NUTRITION ASSESSMENT REPORT

MIDDLE AND LOWER SHABELLE IDPs, AGROPASTORAL AND RIVERINE LIVELIHOOD SYSTEMS

SHABELLE VALLEY REGIONS, SOMALIA

Food Security Analysis Unit (FSAU/FAO)
United Nation Children Funds (UNICEF)

May 2008

FSAU

emergency relief and rehabilitation
MEDAIR International

unicef
United Nations Children's Fund

Table of Contents

Acknowledgement

The FSAU acknowledges the participation of UNICEF, WFP, Medair, COSV, CARE, Mercy USA, INTERSOS, SRCS, Muslim Aid, SACIID, TRG, ZAMZAM, SHAWO and New Ways in the nutrition assessments. FSAU provided one assessment coordinator and three supervisors; led in the training of the assessment team, coordinated data collection, entry and analysis; funded the personnel expenses for the local NGOs, questionnaires and stationery; and produced the report. UNICEF funded assessment vehicles and provided the anthropometric equipment. WFP provided one supervisor and one vehicle. Medair and its local partner, SACIID provided vehicles, supervisors, nurses and enumerators for the Assessment. COSV, CARE, Mercy USA, INTERSOS, SRCS, Muslim Aid, TRG, ZAMZAM, SHAWO and New Ways all participated in the assessments by providing some of the supervisors, team leaders, nurses and/or enumerators. The contribution of the local authorities for ensuring the survey teams security during the fieldwork is gratefully appreciated.

The data could not have been obtained without the co-operation and support of the communities assessed, especially the mothers and caregivers who took time off their busy schedules to respond to the interviewers. Their involvement is highly appreciated.

FSAU also expresses their sincere appreciation to the entire assessment team for the high level of commitment and diligence demonstrated during all stages of the assessment.

EXECUTIVE SUMMARY

Lower and Middle Shabelle regions are amongst the most highly populated regions in Southern Somalia, with over 1.2 million persons in twelve districts (UNDP 2005 population figures). The regions support a total of seven livelihood zones namely Central Regions Agropastoral, Shabelle Riverine, Southern Agropastoral, Southern Inland Pastoral, Lower and Middle Shabelle Agropastoral Rainfed, Lower and Middle Shabelle Irrigated and South East Pastoral. The Riverine and Agro pastoral livelihood zones are dominant (*See Map 1*).

Shabelle has experienced multiple shocks and intense armed conflict for the last two years with devastating effects on trade disruptions, massive displacement, crop failure, hyper inflation, labor earnings and education. The renewed armed conflict and civil insecurity in Mogadishu before and during the assessment has resulted in waves of population displacements and influx of over 300,000 internally displaced populations (IDPs) in the Afgoye corridor and in Merka (UNHCR figures, May 2008) in addition to the existing settlement which have been established since the first wave of displacement in February 2007.

Between 22nd and 31st May 2008, FSAU and partners[1] conducted inter-agency nutrition assessments in IDPs, Agropastoral and Riverine Livelihood Zones in Middle and Lower Shabelle Regions in Southeast Somalia. This was in response to the need to determine the levels of acute malnutrition for the different livelihoods and to inform on the intervention responses for the region following a series of shocks that include four consecutive seasons of below normal cereal production, loss of food stocks from the Deyr'07/08 floods, deterioration in civil security and massive displacements that led to critical nutrition levels in an earlier assessment in November 2007. The main objective of the survey was to determine the level of wasting among children aged 6-59 months and analyze the possible factors contributing to malnutrition, such as dietary diversity, morbidity, care practices and assess the mortality rates in the specific livelihood systems in the regions.

Using a two-stage PPS sampling methodology, 26, 30 and 28 clusters were selected for both anthropometric and mortality assessments from the IDPs settlements, Agro pastoral and riverine livelihoods respectively, with corresponding 30 households, 25 households and 24 households assessed. A total of 2219 children (783 from IDPs, 754 from agro pastoral and 682 from riverine livelihoods) aged 6-59 months and with height of 65-109.9 cm were assessed from 404; 445 and 394 households respectively.

Results indicate that the nutrition situation is serious-critical and remains at or close to emergency threshold levels (>15%), without any statistically significant change from levels reported in November 2007. The retrospective crude mortality rates (CMR) are similar to the November '07 studies, indicating ***Serious*** levels in two of the three assessments (Table 1.1).

Shabelle IDPs in Afgoye corridor and Merka reported a GAM rate (weight for height <-2 Z score or oedema) of **15.0%** (11.5-18.4%) and a SAM rate (weight for height <-3 Z score or oedema) of **1.0%** (0.2-1.8) with four (0.5%; CI: 0.0-1.0) cases of oedema reported. This is a significant reduction in the proportion of severely malnourished children from the **3.2%** (1.9-4.5) reported in November 2007, but no change in GAM from the previous rates of **15.2%** (11.7-18.6%). The improvement in SAM rates is mainly likely due to selective feeding interventions provided among the IDP population, which also explains why further deterioration in GAM has not been experienced with sustained ***Critical*** levels of acute malnutrition levels. In addition, the respective Crude and under five year mortality rates of **0.96** (0.12-1.81) and **1.47** (0.96-1.99) among the IDPS were below the emergency threshold levels of *1/10,000/day* and *2/10,000/day* indicating an *alert* situation according to WHO classification and a slight improvement from CMR of **1.45** (0.97-1.93) and U5MR of **2.95** (1.55-4.34) reported in November 2007.

[1] UNICEF, WFP, Medair??, COSV, CARE, Mercy USA, INTERSOS, ZAMZAM, TRG, SACIID, SRCS, Muslim Aid, TRG, SHAWO and New Ways

Shabelle Agropastoral reported a GAM rate of **18.1%** (CI: 14.4-21.8) and a SAM of **3.5%** (CI: 1.7-5.3) including seven (0.9%: CI: 0.3-1.6) oedema cases. These results indicate a sustained ***Critical*** level of acute malnutrition from November 2007 assessment, where a GAM rate of **17.6%** (13.3-21.8) and a SAM rate of **4.5%** (2.5-6.6) including four (0.4%) oedema cases were reported.

Shabelle Riverine reported a global acute malnutrition (GAM) rate of **13.7%** (CI: 9.6-17.7) and Severe Acute Malnutrition (SAM) rate of **3.8%** (CI: 1.8-5.9) including two (0.3%; CI: 0.0-0.9) oedema cases, again indicating no significant change from the November 2007 assessment when a GAM rate of 14.0% (11.2 – 16.7) and SAM rate of 2.9% (1.6 – 4.1) including seven (0.8%) oedema cases. Although these results appear lower than the rates reported among the riverine population assessed in May of when a GAM rate of 17% (13.4-20.0) and SAM rate of 4.8% (3.0-6.7) were recorded, the change is not statistically significant. The Crude and under five year mortality rates of **0.96** (CI: 0.12-1.81) and **1.47** (CI: 0.96-1.99) were reported respectively. These levels were below the emergency threshold levels of *1/10,000/day* and *2/10,000/day* indicating *acceptable* situation (WHO standards).

High morbidity rates in Shabelle regions continue to compromise the nutrition situation of the populations. More than half (64.4%; 63.0% and 54.8%) of children had reportedly suffered from one or more communicable childhood diseases in the two weeks prior to the assessment in the IDPs, Agropastoral and Riverine livelihoods respectively. The incidence of reported diarrhoea in IDPs, Agropastoral and Riverine populations (23.5%; 33.4% and 25.5% respectively) in the two weeks prior to the assessment remained high. High incidences of ARI (36.1%, 41% and 23% respectively) and febrile illnesses (25.8%, 25.1% and 20.1% respectively) were also reported in the three livelihoods. These levels were consistent with seasonal morbidity patterns recorded from the health facilities. Rapid Diagnostic Tests (RDT) conducted for malaria however reported low (<5%) prevalence rates of 3.1% (N=1315), 0.6% (N=1503) and 2.1% (N=1411) positive for *Plasmodium falciparum* respectively. Analysis continues to show strong significant association between acute malnutrition and morbidity rates. Children who had been ill within two weeks prior to the assessment were more likely to be acutely malnourished ($p<0.05$). For example, in the Agropastoral livelihood, children who had fallen ill were nearly 1.5 times more likely to be acutely malnourished than those who were well (RR=1.45; CI: 1.01-2.11).

Poor feeding practices persist in Shabelle regions like in other parts of Somalia contributing to the levels of acute malnutrition especially among the assessed breastfeeding age (6-24 months). For instance less than two thirds of the children aged 6-24 months were breastfeding at the time of the assessment and more than 95% were introduced prematurely to complementary foods, over 75% within the first three months of birth. Analysis of distribution of acute malnutrition between the different age groups showed higher risks and levels of association with acute malnutrition for the younger children. Among the IDPs, the breastfeeding age group 6-24 months were 2.3 times more likely to be acutely malnourished than the 25-59 months category (RR=2.25; CI: 1.54 – 3.27). Among the Agro-pastoral population, those aged 6-24 months were 1.5 times more likely to be acutely malnourished than their 25-59 months aged counterparts (RR=1.50; CI: 1.01 – 2.23) and among the riverine population, the relative risk to acute malnutrition among the breastfeeding age bracket was 2.28 (CI: 1.60-3.25).

Low coverage of health programmes are important risk factors to the poor nutrition situation in Shabelle regions. Measles vaccination status (by recall) for eligible children (9-59 months old) was low at only 42.2% as was coverage, and so was vitamin A supplementation (40.6%), by recall, in the assessed agropastoral population. Among the assessed IDP population, measles immunization and Vitamin A supplementation status were 63.5% and 54.2% respectively and at 61.7% and 62.9% respectively in the riverine population. Between 76-91% of all the assessed children had reportedly been immunized against polio in the previous 6 months. Overall, coverage for all the health programmes fell below the recommended 95% level (Sphere, 2004) in all the three livelihoods.

The food security and nutrition situation remains precarious in L & M Shabelle regions and is worse in L.

Shabelle. Poor *Gu* and *Hagaa'08* rainfall, late planting (off-season) in the riverine and coastal areas, and high cost of farm inputs, crop production was below normal (5450 MT i.e. 68% of Gu'07 and 33% of *Gu* PWA) in Middle Shabelle. Lower Shabelle however received better returns producing 63292 MT (232% of Gu 07 and 99% of *Gu* PWA) production. Walanweyne district especially received good rains and had a good sorghum harvest. The poor water availability has forced the animals to move from Middle Shabelle and Hiran areas downwards to L. Shabelle areas of Brava and Sablale. The body conditions are still good for all the animals except cattle, but milk production is generally below normal[2]. Most villages in Middle Shabelle and the IDPs had received food aid in mid May, and so they had improved dietary diversity, In addition the riverine population has better access to fruits and vegetables (bananas, mangoes, grapes, tomatoes and onions which are seasonal) consumption. Overall, 7-23% of the households still consumed less diversified diets in the 24 hours prior to the assessment. The main source of household food is purchases and food aid. Income for food and non-food income purchases is mainly derived from casual farm labour; charcoal burning; petty trade for instance sale of fruits. Most (70-81%) households take only two meals a day. Some households engage in harvesting, consumption and sale of bush products, firewood and fodder and to some extent sale of relief food share in exchange for other essential items.

Access to clean water for drinking and for domestic use remained limited and is a key concern in the study area. Majority of the agropastoral (62.7%) and riverine (68.3%) population accessed water from unprotected surface sources like river, canals, shallow wells and water catchments. About 76% of the assessed households in the agropastoral and riverine livelihoods in addition to 25% of IDP households do not have access to clean water. However, well sinking and water trucking interventions improved access to clean water (75%) in the IDP settlements.

Overall, insecurity, unemployment, stressed livelihoods, poor child feeding, poor access to water and sanitation and poor access to health services remain the main underlying causes of malnutrition in Shabelle regions. Feeding practices for children are persistently poor, preventable diseases are prevalent and access to maternal and child care is suboptimal in the region. The critical and poor nutrition, health and food security situation in Shabelle calls for continued intervention efforts to address both immediate life saving needs in addition to developing longer term strategies to enhance the provision of basic services, sustainable strategies for livelihood support and social protection mechanisms. Specific recommendations include:

Immediate Interventions

- Improving coverage for health programmes, especially for measles vaccination and vitamin A supplementation. Vigorous campaigns are required in the Shabelle regions especially among the agropastoral and riverine communities.
- Rehabilitation of acutely malnourished children through selective feeding programs and active case finding until household food security is restored and critical public health issues are addressed. All options to address this through effective and non-damaging measures need to be considered. Capacity building of the existing health facilities and the community to manage malnourished children could be explored.
- There is need to focus on programmes that improve and sustain dietary diversity and consumption of micronutrient rich foods. Food distribution for pulses and micronutrient enriched oil could help improve dietary diversity especially among the IDPs.
- Intervention programmes on water, sanitation and hygiene practices including health education.

[2] FSAU Post Gu Assessment, July 2008

Long term Interventions

- Rehabilitation/protection of water systems including the well and water catchments (such as capping of wells) in anticipation of seasonal flooding. The community should be trained on sanitation of the water systems
- There is need for establishment or strengthening of health facilities and satellite services especially in rural villages where there are no health facilities
- Intensifying health and nutrition education activities at the household level to address care concerns, targeting mothers, and other caregivers. The main areas of focus should include promoting exclusive breastfeeding, appropriate young child feeding, diet diversification, and improvements in household hygiene including health care practices.
- Peace building and conflict resolution remain the most crucial factors for the restoring and sustaining livelihoods in the Shabelle regions and Somalia as a whole, including returning of the displaced persons back to their homes. Efforts being made within and outside the Shabelle region to this effect are greatly encouraged.

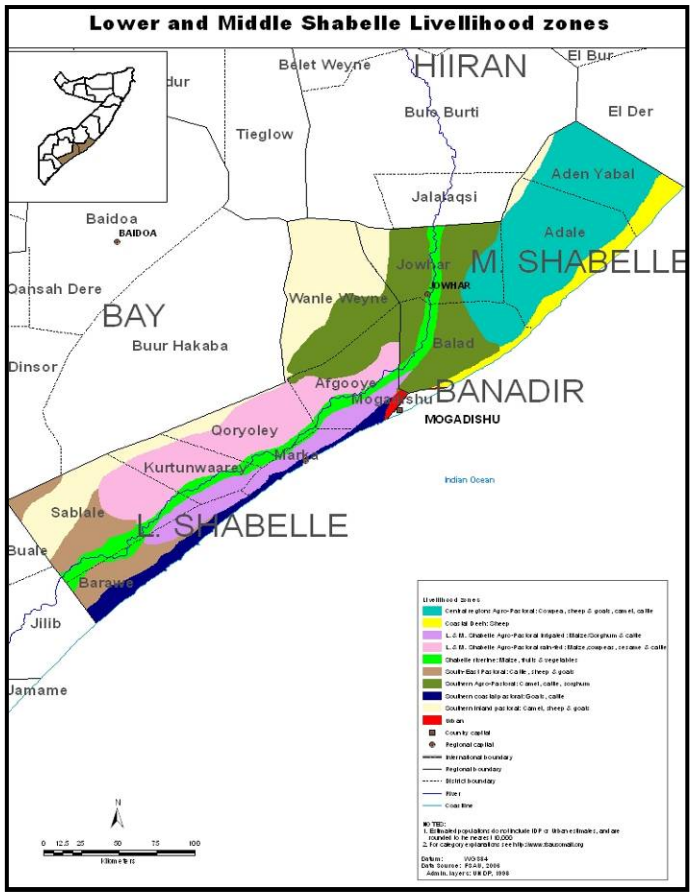
Table 1.1 SUMMARY OF THE SHABELLE ASSESSMENT FINDINGS

	IDPs		Agropastoral		Riverine	
Indicator	N	%	N	%	N	%
Total number of households surveyed	404	100	445	100	394	100
Mean household size	6.8	SD=2.9	6.1	SD=2.4	5.8	SD=2.0
Total number of children assessed	783	100	754	100	628	100
Child sex: Males (boys)	406	51.9	381	50.5	353	51.8
Females (girls)	377	48.1	373	49.5	329	48.2
Global Acute Malnutrition (WHZ<-2 or oedema)	117	**15.0** (11.5 – 18.4)	135	**18.1** (14.4 – 21.8)	93	**13.7** (9.6 – 17.7)
Severe Acute Malnutrition (WHZ<-3 or oedema)	7	**1.0** (0.2 – 1.8)	26	**3.5** (1.7 - 5.3	26	**3.8** (1.8 – 5.9)
Oedema	4	**0.5** (0.0 – 1.0)	7	**0.9** (0.3 – 1.6)	2	**0.3** (0.0 – 0.9)
GAM estimates by WHO Anthro (2005) Standards:	121	**15.5** (12.9 - 18.1)	148	**19.8** (16.9- 22.8)	90	**13.2** (10.6 – 15.8)
SAM estimates by WHO Anthro (2005) Standards:	41	**5.2** (3.6 – 6.9)	54	**7.2** (5.3 – 9.1)	31	**4.6** (2.9 – 6.2)
Global Acute Malnutrition (WHM<80% or oedema)	86	**11.0** (8.2 – 13.9)	101	**13.5** (10.2 – 16.8)	70	**10.3** (6.8 - 13.8)
Severe Acute Malnutrition (WHM<70% or oedema)	15	**1.9** (0.7 – 3.1)	15	**2.0** (0.7 – 3.3)	10	**1.5** (0.5 – 2.4)
Proportion of stunted children (HAZ<-2)	225	**28.8** (21.1 – 36.5)	251	**33.6** (27.1 – 40.2)	298	**43.7** (37.1 – 50.3)
Proportion of underweight children (WAZ<-2)	241	**30.9** (23.8 – 37.9)	276	**37.0** (32.1 – 41.9)	265	**38.9** (32.5 – 45.3)
Proportion of malnourished pregnant women (MUAC<23.0).	5	**9.1** (N=55)	9	**10.2** (N=88**)**	11	**11.6** (N=95)
Proportion of severely malnourished pregnant women (MUAC≤20.7)	3	**1.0**	1	**0.3**	1	**0.3**
Proportion of children who fell ill in two weeks prior to assessment	504	**64.4** (57.8 – 70.9)	475	**63.0** (53.7 – 72.3)	374	**54.8** (45.3 – 64.4)
Proportion of assessed children with diarrhoea in 2 weeks prior to assessment	184	23.5 (17.8 – 29.3)	252	33.4 (26.4 – 40.4)	174	25.5 (18.6 – 32.4)
Proportion of assessed children with ARI within two weeks prior to assessment	283	36.1 (30.8 – 41.5)	309	41.0 (32.4 – 49.5)	157	23.0 (14.4 – 31.7)
Assessed Children with fever/ suspected malaria in 2 weeks prior to assessment	202	25.8 (19.7 – 31.9)	189	25.1 (17.5 – 32.6)	137	20.1 (14.7 – 25.5)
Proportion confirmed Malaria (RDT) positive	41	**3.1** (N=1315) (0.1 – 6.2)	9	**0.6** (N=1505) (0.2 – 1.0)	30	**2.1** (N=1411) (0.7 – 3.5
Suspected measles within one month prior to assessment	32	4.3 (1.6 – 7.0)	26	3.6 (1.0 - 6.2)	25	3.8 (0.6 - 7.0)
Children (9-59 months) immunised against measles	470	63.5 (54.9 – 72.1)	302	42.2 (30.5 – 53.8)	407	61.7 (47.1 – 76.3)
Children who have ever received polio vaccine	673	86.0 (81.6 – 90.3)	573	76.0 (69.3 – 82.7)	618	90.6 (83 – 97.7)
Children who received vitamin A supplementation in last 6 months	424	54.2 (41.9 – 66.4)	306	40.6 (27.7 – 53.5)	429	62.9 (48.2 – 77.6)
Proportion of households who consumed ≤3 food groups	92	**22.8** (13.6 – 31.9)	57	**12.8** (6.8 – 18.8)	27	**6.9** (1.2 – 12.5)
Proportion of households who consumed ≥4 food groups	312	77.2 (68.1 – 86.4)	388	87.2 (81.2 – 93.2)	367	93.1 (87.5 – 98.8)
Proportion of children 6-24 months who are breastfeeding	111	40.5 (34.4 – 46.6)	177	62.1 (54.3 – 69.9)	167	64.5 (56.9 – 72.1)
Under five Death Rate (U5MR) as deaths/10,000/ day	**1.47** (0.96 - 1.99)		**1.36** (0.16 - 2.57)		**2.19** (0.01 - 7.27)	
Crude Death Rate (CMR) as deaths/10,000/ day	**0.96** (0.12 - 1.81)		**0.97** (0.29 - 1.66)		**1.42** (0.02 - 2.82)	

1.0 INTRODUCTION

Historical Context

Lower and Middle Shabelle regions are amongst the most highly populated regions in Southern Somalia. Lower Shabelle hosts an estimated 815,158 persons in seven[3] districts and Middle Shabelle 539,637 persons in five[4] districts (UNDP 2005 population figures). It has a total of seven livelihood zones namely Central Regions Agropastoral, Shabelle Riverine, Southern Agropastoral, Southern Inland Pastoral, Lower and Middle Shabelle Agropastoral Rainfed, Lower and Middle Shabelle Irrigated and South East Pastoral. The Riverine and Agro pastoral livelihood zones are the dominant livelihoods (*See Map 1*). The riverine zone is located within 10 km of the Shabelle River where maize, sesame and a variety of vegetables are cultivated in addition to fruit. Livestock keeping is almost non-existent due to tsetse fly infestation.



The agro pastoral zone extends within 20-40 km from the Shabelle River with maize, sorghum, cowpeas, sesame and fruits cultivated and livestock kept. The agricultural potential, the diverse casual labor and income opportunities from agricultural activities in the agro pastoral livelihood zone make it an important host area for seasonal and vulnerable populations in normal and bad years. In both the riverine and agro pastoral livelihood zones, ownership of land is politically sensitive *(Ref: FSAU Food Economy Baseline Profile 2000)*.

The Shabelle regions have been considered the main grain basket for Southern Somalia with good cereals and fruits production from both rainfed and irrigated farming. For more than a decade, the food security situation in the riverine and agro-pastoral livelihood zones has been classified in the **Borderline Food Insecure (BFI)** phase due to resilience to seasonal shocks and external pressures. This resilience is attributed to the extensive range of coping strategies including income source diversification options. *(Ref: FSAU Technical Series Report No. V.13 September 21, 2007*). Nevertheless, the FSAU Post *Deyr* '06/07 conducted in Dec '06/Jan '07 2007, classified Shabelle Region as in an **Early Warning level of Watch** deteriorated to AFLC/HE due to decline in income from loss of crop and labor opportunities incurred during the *Deyr* '06/07 severe flooding and the risk associated with off-season cereal harvest; a consequent potential increase in cereal prices and erosion of the population's resilience to shocks and seasonal pressures in addition to a potential deterioration in security.

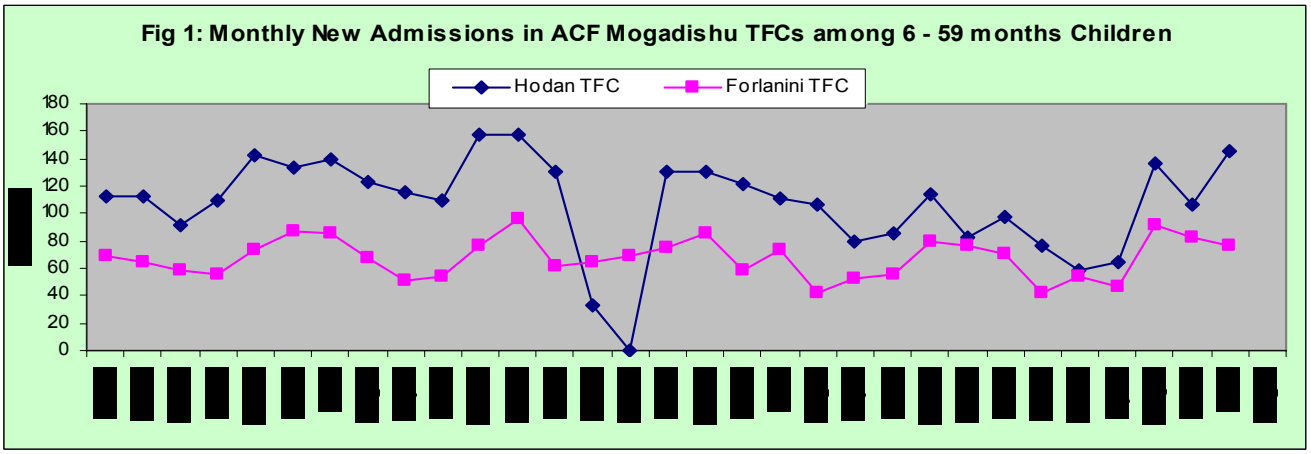
The on-going conflict and insecurity in Mogadishu has resulted in an influx of displaced populations (IDP) into these regions. A deteriorating food security situation following four consecutive seasons of below normal cereal production, loss of food stocks since Deyr'06/07, sporadic disease outbreaks and sharp price increases have negatively impacted on the livelihood systems. In the FSAU Post *Gu* Analysis (July 2007), the area was classified to be in Humanitarian Emergency (HE). And in the last post

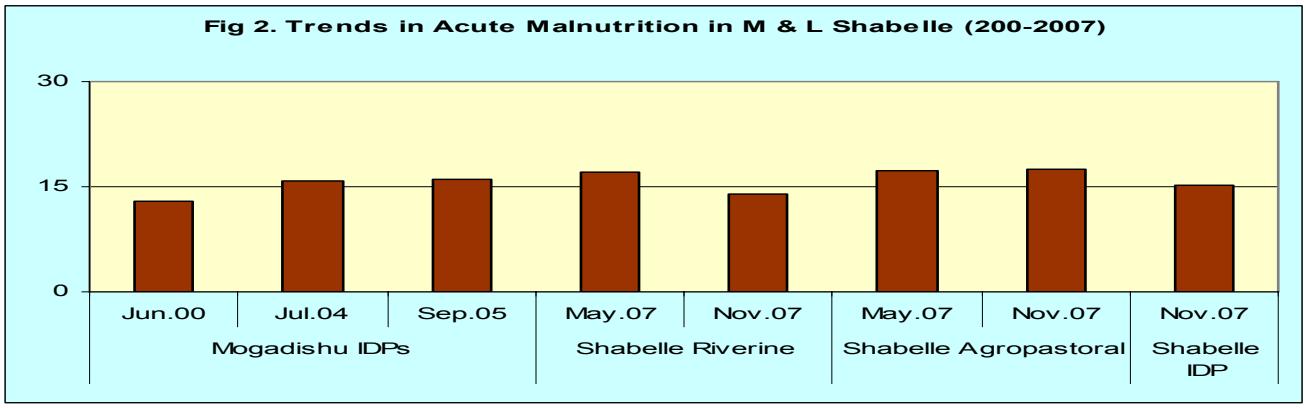
[3] Kurtunwarey, Merka, Qoryoley, Afgooye, Brava, Sablale and Wanlaweyn
[4] Mahaday, Cadale, Jowhar, Balcad and Adenyabal

deyr 07/08 analysis, 34% of population in Shabelle regions continued to be in a state of Humanitarian Emergency and Acute Food and Livelihood Crisis (AFLC) due to another season of below average deyr rains resulting into the lowest cereal production in a decade. The situation has persisted through the current *Gu* '08 season (FSAU Post, *Gu* Analysis, July '08).

Historical Nutrition Situation

Historically the nutrition situation in the rural livelihoods in the Shabelle regions has not been of concern. Information has been collected predominantly from health centres and nutrition sentinel sites and up to December 2006, levels of acutely malnourished children had remained stable and low (*See Figure 1)*. However the nutrition situation of the urban poor and protracted IDP population in the urban settings of Mogadishu was different. A series of nutrition surveys conducted from 2000 to 2005 highlighted the nutritional vulnerability of this group reporting levels from 13% to 16% GAM, in addition to high rates of severe acute malnutrition from 2% to 4%. This is illustrated in the sustained high admissions of severely malnourished children into the selective feeding centers in Mogadishu (*See Figure 1)* over the last few years.





In the *Deyr* '06/07 pockets of nutritional concern were reported in Adale Town, Galigudud, Moiko and Jowhar Town following a rapid MUAC assessment which highlighted levels of 5-9.9% of children as acutely malnourished. This was likely linked to the effects of the *Deyr* '06/07 floods, which exposed the populations to water borne diseases such as Acute Watery Diarrhoea. Two nutrition assessments conducted in the Agro pastoral and Riverine livelihoods zones of Lower and Middle Shabelle regions in May 2007, reported critical nutrition situations in both livelihoods with a **GAM** rate of **17.0%** (CI: 13.4 – 20.5) and **SAM** rate of **4.8%** (CI: 3.0 – 6.7) in the riverine and **GAM** rate of **17.3%** (CI: 13.3 – 21.3) and **SAM** rate of **4.5%** (CI: 2.5 – 6.6) among the agropastoralists[5].

[5] FSAU Nutrition Update, May 2007

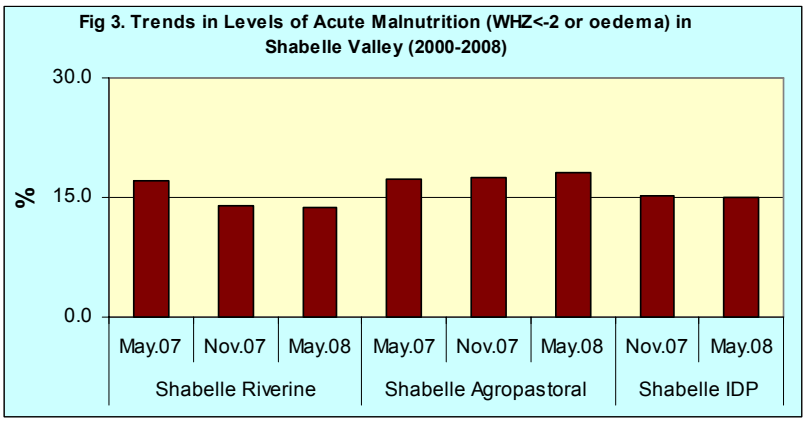
Since February 2007 a series of shocks have affected the Shabelle regions. In addition to the flooding in the *Deyr* season and the poor harvest in the recent *Gu* there has been large displacement of thousands of people fleeing from Mogadishu as a result of the sudden upsurge in violence in the city. The renewed armed conflict and civil insecurity in Mogadishu during the assessment has resulted in the latest wave of population displacement and influx of displaced populations (IDP) estimated at 100,000 in November 2007 (UNHCR figures) into temporary settlements along the Mogadishu Road especially in Afgoye and Marka. The numbers are an addition to the existing settlement which have been established since the first wave of displacement in February 2007. This increased to over 600,000 fleeing Mogadishu in total from February to nearly November, half of who reside in the Shabelle region. Current estimates are of approximately 200,000 IDPS in Afgoye district with a further 25,000 in Merka. Due to the large and concentrated numbers the nutrition situation of this population has been of great concern with early indications from response agencies on the ground in June of high levels of acute malnutrition.

The cumulative effects including the significant reduction of agricultural production, sharp rates of inflation in food and non food items, disruptions in trade and economic activities, a high and increasing concentration of displaced population fleeing Mogadishu, deteriorating health conditions with the Acute Watery Diarrhoea Outbreak, and continued escalating civil insecurity resulted in a sudden onset Humanitarian Emergency affecting more than 30% of the population.

In the *Deyr* '07/08 integrated analysis, the nutrition situation in the agro-pastoral livelihood of Lower and Middle Shabelle remained ***Critical*** while the Riverine had slightly improved to ***Serious*** nutrition situation from the *Critical* nutrition situation reported in the *Gu* '07**.** The new IDPs in Afgoye and Merka were also in ***Critical*** nutrition situation an improvement from *Very Critical* levels recorded in Afgoye town in *Gu '07.* The slight improvement recorded in Shabelle Regions was mainly attributed to the increased humanitarian interventions as well as improved fishing and access to fruits and vegetables in the Riverine areas. Three nutrition assessments conducted in November 2007 in the riverine, agro-pastoral/pastoral and IDP population groups[6] reported the following results: Shabelle Riverine a GAM rate of **14.0%** (11.2 – 16.7) and a SAM rate of **2.9%** (1.6 – 4.1) and Shabelle agro-pastoral a GAM rate of **17.6%** (13.3 – 21.8) and a SAM rate of **3.2%** (1.7- 4.6); Shabelle new IDPs (Merka and Afgoye) a GAM rate of **15.2%** (11.7 – 18.6) and a SAM rate of **3.2%** (1.9- 4.5).

Current Crisis

The nutrition situation in the agro-pastoral livelihood of Lower and Middle Shabelle remains persistently ***Critical*** while the Riverine faces a ***Serious*** nutrition situation indicating no significant change from the situation reported in the *Deyr* '07/08**.** The IDPs in Afgoye corridor and Merka also remain in ***Critical*** nutrition situation. Humanitarian interventions have mitigated any major deterioration among the IDPs population amid rising food prices, incidences of morbidity and civil insecurity. The riverine population have had better access fish, fruits and vegetables than their agropastoral counterparts.



Three nutrition assessments were conducted in May 2008 in the IDP, agro-pastoral/pastoral and riverine population groups in both Middle and Lower Shabelle Regions all reported a persistent poor nutrition

[6] FSAU Nutrition Update, January 2008

situation (*see Fig 3*) with similar GAM rates of **15.0%** (11.5-18.4) from **15.2%** (11.7 – 18.6) reported in November 2007 among the IDPs; **18.1%** (14.4-21.8) in the agropastoral from a GAM rate of **17.6%** (13.3 – 21.8) in Deyr '07/08 and **13.6%** (9.2-18.0) among the Riverine from a GAM rate of **14.0%** (11.2 – 16.7) reported in the November 2007 assessment.

2.0 ASSESSMENT OBJECTIVES

The overall objective of the three livelihood-based assessments was to establish the extent and severity of acute malnutrition, determine the causes of malnutrition and to monitor the trends of acute malnutrition in Middle and Lower Shabelle regions.

Specific Objectives were:

1. To estimate the level of malnutrition and nutritional oedema among children aged 6-59 months or with height/length of 65-109.9cm in the three livelihood groups of IDPs, Agropastoral and Riverine in Middle and Lower Shabelle regions.
2. To estimate the level of acute malnutrition among women aged 15-49 years in the three livelihood groups of IDPs, Agropastoral and Riverine in Shabelle valley.
3. To identify factors influencing nutrition status of the children in the three livelihood groups of IDPs, Agropastoral and Riverine in Middle and Lower Shabelle regions.
4. To estimate the prevalence of some common diseases (measles, diarrhoea, febrile illnesses, malaria and ARI) in the three livelihood groups of IDPs, Agropastoral and Riverine in Shabelle valley.
5. To estimate the measles and polio vaccination and Vitamin A supplementation coverage among children in the three livelihood groups of IDPs, Agropastoral and Riverine in the Shabelle regions.
6. To assess child feeding and care practices in the three livelihood groups of IDPs, Agropastoral and Riverine in the Shabelle regions.
7. To estimate the crude and under-five mortality rates in the three livelihood groups of IDPs, Agropastoral and Riverine in Middle and Lower Shabelle regions.

3.0 METHODOLOGY

Three cross-sectional assessments were conducted concurrently between 20th May and 4th June 2008, among the Agropastoral, and Riverine populations of in Middle and Lower Shabelle Regions and among the IDPs in Marka and settlements along the Mogadishu - Afgoye road. A separate and fourth assessment was conducted at the same time among the rural populations of Adale district (reported separately).

Respective sample sizes (number of households and number of children) were calculated using the Epiinfo/Ena 2008 software after considering the population size, estimated prevalence and desired precision. A list of all villages within each of the assessed livelihoods in the regions with their respective populations[7] formed a sampling frame and was used to construct cumulative population figures for the assessment area from which 26-30 clusters were randomly drawn for each livelihood zone *(Appendix 4)*. Selection of respondents within the village was done randomly, preferably from a list of eligible names or a map of households. Where these were not available, the number of households in the village was estimated from the population figures (the total population divided by the mean household size). This is the interval, *n*. Starting from a random household, every n*th* household was selected and all eligible children (aged 6-59 months) in that household measured. Retrospective mortality data was collected from all the households in each cluster from each livelihood including even those that did not have children aged 6-59 months.

Quantitative data was collected through a standard household questionnaire for nutrition assessments in Somalia (see appendix 2). Retrospective mortality data for 90 days prior to the assessments and Rapid Diagnostic Test for malaria was also collected among the study households using the standard questionnaires (see appendix 3 and 4 respectively). Qualitative data was collected through focus group discussions and key informant interviews to provide further understanding of possible factors influencing nutritional status.

A four-day training of enumerators and supervisors was conducted covering interview techniques, sampling procedure, inclusion and exclusion criteria, sources and reduction of errors, taking of measurements (height, weight and MUAC), undertaking malaria RDTs, standardisation of questions in the questionnaire, levels of precision required in measurements, diagnosis of oedema and measles, verification of deaths within households, handling of equipment, and the general courtesy during the assessment.

Standardisation of measurement and pre-testing of the questionnaire and equipment were carried out in a village in Merka town not selected as a cluster for the actual IDP assessment. Quality of data was also ensured through (i) monitoring of fieldwork by coordination team, (ii) crosschecking of filled questionnaires on daily basis and recording of observations and confirmation of measles, severe malnutrition and death cases by supervisors. All households sampled were visited and recorded including empty ones (iii) daily review was undertaken with the teams to address any difficulties encountered, (iv) progress evaluation was carried out according to the time schedule and progress reports shared with partners on regular basis, (v) continuous data cleaning and plausibility checks (vi) monitoring accuracy of equipment (weighing scales) by regularly measuring objects of known weights and (vii) continuous reinforcement of good practices. All measurements were loudly shouted by both the enumerators reading and recording them to reduce errors during recording.

Household and child data was entered, processed (including cleaning) and analysed using EPI6 software. Mortality data was entered and crude and under five mortality rates generated in ENA software.

[7] UNDP population estimates, 2005

4.0 ASSESSMENT RESULTS

4.1 Household Characteristics of Study Population

The three livelihood-based nutrition assessments covered a total of 1243 households (404 from IDPs; 445 from agropastoral and 394 from riverine livelihoods) with mean household sizes of 6.8±2.9; 6.1±2.4 and 5.8±2.0 persons respectively. A total of 2219 children (783 from IDPs, 754 from agropastoral and 682 from riverine livelihoods) aged 6-59 months were assessed with respective mean number of 2.0 ±0.9; 1.8 ±0.8 and 1.9 ±0.7 under fives per household. The household characteristics by livelihood are presented in Table 4.1 below.

Table 4.1: Household Characteristics

Characteristics	***IDPs***		***Agropastoral***		***Riverine***	
	N	*%*	*N*	*%*	*N*	*%*
Total Households	404	100	445	100	394	100
Household size (Mean):	6.8	SD=2.9	6.1	SD=2.4	5.8	2.0
Mean No of Underfives	2.0	SD=0.9	1.8	SD=0.8	1.9	SD=0.7
Sex of Household Head:						
Male	294	72.8	295	66.3	280	71.1
Female	110	27.2	150	33.7	114	28.9
Host IDPs?						
Yes	-	-	40	9.0	21	5.3
No	-	-	405	91.0	373	94.7
Current Food and Income Source						
Humanitarian support	134	33.2	-	-	-	-
Support from host population	18	4.5	-	-	-	-
Remittances from abroad	10	2.5	-	-	-	-
Remittances locally	18	4.5	-	-	-	-
Casual labour	191	47.3	-	-	-	-
Petty trade	15	3.7	-	-	-	-
Begging	7	1.7	-	-	-	-
Sale of assets	3	0.7	-	-	-	-
None – recent loss of LH	8	2.0	-	-	-	-
Main Source of Income:						
Animal and its products sales			122	27.4	5	1.3
Crop sales			219	49.2	221	56.1
Trade			18	4.0	12	3.0
Casual labour			80	18.0	149	37.8
Salaries/wages			2	0.4	3	0.8
Remittances			3	0.7	4	1.0
Others			1	2.8	0	0.0
Has Mosquito net:						
Yes	31	7.7	118	26.5	129	32.7
No	373	92.3	327	73.5	265	67.3
Type of Net:						
GFSOM	18	58.1	72	61.0	91	70.5
Other	10	32.3	41	34.8	33	25.6
Not seen	3	9.7	5	4.2	5	3.9

The results showed that at least 66% of the assessed households were male-headed (Table 4.1).

In addition to the separate IDP populations assessed, 9.0% and 5.3% of the Agropastoral and riverine households hosted between 1 and 9 IDPs respectively, mainly fleeing from civil insecurity in Mogadishu. The mean number of displaced persons hosted was 2.6 (SD=1.7) for the agropastoral and 2.6 (SD=1.8) in the riverine group.

Most IDPs practiced the urban livelihood system before displacement, but are now dependent on humanitarian support (33.2%), support from the host community (4.5%) or casual labour (47.3%) for their food and income. Casual labour is the main source of income for 47.3% of the IDP households, 18.0% of the agropastoral and 37.8% of the riverine households.

Sale of crops was the main source of household income among the agropastoral (49.2%) and riverine (56.1%). Sale of livestock and livestock products also provided a significant source of income among the agropastoral group (27.4%). The households reported limited job opportunities with casual labour as the leading source of employment income and salaried or waged employee accounting for less than 1% of employment income.

Mosquito net ownership was very low in all the assessed households with only 7.7% in the IDPs, 26.5%

in the agropastoral and 32.7% of the riverine household having access to bed nets, most of which were supplied from the Somalia Global Fund for Malaria (GFSOM).

4.2 Water Sources, access and Quality

Table 4.2. Households access to water, sanitation and health facilities

	IDPs		Agropastoral		Riverine	
	n	%	n	%	n	%
Main Source of drinking water						
Tap	58	14.4	2	0.4	69	17.5
Truck	229	56.7	3	0.7	0	0.0
Tube well	60	14.9	161	36.2	56	14.2
Surface sources	57	14.1	279	62.7	269	68.3
Have access to safe water						
Yes	303	75.0	108	24.3	93	23.6
No	101	25.0	337	75.7	301	76.4
Reason for water inaccessibility						
Not available	43	42.6	199	59.1	177	58.8
Distance too far	0	0.0	38	11.3	33	11.0
Can't afford	54	53.5	94	27.9	91	30.2
Security concerns	4	3.9	6	1.8	0	0.0
Reliability of water Source:						
Reliable supply	248	61.4	73	16.4	285	72.3
Seasonal supply	1	0.2	214	48.1	56	14.2
Occasional problems	130	32.2	137	30.8	32	8.1
Frequent problems	25	6.2	21	4.7	21	5.3
Time to and from water point						
< 30 min	183	45.3	74	16.6	203	51.5
30-60 min	132	32.7	256	57.5	146	37.1
1-2 hours	52	12.9	68	15.3	45	11.4
> 2 hours	37	9.2	47	10.6	0	0.0
Use treated water						
Yes	310	76.7	127	28.5	218	55.3
No	94	23.3	318	71.5	176	44.7
Method of water treatment						
Boiling	21	6.8	18	14.2	7	3.2
Chlorination	279	90.0	42	33.1	82	37.6
Straining	4	1.3	43	33.9	60	27.5
Decanting	6	1.9	24	18.9	69	31.7
No of Water Containers						
1-2 containers	224	55.4	184	41.3	103	26.1
3-4 containers	122	30.2	132	29.7	117	29.7
5-6 containers	31	7.7	59	13.3	94	23.8
> 6 containers	27	6.7	70	15.7	80	20.3
Type of water storage containers						
Clean container with cover	35	8.7	28	6.3	24	6.1
Closed plastic containers	297	73.5	230	51.7	175	44.4
Open buckets	25	6.2	107	24.0	43	10.9
Ashun (constricted)	47	11.6	80	18.0	152	38.6

Access to clean water for drinking and for domestic use remains limited and is a key concern in the study area. About 76% of the assessed households in the agropastoral and riverine livelihoods in addition to 25% of IDP households do not have access to clean water. However, well sinking and water trucking interventions improved access to clean water (75%) in the IDP settlements.

Majority of the agropastoral (62.7%) and riverine (68.3%) population get water from unprotected surface sources like river, canals, shallow wells and water catchments (Table 4.2).

The quality of water notwithstanding, the IDPs (61.4%) and riverine (72.3%) households generally had reliable supply, but the agropastoral households reported seasonal supply (48.1%) with occasional problems (30.8%) in their water supply.

Most (>55%) of the assessed households had 4 or fewer containers for storing water with majority (73.5%, 51.7% and 44.4% in IDP, agropastoral and riverine households respectively) storing their water in closed plastic containers. Sphere (2004) recommends that each household has at least 2 clean water collecting containers of 10-20 L, and depending on the household size, plus enough clean water storage containers to ensure there is always water in the household for an average usage of 15L/person/day.

Overall, as shown in Table 4.2, there is a significant improvement in water access, quality and safety in the IDP settlements due to the ongoing humanitarian interventions.

4.3 Sanitation and Hygiene

Table 4.3. Sanitation and Hygiene Practices

	IDPs		Agropastoral		Riverine	
	n	%	n	%	n	%
Have access to latrines						
Yes	324	80.2	178	40.0	197	50.0
No	80	19.8	267	60.0	197	50.0
Type of sanitation facility						
Bush	80	19.8	267	60.0	197	50.0
Traditional pit	230	56.9	177	39.8	197	50.0
VIP latrine	94	23.3	1	0.2	0	0.0
Reason for latrine inaccessibility						
Pastoral	1	1.2	57	21.3	1	0.5
Lack of resources	76	95.0	192	71.9	180	91.4
Doesn't see need	3	3.8	18	6.7	16	8.1
Latrine water point distance						
< 30 meters	156	48.1	62	34.8	82	41.6
30 meters or more	168	51.9	116	65.2	115	58.4
No of households sharing latrine						
One (don't share)	35	10.8	61	34.3	114	57.9
2 – 9 households	187	57.7	112	62.9	82	41.6
≥ 10 households	102	31.5	5	2.8	1	0.5
Maintain hygienic hand washing						
Before eating	392	97.0	428	96.2	387	98.2
Before preparing food	73	18.1	159	35.7	46	11.7
Before feeding baby	56	13.9	76	17.1	8	2.0
After cleaning baby bottom	56	13.9	106	23.8	8	2.0
After defecation	35	8.7	53	11.9	247	62.7
Washing agent						
Soap/ shampoo	361	89.6	293	65.8	325	82.5
Sand	19	4.7	53	11.9	30	7.6
Ash	2	0.5	46	10.3	27	6.9
Plant extracts	0	0.0	2	0.4	0	0.0
None	21	5.2	51	11.5	12	3.0

Poor sanitation is another key concern in Lower and Middle Shabelle. Access to sanitation facilities remains limited with 60% and 50% of agropastoral and riverine households respectively having no access to a sanitation facility which predisposes the population to diseases. Again, the IDPs reportedly had better access to latrines (80.2%). The main reason reported for inaccessibility is lack of resources (>70%) to construct the latrines (Table 4.3).

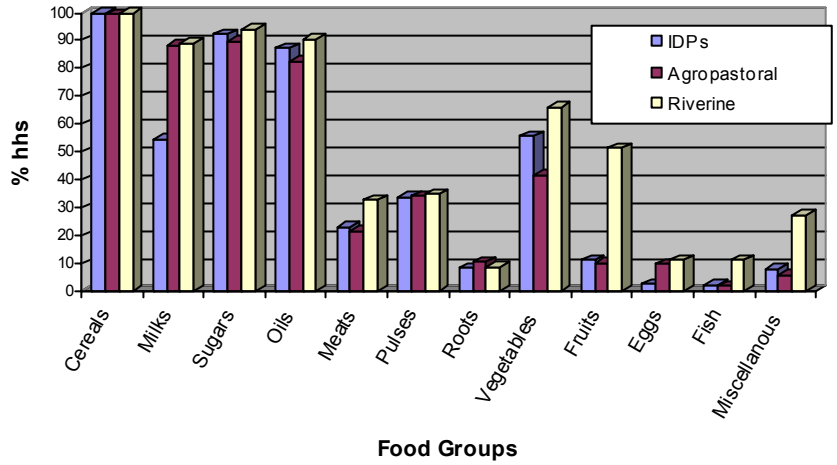
The use of open bush/ground for faecal disposal coupled with consumption of water from open sources poses a risk of contamination of drinking water, a predisposing factor to diarrhoeal infections and acute malnutrition.

As indicated in the Table 4.3**,** a large number of the assessed households practiced basic hygienic hand washing practices only before eating (>96%). A small proportion washed their hands after defecation, before feeding the baby, after cleaning the baby's bottom and before preparing food. It was however noted that a large proportion of the assessed households used soap or other washing agents (>85%) for cleaning utensils and washing up. However, 3.0-11.5% of the households did not use any form of washing agent. In order to prevent the spread of disease through contamination, SPHERE (2004) recommends hand washing always after defecation and before eating and food preparation and the users should have the means to wash their hands after defecation with soap or alternative such as ash.

4.4 Household Food Security

4.4.1 Food Consumption

Fig 4.4.1 Distribution of Food Groups Consumed by Households



As shown on figure 4.4.1, cereals provided the bulk of the food in the household diet. Cereal-based diets were consumed by almost all the assessed households. Other food items frequently consumed were sugar, oil and milk. However, milk consumption was relatively lower among the IDPs (54.5%), compared to agropastoral (88.5%) and riverine households (89.1%). The IDPs rely on supply from the agropastoral and riverine communities who transport milk for sale to Mogadishu, but this had been affected by increased prices due to insecurity, high transport costs and low supply/production during the assessment. On the other hand consumptions of meat, vegetables and fruits were significantly lower among the agropastoral households. Vegetable consumption was significantly higher among the IDP (55.9%) and riverine (53.0%) households. Moreover, fruit consumption was reportedly much higher in the riverine than among the IDP and agropastoral groups.

At the time of the assessment fruits and vegetables were available especially in the riverine livelihood. Consumption of roots/tubers, eggs and fish remained very low in all the assessments.

Purchasing was the main households' source of food (mainly cereals and milk) for most (>60%) households in all the livelihoods. However, at least one third of the assessed households produced their own food among the riverine (36%) or received food aid (32.2%) among the IDPs (Table 4.4). Food distribution was going on in the IDPs settlements in Afgoye corridor during the period of the assessment.

Most of the milk is produced by the agropastoralists, 38.1%who use it for their own consumption. Majority of the households (77.5%, 80.9% and 69.8% in IDPs, agropastoral and riverine households respectively) reportedly had two meals per day, with more than 70% skipping a meal.

Table 4.4. Households main source of food

	IDPs		Agropastoral		Riverine	
	n	%	n	%	n	%
Main source of food						
Own production	0	0.0	109	24.5	142	36.0
Purchasing	260	64.4	312	70.1	239	60.7
Gifts	12	3.0	5	1.1	3	0.8
Food aid	130	32.2	15	3.4	10	2.5
Bartering	0	0.0	1	0.2	0	0.0
Borrowing	1	0.2	2	0.4	0	0.0
Gathering	1	0.2	1	0.2	0	0.0
Main source of cereals		N=404		N=443		N=394
Purchasing	198	49.0	228	51.5	193	49.0
Own production	2	0.5	190	42.9	186	47.2
Food aid	192	47.5	16	3.6	12	3.0
Gifts	11	2.7	6	1.4	3	0.8
Borrowing	1	0.2	2	0.5	0	0.0
Others (barter, gather, etc)	0	0.0	1	0.2	0	0.0
Main source of milk		N=220		N=394		N=351
Purchasing	216	98.2	239	60.7	336	95.7
Own production	2	0.9	150	38.1	15	4.3
Gifts	2	0.9	4	1.0	0	0.0
Borrowing	0	0.0	1	0.3	0	0.0
Number of meals taken/day		N=404		N=445		N=394
One	72	17.8	17	3.8	11	2.8
Two	313	77.5	360	80.9	275	69.8
Three	19	4.7	68	15.3	108	27.4

4.4.2 Dietary Diversity

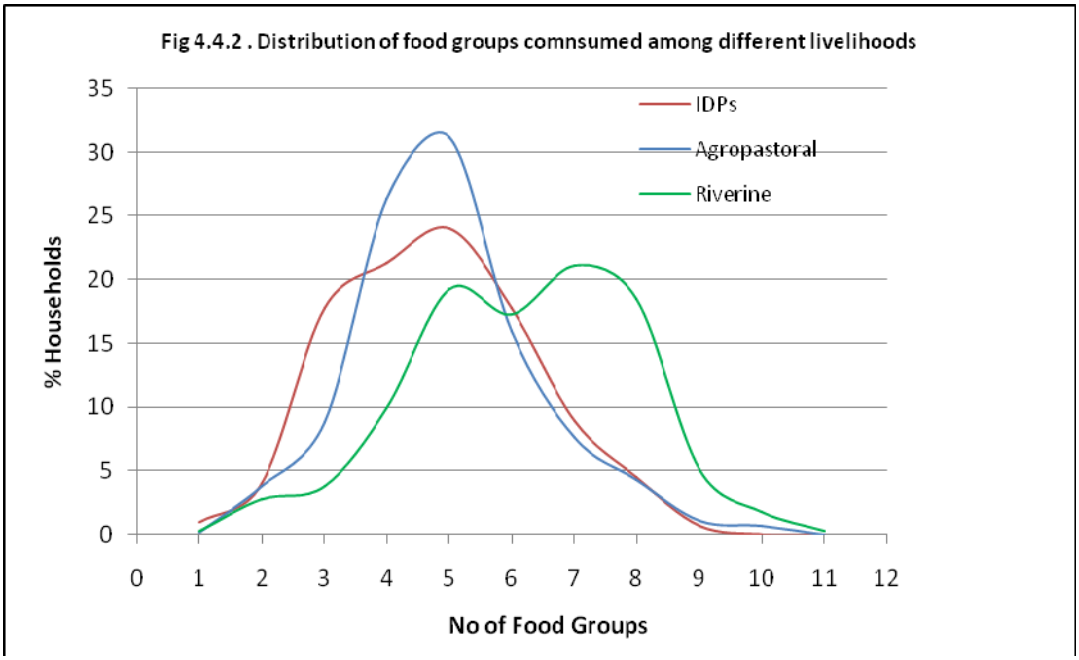
Table 4.5. Household Food Consumption and Dietary diversity

	Pastoral		Agropastoral		Riverine	
	n	%	n	%	n	%
No of food groups consumed						
1 food group	4	1.0	1	0.2	1	0.3
2 food groups	16	4.0	17	3.8	11	2.8
3 food groups	72	17.8	39	8.8	15	3.8
4 food groups	86	21.3	117	26.3	39	9.9
5 food groups	97	24.0	139	31.2	76	19.3
6 food groups	72	17.8	71	16.0	68	17.3
7 food groups	36	8.9	34	7.6	83	21.1
8 food groups	18	4.5	19	4.3	73	18.5
9 food groups	3	0.7	5	1.1	20	5.1
10 food groups	0	0.0	3	0.7	7	1.8
11 food groups	0	0.0	0	0.0	1	0.3
No. Having Diversified Diet						
1-3 food groups	92	22.8	57	12.8	27	6.9
≥ 4 food groups	312	77.2	388	87.2	367	93.1
Mean HDDS	4.8 (SD=1.6)		5.0 (SD=1.5)		6.2 (SD=1.8)	

As indicated in Table 4.5, some few households (≤1%) consumed only one food group, usually cereal or two food groups. Among the IDPs, the most consumed number of foods was five (24%) followed by four (21.3%) with a range of one to nine food groups in 24 hours prior to the assessment.

Most households in the agropastoral livelihood also consumed five (31.2%) and four (26.3%) food groups with a range of one to ten, however among the riverine group, one to eleven food groups were reportedly consumed in the preceding 24 hours with seven food groups the most frequently reported by households.

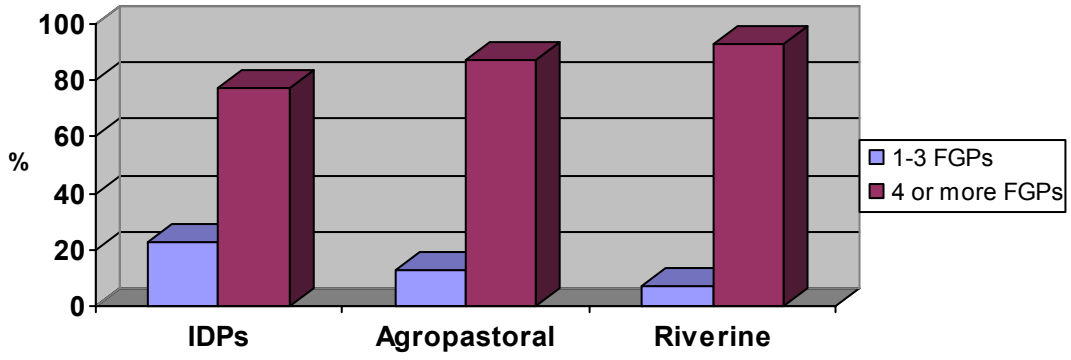
As reflected in the food consumption pattern (Fig 4.4.2), the riverine households consumed most diversified diet (93.1%) with a highest mean dietary diversity score of 6.2 ±1.8 within the previous 24 hours.



IDPs had the most restricted diet (*see graph is farthest left*) consuming an average of 4.8 ±1.4 food groups while the agropastoral households consumed an average (HDDS) of 5.0 ±1.5 food groups in the preceding 24 hour period.

As shown in Fig 4.4.3, IDPs had the highest proportion of households consuming less diversified diet (3 or fewer food groups) indicating a critical situation[8] while riverine had the largest proportion (93.1%) of the households that consumed diversified diets[9] in the 24 hours prior to the assessment in all the three assessments.

Fig 4.4.3 Household Dietary diversity among different LZs



[8] According to FSAU Nutrition Categorization Criteria
[9] Composed of at least four food groups based on a total of 12 FAO food groups.

4.5 Morbidity, immunization and Health Seeking Behaviour

High morbidity rates were reported in the three livelihoods of IDPs (64.4%); agropastoral (63.0%) and riverine (54.8%) of the children assessed.

For the children reported to have fallen sick within two weeks prior to the assessment, majority (>60%) sought medical assistance, mostly from private pharmacies/clinics (>29%). A significant proportion consulted traditional healers (1.8 – 13.7%) or administered self medication (>2.9%) at home.

Table 4.6: Health seeking behaviour

	IDPs		*Agropastoral*		*Riverine*	
	N	*%*	*N*	*%*	*N*	*%*
Child fell sick						
Yes	504	64.4	475	63.0	374	54.8
No	279	35.6	279	37.0	308	45.2
Where health service sought						
Public health facilities	217	43.1	65	13.7	47	12.6
Private pharmacy/clinic	146	29.0	209	44.0	152	40.6
Traditional healers	9	1.8	65	13.7	20	5.3
Own medication	23	4.6	29	6.1	11	2.9
No assistance sought	109	21.6	107	22.5	144	38.5

A higher proportion of ill children reportedly sought medical assistance from the public health facilities among the IDPs (43.1%), unlike in the agropastoral and riverine livelihoods where only 13.7% and 12.6% of the children respectively, who fell sick were taken to a public health facility (Table 4.6). This is an indication of improved access to health services in the IDP settlements as a result of interventions by humanitarian agencies.

Table 4.7: Morbidity, measles immunisation, polio vaccination and vitamin A supplementation

	IDPs		**Agropastoral**		**Riverine**	
	n	**%**	**n**	**%**	**n**	**%**
Incidence of major child illnesses						
Proportion of children with diarrhoea in 2 weeks prior to assessment	184	23.5 (17.8 – 29.3)	252	33.4 (26.4 – 40.4)	174	25.5 (18.6 – 32.4)
Proportion of children with ARI within two weeks prior to assessment	283	36.1 (30.8 – 41.5)	309	41.0 (32.4 – 49.5)	157	23.0 (14.4 – 31.7)
Children with fever/ suspected malaria in 2 weeks prior to assessment	202	25.8 (19.7 – 31.9)	189	25.1 (17.5 – 32.6)	137	20.1 (14.7 – 25.5)
Children who slept under bed net						
Proportion of persons confirmed Malaria (RDT) positive	41	3.1 (N=1315) (0.1 – 6.2)	9	0.6 (N=1505) (0.2 – 1.0)	30	2.1 (N=1411) (0.7 – 3.5
Suspected measles within one month prior to assessment	32	4.3 (1.6 – 7.0)	26	3.6 (1.0 - 6.2)	25	3.8 (0.6 - 7.0)
Immunization Coverage						
Children (9-59 months) immunised against measles	470	63.5 (54.9 – 72.1)	302	42.2 (30.5 – 53.8)	407	61.7 (47.1 – 76.3)
Children who have ever received polio vaccine	673	86.0 (81.6 – 90.3)	573	76.0 (69.3 – 82.7)	618	90.6 (83 – 97.7)
Children who received vitamin A supplementation in last 6 months	424	54.2 (41.9 – 66.4)	306	40.6 (27.7 – 53.5)	429	62.9 (48.2 – 77.6)

The incidence of reported diarrhoea in IDPs, Agropastoral and Riverine populations (23.5%; 33.4% and 25.5% respectively) within two weeks prior to the assessment remained high. High incidences of ARI and febrile illnesses were also reported in the three livelihoods (Table 4.7). These levels were consistent with seasonal morbidity patterns recorded from the MCHs. Rapid Diagnostic Tests (RDT) conducted for malaria reported a total prevalence of 3.1% (N=1315), 0.6% (N=1505) and 2.1% (N=1411) positive for *Plasmodium falciparum*. There was no reported disease outbreak in the assessment.

Photo: One of the supervisors assessing oedema in a child in Shabelle, May 08

Children reported to have been ill within two weeks prior to the assessment were more likely to be acutely malnourished ($p<0.05$). For example, in the Agropastoral livelihood, children who had fallen ill were nearly 1.45 times more likely to be malnourished than those who were well (RR=1.45; CI: 1.01-2.11) especially those who reported diarrhoea (RR=1.35; CI: 1.07-1.69).

Similarly, among the assessed IDPs and riverine populations, a higher proportion reported to have been ill were also acutely malnourished, but the association was not statistically significant ($P>0.05$).

Measles vaccination status (by recall) for eligible children (9-59 months old) was low at only 42.2% as was coverage for vitamin A supplementation (40.6%) in the assessed agropastoral population. Among the assessed IDP population, measles immunization and Vitamin A supplementation status were 63.5% and 54.2% respectively and at 61.7% and 62.9% respectively in the riverine population. Overall, coverage for all the health programmes fell below the recommended 95% level (Sphere, 2004) in all the three livelihoods (Table 4.7).

4.6 Feeding practices

None of the assessed children were exclusively breastfed for the recommended first six months and more than 35% of the children aged 6-24 months had stopped breastfeeding at the time of the assessment and more than 95% were introduced prematurely to complementary foods, over 75% within the first three months of birth (Table 4.8). At least two thirds (60.4-79.1%) of those who were breastfeeding were breastfed on demand as recommended, but less than 10% were given complementary foods at least five times a day as recommended by SPHERE (2004). Analysis of distribution of acute malnutrition between the different age groups showed higher risks and levels of association with acute malnutrition for the younger children. Among the IDPs, the breastfeeding age group 6-24 months were 2.3 times more likely to be acutely malnourished than the 25-59 months category (RR=2.25; CI: 1.54 – 3.27). Among the Agro-pastoral population, those aged 6-24 months were 1.5 times more likely to be acutely malnourished than their 25-59 months aged counterparts (RR=1.50; CI: 1.01 – 2.23) and among the riverine population, the relative risk to acute malnutrition among the breastfeeding age bracket was 2.28 (CI: 1.60-3.25).

Table 4.8: Children feeding practices

Feeding Indicator	IDPs		Agropastoral		Riverine	
	n	*%*	*n*	*%*	*n*	*%*
Is child (6-24 mo) breastfeeding?		N=274		N=285		N=259
Yes	111	40.5	177	62.1	167	64.5
No	163	59.5	108	37.9	92	35.5
Breastfeeding frequency		N=111		N=177		N=167
1-2 times	3	2.7	16	9.0	4	2.4
3-6 times	41	36.9	21	11.9	43	25.7
On demand	67	60.4	140	79.1	120	71.9
Age stopped breastfeeding		N=163		N=108		N=92
<6 months	37	22.7	24	22.2	25	27.2
6 - 11 months	89	54.6	60	55.6	40	43.5
12 – 18 months	34	20.9	23	21.3	19	20.7
More than 18 months	2	1.2	1	0.9	7	7.6
Never breastfed	1	0.6	0	0.0	1	1.1
Introduction of Complementary feeding		N=274		N=285		N=259
0 - 3 months	206	75.2	233	81.8	235	90.7
4 – 5 months	46	16.8	31	10.9	21	81
6 months	20	7.3	15	5.3	1	0.4
7 or more months	2	0.7	6	2.1	2	0.8
Complementary Feeding frequency:		N=274		N=285		N=259
Once	38	13.9	32	11.2	16	6.2
2-3 times	175	63.9	190	66.7	202	78.0
4 times	50	18.2	41	14.4	32	12.4
5 or mores times	11	4.0	22	7.7	9	3.5

4.7 Nutrition Status

4.7.1 Acute Malnutrition by Livelihoods

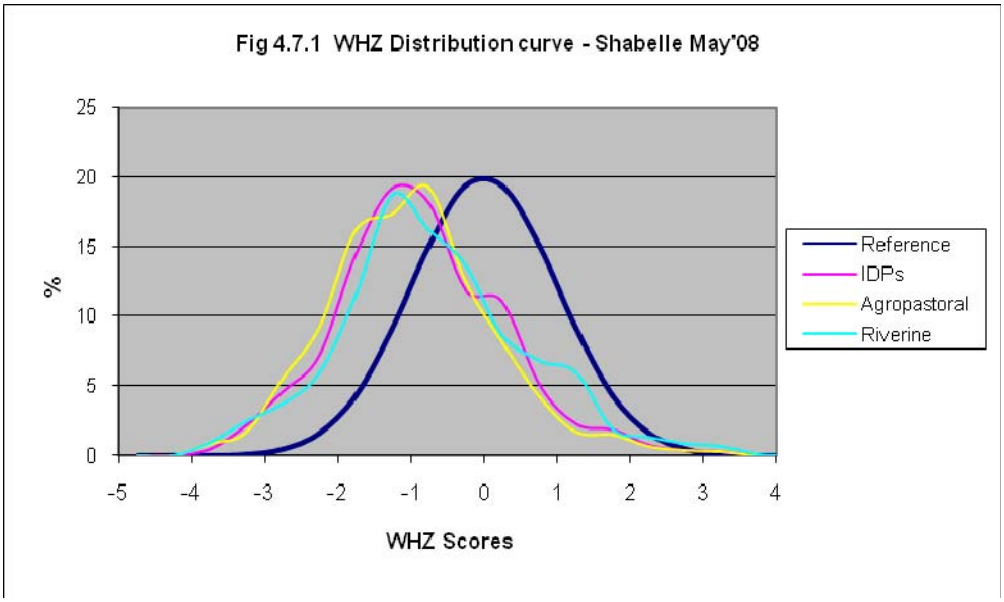
A total of 2219 children aged 6-59 months and with height of 65-109.9 cm were assessed from 1243 households for the three livelihoods (population groups). In the IDP assessment a total of 783 children, 51.9% boys and 48.1% girls (sex ratio = 1.08) aged 6-59 months were assessed from 404 households (mean household size = 6.8 ± 2.9). In the agropastoral livelihood, 754 children (50.5% boys and 49.5% girls; sex ratio 1.02) were assessed from 445 households (mean household size = 6.1 ± 2.4) while 682 children (51.8% of them boys and 48.2% girls; sex ratio 1.07) were assessed from 394 sampled households (mean household size = 5.8 ± 2.0). The results show ***Serious*** nutrition levels according to WHO classification in the riverine with GAM rate of **13.7%** (CI: 9.6-17.7) and SAM rate of **3.8%** (CI: 1.8-5.9) including two (0.3%; CI: 0.0-0.9) oedema cases. However the nutrition situation among the agropastoral livelihood remains ***Critical*** with GAM and SAM rates of **18.1%** (CI: 14.4-21.8) and **3.5%** (CI: 1.7-5.3) respectively including seven (0.9%: CI: 0.3-1.6) oedema cases. Similarly results of the IDPs assessment reported a ***Critical*** nutrition situation with a GAM rate of **15.0%** (11.5-18.4%) and a SAM rate (weight for height <-3 Z score or oedema) of **1.0%** (0.2-1.8) with four (0.5%; CI: 0.0-1.0) cases of oedema. A summary of the findings for the acute malnutrition rates is given in Table 4.9.

Table 4.9: Summary of Malnutrition rates by Livelihood systems

Malnutrition rates	IDPs		Agropastoral		Riverine	
	No	% (CI)	No	% (CI)	No	% (CI)
Global Acute Malnutrition (WHZ<-2 or oedema)	117	**15.0** (11.5 – 18.4)	135	**18.1** (14.4 – 21.8)	93	**13.7** (9.6 – 17.7)
Severe Acute Malnutrition (WHZ<-3 or oedema)	7	**1.0** (0.2 – 1.8)	26	**3.5** (1.7 - 5.3	26	**3.8** (1.8 – 5.9)
Oedema	4	**0.5** (0.0 – 1.0)	7	**0.9** (0.3 – 1.6)	2	**0.3** (0.0 – 0.9)
GAM estimates by WHO Anthro (2005) Standards:	121	**15.5** (12.9 - 18.1)	148	**19.8** (16.9- 22.8)	90	**13.2** (10.6 – 15.8)
SAM estimates by WHO Anthro (2005) Standards:	41	**5.2** (3.6 – 6.9)	54	**7.2** (5.3 – 9.1)	31	**4.6** (2.9 – 6.2)
Global Acute Malnutrition (WHM<80% or oedema)	86	**11.0** (8.2 – 13.9)	101	**13.5** (10.2 – 16.8)	70	**10.3** (6.8 - 13.8)
Severe Acute Malnutrition (WHM<70% or oedema)	15	**1.9** (0.7 – 3.1)	15	**2.0** (0.7 – 3.3)	10	**1.5** (0.5 – 2.4)
Proportion of stunted children (HAZ<-2	225	**28.8** (21.1 – 36.5)	251	**33.6** (27.1 – 40.2)	298	**43.7** (37.1 – 50.3)
Proportion of underweight children (WAZ<-2)	241	**30.9** (23.8 – 37.9)	276	**37.0** (32.1 – 41.9)	265	**38.9** (32.5 – 45.3)

When estimated using WHO Anthro (2005) Reference standards, similar GAM rates and almost double SAM rates were reported. IDPs assessment reported GAM rate of **15.5%** (CI: 12.9 – 18.1) from 15.0% and SAM rate of **5.2%** (CI: 3.6 – 6.9) from 1.0% (CI: 1.9 – 4.5). Agropastoral livelihood assessment reported GAM rate of **19.8%** (CI: 16.9 – 22.8) from 18.1% and SAM rate of **7.2%** (CI: 5.3 – 9.1) from 3.5% (CI: 1.7 – 5.3), while among the riverine livelihood population the GAM rate was **13.2%** (10.6 – 15.8) from 13.7% and increased SAM rate of **4.6%** (CI: 2.9 – 6.2) from 3.8% was reported.

The distributions of the weight-for-height scores in the three Shabelle regions assessments were skewed towards the left depicting a poorer nutrition situation according to international (WHO) standards (Fig 4.7.1).



The mean WHZ for IDPs, Agropastoral and Riverine livelihoods were ¯0.88 (SE=0.06; CI: ¯0.99 - ¯0.77); ¯0.98 (SE=0.08; CI: ¯1.14 - ¯0.82) and -0.70 (SE=0.13; CI: ¯0.96 - ¯0.44). A summary of the Nutrisurvey quality checks which assess the quality of the data for the assessments is given in appendix 7.

4.7.2 Acute Malnutrition by Sex in the three Livelihoods

Table 4.10 Distribution of children by nutritional status (WHZ-score or oedema) and gender

Nutrition status	IDPs				Agropastoral				Riverine			
	Males		Females		Males		Females		Males		Females	
	n	%	n	%	n	%	n	%	n	%	n	%
GAM (WHZ<-2 /oedema)	67	16.5	52	13.8	76	19.9	63	17.0	56	15.9	36	10.9
SAM (WHZ<-3 /oedema)	20	4.9	7	1.9	22	5.8	8	2.2	17	4.8	8	2.4
GAM (WHO Anthro)	69	17.0	53	14.1	84	22.2	65	17.5	60	17.0	30	9.1
SAM (WHO Anthro)	28	6.9	13	3.5	35	9.2	19	5.1	22	6.2	9	2.7
Stunting (HAZ<-2)	122	30.0	103	27.3	139	36.5	117	31.4	165	46.7	132	40.1
Underweight (WAZ<-2)	126	31.3	117	31.0	153	40.7	123	33.2	145	41.3	117	35.6

Results of acute malnutrition among the surveyed population in all the livelihoods using weight for height <-2 Z score or presence of oedema did not show any statistical difference between the two sexes ($p>0.05$) even though slightly higher proportions of boys than girls were acutely malnourished with 16.5%, 19.9% and 15.9% boys respectively compared to 13.8%, 17.0% and 10.9% girls in IDPs, agropastoral and riverine livelihoods. Similarly, there was no statistical difference in the levels of stunting and underweight between boys and girls.

4.7.3 Acute Malnutrition by Age in the three Livelihoods

Table 4.11 Distribution of Acute Malnutrition (WHZ Scores) by Age

Age (months)	IDPs		Agropastoral		Riverine	
	SAM	GAM	SAM	GAM	SAM	GAM
6-17	6 (3.5%)	41 (24.1%)	8 (4.7%)	40 (23.7%)	7 (4.8%)	28 (19.3%)
18-29	11 (6.0%)	35 (19.1%)	9 (4.5%)	42 (21.0%)	12 (6.6%)	36 (19.7%)
30-41	3 (1.6%)	16 (8.6%)	5 (2.8%)	38 (15.7%)	3 (1.7%)	13 (7.5%)
42-53	4 (2.1%)	18 (9.6%)	2 (1.5%)	15 (11.3%)	3 (2.2%)	10 (7.4%)
54-59	1 (1.8%)	7 (12.7%)	2 (3.0%)	10 (15.2%)	1 (2.4%)	6 (14.3%)
Total	25 (3.2%)	117 (15.0%)	26 (3.5%)	135 (18.1%)	26 (3.8%)	93 (13.7%)

Analysis of distribution of acute malnutrition between the different age groups showed different risks and levels of association with malnutrition. Among the IDPs, the breastfeeding age group 6-24 months were 2.25 times more likely to be acutely malnourished than and the 25-59 months category (RR=2.25; CI: 1.54 – 3.27) and those in the 6-29 months age band were also 2.25 times more likely to be acutely malnourished (RR=2.25; CI: 1.41 – 3.57) than those in the 30-59 months band. Among the agropastoral population, those aged 6-24 months were 1.5 times more likely to be acutely malnourished than their 25-59 months aged counterparts (RR=1.50; CI: 1.01 – 2.23) and those in the 6-29 months age band were also 1.58 times more likely to be acutely malnourished (RR=1.58; CI: 1.01 – 2.47) than those in the 30-59 months band. And among the riverine, those aged 6-24 months were 2.28 times more likely to be acutely malnourished than their 25-59 months aged counterparts (RR=2.28; CI: 1.60 – 3.25) and those in the 6-29 months age band were also 2.37 times more likely to be acutely malnourished (RR=2.37; CI:

1.54 – 3.63) than those in the 30-59 months band.

4.7.4 Acute Malnutrition Assessed by MUAC

Table 4.12 Child and Maternal Malnutrition by MUAC

Malnutrition rates	***IDPs***		***Agropastoral***		***Riverine***	
	No	*% (CI)*	*No*	*% (CI)*	*No*	*% (CI)*
Child MUAC	N= 702		N= 673		N=624	
GAM (MUAC< 12.5 cm or oedema)	53	**7.6** (5.1 – 10.0)	82	**12.2** (7.8 – 16.6)	54	**8.7** (5.4 – 12.0)
SAM (MUAC< 11.0 cm or oedema)	7	**1.0** (0.2 - 1.8)	14	**2.1** (0.4 - 3.8)	9	**1.4** (0.3 - 2.6)
Pregnant Women MUAC	N=55		N=88		N=93	
Total malnourished (MUAC< 23.0 cm)	5	**9.1**	9	**10.2**	11	**11.6**
Severely malnourished (MUAC≤ 20.7 cm)	2	**3.6**	2	**2.3**	3	**3.2**
Non pregnant women MUAC	N=310		N=373		N=309	
Total malnourished (MUAC≤ 18.5 cm)	3	**1.0** (0.0 – 2.4)	1	**0.3** (0.0 – 0.8)	1	**0.3** 0.0 – 1.0
Severely malnourished (MUAC< 16.0 cm)	0	**0.0**	0	**0.0**	0	**0.0**

Based on MUAC measurements, acute malnutrition rates (MUAC< 12.5 cm or oedema) of 7.6% (CI: 5.1 – 10.0); 12.2% (CI: 7.8 – 16.6) and 8.7% (CI: 5.4 – 12.0) were reported in the IDPs; Agropastoral and Riverine livelihoods respectively (Table 4.12) including 1.0% (CI: 0.2-1.8), 2.1% (CI: 0.4-3.8) and 1.4% (CI: 0.3 – 2.6) respectively at high risk of mortality (MUAC<11 or oedema) indicating *critical*[10] nutrition situation in the agropastoral and *serious* nutrition situation in IDPs and riverine areas. The MUAC results though an underestimation, were generally consistent with weight –for-height estimates of malnutrition.

Among the assessed women; high malnutrition rates were recorded among the pregnant women (MUAC< 23.0 cm) ranging from 9.1% in IDPs to 11.6% in the agropastoral livelihood system. A significant proportion of pregnant women were also severely (MUAC<20.7 cm) at risk of malnutrition as indicated in Table 4.11. Pregnancy raises physiological and nutritional demands of women making them vulnerable to malnutrition. Low acute malnutrition rates were recorded among the non pregnant women.

[10] According to the FSAU Nutrition Indicators and Categorization Table

4.8 Mortality

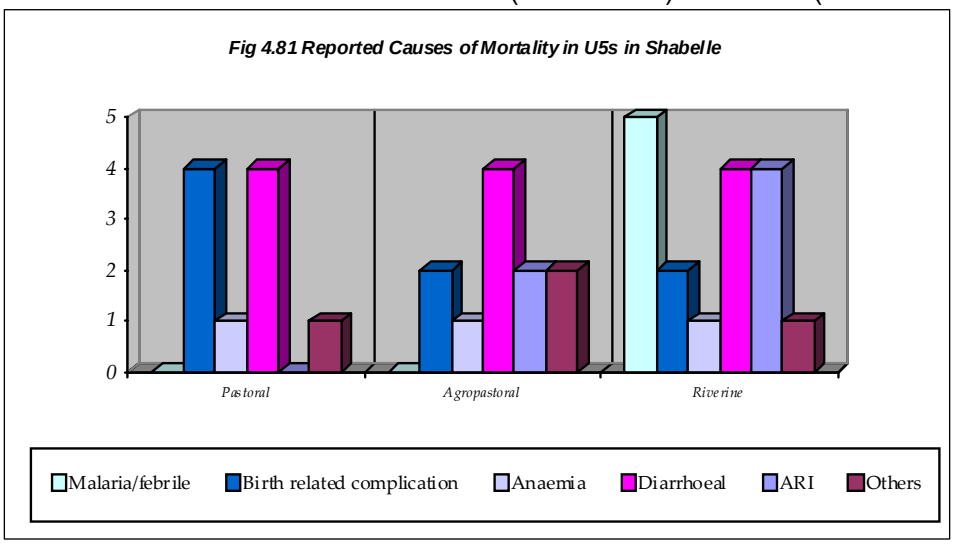
A total of 71 deaths, 20 deaths and 59 deaths were recorded respectively in IDPS, Agropastoral and Riverine assessments. Table 4.13 summarises the results of the mortality assessment.

Table 4.13 Mortality among the IDPs, Agropastoral and riverine LZs in Shabelle

	IDPs		*Agropastoral*		*Riverine*	
	U5	Total	U5	Total	U5	Total
Total HHs surveyed		789		757		705
Total Population assessed in HHs	1360	4979	1080	4428	916	3809
Number who joined the HHs	16	103	7	97	5	80
Number who left the HHs	38	292	17	172	4	124
Number of births		31		66		26
Number of deaths	18	44	13	39	18	49
Mortality rate	**1.47** (0.96–1.99)	**0.96** (0.12 – 1.81)	**1.36** (0.16 – 2.57)	**0.97** (0.29 – 1.66)	**2.19** (0.01 – 7. 27)	**1.42** (0.02 – 2.82)

The crude and U5 mortality rates were 0.96 (0.12-1.81) and 1.47 (0.96-1.99) respectively among the IDPs. CMR and U5MR rates of 0.97 (0.29 - 1.66) and 1.36 (0.16 -2.57) respectively were reported in the agropastoral livelihood. Among the riverine CMR of 1.42 (0.02 – 2.82) and U5MR 2.19 (0.01-7.22) were reported (Table 4.13).

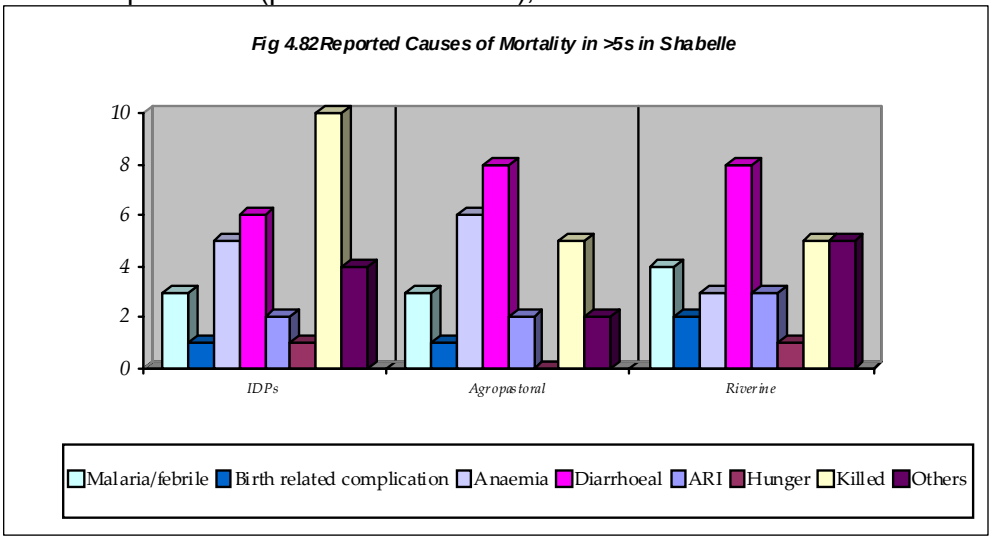
Fig 4.81 Reported Causes of Mortality in U5s in Shabelle



Except for riverine, which was *alert,* both CMR and U5MR were below the alert thresholds in both IDPs and agropastoral livelihoods indicating acceptable situation according WHO standards.

As shown on figure 4.8.1, diarrhoeal diseases, birth related complications (poor birth outcome), febrile illnesses and ARI were the main reported factors associated with under-five mortality according respondents' recall.

Fig 4.82Reported Causes of Mortality in >5s in Shabelle



Among adults and children aged 5 years, most deaths were caused by physical injuries/violent deaths especially among the IDPs (Fig 4.8.2). Diarrhoea; anaemia, malaria and birth related complications were also reported as the main causes of death. It should be noted that the mortality recall period of 90 days coincided with the sporadic armed conflict in Mogadishu and most areas of southern Somalia in which several people have lost their lives, explaining the high conflict-related deaths.

4.9 Qualitative Information

Additional Information on food security, water & sanitation and childcare practices was collected through qualitative approaches. Semi-structured interviews with key informants and community focus groups were used for collecting the information. Proportional piling was used to identify livestock mortality, calving and kidding rate. The team also stopped randomly at settlements along the road for brief assessments, and ensured that rural communities and IDPs living outside the main villages were identified during the assessment.

Shabelle regions received below normal *Gu*' 08 rains, with the rains starting late in most areas. The riverine areas planted late – offseason crops. However, at the time of the assessment there was no water stress yet in the region, as most of the sources still contained water. Most of the areas in the Shabelle regions accessed water mainly from rain water catchments, open wells and river. There are some villages with protected water wells like Wanlawein, Janale and Bulo-Marer towns, but this is not affordable to all. Overall, pasture condition was getting poorer and and the livestock body condition among the agropastoralists was normal for most species but deteriorating for cattle. Normal animal movements towards Lower Shabelle, parts of which received good rains were reported. Low conception, kidding and calving was reportedly low for all the animal species milk good milk production was reported only for goats in the agropastoral villages. Camel and cow milk was not available in most villages. The prices of foods and other essential commodities were reported to be escalating within three months with some doubling or tripling. Rice for instance costed SSH 12,000 in January 2008 while in April 2008; the price had tripled to SSH 36,000. And 40 litres of water cost SSH 1000 in January 2008 while in April it had doubled to 2000. In the same month of January, cooking oil, wheat flour and sugar costed SSH 30,000 per litre, SSH 16,000 per kilo and SSH 1200 per kilo respectively while in April their prices had all doubled.

The food security and nutrition situation was apparently worse in M. Shabelle than in L. Shabelle. Most villages, especially in areas of Walanweyne had good sorghum crop establishment, good pasture and animal body conditions. Low river bank water levels in M. Shabelle had affected irrigation upstream and with high cost of farm inputs, crop cultivation was severely affected. The main source of household food is purchases and food aid. Income for food purchases is mainly derived from casual farm labour; charcoal burning; petty trade for instance sale of fruits. Most households take only two meals a day. Some households engage in harvesting, consumption and sale of bush products, firewood and fodder and to some extent sale of relief food share in exchange of other essential items.

Common diseases like diarrhoea, ARI, malaria and whooping cough are prevalent. InterSOS had distributed several insecticide treated nets in the past one year but not all who have the nets use them. Some of the nets have since been torn and cannot protect against mosquito bites. Health facilities are generally insufficient and water quality and sanitation is precariously poor in both Middle and Lower Shabelle, but improvements have been noted after humanitarian intervention in the IDP concentration settlements.

Child feeding and child care practices remain largely suboptimal. Breastfeeding duration for children is usually 12 -18 months from birth. Water is often given to the newborn at birth. A sugary solution is given to the baby within the first week of birth while most children are given complementary food (animal milk – mostly goat milk) before they are one month old. For most children, semi solid foods are introduced as early as 3-4 months of age and solid foods like rice or canjera are introduced at the age of 8-12 months. Main foods given to infants (1 – 12 years) are goat milk 3 to 4 times a day in most cases and sometimes *canjero* or rice mixed with sugar and oil/butter and porridge (flour + sugar + oil). Food insecurity/hunger, close pregnancy intervals and sometimes ill health are the major constraints to breastfeeding of young children below two years. However cultural beliefs sometimes also negatively affect breastfeeding as highlighted in the FSAU KAP study. Lack of clean water, cooking & storage

facilities and too much domestic work for women were mentioned as the main hindrances to food preparation and storage. Women have to travel long distances at times (during dry spells) or spend a lot of time away from home and do not have enough time to prepare food.

5.0 Discussion

Results from the three nutrition assessments (IDPS, Agropastoral and Riverine Livelihoods) conducted in the Shabelle regions between 22nd and 31st May 2008, by FSAU and partners, indicate that the nutrition situation remains at or close to emergency threshold levels (>15%), without any statistically significant change from levels reported in November 2007. The retrospective crude mortality rates (CMR) are similar to the November '07 studies, indicating **serious** levels in two of the three assessments. The persistent poor nutrition situation is the result of the multiple shocks including, trade disruptions, massive displacement, crop failure, hyper inflation and continued civil insecurity in the Shabelle Regions since January 2007.

Shabelle Internally Displaced Populations in Afgoye and Merka reported a GAM rate (weight for height <-2 Z score or oedema) of **15.0%** (11.5-18.4%) and a SAM rate (weight for height <-3 Z score or oedema) of **1.0%** (0.2-1.8) with four (0.5%; CI: 0.0-1.0) cases of oedema reported. This is a significant reduction in the proportion of severely malnourished children from the **3.2%** (1.9-4.5) reported in November 2007, but no change in GAM from the previous rates of **15.2%** (11.7-18.6%). The improvement in SAM rates is mainly due to selective feeding interventions provided among the IDP population, which also explains why further deterioration in GAM has not been experienced with sustained ***Critical*** malnutrition levels. In addition, the respective Crude and under five year mortality rates of **0.96** (0.12-1.81) and **1.47** (0.96-1.99) among the IDPS were below the emergency threshold levels of *1/10,000/day* and *2/10,000/day* indicating an *alert* situation according to WHO classification and a slight improvement from CMR of **1.45** (0.97-1.93) and U5MR of **2.95** (1.55-4.34) reported in November 2007.

Shabelle Agropastoral reported a GAM rate of **18.1%** (CI: 14.4-21.8) and a SAM of **3.5%** (CI: 1.7-5.3) including seven (0.9%: CI: 0.3-1.6) oedema cases. These results indicate a sustained critical level of acute malnutrition from November 2007 assessment where a GAM rate of **17.6%** (13.3-21.8) and a SAM rate of **4.5%** (2.5-6.6) including four (0.4%) oedema cases were reported.

Shabelle Riverine reported a global acute malnutrition (GAM) rate of **13.7%** (CI: 9.6-17.7) and Severe Acute Malnutrition (SAM) rate of **3.8%** (CI: 1.8-5.9) including two (0.3%; CI: 0.0-0.9) oedema cases, again indicating no significant change from the November 2007 assessment when a GAM rate of **14.0% (**11.2 – 16.7) and SAM rate of **2.9%** (1.6 – 4.1) including seven (0.8%) oedema cases. Although these results appear lower than the rates reported among the riverine population assessed in May of when a GAM rate of **17%** (13.4-20.0) and SAM rate of **4.8%** (3.0-6.7) were recorded, the change is not statistically significant. The Crude and under five year mortality rates of **0.96** (CI: 0.12-1.81) and **1.47** (CI: 0.96-1.99) were reported respectively. These levels were below the emergency threshold levels of *1/10,000/day* and *2/10,000/day* indicating *acceptable* situation (WHO standards).

High morbidity rates in Shabelle regions continue to compromise the nutrition situation of the populations. More than half (64.4%; 63.0% and 54.8%) of children had reportedly suffered from one or more communicable childhood diseases in the two weeks prior to the assessment in the IDPs, Agropastoral and Riverine livelihoods respectively. The incidence of reported diarrhoea in IDPs, Agropastoral and Riverine populations (23.5%; 33.4% and 25.5% respectively) in the two weeks prior to the assessment remained high. High incidences of ARI (36.1%, 41% and 23% respectively) and febrile illnesses (25.8%, 25.1% and 20.1% respectively) were also reported in the three livelihoods. These levels were consistent with seasonal morbidity patterns recorded from the health facilities. Rapid Diagnostic Tests (RDT) conducted for malaria however reported low (<5%) prevalence rates of 3.1% (N=1315), 0.6% (N=1503) and 2.1% (N=1411) positive for *Plasmodium falciparum* respectively. And analysis continues to show strong significant association between acute malnutrition and morbidity rates. Children who had been ill within two weeks prior to the assessment were more likely to be acutely malnourished ($p<0.05$). For example, in the Agropastoral livelihood, children who had fallen ill were

nearly 1.5 times more likely to be acutely malnourished than those who were well (RR=1.45; CI: 1.01-2.11).

Poor feeding practices persist in Shabelle regions like in other parts of Somalia contributing to the high levels of acute malnutrition especially among the assessed breastfeeding age (6-24 months). For instance less than two thirds of the children aged 6-24 months were breastfeeding at the time of the assessment and more than 95% were introduced prematurely to complementary foods, over 75% within the first three months of birth. Analysis of distribution of acute malnutrition between the different age groups showed higher risks and levels of association with acute malnutrition for the younger children. Among the IDPs, the breastfeeding age group 6-24 months were 2.3 times more likely to be malnourished than the 25-59 months category (RR=2.25; CI: 1.54 – 3.27). Among the Agro-pastoral population, those aged 6-24 months were 1.5 times more likely to be acutely malnourished than their 25-59 months aged counterparts (RR=1.50; CI: 1.01 – 2.23) and among the riverine population, the relative risk to malnutrition among the breastfeeding age bracket was 2.28 (CI: 1.60-3.25).

Low coverage of health programmes are important risk factors to the poor nutrition situation in Shabelle regions. Measles vaccination status (by recall) for eligible children (9-59 months old) was low at only 42.2% as was coverage, and so was vitamin A supplementation (40.6%), by recall, in the assessed agropastoral population. Among the assessed IDP population, measles immunization and Vitamin A supplementation status were 63.5% and 54.2% respectively and at 61.7% and 62.9% respectively in the riverine population. Between 76-91% of all the assessed children had reportedly been immunized against polio in the previous 6 months. Overall, coverage for all the health programmes fell below the recommended 95% level (Sphere, 2004) in all the three livelihoods.

The food security and nutrition situation remains precarious in Shabelle Valley regions and is worse in L. Shabelle. Poor *Gu* and *Hagaa'08* rainfall, late planting (off-season) in the riverine and coastal areas, and high cost of farm inputs, crop production was below normal (5450 MT i.e. 68% of Gu'07 and 33% of *Gu* PWA) in Middle Shabelle. Lower Shabelle however received better returns producing 63292 MT (232% of Gu 07 and 99% of *Gu* PWA) production. Walanweyne district especially received good rains and had a good sorghum harvest. The poor water availability has forced the animals to move from Middle Shabelle and Hiran areas downwards to L. Shabelle areas of Brava and Sablale. The body conditions are still good for all the animals except cattle, but milk production is generally below normal[11]. Most villages in Middle Shabelle and the IDPs had received food aid in mid May, and so they had improved dietary diversity, In addition the riverine population has better access to fruits and vegetables (bananas, mangoes, grapes, tomatoes and onions which are seasonal) consumption. Overall, 7-23% of the households still consumed less diversified diets in the 24 hours prior to the assessment. The main source of household food is purchases and food aid. Income for food and non-food income purchases is mainly derived from casual farm labour; charcoal burning; petty trade for instance sale of fruits. Most (70-81%) households take only two meals a day. Some households engage in harvesting, consumption and sale of bush products, firewood and fodder and to some extent sale of relief food share in exchange for other essential items.

Access to clean water for drinking and for domestic use remained limited and is a key concern in the study area. Majority of the agropastoral (62.7%) and riverine (68.3%) population got water from unprotected surface sources like river, canals, shallow wells and water catchments. About 76% of the assessed households in the agropastoral and riverine livelihoods in addition to 25% of IDP households do not have access to clean water. However, well sinking and water trucking interventions improved access to clean water (75%) in the IDP settlements.

In conclusion, insecurity, unemployment, stressed livelihoods, poor child feeding, poor access to water and sanitation and poor access to health services remain the main underlying causes of malnutrition in

[11] FSAU Post Gu Assessment, July 2008

the Shabelle regions. Shabelle regions have experienced multiple shocks and intense armed conflict for the last one year with devastating effects on trade disruptions, massive displacement, crop failure, hyper inflation, labour earnings and education. The continued armed conflict and civil insecurity in Mogadishu during the assessment has resulted in waves of population displacement and influx of hundreds of thousands displaced populations (IDPs). Feeding practices for children are persistently poor, preventable diseases are prevalent and access to maternal and child care is suboptimal in the region.

6. 0 Recommendations

The critical nutrition, health and food security situation in Shabelle calls for intervention efforts to address both immediate life saving needs in addition to developing longer term strategies to enhance the provision of basic services, sustainable strategies for livelihood support and social protection mechanisms. Specific recommendations include:

Immediate Interventions

- Improving coverage for health programmes, especially for measles vaccination and vitamin A supplementation. Vigorous campaigns are required in the Shabelle regions especially among the agropastoral and riverine communities.
- Rehabilitation of acutely malnourished children through selective feeding programs and active case finding until household food security is restored and critical public health issues are addressed. All options to address this through effective and non-damaging measures need to be considered. Capacity building of the existing health facilities and the community to manage malnourished children could be explored.
- There is need to focus on programmes that improve and sustain dietary diversity and consumption of micronutrient rich foods. Food distribution for pulses and micronutrient enriched oil could help improve dietary diversity especially among the IDPs.
- Intervention programmes on water, sanitation and hygiene practices including health education.

Long term Interventions

- Rehabilitation/protection of water systems including the well and water catchments (such as capping of wells) in anticipation of seasonal flooding. The community should be trained on sanitation of the water systems
- There is need for establishment or strengthening of health facilities and satellite services especially in rural villages where there are no health facilities
- Intensifying health and nutrition education activities at the household level to address care concerns, targeting mothers, and other caregivers. The main areas of focus should include promoting exclusive breastfeeding, appropriate young child feeding, diet diversification, and improvements in household hygiene including health care practices.

Appendix 1. Shabelle Nutrition Assessment Household Questionnaire, November 2007

Household Number _____ Date_____ Team Number _____ Cluster Number _____ Cluster Name _____ District: _____

Q1-8 Characteristics of Household

Q1. Household size[12] ?_____

Q2. Number of children less than 5 years (0-59 months)? _____

Q3. Sex of household head[13]? 1=Male 2=Female

Q4a Are you hosting any recently (in the last 6 months) internally displaced persons? 1= Yes 2= No **Q4b** If yes, Number of persons _____

Q5a Does household have mosquito net? _____ 1= Yes 2= No **Q5b.** If yes, ask to see the net: _____ 1= GFSOM label 2=Other type 3= Not seen

Q6. What is the household's main source of income? 1= Animal & animal product sales 2= Crop sales/Farming 3= Trade 4= Casual labour 5= Salaried/wage employment 6= Remittances/gifts/zakat 7= Others, specify _____

Q7-15 Feeding and immunization status of children aged 6 – 59 months (or 65 – 109.9 cm) in the household.

First Name	**Q7** **Age** (months) *(**if** child is more than 24 months old, **skip** to **Q13**)*	**Q8** **(If 6-24 months)** Are you breastfeeding[14] the child? *(**if** no, skip to **Q10**)* *1=Yes 2= No*	**Q9** **(If 6-24 months)** If breast feeding, how many times/day? *1=2 times or less 2=3-6 3=On demand*	**Q10** **(If 6-24 months)** If not breast feeding, how old was the child when you stopped breast-feeding? *1= less than 6 months 2=6-11 months 3=12 – 18 months 4=≥18 months 5= Never breastfed*	**Q11** **(If 6-24 months** At what age was child given water/ foods other than breast milk? *1=0-3 months 2=4-5 months 3=6 months 4=7 months or more.*	**Q12** **(If 6-24 months)** How many times do you feed the child in a day *(besides breast milk)*? *1= 1 time 2=2-3 times 3=-4 times 4= 5 or more times*	**Q 13** Has child been provided with Vitamin A in the last 6 months? *(show sample)* *1=Yes 2= No*	**Q14** **(If ≥9 months old)** Has child ever been vaccinated against measles? *1=Yes 2= No*	**Q15** Has the child ever been given polio vaccine orally? *1=Yes 2= No*
1									
2									
3									
4									

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

[13] *One who controls and makes key decisions on household resources (livestock, assets, income, and food), health and social matters for and on behalf of the household members.*

[14] *Child having received breast milk either directly from the mothers or wet nurse breast within the last 12 hours*

Q16-27 Anthropometry and morbidity for children aged 6 – 59 months or (65 – 109.9cm) in the household

First Name *Follow same order as per table on page 1*	**Age (months)**	**Q16** **Sex** *1=Male* *2=Female*	**Q17** **Oedema** *1=yes* *2= No*	**Q18** **Height (cm)** ***To the nearest one tenth)***	**Q19** **Weight (kg)** ***To the nearest one tenth)***	**Q20** **MUAC (cm)** ***(Only if >11 months)*** ***To the nearest one tenth)***	**Q21** Diarrhoea[15] in last two weeks *1= Yes* *2= No*	**Q22** Serious ARI[16] in the last two weeks *1=Yes* *2= No*	**Q23** Febrile illness/ suspected Malaria[17] in the last two weeks *1=Yes* *2= No*	**Q24** **(If ≥9 month)** Suspected Measles[18] in last one month *1=Yes* *2= No*	**Q25** Did child sleep under a mosquito net last night? *1=Yes* *2= No*	**Q26** Where did you seek healthcare assistance when child was sick? **(**If yes in ***Q21 – 24)*** *1=No assistance sought* *2=Own medication* *3=Traditional healer* *4=Private clinic/ Pharmacy* *5= Public health facility*	**Q27** Which of the following programs has the child benefited from? *1= SFP* *2= TFC* *3= OTP/CTC* *4= Other* *5= None*
1													
2													
3													
4													

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

Sno	**Name**	**Age** (years)	**Received Tetanus vaccine?** *1= Yes* *2= No*	**MUAC** (cm)	**Physiological status** *1=Pregnant* *2= Non pregnant*	**Illness in last 14 days?** If yes, what illness?
1	*Mother:*					

Codes** for adult **illnesses	
2= None	1= ARI
2=Diarrhoreal	3=Malaria/febrile
4=Joint	5=Urinal
6=Organ	7=Anaemia
8= Reproductive	9=Other, specify

[15] Diarrhoea is defined for a child having three or more loose or watery stools per day
[16] *ARI asked as oof wareen or wareento. The three signs asked for are cough, rapid breathing and fever*
[17] *Suspected malaria/acute febrile* illness: - the three signs to be looked for are periodic chills/shivering, fever, sweating and sometimes a coma
[18] *Measles (Jadeeco): a child with more than three of these signs– fever and, skin rash, runny nose or red eyes, and/or mouth infection, or chest infection*

Q 29 Food Consumption & Dietary Diversity

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

Food group consumed: What foods groups did members of the household consume in the past 24 hours (from this time yesterday to now)? Include any snacks consumed.	Did a member of your household consume food from any these food groups in the last 24 hours**?** *1=Yes* *2= No*	**Codes:* 1= Own production 6=Borrowed 2=Purchases 7=Gathering/wild 3=Gifts from friends/ relatives 8=Others, specify___ 4=Food aid 9=N/A 5=Bartered
Type of food		**What is the main source of the dominant food item consumed? *(Use codes above)?***
1. Cereals and cereal products *(e.g. maize, spaghetti, rice, caanjera, bread*)?		
2. Milk and milk products *(e.g. goat/camel/ fermented milk, milk powder)?*		
3. Sugar and honey?		
4. Oils/fats *(e.g. cooking fat or oil, butter, ghee, margarine)?*		
5. Meat, poultry, offal *(e.g. goat/camel meat, beef; chicken or their products)?*		
6. Pulses/legumes, nuts *(e.g. beans, lentils, green grams, cowpeas; peanut)*?		
7. Roots and tubers *(e.g. potatoes, arrowroot)?*		
8. Vegetables *(e.g. green or leafy vegetables, tomatoes, carrots, onions)?*		
9. Fruits *(e.g. water melons, mangoes, grapes, bananas, lemon)*?		
10. Eggs?		
11. Fish and sea foods *(e.g. fried/boiled/roasted fish, lobsters)?*		
12. Miscellaneous *(e.g. spices, chocolates, sweets, beverages, etc)?*		

Q30 In general what is the <u>main</u> source of staple food in the household? *(*Use codes in 29 above)* _____

Q31 Total number of food groups consumed in the household: _____

Q32 How many meals[19] has the household had in the last 24 hours (from this time yesterday to now)? 1= One 2=Two 3= Three

[19] *A meal refers to food served and eaten at one time (excluding snacks) and includes one of the three commonly known: - breakfast, lunch and supper/dinner*

Q33-38 Access to water (quality and quantity)

Q33a What is the household's main source of drinking water? 1 = Tap/ piped water 2= Tanker truck 3= Tube well/ borehole 4= Spring 5= Bottled water 6= rooftop rainwater 7= Surface water (river, stream, dam, pond, open well; water catchments; berkad, etc)

Q33b What is the household's main source of water for other domestic uses? _____ *(Use codes in **Q33a** above)*

Q34a Is drinking water drawn from a protected/safe source? 1= Yes 2= No

Q34b If household has no access to safe protected water what is the main reason? 1= Not Available 2= Distance too far 3= Security Concerns 4= Cannot afford

Q34c Do you get a reliable supply of drinking water from this source? 1= Reliable supply 2=Seasonal supply 3= Occasional problems 4= Frequent problems

Q35 Is water treated at the: **a)** source? 1= Yes 2= No **b)** storage level? 1= Yes 2= No

Q35c If treated, what is the method of treatment? 1= Boiling 2= Chlorination 3= straining/filtering 4= Decanting/ letting it stand and settle 5= Other, specify

Q36 Average time taken to and from the nearest water point *(including waiting and collecting time)* 1= <30 min 2=30 – 60 min 3= 1-2 hrs 4= more than 2 hrs

Q37 Number of water collecting and storage containers of 10-20 litres in the household: 1=1-2 containers 2= 3-4 containers 3=4-5 containers 4= more than 5

Q38 How is water stored in the household? 1= Clean containers with cover 2= Closed plastic containers 3= open buckets/ pans 4= *Ashuun (*with constricted neck/end)

Q39-43 Sanitation and Hygiene (access and quality)

Q39a Type of toilet used by most members of the household 1= Bush/open ground 2= Traditional pit latrine/ Open pit 3= Ventilated Improved pit latrine (VIP) 4= Flush toilets

Q39b If household has no access to sanitation facility, what is the main reason? 1= Pastoral/ frequent movements 2= Lack resources to construct 3= Doesn't see the need

Q40 Distance between latrine and water source (if underground or surface source) 1=1- 30 metres 2=30 metres or more

Q41 How many households share/use the same facility? 1= One 2= 2- 9 3= 10 or more

Q42 What key times do you maintain hygienic hand washing practices 1= before eating 2= before preparing food 3= before feeding the baby 4= after cleaning the baby's bottom 5= after defecation 6 = None /Not applicable

Q43 What substance do you use in your household for washing utensils, hands; body and clothes? 1= Soap/Shampoo 2= Sand 3= Ash 4= Plant extracts 5= None

Checked by supervisor *(signed)*: _____

Appendix 2: Shabelle Valley Mortality Questionnaire, May 2007

Household No: _____ Date: _____ Team No: ____ Cluster No: ____ Enumerator's Name: _____

No.	**1**: First Name	**2**: Sex *(1=M; 2=F)*	**3**: Age (yrs)	**4**: Born since **__ / 2/ 2008**	**5**: Arrived since **__ / 2/ 2008**	**6**: Reason for leaving	**7**: Cause of death
a) How many members are present in this household now? List them.							
b) How many members have left this household (out migrants) since **February __, 2008**? List them							
c) Do you have any member of the household who has died since **February __, 2008**? List them							

Codes

Reason for migration

1= Civil Insecurity
2= Food Insecurity
3= Employment
4=Divorce/ Married away
5=Visiting
6= Hospitalised
7= In boarding school
8= Grazing/herding
9= Other, specify

Cause of death

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

Summary*

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

** For Supervisor Only*

APPENDIX 3: Traditional Calendar of Events – Shabelles- May 2008

Month	Events	2003	2004	2005	2006	2007	2008
Jan.	Beginning of Jiilal		52 Arafo/Dul-Xaj	40 Arafo/Dul-Xaj	28 Arafo/ Gubashadii Maandher	16 Arafo/Dul-Xaj	4
Feb	Mid of Jiilaal		51 Sako	39 Sako	27 Sako	15 Sako	3
Mar.	End of Jiilaal		50 Safar	38 Safar TFG-Jowhar	26 Safar	14 Safar	2
Apr.	Beginning of Gu'		49 Mawliid SH.Oyaaye	37 Mawliid SH.Oyaaye	25 Mawliid SH.Oyaaye	13 Mawliid SH.Oyaaye	1
May	Mid of Gu'		48 Malmadoone	36 Malmadoon	24 Malmadoon	12 Malmadoo	
Jun.	End of Gu'	59 Jamadul-Awal	47 Jamadul-Awal	35 Jamadul-Awal	23 Jamadul-Awal	11 Jamadul-Awal	
Jul.	Beginning of Xagaa	58 Jamadul-Akhir Istunka	46 Jamadul-Akhir Istunka	34 Jamadul-Akhir Istunka	22 Jamadul-Akhir Istunka	10 Jamadul-Akhir Istunka	
Aug.	Mid of Xagaa	57 Rajab Ow-osmaan	45 Rajab Ow-osmaan	33 Rajab Ow-osmaan	21 Rajab Ow-osmaan	9 Rajab Ow-osmaan	
Sep.	End of Xagaa	56 Shacbaan	44 Shacbaan	32 Shacbaan	20 Shacbaan	8 Shacbaan Fatahaadii	
Oct.	Beginning of Deyr	55 Ramadaan Dilkii Istarliin	43 Ramadaan	31 Ramadaan	19 Ramadaan	7 Ramadaan	
Nov.	Mid of Deyr	54 Soonfur	42 Soonfur	30 Soonfur	18 Soonfur	6 Soonfur	
Dec.	End of Deyr	53 Siditaal	41 Siditaal	29 Siditaal	17 Siditaal	5 Siditaal Burburkii Maxkamada	

Jiilaal
GU'
Xagaa
Deyr

Appendix 4: Clusters Sampling for Shabelle, November 2007 assessment

Assignment of Clusters for Shabelle IDPs Assessment, May 08

Geographical Unit	Population size	Assigned cluster
Tawakal Jango'an Camp	1020	
God Bulsho	600	
Jabad Gele	2160	1
Shacir	600	
Dhimbil 1& 2	1800	
Sheekeeye	630	
Sh Rufaci	1080	2
Tawakal 1	1206	
Shareeco	2280	
Ali Sharaf	720	3
Ex-Stadium 2	780	
Km 18	618	
Suufi	654	
Sh Hassan Qoryoley	648	
Ciil-tire	1248	
Gen Daa,uud	720	4
Ilqeyte	1206	
Alla Aamin	1230	
Salamu	2700	5
Jaan Goan	3600	
Jabad Geed	1500	6
Kulam	420	
Buur Barago	800	
Biil	2100	
Gosha & Gendiga	2400	7
Dalsan	1440	
Garabaley	2400	8
Bowd Kuleejo	1560	
Casha Gorod	1728	9
Kaarshe	3630	
Abroone	1200	10
Kooshin	780	
Jiiro Pakistan/Eylo	2400	
Siinay	1560	11
Xaafaa Camp	1680	

Lafoole Boy's orphanage	2568	12
Faculty of Agri- Camp	1218	
Agricultural Sec School	1200	
Guulwadasha/Malesya	1200	
Jimcaale	678	13
Shaamow Capm	630	
Bundo-Carbis	840	
Khalif Camp	798	
Daaqa Qaranka	780	
Saynab Camp	900	
Qosalye	756	14
Jawahir Camp	840	
Juba 1& 2	720	
Xawa Cabdi main Camp	8244	15,16
Towfiq	2100	
SDM Camp	2946	17
Bulo-Sarman	4404	18
Duqow Camp	2334	
Al-Adala Camp	1692	19
Goof Sh. Cumar	1200	
Goof- Abdi Nur	1080	
Arbis Camp`	1800	20
To Marka	200	
Janale	36	
Marka	153	
Golweyn	12	
Bulo Sheikh Hassan	120	
Bulo-Jan	4068	21
Buulo Mareer	1139	
Buulo-Jadiid	207	
Golweyn	665	
Horseed	2370	22
Janale	1541	
Marka	16116	23,24,25
Melled	150	
Saraha-Aw Baale	52	
Shalambot	1140	26
Bulo-Jan	500	
Marka	108	
Melled	55	

Region	District	Geographical unit	Livelihood/ Assessment	Population size	Assigned cluster
L. Shabelle	Afgoye	Jabad Gele	IDPs	2160	26
L. Shabelle	Afgoye	Sh Rufaci	IDPs	1080	27
L. Shabelle	Afgoye	Ali Sharaf	IDPs	720	28
L. Shabelle	Afgoye	Gen Daa,uud	IDPs	720	29
L. Shabelle	Afgoye	Salamu	IDPs	2700	30
L. Shabelle	Afgoye	Jabad Geed	IDPs	1500	31
L. Shabelle	Afgoye	Gosha & Gendiga	IDPs	2400	32
L. Shabelle	Afgoye	Garabaley	IDPs	2400	33
L. Shabelle	Afgoye	Casha Gorod	IDPs	1728	34
L. Shabelle	Afgoye	Abroone	IDPs	1200	35
L. Shabelle	Afgoye	Siinay	IDPs	1560	36
L. Shabelle	Afgoye	Lafoole Boy's orphanage	IDPs	2568	37
L. Shabelle	Afgoye	Jimcaale	IDPs	678	38
L. Shabelle	Afgoye	Qosalye	IDPs	756	39
L. Shabelle	Afgoye	Xawa Cabdi main Camp	IDPs	8244	40; 41
L. Shabelle	Afgoye	SDM Camp	IDPs	2946	42
L. Shabelle	Afgoye	Bulo-Sarman	IDPs	4404	43
L. Shabelle	Afgoye	Al-Adala Camp	IDPs	1692	44
L. Shabelle	Afgoye	Arbis Camp`	IDPs	1800	45
L. Shabelle	Marka	Bulo-Jan	IDPs	4068	46
L. Shabelle	Marka	Horseed	IDPs	2370	47
L. Shabelle	Marka	Marka town	IDPs	16116	48- 50
L. Shabelle	Marka	Shalambot	IDPs	1140	51
M. Shabelle	Adan Yabal	Adan Yabaal Town	Agropastoral	7200	52
M. Shabelle	Adan Yabal	Xirka Dheere	Agropastoral	768	53
L. Shabelle	Afgoye	Rimay gacmeed	Agropastoral	650	54
L. Shabelle	Afgoye	Cadeyley	Agropastoral	720	55
M. Shabelle	Balcad	Damaley	Agropastoral	494	56
M. Shabelle	Balcad	Irida Sh.Ali	Agropastoral	840	57
M. Shabelle	Balcad	Shamurow	Agropastoral	2526	58
M. Shabelle	Balcad	Kulanta Shan Cawo	Agropastoral	506	59
L. Shabelle	Brava	Laheley.	Agropastoral	150	60
M. Shabelle	Caadale	Ruum Ceeli	Agropastoral	210	61
M. Shabelle	Jowhar	Waab Cadey	Agropastoral	348	62
M. Shabelle	Jowhar	Gaabaney	Agropastoral	996	63
M. Shabelle	Jowhar	Xawaal Miiney	Agropastoral	294	64
M. Shabelle	Jowhar	Lebiga	Agropastoral	9128	65
L. Shabelle	Kurtunwarey	Buulo mareer	Agropastoral	15600	66
M. Shabelle	Mahaday	Warahley	Agropastoral	206	67
M. Shabelle	Mahaday	Fido Yare	Agropastoral	270	68
L. Shabelle	Marka	Kali-caafimaad	Agropastoral	340	69
L. Shabelle	Marka	Shalaambood	Agropastoral	21360	70
L. Shabelle	Marka	Shukurow	Agropastoral	1200	71

L. Shabelle	Qoryoley	Farsooley	Agropastoral	5560	72
L. Shabelle	Qoryoley	Dheryooley	Agropastoral	120	73
L. Shabelle	Sablaale	Holoq tirii 2	Agropastoral	600	74
L. Shabelle	Walanwein	Walanwein Town	Agropastoral	35000	75
L. Shabelle	Walanwein	X. Yonis	Agropastoral	220	76
L. Shabelle	Walanwein	Waayeel Diinle.	Agropastoral	536	77
L. Shabelle	Walanwein	Lug-god	Agropastoral	500	78
L. Shabelle	Walanwein	Y. Bariweyne.	Agropastoral	5200	79
L. Shabelle	Walanwein	Laan Quraamed	Agropastoral	320	80
L. Shabelle	Walanwein	Kooriyeey.	Agropastoral	373	81
M.Shabelle	Balcad	Hawadley	Riverine	5068	82
M.Shabelle	Balcad	Baqdaad	Riverine	998	83
M. Shabelle	Jowhar	Primo Zendo	Riverine	684	84
M. Shabelle	Jowhar	Baalguri / Gacan Libaax	Riverine	28200	85; 86
M. Shabelle	Jowhar	Sabun	Riverine	2050	87
M. Shabelle	Jowhar	Barey	Riverine	1320	88
M. Shabelle	Jowhar	Yaabley	Riverine	433	89
M. Shabelle	Jowhar	Buulo Makiino	Riverine	27780	90; 91
L. Shabelle	Kurtunwarey	Bombaasa Kulub	Riverine	1622	92
L. Shabelle	Kurtunwarey	Sheekh banaaney	Riverine	1202	93
M. Shabelle	Mahaday	Burfule	Riverine	1780	94
M. Shabelle	Mahaday	Mansuur	Riverine	1908	95
L. Shabelle	Marka	Abiikarow	Riverine	426	96
L. Shabelle	Marka	Bulo-aruundo	Riverine	1106	97
L. Shabelle	Marka	Jeelow	Riverine	1400	98
L. Shabelle	Marka	Janaale	Riverine	22516	99
L. Shabelle	Marka	Waagaadi	Riverine	3306	100
L. Shabelle	Marka	Baldooska	Riverine	4212	101
L. Shabelle	Marka	Bocoroow	Riverine	652	102
L. Shabelle	Marka	Maguurto	Riverine	1986	103
L. Shabelle	Marka	Baalgure	Riverine	5652	104
L. Shabelle	Qoryoley	Dharenley	Riverine	2180	105
L. Shabelle	Qoryoley	Ay aarta	Riverine	1806	106
L. Shabelle	Qoryoley	Gay warow	Riverine	4020	107
L. Shabelle	Qoryoley	Haduuman	Riverine	4260	108
L. Shabelle	Sablaale	Biliq roobow	Riverine	998	109

Sampling Indicators/variables				
	Adale District	**IDPs**	**Agropastoral**	**Riverine**
U5 population	5,000	24,000	150,000	76,000
Estimated GAM	18	15	18	14
Desired Precision	3.5	3.5	3.5	3.5
Design Effect	1.5	1.5	1.5	1.5
No of children	636	590	692	564
Mean HH size	6	6	6	6
% U5s	20	20	20	20

% HH non response	2	2	2	2
No of HHs	**601**	557	654	532
Population Size	23,500	120,000	750,000	380,000
Estimated CMR	0.4	1.45	0.5	1.3
Desired Precision	0.3	0.5	0.3	0.5
Design Effect	1.5	1.5	1.5	1.5
Recall Period (days)	90	90	90	90
Population to survey	2846	3714	3557	3329
Households to survey	593	**774**	**741**	694
No of clusters	25	26	30	28
No of HHs per cluster	25	30	25	24
Mean No of children/Cluster	25	23	23	20

Appendix 4b. Shabelle November 2007 Assessment Team

Team		Names	Agency	Responsibility	Area Surveyed	Cluster No.
4	1	Hasan Ali Siyaad	SCC; Mogadishu	Supervisor	Walawein; Afgoye IDPs	75 – 81
	2	Maxamed Maxamud Abdule	Zam Zam, Mogadishu	Team Leader	Walawein; Afgoye IDPs	26- 27
	3	Abdishakur Sheikh Xasan	New Ways, Merka	RDT Nurse	Walawein; Afgoye IDPs	
	4	Mustaf Abdi Omar	Mercy USA; Jowhar	Enumerator	Walawein; Afgoye IDPs	
	5	Sagal Maxamed Omar	Health Post; Afgoye	Enumerator	Walawein; Afgoye IDPs	
5	1	Abdilahi Warsame	FSAU, Erigavo	Supervisor	Marka	46-51
	2	Yusuf Maxamed Haji	Community; Merka	Team leder	Marka	69-71
	3	Osman Maxamed Ali	COSV; Merka	RDT Nurse	Marka	
	4	Haawo Maxamud Maxamed	SRCS, Jowhar	Enumerator	Marka	
	5	Khadija Jibril Macalin	SHAWO; Merka	Enumerator	Marka	
6	1	Sahro Macalin Maxamed	Community, Afgoye	Supervisor	Brava;	60
	2	Maxamed Maxamud Maxamed	COSV, Merka	Team leder	Kurtunwarey	66
	3	Mulki Nuur Warsame	COSV, Merka	RDT Nurse	Qoryoley; Sablale;	72-74
	4	Sacid Ismacil Yusuf	Community, Merka	Enumerator	Kurtunwarey;	92-93
	5	Amino Maxamed Macalin	SRCS; Merka	Enumerator	Sablale	109
7	1	Moalim Mohamed Husein	FSAU, Mogadishu	Supervisor	Afgoye	28-31
	2	Bashir Ibrahim Heyban	Community, Mogadishu	Team leder	Qoryoley	105-108
	3	Maryan Axmed Maxamed	COSV, Brava	RDT Nurse	Afgoye; Qoryoley	
	4	Amina Axmed Sidow	New Ways, Merka	Enumerator	Afgoye; Qoryoley	
	5	Axmed Abdule Ali	Mercy USA; Jowhar	Enumerator	Qoryoley; Afgoye	

8	1	Ibrahim Hilowle Aden	COSV; Merka	Supervisor	Afgoye	32-38
	2	Fadumo Abdi Maxamed	Muslim Aid; Walawein	Team leder	Afgoye	54
	3	Iqra Huseen Maxamed	Community, Merka	RDT Nurse	Afgoye	
	4	Abdi Maxamed Axmed	Health Post; Afgoye	Enumerator	Afgoye	
	5	Muslimo Huseen Abdi	Intersos; Jowhar	Enumerator	Afgoye	
9	1	Zamzam Axmed Salad	WFP, Merka	Supervisor	Adan Yabal; Balcad	52-53
	2	Maryan Shire Yusuf	Community; Merka	Team leder	Adan Yabal; Balcad	56-59
	3	Fadumo Ali Dini	COSV, Shalambot	RDT Nurse	Adan Yabal; Balcad	82-83
	4	Huseen Maxamed Abdule	SRCS; Jowhar	Enumerator	Adan Yabal; Balcad	
	5	Ismacil Salat Dhore	SACOD, Merka	Enumerator	Adan Yabal; Balcad	
10	1	Sahro Maxamed Cumar	COSV; Jowhar	Supervisor	Jowhar; Mahaday	62-65
	2	Salax Xusein Xurshe	TRG; Jowhar	Team Leader	Jowhar; Mahaday	67-68
	3	Sheikh Ali Haji Maxamed	TRG; Jowhar	RDT Nurse	Mahaday; Jowhar	94-95
	4	Abdulahi Warsame Farax	COSV, Jowhar	Enumerator	Mahaday; Jowhar	
	5	Nimco Abdulahi Yasin	Community; Merka	Enumerator	Mahaday; Jowhar	
11	1	Mohamed Mohamud Hasan	FSAU, Galkayo	Supervisor	Merka	96-104
	2	Yasin Abdulahi Yasin	Community; Mogadishu	Team leder	Merka	
	3	Binti Omar Maxamed	COSV; Merka	RDT Nurse	Merka	
	4	Osman Abas Ali	Community; Merka	Enumerator	Merka	
	5	Salad Aweys Maxamed	CARE; Merka	Enumerator	Merka	
12	1	Sacid Xagaa Afrax	TRG, Jowhar	Supervisor	Jowhar	84-91
	2	Ali Huseen Axmed	AQAB; Adale	Team leder	Jowhar	
	3	Maryan Dahir Xalane	COSV: Qoryole	RDT Nurse	Jowhar	
	4	Maxamed Abdirizak Husein	Community; Jowhar	Enumerator	Jowhar	
	5	Sacdiyo Sharif Abukar	SSWC; Mogadishu	Enumerator	Jowhar	
13	1	Casho Xusein Macalin	Zam Zam; Mogadishu	Supervisor	Afgoye	39-45
	2	Raliyo Omar Macalin	SHAWO; Merka	Team Leader	Afgoye	55
	3	Axmed Xasan Gomey	COSV; Jowhar	RDT Nurse	Afgoye	
	4	Amin Muxudin Abtidon	Health Post; Afgoye	Enumerator	Afgoye	
	5	Maxamed Ali Husein	SRCS; Merka	Enumerator	Afgoye	
		Tom J Oguta		Coordinator	All	

APPENDIX 5: REFERRAL FORM FOR MALNOURISHED CHILDREN

Name of the village: _____ Date: _____

Name of the child: _____ Sex of child: _____

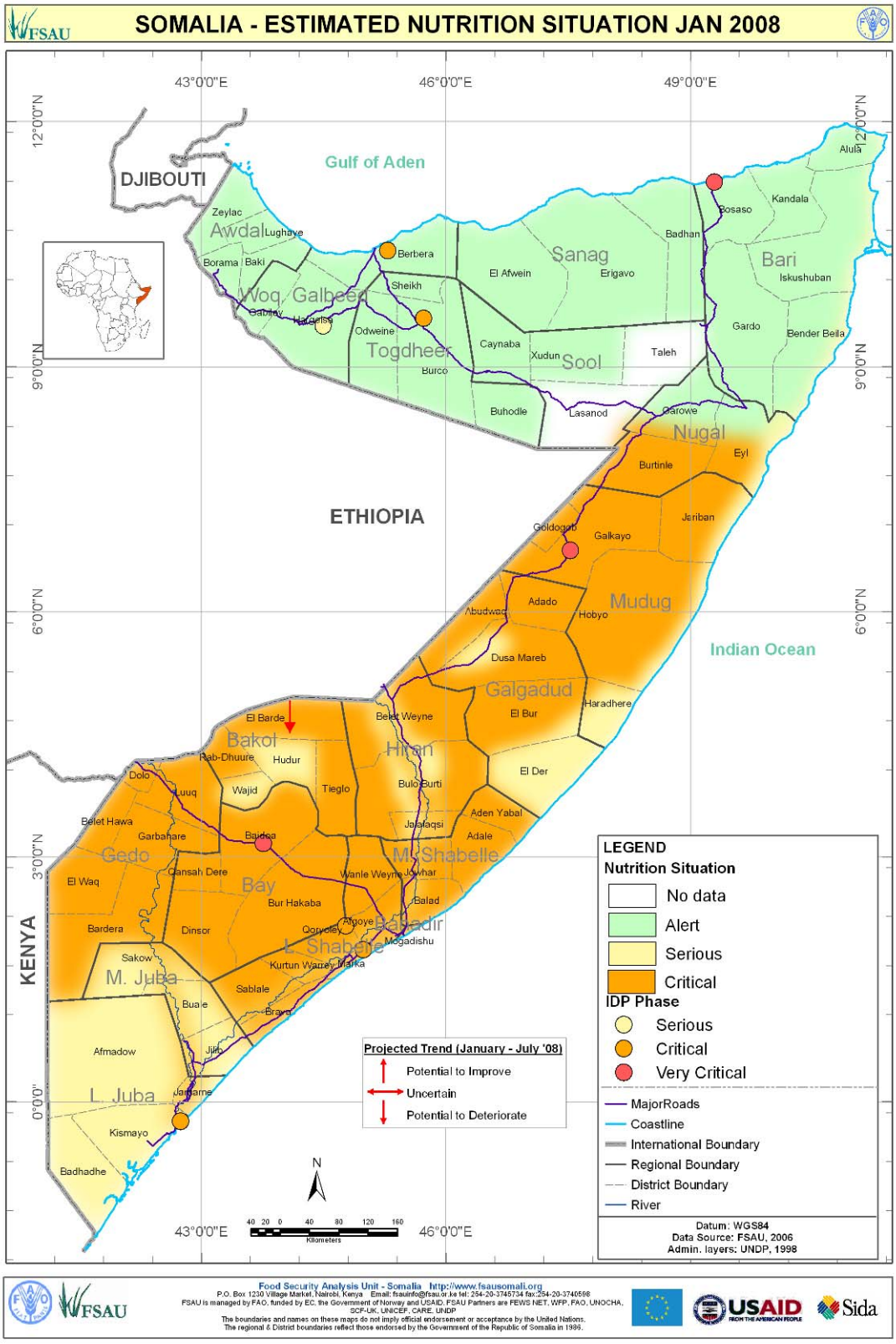
Age of child: _____ Name of caretaker: _____

Child diagnosed (suspected) with (state the condition): _____

Child referred to: _____

Child referred by: _____

Appendix 6.


SOMALIA - ESTIMATED NUTRITION SITUATION JAN 2008
FSAU
43°0'0"E
46°0'0"E
49°0'0"E
12°0'0"N
9°0'0"N
6°0'0"N
3°0'0"N
0°0'0"
DJIBOUTI
Gulf of Aden
ETHIOPIA
KENYA
Indian Ocean
Zeylac
Awdal
Lughaye
Borama
Baki
Berbera
Sheikh
Woq. Galbeed
Gabiley
Hargeisa
Odweine
Togdheer
Burco
Caynaba
Xudun
Sool
Sanag
El Afwein
Erigavo
Badhan
Taleh
Buhodle
Lasanod
Bosaso
Kandala
Alula
Bari
Iskushuban
Gardo
Bender Beila
Qarowe
Nugal
Eyl
Burtinle
Jeriban
Goldogob
Galkayo
Mudug
Adado
Hobyo
Abudwaq
Dusa Mareb
Galgadud
El Bur
Haradhere
El Der
Belet Weyne
El Barde
Bakol
Rab-Dhuure
Hudur
Dolo
Luuq
Wajid
Tieglo
Hiran
Bulo Burti
Jalalaqsi
Aden Yabal
Adale
Belet Hawa
Garbahare
Baidoa
Gedo
Gansah Dere
El Waq
Bay
Wanle Weyne
Jowhar
Bur Hakaba
Balad
M. Shabelle
Bardera
Dinsor
Qoryoley
Afgoye
Mogadishu
Banadir
L. Shabelle
Sakow
Kurtun Warrey
Marka
M. Juba
Sablale
Buale
Brava
Afmadow
Jilib
L. Juba
Jamame
Kismayo
Badhadhe
N
40 20 0 40 80 120 160
Kilometers
LEGEND
Nutrition Situation
No data
Alert
Serious
Critical
IDP Phase
Serious
Critical
Very Critical
MajorRoads
Coastline
International Boundary
Regional Boundary
District Boundary
River
Datum: WGS84
Data Source: FSAU, 2006
Admin. layers: UNDP, 1998
Projected Trend (January - July '08)
Potential to Improve
Uncertain
Potential to Deteriorate
Food Security Analysis Unit - Somalia http://www.fsausomali.org
P.O. Box 1230 Village Market, Nairobi, Kenya Email: fsauinfo@fsau.or.ke tel: 254-20-3745734 fax:254-20-3740598
FSAU is managed by FAO, funded by EC, the Government of Norway and USAID. FSAU Partners are FEWS NET, WFP, FAO, UNOCHA, SCF-UK, UNICEF, CARE, UNDP
The boundaries and names on these maps do not imply official endorsement or acceptance by the United Nations.
The regional & District boundaries reflect those endorsed by the Government of the Republic of Somalia in 1998.
USAID
Sida

Appendix 7. Assessments Quality checks

		IDPs	Agropastoral	Riverine	Reference
No of flags (%)		0.3	1.2	0.6	-
Mean of WHZ		-0.88	-0.98	-0.70	0
Digit preference	Weight	6.72 (acceptable)	4.0 (good)	3.45 (good)	0-5 = good 5-10 = acceptable
	Height	8.02 (acceptable)	11.62 (poor)	9.07 (acceptable)	5-10 = acceptable 10-15 = poor
SD of WHZ		1.160 (poor)	1.250 (poor)	1.308 (poor)	-0.80 to 1.20
Skewness of WHZ		0.342	0.875	0.347	-1 to 1
Kurtosis of WHZ		0.629	3.160	0.387	-1 to 1
Representativeness of sample	*Overall Sex/Age distribution*	*p*=0.002	*p*=0.000	*p*=0.000	*p*>0.05
	Age ratio of 6-29:30-59	0.83	0.99	0.94	Around 1.0
	Overall age distribution	*p*=0.007	*p*=0.000	*p*=0.000	*p*>0.05 =expected *p*<0.05 =bias
	Age clumping	42	13, 24; 36 and 58	58	None
	Sex ratio	1.08 (*p*=0.3)	1.02 (*p*=0.771)	1.07 (*p*=0.358)	0.8 to 1.2 (p>0.05)

REFERENCES

FSAU Monthly Nutrition Update, November 2007.

FSAU Monthly Nutrition Update, January 2008

FSAU 2008 Post Gu Analysis, August 2008

FSAU, September 2002: Food Utilization in Somalia

FSAU, October 2006: Nutrition Training Manual: A guide to data collection, analysis, interpretation and use.

FSAU, April 2004: Dietary Diversity in Somalia

SACB: Nutrition assessment guidelines for Somalia.

SC, UK (2004). Emergency Nutrition Assessment. Guidelines for field workers

Standardized Monitoring and Assessment of Relief and Transition (SMART). Standardizing. Assessment methodology. Technical Series. July 23 – 26, 2002. Washington, DC.

Sphere Guidelines, 2004. Humanitarian Charter and Minimum standards in Disaster Response. Sphere Project

WHO, 1995: Guide on rapid nutritional assessment in emergencies

WHO, Anthro 2005. Growth reference curves.

FSAU Food Security Press Release, October 2007