laba goor **3**=3 goor **4**=4 goor **5**=5 goor iyo ka badan	
Noocyada Cuntada		**Frequency (<5yrs)**	**Frequency adults**
a) Firiley/Cuntada rigliga ah (Bariis, Qamadi, Baasto, Mesago, Galley)			
b) Noocyada digiraha iyo salbukada			
c) Caanaha iyo waxa laga soo saaro			
d) Hilib, Kaluun iyo Ukun			
e) Sonkorta lagu daray shaaha iyo cuntada kale			
f) Dufan/Saliid/Subag			
g) Dhirta Xididkeeda iyo Buruqdeeda la cuno (Baradhada, bataati Macaanka IWM)			
h) Fruits (bombelmo, Cambe, babaay IWM)			
i) Khudaarta Cagaaran			
j) Cabitaano iyo walxaha cuntada udgiya			
Kala duwanaanshaha/ Noocyada kala gedisan ee cuntada			

Q31b. Food grouping system of dietary assessment

Food groups (and the score)	Cunto Quraacda ka hore	Quraac	Cunto u dhexeysa Quraac iyo Qado	Qado	Cunto u dhexeysa Qado iyo Casho	Casho	Cunto Cashada kadib
Qudaarta cagaaran, qudaar, cabitaan, cabitaan qabow/kuleyl, saliid, sonkor, butter, jam, yaanyo, yaanyo shiidan, **(1)**							
Firiley/masago, bataati macaan/bataati, rooti, baasto, doolsho/buskud **(2)**							
Digir, loos, qumbe, kuwa kale **(3)**							
Hilib, kaluun/malaay, ukun, caano, cheese, garoor, **(4)**							

S32-37 Helitaanka Biyaha (Tayada iyo Tirada)

S32 Isha ugu badan ee laga helo Biyaha la cabo 1) pipe lagu keenay 2) Tubo 3) Ceel riig ah (matoor leh) 4) Ceel daboolan 5) Biyaha roobka 6) war iyo ceel aan daboolnayn 7) Webi 8) meelo kale ,Caddee, _____

S33 halka ugu badan ay ka yimaadaan biyaha wax lagu karsado ama la isku nadifiyo 1)pipe lagu keenay 2) Tubo 3) Ceel riig ah 4) Ceel daboolan 5) Biyaha roobka 6) war iyo ceel aan daboolnayn 7) Webi 8) meelo kale ,Caddee, _____

S34 Celceliska biyaha xubin qoyska ah uu u isticmaalo Karin iyo nadaafadda jirka waa 1= 0-2 litir 2 = 3 – 5 litir 3 = 6-10 litir 4= 11-15 litir 5= Ka badan 15 litir

S35 Fogaanta isha biyo ee ugu dhaw 1= 0-250 mitir 2= 251-500 mitir 3= 501-750 mitir 4= 751-1000 mitir 5= ka badan 1000 mitir

S36 Biyaha iyo habka lagu helaba waa la ilaaliyey sidaa darteed cadadkii loo baahnaa waa diyaar 1= Marnaba 2= Marmar 3= ugu dhawaan had iyo goor 4= Had iyo goor

S37 Tirada Caagaga biyaha lagu aroorto (10-20 litres) ee qoyskan waa 1=1-2 2= 3-4 3= 4-5 5= ka badan 5 caag

S38- 42: Nadaafadda iyo Fayadhawrka

S38 Nooca musqusha ay inta badan xubnaha qoysku isticmaalaan waa 1= Nooca biyaha la raaciyo 2= Musqusha godka ah oo la sii hagaajiyey 3= Musqusha Godka ah 4= Musqul God oo dusha ka furan 5= Noocyo kale, Caddee _____

S39 Tirada dadka isticmaala isku hal musqul 1= 1-5 qof 2= 6-10 qof 3= 11-15 qof 4= 16-20 qof 5= ka badan 20 qof

S40 sidee bay xubnaha qoysku gacmaha u dhaqdaan Musqusha ka dib 1= Had iyo goor 2= Badanaa 3= Marmar 4= Si dhifdhif ah

S41 Sidee bay xubnaha qoysku u dhaqdaan gacmaha cuntada ka hor ama markay diyaarinayaan cuntada 1= Had iyo goor 2= Badanaa 3= Marmar 4= Si dhifdhif ah

S42 Fogaanta u dhaxeysa Musqusha iyo Isha Biyaha 1= 0-5 mitir 2= 6-10 mitir 3= 11-20 mitir 4= 21-29 mitir 5= 30 mitir iyo ka badan

Q43 -44 Taageerada toosan iyo midda dadban ee qoysku helay 3dii bilood ee la soo dhaafey (goobo geli dhamaan doorashooyinka ku habboon)

Q43 Kaalmo dadban (aan rasmi ahayn) ma helay qoyskan 3dii bilood ee la soo dhaafey? *1= Haa 2=Maya*

Q43a Cadadka iyo Inta jeer

Nooca kaalmada	Inta goor	Cadadka (xaddiga) (Markey ku haboon tahay)
1=Zako ka timaado qoysaska ladan		
2=Xawaalad dibadda ka timaadda		
3=Xawaalad ka timaadda wadanka gudihiisa		

4=Deeq		
5=Amaah		
9=Wax kale, _____		

Q44 Kaalmo rasmi ah oo caalami ah ama waddaniyadeed 3dii bilood ee u dambeeyey *1= Haa 2=Maya*

Q44a Caddadka iyo inta goor mid walba.

Nooca Kaalmada	**Inta goor**	**Cadadka (Xaddiga)**
1= Lacag bilaash aad ku heshay		
2=Cunto bilaash lagugu siiyey		
3=Lacag aad shaqo ku badalatey (Cash for work)		
4=Cunto aad shaqo ku badalatey (food for work)		
5=Cunto kabid ahaan laguu siiyey (suppl.Food)		
6=Biyo laguu siiyey kabid ahaan (subsidy water)		
7= xoolo laguu siiyey gaadiid ceshi		
8=Kaalmo xanaanada xoolaha (veterinaty) aad heshay		
9=Kale, caddee _____		