FSAU
Food Security Analysis Unit - Somalia

NUTRITION UPDATE

May-June 2008

Overview

Nutrition Situation: Findings from recent nutrition assessments in South Central Somalia indicate **sustained unacceptably high rates of acute malnutrition***, above the emergency thresholds, with further deterioration in parts of the region.

In May 2008, FSAU and partner agencies conducted a total of eleven nutrition assessments in Shabelle, Gedo, Bakool, Central and Nugal regions. Preliminary analyses of findings from these assessments show a varied situation ranging from ***Serious*** in Shabelle Riverine and Adale District (10-14.9% Global Acute Malnutrition) and ***Critical*** (15-19.9% Global Acute Malnutrition) in Shabelle IDPs and Agropastoral Livelihood Zone, Hawd and Addun Pastoral and Gedo Agropastoral Livelihood Zones; to ***Very Critical*** (≥ 20% Global Acute Malnutrition) in Gedo Riverine and Pastoral livelihood zones, and IDPs in Garowe and Galcayo.

In Gedo Riverine and Pastoral Livelihood Zones, the nutrition situation has indicated some deterioration since the most recent assessments conducted in April 2007, though not statistically significant, while in the Shabelle IDPs and Agropastoral, Hawd and Addun Pastoral Livelihood Zones in central regions, the situation remains ***Critical*** but stable when compared to the November 2007 results. In Shabelle Riverine Livelihood Zone and Adale District, there also is concern over the level of Crude Mortality Rate (CMR) which is within ***Alert*** levels (1-2 per 10,000 per day). The April 2008 assessment conducted in Bakool Pastoral Livelihood Zone (Elbarde district and parts of Huddur and Rabdure districts) also indicated deterioration in the nutrition situation with a global acute malnutrition rate of **24.1%** recorded. ACF conducted a nutrition assessment in Wajid area town and surrounding area in April and recorded similar rates to the FSAU/IMC results from Bakool region, with a global acute malnutrition of **22.3**% indicating a significant deterioration from the most recent assessment conducted in November 2007, where 14.3% was recorded.

Acute Watery Diarrhoea *(Highlights from WHO's Somalia Health Cluster Bulletins – May and June 2008)*
Between May 1st-31st, 2008 (Epidemiological week 18-21), a total of 7529 cases of clinically diagnosed Acute Watery Diarrhoea (AWD) including 37 related deaths (CFR 0.49%) were reported from all the three zones of Somalia. 74% (5544) of the cases were from children aged less than five years. Banadir region reported 7% AWD cases (499/7529) including 13 related deaths (CFR 2.06%).

In June a total of **404** AWD cases with no related deaths were reported from Lower and Middle Juba regions. **34%** were reported from Jilib district. On-going activities by WHO and partner agencies to combat AWD include increasing medical supplies to hospitals and health facilities, provision of health education and environmental hygiene and chlorination of water sources.

Impact of the Urban Crisis on Nutrition: In late March to early April 2008, FSAU in collaboration with partners conducted a *Rapid Emergency Urban Food Security Assessment* in 27 urban towns including 16 main urban towns and 11 rural settlement towns. The objective of the assessment was to gain a deeper understanding of the impact of increased food and non-food prices on urban populations, to identify how expenditure and income patterns have changed over the last year, and to determine if urban populations, especially the urban poor, were coping with hyperinflation. A *Rapid Nutrition Assessment* based on Mid Upper Arm Circumference (MUAC) was conducted simultaneously in the under fives (6-59 months) in Sanaag region (n=300), in Erigavo town as the main market town and Saramayo as a rural settlement, and in Juba region (n=300), in Kismayo as the main market and Sanguni as the rural settlement.

* Main prevalence estimates reported using NCHS population references <-2WHZ and or oedema. WHO Anthro results provided in the tables.

The Impact Of The Urban Crisis on Nutrition	2
Shabelle Region	2
Gedo Region	6
Central And Galgadud Region	9
Protracted IDPs	11
Bakool Region	13

Results of the analysis show that: the cost of the minimum basket increased by roughly 55% to 130% throughout areas in the north, central and south, with the exception of SLSH currency areas of the northwest where the increase ranged between 10% and 30%. For 21 out of the 27 towns surveyed, results show that the urban poor do not have enough income to cover the full cost of the minimum expenditure basket. The greatest gaps were recorded in Afgoi, Dhusamareb and Bossasso, all with 30% or more deficit. Although both main urban towns and rural settlement towns indicate expenditure gaps, these are greatest in the main urban towns. Findings from the rapid nutrition assessments however, indicated stable levels of acute malnutrition both in Juba at 8-11% and Sanaag regions, <10% with MUAC < 12.5 cm, compared to recent rapid assessments in those same areas in December 2007. This assessment will be repeated in July 2008 in 60 urban sites throughout the country.

Case study 1, Adale Town, *by Mohammed H. Moalim, FSAU*

Jamila breastfeeding her twins, FSAU, June 2008

Jamila Mohamed Hassan, a mother of seven including two months old twins (Abdikarim and Ahmed) resides in Adale Town. Jamila and her husband are jobless and rely mainly on gifts from friends and relatives for food and income. The typical family diet comprises anjero, bread, and black tea, with some milk once in awhile. Unfortunately, this diet is inadequate both in quantity and quality to meet the nutrition needs of the family, including Jamila who currently breastfeeds her twins. Access to health is poor while their living conditions and sanitation facilities are deplorable. The family uses about 40-50 liters of water a day, accessed from an open hand dug shallow well, at a fee of SSH 3000 for 20 liters.*

Abdikarim and Ahmed are both severely wasted and have been suffering from diarrhoea for the last three weeks. Given poor access to medical care due to distance and lack of money, Jamila accessed some drugs from a pharmacy in Adale Town through begging. Unfortunately at the time of visit by FSAU's Nutrition Analyst, the twins were still unwell. Moalim therefore referred them to Intersos Hospital/TFC where they are currently undergoing rehabilitation.

FSAU in collaboration with Medair and Sacid (a local NGO) have completed a nutrition survey in Adale District in mid June for detailed analysis of the situation so as to generate appropriate recommendations to address the situation.

* Names changed

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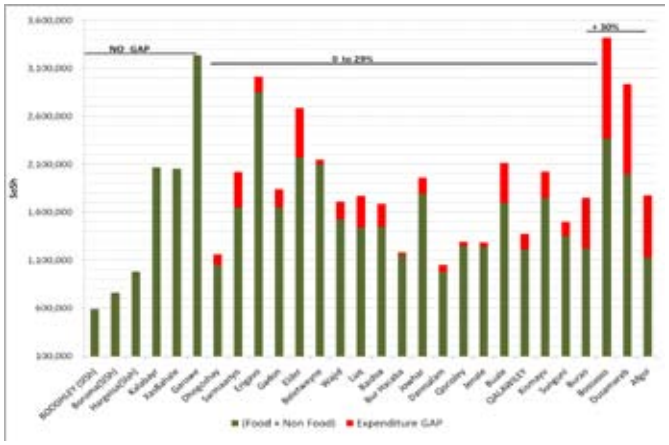
THE IMPACT OF THE URBAN CRISIS ON NUTRITION

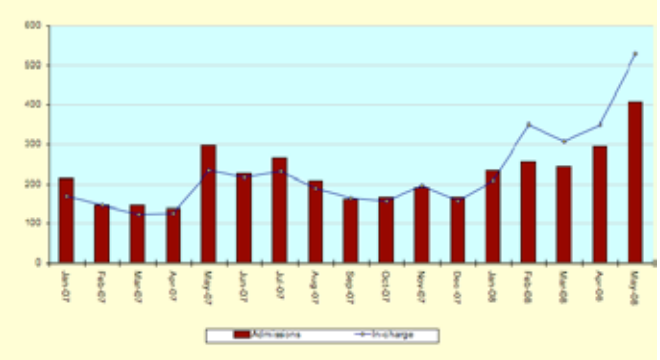
Given the growing concern of how urban populations are coping with hyperinflation, skyrocketing food and non-food prices, and declining purchasing power, FSAU and partners (SC-UK and UN-OCHA) carried out a *Rapid Emergency Urban Food Security Assessment* throughout Somalia in late March and early April 2008. A total of 27 urban towns were assessed including 16 main urban towns and 11 rural settlement towns. The objective of the assessment was to gain a deeper understanding of the impact of increased food and non-food prices on urban populations, to identify how expenditure and income patterns have changed over the last year, and to determine if urban populations, especially the urban poor, were coping with hyperinflation. With reference to urban baseline studies, a minimum 'food and non-food' expenditure baskets were developed taking into account regional variations as well as differences between main urban towns and rural towns. 'Minimum' was defined as the basic 'minimum essentials' for a household including food (a basket with 2100 kcal/ppd) and non food items (soap, water, kerosene, firewood/charcoal, medicine, clothes, school fees for one child). *A Rapid Nutrition Assessment* based on Mid Upper Arm Circumference (MUAC) for children aged 6 – 59 months was conducted concurrently in Sanaag region (n=300), in Erigavo town as the main market town and Saramayo as a rural settlement, and in Juba region (n=300), in Kismayo as the main market and Sanguni as the rural settlement.

Figure 1: Somali Urban Centres Income Expenditure Gaps



Results of the analysis show that: The cost of the minimum basket increased by roughly 55% to 130% throughout areas in the north, central and southern, with the exception of SLSH currency areas of the northwest where the increase is between 10% and 30%; The cost of the minimum basket is higher and has increased more significantly in main urban towns as compared to rural settlements, due to a larger minimum 'non-food' expenditure basket. The largest increases were noted in Juba (Buale), Shabelle (Afgoi) and Central (Dhusamareb) regions. For 21 out of the 27 towns surveyed, results show that the urban poor do not have enough income to cover the full cost of the 'minimum expenditure basket'. The greatest gaps were recorded in Afgoi, Dhusamareb and Bossasso, all with 30% or more deficits (*See Figure 1*). Although both main urban towns and rural settlement towns all indicate expenditure gaps, these are the greatest in the main urban towns. Findings from the rapid nutrition assessments indicated stable levels of acute malnutrition (MUAC<12.5 cm or oedema) in Juba (8-11%) and Sanaag regions, <10%, compared to recent rapid assessments in those same areas in December 2007. However, due to the impact of unmet food needs, the situation is at risk to deteriorate further. The urban poor are adopting a number of different coping strategies to counter the impact of increased prices and declined purchasing power, such as reducing quantities of food and non-food items purchased, taking children out of school and reducing on purchase of medicine, switching to cheaper cereals and skipping meals. However, this still does not compensate for the rapid and dramatic increase in their minimum expenditures needs.

Figure 2: Admissions and In-charge in ACF Mogadishu Hodan and Forlanini TFC



The impact of the unmet food and non-food needs in the crisis affected urban areas such as Mogadishu, has lead to a deterioration in the nutrition situation. This is illustrated by increased admissions and in-charge severely malnourished children in therapeutic feeding programs where these services are available (*See Figure 2* from ACF therapeutic programmes in Mogadishu, and Case Study 1 from Adale Town).

SHABELLE REGION

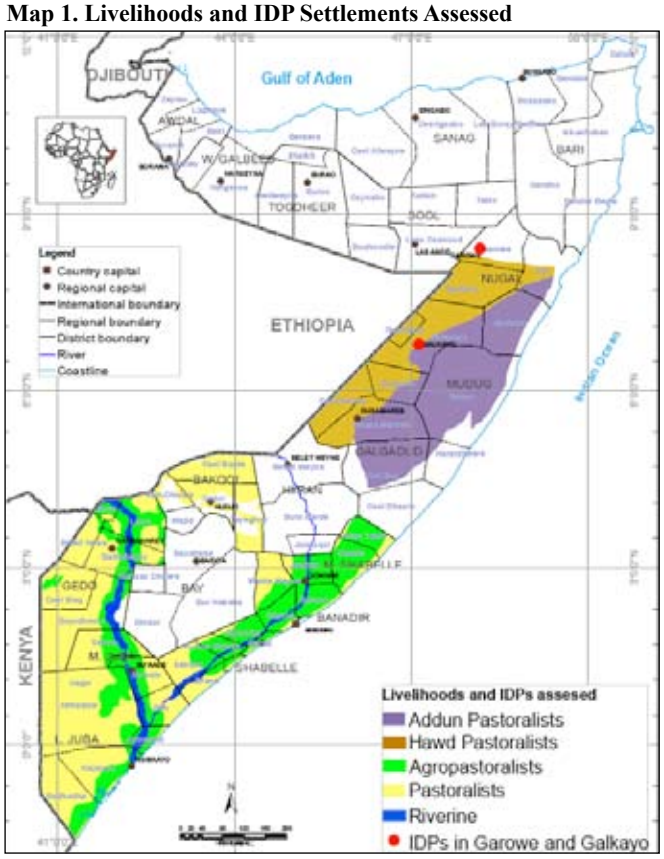
Middle and Lower Shabelle Regions Nutrition Situation

Context

Riverine, agro-pastoral and urban are the main livelihood systems in Shabelle regions *(See Map 1)*. The riverine zone is located within 10 km of the Shabelle River where maize, sesame and a variety of vegetables and fruits are cultivated. Livestock keeping is limited due to tsetse fly infestation. The agro-pastoral zone extends 20-40 km from the Shabelle River with maize, cowpeas, sesame and fruits cultivated and livestock kept. The agricultural potential, 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[1].

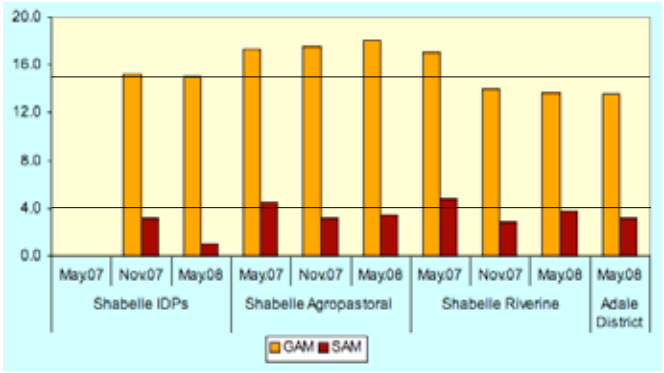
1 Ref: FSAU Food Economy Baseline Profile 2000

Map 1. Livelihoods and IDP Settlements Assessed



The FSAU Post *Deyr* '07/08 analysis classified Shabelle regions as faced with a **Humanitarian Emergency**. An integrated analysis of the nutrition situation in the agro-pastoral livelihood zone of Lower and Middle Shabelle indicated a *Critical* situation while in the Riverine at the same time the situation had slightly improved to *Serious* from the *Critical* nutrition situation reported in the *Gu* '07. The prolonged armed conflict and civil insecurity in Mogadishu and its surroundings, had led to population displacement and an influx of displaced populations into temporary settlements along the Mogadishu road especially in Afgoi and Marka from February 2007. The nutritional analysis of the IDPs in Afgoi and Marka in November 2007 identified these to be in a *Critical* nutrition situation, further deterioration prevented mainly by access to humanitarian interventions as well as improved fishing and access to fruits and vegetables in the riverine areas. (*See January 2008 Nutrition Update for details*).

Figure 3: Trends in Levels of Acute Malnutrition (% GAM and SAM) in M. & L. Shabelle (2007-2008)



In May 2008, FSAU and partner agencies therefore conducted four nutrition assessments; Shabelle Agropastoral and Riverine livelihood zones, Shabelle IDPs and Adale District, to assess the nutrition situation and provide appropriate recommendations to guide humanitarian response. Findings are provided below.

Shabelle Agro Pastoral Nutrition Assessment Findings

A total of 754 children (less 8 flags) aged 6- 59 months were assessed from 445 households with mortality data collected from 757 households. Preliminary results recorded a Global Acute Malnutrition (WHZ<-2 and/or oedema) rate of **18.1%** (14.4-21.8) and a Severe Acute Malnutrition (WHZ<-3 or oedema) rate of **3.5%** (1.7-5.3) including seven oedema cases (0.9%: 0.3-1.6). In general, although GAM levels remain stable, these results indicate a persistent **Critical** nutrition situation with no improvement from the results in the November 2007 nutrition assessment, when a GAM rate of 17.6% (13.3 – 21.8 and a SAM rate of 3.2% (1.7 – 4.6) was reported[2], and in May 2007 when a GAM rate of 17.3 % (13.3 – 21.3) and SAM rate of 4.5% (2.5 – 6.6) was recorded. The Crude and under five mortality rates of **0.97** (0.29-1.66) and **1.36** (0.16-2.57) respectively, were however, below alert levels according WHO standards.

An Assessment Team crosses Shabelle River, FSAU, May 2008

The proportion of children who had suffered from one or more communicable childhood diseases during the two weeks prior to the assessment , was high at 63.0%, almost two thirds of the assessed children. As shown in *Table 1*, the proportion of children who had reportedly suffered from diarrhoea, Acute Respiratory Tract Infections (ARI) and febrile illness two weeks prior to the study, was 33.4%, 41.0% and 25.1% respectively, while 0.6% of the assessed population was positive for malaria (*P. falciparum*). Sick children, especially from ARI were one and a half times more likely (RR=1.57; 1.03 – 2.38) to be acutely malnourished than their healthy counterparts.

While diseases continue to predispose children to malnutrition, concern remains on water, sanitation, child care and feeding practices. A small proportion of the households assessed (24.3%) had access to drinking water from protected sources, sanitation facilities (40.0%) and only 57.7% of the children who fell sick, sought medical assistance in the private or public facility, where available. Additionally, a large majority (94.7%) of the children were reportedly introduced to complementary foods before the age of 6 months, which predisposes them to disease and malnutrition and only 62.1% of the children aged 6-24 months were breastfeeding at the time of the assessment. Past studies have shown that vitamin A greatly improves the immunity of individuals, hence reducing the disease burden of

2 FSAU Nutrition Update, November 2007

a population. However, as shown on *Table 1*, polio and measles immunisation as well as vitamin A supplementation coverage were far below the WHO recommended coverage of 95%.

Table 1. Summary of Findings - Shabelle Agropastoral Assessment			
Indicator	n	%	95% CI
Total number of households assessed	445	100	
Mean household size	6.1		SD=2.4
Total number of children assessed	754	100	
Global Acute Malnutrition (WHZ<-2 or oedema)	135	**18.1**	14.4 – 21.8
Severe Acute Malnutrition (WHZ<-3 or oedema)	26	**3.5**	1.7 – 5.3
Oedema	7	0.9	0.3 – 1.6
Global Acute Malnutrition (WHO Anthro 2005)	148	19.8	16.9 – 22.8
Severe Acute Malnutrition (WHO Anthro 2005)	54	7.2	5.3 – 9.1
Global Acute Malnutrition (WHM<80% or oedema)	101	13.5	10.2 – 16.8
Severe Acute Malnutrition (WHM<70% or oedema)	15	2.0	0.7 – 3.3
Children reported with diarrhoea in 2 weeks prior to assessment	252	33.4	26.4 - 40.4
Children reported with ARI within two weeks prior to assessment	309	41.0	32.4 – 49.5
Children reported with febrile illness in 2 weeks prior to assessment	189	25.1	17.5 – 32.6
Confirmed RDT (malaria) positive cases (N=1503)	9	0.6	0.2 – 1.0
Children reported with suspected measles within one month prior to assessment (N=716)	26	3.6	1.0 – 6.2
Children (9-59 months) reportedly immunised against measles (N=716)	302	42.2	30.5 – 53.8
Children who have ever received polio vaccine	573	76.0	69.3 – 82.7
Children reported to have received vitamin A supplementation in last 6 months	306	40.6	27.7 – 53.5
Proportion of children 6-24 months reported to be breastfeeding (N=285)	177	62.1	54.3 – 69.9
Children (6-24 months) reportedly introduced to other foods before 6 months	270	94.7	91.6 – 97.9
Proportion of households who reported to have consumed ≤3 food groups (N=445)	57	12.8	6.8 – 18.8
Proportion of households who reported to have consumed ≥4 food groups (N=445)	388	87.2	81.2 – 93.2
Under Five Mortality Rate (U5MR) as deaths/10,000/ day	**1.36**		0.16 – 2.57
Crude Mortality Rate (CMR) as deaths/10,000/ day	**0.97**		0.29 – 1.66

Dietary diversity was reportedly high, with 87.2% of the households reporting to have consumed four or more food groups in the previous 24 hours. However, poor access to health services and low coverage of health programmes among the agro-pastoralists are still worrying and require sustained attention. This, coupled with consistently high morbidity rates, especially diarrhoea and ARI, are possible aggravating factors to the nutrition situation. It is important to note that nearly one in every ten (9.0%) of the assessed agropastoral households reportedly host IDPs from Mogadishu. This has constrained their food resources and limited their resilience to further shocks, such as increasing prices for food and fuel.

Shabelle IDPs Nutrition Assessment Findings

In May 2008, FSAU in collaboration with UNICEF, WFP, and local partners, conducted a nutrition assessment in the displaced populations in Afgoi and Marka corridors. Two stage clusters sampling (SMART) methodology was used to select the study households. A total of 783 (less 2 flags) children aged 6 – 59 months were assessed from 404 households. Mortality data was collected from 789 households.

Preliminary results reported a Global Acute Malnutrition (weight for height <-2 Z score or oedema) of **15.0%** (11.5-18.4) with a Severe Acute Malnutrition rate of **1.0%** (0.2-1.8) including four (0.5%; 0.0-1.0) oedema cases. The results indicate a **Critical** nutrition situation and shows no significant change from a nutrition assessment conducted in this group earlier in November 2007, which reported a GAM rate of **15.2%** (11.7 – 18.6) with a SAM rate of **3.2%** (0.4 – 2.2). Results of the mortality assessment, indicate results just below the alert threshold according to WHO classification, with a crude mortality rate, CMR, of **0.96** (0.12–1.81) and under five mortality rate (U5MR) of **1.47** (0.96–1.99).

Morbidity rates were high with almost two thirds (64.4%) of children reported to have suffered from one or more communicable childhood diseases during the two weeks prior to the assessment. As shown on *Table 2*, a high proportion of children had reportedly suffered from diarrhoea (23.5%), ARI (36.1%) and febrile illnesses (25.8%) two weeks prior to the study. Rapid diagnostic tests indicated **3.1%** to be suffering from malaria (*P. falciparum)* at the time of the assessment.

Disease and poor food intake remain the immediate causes of acute malnutrition among children. In the assessed IDP populations, illness especially ARI (RR=1.57; CI: 1.03 – 2.38) was significantly associated with acute malnutrition. Feeding practices remain suboptimal with almost all (92.7%) of the children, reportedly introduced to complementary foods before the age of 6 months and hence predisposed to disease and malnutrition. Only 40.5% of the children aged 6-24 months were breastfeeding at the time of the assessment as recommended. Access to water, sanitation and health care were identified in the November 2007 assessment to be of greatest concern among the IDP population with only **35.1%** having access to water sources and **57.7%** to sanitation facilities either due to unavailability of these services in the settlements or the inability of the households to afford. In this assessment, humanitarian interventions[3] have likely resulted in significant improvements with **75.0%** now accessing protected water sources, but access to sanitation facilities remained poor (40.0%). Further, immunisation for polio (86.0%), measles (63.5%) and vitamin A supplementation (54.2%) status based on recall remain far below the WHO recommended coverage of 95%.

Table 2: Summary of Findings – Shabelle IDP Assessment			
Indicator	**No**	**%**	**95% CI**
Total number of households surveyed	404	100	
Mean household size	6.8		SD=2.9
Total number of children assessed	783	100	
Global Acute Malnutrition (WHZ<-2 or oedema)	117	**15.0**	11.5 – 18.4
Severe Acute Malnutrition (WHZ<-3 or oedema)	7	**1.0**	0.2 – 1.8
Oedema	4	0.5	0.0 – 1.0
Global Acute Malnutrition (WHO Anthro 2005)	121	15.5	12.9 – 18.1
Severe Acute Malnutrition (WHO Anthro 2005)	41	5.2	3.6 – 6.9
Global Acute Malnutrition (WHM<80 or oedema)	86	11.0	8.2 - 13.9
Severe Acute Malnutrition (WHM<70 or oedema)	15	1.9	0.7 - 3.1
Children reported to have diarrhoea in 2 weeks prior to study	184	23.5	17.8 – 29.3
Children reported to have ARI within 2 weeks prior to study	283	36.1	30.8 – 41.5
Confirmed RDT (malaria) positive cases (N=1315)	41	3.1	0.05 - 6.18
Children with febrile illness in 2 weeks prior to study	202	25.8	19.7 – 31.9
Suspected measles within one month prior to study (N=740)	32	4.3	1.6 – 7.0
Children (9-59 months) reportedly immunised against measles (N=740)	470	63.5	54.9 – 72.1
Children who have ever received polio vaccine	673	86.0	81.6 – 90.3
Children supplemented with vitamin A in last 6 months	424	54.2	41.9 – 66.4
Households who consumed ≤3 food groups (N=404)	92	22.8	13.6 – 31.9
Households who consumed ≥4 food groups(N=404)	312	77.2	68.1 – 86.4
Children 6-24 months who are breastfeeding (N=274)	111	40.5	34.4 – 46.6
Children introduced to other foods before 6 months	254	92.7	88.5 – 96.9
Under Five Mortality Rate (U5MR) as deaths/10,000/day		**1.47**	0.96 – 1.99
Crude Mortality Rate (CMR) as deaths/10,000/day		**0.96**	0.12 – 1.81

3 UNICEF, DRC and Islamic Relief have improved water supplies through water tanking and tracking in the IDP areas.

Dietary diversity was relatively poor with only 77% of the households reporting to have consumed from four or more food groups in the preceding 24 hours to the assessment. Even with these low figures, the two main food sources were reportedly, food aid (32.2%) or purchases (64.4%). Humanitarian food distribution was last received one month prior to this assessment. Moreover, poor infrastructure, inflation and increased prices of local and imported food commodities, have made sufficient food inaccessible to a large proportion of IDPs population.

Humanitarian assistance for the displaced population as well as the affected host populations in Shabelle is still needed to rehabilitate the severely malnourished children who are at risk of mortality, and to address moderate malnutrition, and more generally in interventions to support livelihood and water and sanitation services in these settlements.

Shabelle Riverine Nutrition Assessment Findings

A total of 682 (less 2 flags) children aged 6 – 59 months from 394 households were assessed; and mortality data collected from 705 households. Preliminary results reported a GAM rate of **13.7%** (9.6-17.7) and SAM rate of **3.8%** (1.8-5.9) including two (0.3%; 0.0-0.9) oedema cases. The results indicate a ***Serious*** nutrition situation based on the WHO classification and similar to the situation reported in the previous assessment in November 2007 when a GAM rate of 14.0% (11.2 – 16.7) and SAM rate of 2.9% (1.6 – 4.1) were recorded (*Figure 3* shows the trends in acute malnutrition since 2007).

Table 3: Summary of Findings – Shabelle Riverine Assessment

Indicator	No	%	95% CI
Total number of Households surveyed	394	100	
Mean household size	5.8		SD=2.0
Total number of children assessed	682	100	
Global Acute Malnutrition (WHZ<-2 or oedema)	93	**13.7**	9.6 – 17.7
Severe Acute Malnutrition (WHZ<-3 or oedema)	26	**3.8**	1.8 – 5.9
Oedema	2	0.3	0.0 – 0.9
Global Acute Malnutrition (WHO Anthro 2005)	90	13.2	10.6 – 15.8
Severe Acute Malnutrition (WHO Anthro 2005)	31	4.6	2.9 – 6.2
Global Acute Malnutrition (WHM<80 or oedema)	70	10.3	6.8 – 13.8
Severe Acute Malnutrition (WHM<70 or oedema)	10	1.5	0.5 – 2.4
Children reported to have diarrhoea in 2 weeks prior to study	174	25.5	18.6 – 32.4
Children reported to have ARI within 2 weeks prior to study	157	23.0	14.4 – 31.7
Children reported with febrile illness in 2 weeks prior to study	137	20.1	14.7 – 25.5
Confirmed RDT (malaria) positive cases (N=1411)	30	2.1	0.7 – 3.5
Children reported with suspected measles within one month prior to study (N=660)	25	3.8	0.6 – 7.0
Children (9-59 months) reportedly immunized against measles (N=660)	407	61.7	47.1 – 76.3
Children who have ever received polio vaccine (N=682)	618	90.6	83.5 – 97.7
Children supplemented with vitamin A in last 6 months	429	62.9	48.2 – 77.6
Households who reported to have consumed <4 food groups (N=394)	27	6.9	1.2 – 12.5
Households who reported to have consumed ≥4 food groups (N=394)	367	93.1	87.5 – 98.8
Children 6-24 months reported to be breastfeeding(N=259)	167	64.5	56.9 – 72.1
Children introduced to other foods before 6 months (N=259)	258	99.6	98.8 – 100
Under Five Mortality Rate (U5MR) as deaths/10,000/ day		**2.20**	0.01 – 7.27
Crude Mortality Rate (CMR) as deaths/10,000/ day		**1.39**	0.01 – 2.79

Survey Enumerators Preparing to take Height Measurements of a Child

The retrospective crude and under five mortality rates estimated at **1.39** (0.01 – 2.79) and **2.20** (0.01 – 7.27) deaths/10,000/day respectively, were both above the 'alert' threshold (CMR=1 and U5MR=2 respectively) indicating a serious situation (WHO). The mortality rates did not change from the levels reported in the last assessment, conducted in May and November 2007 among the riverine population, highlighting a continuing worrying trend.

A high proportion (54.8%) of children had suffered from one or more communicable childhood diseases in the two weeks prior to the assessment. About 26% of the assessed children had reportedly suffered from diarrhoea within two weeks prior to the assessment. Similarly, the proportion of children that had suffered from acute respiratory infections (ARI) in the two weeks prior to the study was high (23.0%). About 20% were reported to have had febrile illness (suspected malaria), nevertheless RDT tests confirmed only **2.1%** malaria (*P. falciparum)* positive cases in the assessed riverine population. 3.8% of suspected measles cases were reported in the assessment. 62% of the assessed children were reported to have been vaccinated against measles, while coverage for Vitamin A supplementation (62.9%) was low, unlike polio vaccination coverage at 90.6%. All the coverage for the health programmes nevertheless fell below the Sphere 2004 recommended minimum standard of 95%. High morbidity and low immunization coverage raise great concern as disease further predisposes children to poor nutrition. Poor sanitation and hygiene was reported in the study area with half (50.0%) lacking access to sanitation facilities and a larger proportion (76.4%) sourcing water from unprotected sources. These open water sources coupled with high vulnerability to flooding and the poor sanitation situation, predisposes the population to diarrhoeal diseases.

There was a significant difference in the nutritional status of children in the breastfeeding age of 6-24 months and those 25-59 months. The younger children were more likely to be acutely malnourished ($p<0.05$) than their older counterparts, highlighting the importance of poor child feeding practices to acute malnutrition. About 36% of the children aged 6-24 months had stopped breastfeeding at the time of the assessment and nearly all (99.6%) had been introduced to complementary

foods before the age of 6 months. This is contrary to the international recommendation for exclusive breastfeeding up to the first six months of life; introduction of appropriate complementary food at the age of six months and continued breastfeeding up-to the age of 24 months and beyond (*Facts for Life Booklet 2002*).

On a positive note, the majority of the assessed households (93.1%) reported to have consumed a diet comprised of four or more food groups in the preceding 24 hours which is a reflection of a diversified diet. The riverine community has relatively better access to a variety of foods including milk, fish, fruits and vegetables. However, access to staple cereals has been severely strained by increased prices and poor harvest resulting from inadequate rainfall distribution for cultivation. Consumption of a diversified diet has the potential to enhance nutrition status and this may have minimized the risks of acute malnutrition and prevented a further deterioration of the nutrition situation in the riverine population in Lower and Middle Shabelle.

Adale District Nutrition Assessment Findings

Adale district with a population of 46,720[4] is located in Middle Shabelle and borders Jowhar to the east, Balcad to the northeast, Jalalaqsi to the south east and Adan Yabal to the south west. According to baseline information, the predominant livelihood system in the district is agropastoral (60% central deeh – sheep and 35% agropastoral) with urban constituting 5% of the remaining population.

A total of 592 children (less 5 flags) aged 6 – 59 months were assessed from 342 households with mortality data collected from 626 households. Preliminary results recorded a Global Acute Malnutrition rate of **13.6%** (9.2-18.0) and a Severe Acute Malnutrition rate of **3.2%** (1.6-4.9) including four cases of oedema, 0.7% (0.0-1.5). These results indicate a ***Serious*** nutrition situation. The retrospective crude and under five mortality rates of **2.43** and **1.31** per 10000 per day respectively, were within *Alert* levels according to WHO classification and therefore worrying.

Most of the adult deaths were reportedly associated with violence (27%), diarrhoea (19%) and malaria (15%). In the <5years, diarrhoea (31%) and birth complications (25%) contributed to most of the deaths reported. Even though there is no district specific assessment results to compare to, analysis shows that there is no significant difference in the levels of acute malnutrition compared to other three livelihood assessments (Shabelle IDPs, Agropastoral and Riverine) (*See Table 4 for ssummary of findings*). Qualitative information indicates that drought, depletion of fish stocks and inflation have increased the vulnerability of agro-pastoralists and fishermen in Adale town and the surrounding villages.

About 10.5% of the assessed households, reportedly, hosted IDPs from Mogadishu during the assessment, aggravating their already precarious situation. Interventions that would stabilize the livelihood and food security and nutrition situation would thus be welcome in this vulnerable population.

4 UNDP figures, 2005

Table 4: Summary of Findings Adale District Assessment

Indicator	n	%	95% CI
Total number of households assessed for children	342	100	
Total number of households assessed for mortality	626	100	
Total number of children assessed	592	100	
Global Acute Malnutrition (WHZ<-2 or oedema)	80	**13.6**	9.2 – 18.0
Severe Acute Malnutrition (WHZ<-3 or oedema)	19	**3.2**	1.6 – 4.9
Oedema	4	**0.7**	0.0 – 1.5
Global Acute Malnutrition (WHO Anthro 2005)	82	**13.9**	11.1 – 16.8
Severe Acute Malnutrition (WHO Anthro 2005)	30	**5.1**	3.2 – 7.0
Global Acute Malnutrition (WHM<80% or oedema)	53	**9.0**	5.7 – 12.3
Severe Acute Malnutrition (WHM<70% or oedema)	9	**1.5**	0.3 – 2.8
Global Acute Malnutrition by MUAC (<12.5 cm or oedema) (N=523)	41	7.8	4.3 – 11.4
Severe Acute Malnutrition by MUAC (<11.0 cm or oedema) (N=523)	5	1.0	0.0 – 2.0
Total Acute Malnutrition in Women by MUAC (N=337)	8	2.4	0.4 – 4.3
Severe Acute Malnutrition in Women by MUAC (N=337)	1	0.3	0.0 – 1.0
Acute Malnutrition in Pregnant women (MUAC<23.0 cm) (N=56)	7	12.5	
Acute Malnutrition in non pregnant women (MUAC≤18.5 cm) (N=281)	1	0.4	
Children reported with diarrhoea in 2 weeks prior to assessment	107	18.1	11.7 - 24.5
Children reported with ARI within two weeks prior to assessment	220	37.2	31.5 – 42.8
Children reported with febrile illness in 2 weeks prior to assessment	54	9.1	4.2 – 14.1
Confirmed RDT (malaria) positive cases (N=-1287)	11	0.9	0.0 – 2.2
Children reported with suspected measles within one month prior to assessment (N=561)	16	2.9	1.0 – 4.7
Children (9-59 months) immunised against measles (N=561)	152	27.1	17.6 – 36.6
Children who have ever received polio vaccine	483	81.6	74.2 – 89.0
Children reported to have received vitamin A supplementation in last 6 months	323	54.6	43.9 – 65.2
Proportion of children 6-24 months reported to be breastfeeding (N=238)	165	69.3	61.6 – 77.1
Children (6-24 months) reported to have been introduced to other foods before 6 months	214	89.9	
Proportion of households who reported to have consumed ≤3 food groups (N=342)	17	5.0	1.6 – 8.3
Proportion of households who reported to have consumed ≥4 food groups (N=342)	325	95.0	91.7 – 98.4
Households with access to latrine (N=342)	88	25.7	13.1 – 38.3
Households with access to protected/safe water (N=342)	59	17.3	7.5 – 27.0
Households with access to mosquito net (N=342)	3	0.9	0.0 – 2.2
Under five Mortality Rate (U5MR) as deaths/10,000/ day*	**2.43**		0.98 – 3.88
Crude Mortality Rate (CMR) as deaths/10,000/ day	**1.31**		0.91 – 1.70

A Nutrition Assessment Team.

GEDO REGION

Gedo Region is located in the South West of Somalia and borders Ethiopia to the North, Kenya to the West and has an estimated population[5] of 328,378. Gedo Region comprises of six districts (Luuq, Dolo, Belet Hawa, Garbaharey, El Wak, and Bardera) with six main district capital urban centres. The main rural livelihoods zones in Gedo Region are Bay Bakool Agro Pastoralist, Dawa Pastoralist, Juba Pump Irrigation Riverine, Southern Agro Pastoral and Southern Inland Pastoral (*See Map 1.)*

5 Rural Population Estimates by Region/ District, UNDO Somalia, August 2005.

Gedo, like other regions in South and Central Somalia has been faced with a series of disasters, both natural (floods and droughts) and man-made (poor governance, sporadic armed conflict and widespread human rights abuses) following the fall of the government in 1991. This series of shocks has particularly affected Gedo region and, with limited opportunity for the population to recover between shocks, has lead to a chronic emergency situation for parts of the population. According to the FSAU Integrated Food Security and Livelihood Phase Classification, parts of the region persistently faced a **Humanitarian Emergency (HE)** situation from 2004 to 2007.

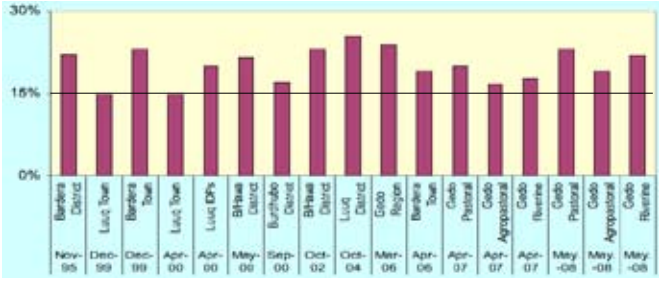
A mother and her children, Gedo, FSAU May '08

However, the analysis by FSAU during the Post *Deyr* '07/08 assessment, indicated that the overall food security situation in southern Gedo, had improved to the **Generally Food Insecure (GFI)** phase (from GFI Watch situation in *Gu*'07) following good *Deyr* '07/08 cereal harvest, which amounted to 291% of the post war average (2005-2007), with 99% coming from Bardera District. In addition, the Southern Inland Pastoralists in southern Gedo experienced livestock recovery with high calving and kidding, leading to increased access to milk and milk products. However, the situation remained either in the **AFLC** or **HE** in northern Gedo following poor *Deyr* '07/08 cereal production of 2% of the post war average and crop failure in the *Gu* '07. Livestock had also not fully recovered. About 35,000 and 10,000 people were classified in AFLC and HE phases respectively. This makes the overall food security in the Region to be precarious given that the livelihood system were diminished or destroyed completely in parts of Gedo over years due to recurrent shocks.

Gedo Nutrition Assessment Findings

The nutrition situation in Gedo region has not improved with very alarming levels of acute malnutrition recorded for years. From 1980 to 1988, nutrition assessments conducted in Gedo region indicated varying levels of Global Acute Malnutrition (GAM) below **15%** ([6]WHM< 80% or oedema) indicating a worrying nutrition situation. The nutrition situation further deteriorated in the early nineties following the collapse of the government and subsequent conflict leading to extremely high levels of acute malnutrition with highest GAM rates of 38% and 37% recorded in Bardera in January 1993 and in Belet Hawa in July 1996 respectively. The more recent livelihood-based assessments conducted in Gedo in April 2007, reported Critical nutrition levels above the emergency threshold of 15% (WHZ). This was a slight improvement (though still critical) from the previous regional assessment in April 2006 that reported a *Very Critical* nutrition situation with GAM rates of >20%. The poor nutrition situation in the region has largely been attributed to the chronic food insecurity arising from man made disasters (conflicts) and natural causes such as drought, which affected the livelihood and social support systems in the region. The chronically high levels of morbidity particularly diarrhoea and poor child feeding and care practices, have also been identified as major contributory factors to malnutrition. *Figure 4* shows the trends of acute malnutrition in Gedo Region from to 2008.

Figure 4: Trends in levels of Acute Malnutrition 1995-2008 in Gedo Region (WHZ<-2 or oedema)



Gedo Livelihood Based Nutrition Assessments Findings

FSAU and partners[7] conducted three nutrition assessments in Gedo Region in May 2008: Gedo Pastoral, Gedo Agro pastoral and Gedo Riverine livelihood systems (*See map 1*). Using a two stage cluster sampling methodology, a sample of 1000; 742 and 782 children aged 6- 59 months were assessed from Pastoral, Agro pastoral and Riverine Livelihoods respectively. The findings of the three assessments are presented in *Table 5*.

Results indicate ***Critical*** to ***Very Critical*** nutrition levels with a GAM of >15%. The pastoral and riverine livelihoods reported a ***Very Critical*** nutrition situation with GAM rates of **23.3%** (18.9 – 27.7) and **21.5%** (17.6 – 25.4), respectively, while the agropastoral livelihood reported a ***Critical*** level with GAM rate of **18.8%** (15.2 – 22.3). A total of six oedema cases were identified in the region, that included three (0.4%) in agro-pastoral, two (0.2%) in pastoral and one (0.1%) in the riverine livelihood zones. When compared with the most recent nutrition assessments conducted in April 2007 where the Pastoral livelihood reported a GAM rate of **19.9%,** (17.4 – 22.7), Agropastoral livelihood recorded a GAM of **16.7%** (14.4 -19.3) and the Riverine livelihood a GAM rate of **17.7%** (15.3-20.4), the results indicate a deterioration from ***Critical*** to ***Very Critical*** levels of malnutrition among the Pastoral and Riverine populations and a sustained ***Critical*** nutrition situation among the Agropastoral population. However, as the confidence interval ranges overlap between the current and April 2007 results, there is no statistically significant difference between these findings. Similarly there is no statistical difference between the malnutrition rates reported in the three livelihood zones as the GAM rate ranges overlap.

The crude and under five mortality rates for the Pastoral and Riverine livelihoods were under alert levels (CMR<*1/10,000 and U5MR<2/10,000 persons/day*) according to the WHO classification, with respective CMR and U5MR rates of **0.9** (0.49 -1.32) and **1.52** (0.77 – 2.36) in the pastoral and **0.76** (0.28 – 1.24) and **0.92** (0.58–2.42) in the riverine livelihood zones. On the other hand alert crude and under five mortality rates of **1.37** (0.79 – 1.95) and **2.14** (0.68 – 3.60) respectively, was recorded among the agro-pastoral population. Diarrhoea, febrile illness, ARI and birth related complications were the main reported causes of deaths in the three livelihoods.

6 Weight for Height Percentage of Median, <80% and/or oedema classified as global acute malnutrition

7 UNICEF, GHC, SRCS, NCA, WFP and COSV

Results further indicate a decline in dietary diversity in the three livelihoods with a decrease in the proportion of the households reporting to have consumed diversified diets (four or more food groups) from 72% compared to 92% in April 2007 to a range of 44% from 71% in May 2008. Majority of the assessed households (>77%) in the three livelihoods reported to have consumed two meals in the preceding 24 hours. Purchase was reported to be the main source of food for most households. Cereals, milk, oil and sugar are most commonly consumed food groups. However, the consumption of milk, an important source of nutrients for Somali community, was noted to have declined compared to levels reported in April 2007.

Possible explanation to the deterioration of dietary diversity could be the negative impact of the poor rain performance in the region, which has affected crop production as well as pasture and water availability, ultimately affecting livestock body conditions and milk production. The effect of the global rise in food prices has made the situation of the chronically food insecure population in the region more vulnerable. This is particularly worrying given that the main source of staple food reported across livelihood is through purchase. Qualitative information indicated that households have resorted to various coping strategies, including reduction in purchase of food and non-food items, switching to cheaper cereals, skipping meals and increased sale of bush products.

As in the past assessments, high morbidity levels were recorded, with the proportion of the children reported to have suffered from one or more common childhood illnesses (diarrhoea, ARI, suspected malaria and measles) in the past two weeks prior to the assessments, ranging between 35% and 60% in the three livelihoods. However, a rapid diagnostic test for malaria conducted concurrently in the three livelihoods reported (<10%) of malaria (positive for *P. falciparum)* with the riverine livelihood reporting the lowest rate at 3.3%. Analysis continue to show strong association between acute malnutrition and morbidity rates, particularly with diarrhoea ($p<0.05$).

Malaria treatment being administered to a woman who tested positive to RDT, FSAU, May '08.

Table 5. Summary of Findings – Gedo Livelihood Based Assessments

	Pastoral		Agro pastoral		Riverine	
Indicator	**N**	**% (CI)**	**N**	**% (CI)**	**N**	**% (CI)**
Total number of households surveyed	554	100	418	100	485	100
Mean household size	6.1	SD=2.5	6.2	SD=2.2	5.9	SD=2.1
Total number of children assessed	1000	100	742	100	782	100
Global Acute Malnutrition (WHZ<-2 or oedema)	233	**23.3** (18.9 – 27.7)	139	**18.8** (15.2 – 22.3)	168	**21.5** (17.6 – 25.4)
Severe Acute Malnutrition (WHZ<-3 or oedema)	30	**3.0** (1.8 – 4.2)	14	**1.9** (0.9 – 2.9)	20	**4.2** (2.2 – 6.3)
Oedema	2	0.2 0.5 – 0.9	3	0.4 0.0 – 0.9	1	0.1 (0.0 – 0.4)
Global Acute Malnutrition (WHO Anthro 2005)	228	22.8 (18.2-27.4)	149	19.0 (15.3-22.7)	172	22.0 (17.4-26.7)
Severe Acute Malnutrition (WHO Anthro 2005)	51	5.1 (0.3-6.9)	36	4.9 (3.2-6.6)	47	6.0 (3.8-8.2)
Global Acute Malnutrition (WHM<80% or oedema)	130	13.0 (9.8 – 16.2)	78	10.5 (7.9 – 15.3)	102	13.0 (9.7 – 16.4)
Severe Acute Malnutrition (WHM<70% or oedema)	13	1.3 (0.3- 2.1)	8	1.1 (0.2- 1.9)	12	1.5 (0.4 – 2.7)
Proportion of children reported to have diarrhoea in 2 weeks prior to assessment	126	12.6 (8.6 -16.6)	124	16.7 (11.2 – 22.2)	112	14.3 (10.2 – 18.5)
Proportion of children reported to have ARI within two weeks prior to assessment	383	38.3 (26.4 – 50.2)	153	20.6 (11.9 – 29.3)	155	19.9 (14.6 – 25.2)
Children reported to have a febrile illness in 2 weeks prior to assessment	385	38.5 (29.0 – 48.0)	118	15.9 (10.7 – 21.1)	127	16.3 (10.7 – 21.9)
Confirmed RDT (malaria) positive cases *(Pastoral N= 895, Agropastoral N=1317, Riverine N=1315)*	67	7.5 (5.9 – 9.5)	83	6.3 (5.1 – 7.8)	44	3.3 (2.5 – 4.5)
Suspected measles within one month prior to assessment	43	4.6 (0.8 – 8.3)	14	2.0 (0.4 – 3.6)	4	0.2 (0.0 – 1.2)
Children (9-59 months) reportedly immunised against measles	728	77.0 (66.4 – 87.5)	278	39.3 (26.5 – 52.0)	606	81.1 (70.9 – 91.4)
Children who have ever received polio vaccine	952	95.2 (93.4 – 97.0)	528	71.2 (61.9 – 80.4)	738	94.4 (90.7 – 98.1)
Children who received vitamin A supplementation in last 6 months	771	77.1 (68.0 – 86.2)	388	52.3 (40.4 – 64.2)	636	81.4 (72.0 – 90.9)
Proportion of children 6-24 months who are breastfeeding	191	48.7 (42.7 – 54.7)	114	56.2 (48.4 – 64.0)	159	53.4 (47.5 – 59.1)
Children (6-24 months) introduced to other foods before 6 months	356	90.6 (87.1 – 93.2)	173	84.0 (78.2 – 88.7)	264	88.6 (84.4 – 92.0)
Proportion of households who consumed ≤3 food groups	161	29.1 (25.3 – 33.1)	232	55.5 (50.6 – 60.3)	167	34.4 (30.2 – 38.9)
Proportion of households who consumed ≥4 food groups	393	70.9 (66.9 – 74.7)	186	44.5 (39.7 – 49.4)	318	65.6 (61.1 – 69.8)
Under Five Mortality Rate (U5MR) as deaths/10,000/ day	**1.52** (0.77 – 2.36)		**2.14** (0.68 – 3.60)		**0.92** (0.58 – 2.42)	
Crude Mortality Rate (CMR) as deaths/10,000/ day	**0.9** (0.49 -1.32)		**1.37** (0.79 – 1.95)		**0.76** (0.28 – 1.24)	

Diarrhoea is often accelerated by lack of safe drinking water and poor disposal of human waste. In the three assessed livelihoods, 56% - 80% of the assessed households were reportedly not accessing sanitation facilities (latrines or equivalent) with equally high proportion (66% to 99%) of households not accessing water from protected sources. With the exception of reported polio immunization status, which seemed to be at or close to the recommended coverage of 95%, the other two health programmes vitamin A supplementation and measles vaccination were far below the recommended level (by recall). Nevertheless the reported coverage does not confirm whether the child is fully immunized due to lack of health records.

Further, the results continue to show that child care and feeding practices are of great concern, with more than 40% of the assessed children aged 6-24 reportedly not breastfeeding at the time of the assessment as recommended.
Exclusive breastfeeding is very rare with about 90% of the children in the same age group reportedly introduced to complementary food before the age of six months. The international recommendation is exclusive breastfeeding for the first six months of life followed with introduction of appropriate complementary foods while continuing with breastfeeding up to the age of 24 months and beyond.

The nutrition situation in Gedo Region is ***Very Critical*** and has deteriorated since the April 2007 nutrition assessment and the integrated nutrition analysis during post *Deyr* '07/08 in January 2008, which reported a *Critical* situation. The situation could be attributed to the impact of the poor *Deyr* '07/08 cereal production of 2% PWA and the overall poor Gu'08 rains reported across Gedo. The situation has been made worse by rising global food prices, coupled with the chronically high morbidity and poor child feeding and care practices, which have remained unaddressed over years.

Intervention efforts, therefore, need to be strengthened and broadened to address both immediate life saving needs such as rehabilitation of acutely malnourished children and measures to cushion against the impact of increasing food prices and poor rain performance. This is in addition to developing longer term strategies to enhance the provision of basic services, sustainable strategies for livelihood support and social protection mechanisms.

CENTRAL AND GALGADUD REGIONS

The Hawd and Addun Pastoral Livelihood zones cut across Galgadud, Mudug and Nugal Regions in the Central and parts of the North East *(See Map 1)*. The regions border the Indian Ocean to the East, Somali Region of Ethiopia to the west, Bari and Sool regions to the north and Hiran region to the south. In order to monitor the nutrition situation, two nutrition assessments were conducted by FSAU and partners (UNICEF, SRCS and MOH of Puntland) between 25th April 08- -6th May 2008. The Hawd and Addun livelihood zones in Central and Northeast regions were assessed separately. The two stage cluster sampling methodology was used (PPS). As with all FSAU led surveys, the number of children required for the nutrition and mortality survey was calculated using ENA software.

Hawd Livelihood Nutrition Assessment Findings

A total of 683 children aged 6 – 59 months from 342 households were assessed; and mortality data collected from 1000 households. Preliminary results reported a **GAM** rate of **19.3%** (15.6-23.02) and **SAM** rate of **2.3** (0.92-3.7) and two cases of oedema. The results indicate a persistent ***Critical*** nutrition situation according to WHO classification. These findings at the start of *Gu*'08 indicate sustained critical rates from the last assessment conducted in the *Deyr* '07 in November '07 ,which indicated a GAM rate of 17.2 % and SAM rate of 1.3 %. The retrospective crude and under five mortality rates estimated at **0.62** and **1.35** deaths/10,000/day respectively, and are within the acceptable WHO levels. About 18.6% of the assessed children reportedly had diarrhoea in the two weeks prior to the assessment. The proportion of children reported to have suffered from acute respiratory infections and malaria two weeks prior to the study was 35.8 % and 21.1 % were reported to have had febrile illness (suspected malaria). A high prevalence of malaria, *P. falciparum,* (9.2%) was confirmed by rapid diagnostic tests in various sites of Galdogob and Eyl districts (Bursalah, Borancad and Hasbahale), Abudwaaq, Elbur and parts of Adaado district. Suspected measles cases reported were 3.2%, while reported measles vaccination status (by recall) was low, 20.9%. The proportion of women reporting to have received tetanus vaccination was 59.2 %. Similarly, Vitamin A supplementation coverage and polio immunization status (by recall) was also low at 70.1% and 52.1% respectively. Both the reported measles immunization and vitamin A supplementation coverage were below the Sphere 2004 recommended coverage of 95%. High morbidity and low immunization coverage add to the risk of acute malnutrition amongst young children.

The proportion of children that suffered from communicable childhood illnesses two weeks prior to the assessment was high (57.1%). Lack of proper sanitation and access to water from protected sources are factors that increase the probability of increased infection among the population. Most of the households had no access to health facilities, due to distance and security. About 52% of the households had access to protected water for domestic use, further to this only 58.9 % had access to latrines. Only 38.1% of the children aged 6-24 months (N=343) were still breastfeeding at the time of the assessment, and the majority (90.3 %) had been introduced to complementary foods before the age of 6 months, contrary to the international recommendation of exclusively breastfeeding for 6 months.

A higher proportion of older children 30-59 months, were more likely to be acutely malnourished (60.6%) compared to their younger counterparts 6-29 months of age (39.4%), this could reflect a poor state of household food security, as older children usually eat from the same plate and are more vulnerable to household food insecurity. Majority of the assessed households (88%) consumed a diet of more than four food groups daily (mean = 5.2± 1.7), reflecting a good dietary diversity. The main food groups consumed were cereals (100%) sugar (98.%), oil (95.3 %), milk (80.1%), and meat (42.3 %) the remaining food groups: pulses, roots, vegetables and fruits were consumed by less than 30% of the households. Prices of both food and non-food essentials continue to increase.

FSAU market update indicates continuing dramatic increases in food and non-food prices in the last 12 months, with no signs of possible decline in the foreseeable future. An influx of IDPs from southern regions as well as the poor pastoralists seeking labour opportunities, continues to mount up in the main towns.

The lack of adequate health facilities in the area is also a major issue, affecting the nutrition and health of the population in the area. Improved access to water, health facilities and a diversified diet are crucial in reducing the risk of acute malnutrition in the population in the Hawd livelihood.

Addun Livelihood Nutrition Assessment Findings

A total of 643 children aged 6 – 59 months from 313 households were assessed and mortality data collected from 834 households. Preliminary results report a **GAM** rate of **18.4%** (14.9-21.8) and a **SAM** rate of **2.8%** (1.2-4.4). The results indicate a persistent ***Critical*** nutrition situation according to WHO classification. Compared to the findings from the most recent study in the *Deyr*'07/08 in November 07 which indicated a GAM of 15.9% and SAM of 1.7 %, the results do not indicate significant change. The retrospective crude and under five mortality rates were estimated at **0.65** and **1.45** deaths per 10,000 per day respectively, and below the alert levels according to WHO standards. *(See Table 5 for summary of the findings).*

The assessed children reported to have fallen ill in the two weeks prior to the assessment was high (44.3%). About 20.5% of the assessed children, reportedly had diarrhoea in the two weeks prior to the assessment. The proportion of children that had reportedly suffered from acute respiratory infections (ARI) in the two weeks prior to the study was 29.4%. About 11.4% were reported to have had febrile illness (suspected malaria). RDT confirmed malaria cases at **11.9 %** indicated a high prevalence at the start of the *Gu*'08 rainy season. The information was shared with UNICEF and Merlin who responded accordingly.

Table 6: Summary Findings	***Hawd Livelihood***			***Addun Livelihood***		
Indicator	**N**	**%**	CI	**N**	**%**	CI
Total number of households surveyed	343	100		313	100	
Mean household size	6.1	SD=1.1		6.2	SD=0.8	
Total number of children assessed	683	100		643	100	
Global Acute Malnutrition (WHZ<-2 or oedema)	**132**	**19.3**	15.6-23.02	118	**18.4**	14.9-21.8
Severe Acute Malnutrition (WHZ<-3 or oedema)	**16**	**2.3**	0.92-3.77	18	**2.8**	1.2-4.4
Oedema	2	0.3	-0.20-0.69	1	0.16	-0.17-0.48
Global Acute Malnutrition (WHO Anthro 2005)	140	20.5	16.9-24.6	139	21.6	17.4-26.5
Severe Acute Malnutrition (WHO Anthro 2005)	31	4.5	2.8-7.2	33	5.1	3.2-8.1
Global Acute Malnutrition (WHM<80 or oedema)	65	9.5	6.6-12.4	63	9.8	6.6-12.9
Severe Acute Malnutrition (WHM<70 or oedema)	5	0.7	0.01-1.4	6	0.9	-0.1-1.98
Children reported to have diarrhoea in 2 weeks prior to study	127	18.6	13.4-23.7	132	20.5	13.9-27.1
Children reported to have ARI within 2 weeks prior to study	245	35.8	28.2-43.6	189	29.4	19.7-39.0
Children reported with suspected malaria/febrile illness in 2 weeks prior to study	151	22.1	17.7-26.5	73	11.4	7.8-14.9
Confirmed RDT (malaria) positive cases (N=1209)	111	9.3	5.1-13.2	146	11.8	6.09-17.7
Children reported with suspected measles within one month prior to study	21	3.2	0.94-5.5	12	1.2	0.16-4.1
Children (9-59 months) reportedly immunized against measles (Hawd, N=647, Addun N= 612)	135	20.9	14.1-27.6	54	8.8	2.7-14.9
Children who have ever received polio vaccine	479	70.1	58.7-81.5	467	72.6	61.5-83.8
Children supplemented with vitamin A in last 6 months	356	52.1	39.8-64.4	332	51.6	38.8-64.5
Households who reported to have consumed <4 food groups (N=416)	41	12.0	6.4-17.1	52	16.6	10.8-22.4
Households who reported to have consumed ≥4 food groups (N=416)	302	88.0	82.8-93.6	261	83.4	77.6-89.2
Children 6-24 months reported to be breastfeeding	71	38.1	82.4-37.8	74	33.5	27.3-40.1
Children introduced to other foods before 6 months N=235 & 223)	213	90.3	85.7-93.7	183	82.2	77.2-87.5
Under five Mortality Rate (U5MR) as deaths/10,000/ day	**1.35** 0.4-2.3			**1.45** 0.72-2.18		
Crude Mortality Rate (CMR) as deaths/10,000/ day	**0.62** 0.30-0.93			**0.65** 0.39-0.91		

Taking weight measurement of a child, Abudwaaq, FSAU, May '08

About 1.2% suspected measles cases were reported in the area possibly attributed to low measles vaccination coverage (by recall) of 8.8% well below the minimum recommended by Sphere 2004 of 95%. Women reporting to have received tetanus vaccination were also low at 15.7 %. Although a high proportion of children reported to have fallen ill in the two weeks preceding the assessment, no positive statistical association between acute malnutrition and morbidity was noted. Vitamin A supplementation and polio immunization status was low at 51.6% and 72.6%, respectively. High morbidity and low immunization coverage are of great concern as they predispose children to poor nutritional status. Poor sanitation and hygiene was reported in the study area with only 47.2% of the households having access to sanitation facilities, and 58.5% with access water from protected sources. Majority of households in the Hawd livelihood had no access to health facilities, because the facilities were not available or were too far away.

About 67% of the children aged 6-24 months had stopped breastfeeding at the time of the assessment and the majority (82.2%) had been introduced to complementary foods before the age of 6 months. The impact of a potentially compromised food security situation was further demonstrated as older children were more likely to be acutely malnourished - 60.6% of the children aged over 30 months were acutely malnourished compared to 39.4% for the children aged below 30 months. Majority (83.4%) of households reported to have consumed a diversified diet in the preceding 24 hours to the assessment, consisting of over four food groups, while the remaining proportion of the households consumed less than four food groups a day. Consumption of a diversified diet has the potential of improving the nutritional status of an individual. The main food groups consumed were cereals (100%) sugar (99.1%), oil (84.3 %), milk (80.1%), and meat (37.1%) for the remaining food groups: pulses, roots, vegetables and fruits only 20% of households reported to consume. Yet these foods are important sources of micronutrients. Some of the main factors likely to be affecting the nutritional status of the population, include poor access to health and sanitation facilities, lack of water from protected sources for domestic use and livestock; and high prices of food commodities that limit diversification of the diet.

The assessment team recommends continued short and long-term efforts in the Hawd and Addun pastoralist livelihood zones, to address, the current deteriorating food security and nutrition situation. The immediate efforts should include rehabilitation of acutely malnourished children through selective feeding programmes using appropriate community based approaches, measures to increase access to safe water and sanitation facilities to control diarrhoea diseases, and nutrition education for women and child care givers on appropriate infant and child feeding practices. It is also very important to ensure that the community has access to health services particularly for malaria management and immunization.

PROTRACTED IDPs

Galcayo IDPs Nutrition Assessment Findings

Galcayo town is the capital of Mudug region; it is a flourishing trade town which links central regions to the north of the country. Galcayo town continues to host internally displaced persons fleeing from the central and southern parts of Somalia and Ethiopia because of civil strife and food insecurity, both recent and protracted. There are seven IDP settlements in [8]Galcayo town, in which there are poor living conditions and environmental sanitation, predisposing IDPs to disease and poor personal hygiene. The lack of an established livelihood system and general limited access to basic needs and services including food, clothing, shelter, water, sanitation and health contribute to malnutrition, ill health and food insecurity among the IDP population. In May 2007, a nutritional survey recorded a global acute malnutrition rate of 21.9% while the severe acute malnutrition was 2.2%, classified as a *Very Critical* situation (WHO). In May 2008, FSAU and partners conducted an exhaustive nutrition survey among the IDP population in Galcayo. The main objective of the survey was to determine the level of wasting among the children aged 6-59 months, and to analyze the possible factors contributing to acute malnutrition. A total of 1029 children and 549 households were assessed. A total of 687 households were assessed for mortality (*See Table 7 for Summary of Findings).*

The results indicate a global acute malnutrition rate of **21.1%** and severe acute malnutrition rate (SAM weight or height <-3 or oedema) of **2.2%**. This indicates a ***Very Critical*** nutrition situation based on WHO classification. Based on NCHS, the stunting and underweight rates reported were **41.7%** and **54.8%** respectively, higher than most areas in Somalia. Five confirmed cases of oedema **(0.5%)** were reported. The 90 day retrospective crude and under five mortality rates were estimated at **0.41** and **0.66** deaths/10,000/day respectively, and are both at acceptable levels according to the WHO classification. The main causes of death reported were due to diarrhoea, accidents (physical injuries), birth complications, malaria and unconfirmed anaemia. No improvement in the nutrition situation has been noted from the previous assessment, conducted exactly the same time a year ago among the IDP population of Galcayo, the nutritional situation still remains as ***Very Critical.***

High morbidity rates were reported in the study population with 50.5% of the assessed children reportedly suffering from one or more communicable diseases in the two weeks prior to the study. The incidences of reported diarrhoea, ARI and suspected malaria/febrile illness were 30.9%, 20.9% and 23.6% respectively. However the rapid diagnosis testing (RDT) conducted for malaria confirmed only 4.2% cases of malaria as positive for *Plasmodium falciparum.* The reported suspected measles was significant at 4.9%. Morbidity and malnutrition have often been strongly associated in previous studies similarly, in this assessment, there was also an association between morbidity and acute malnutrition, especially between acute malnutrition and diarrhoea (P=0.03).

Improvement in the water and health is noted, 75% of the study population having access to protected water and 74.8% with access to sanitation facilities, one latrine reportedly shared between 2-9 people. Further analysis revealed a direct statistical association between diarrhoea and access to clean water (P=0.006). Diarrhoea was also associated with acute malnutrition; this further demonstrates the link between morbidity, sanitation and acute malnutrition. Insufficient shelter and sanitation are also a serious challenge to the IDP populations in the study. Inadequate access to health facilities is a crucial risk factor to the ***Very Critical*** nutrition situation among the IDPs. Measles vaccination status (children 9-59 months) was very low at 31%, as was the status of vitamin A supplementation at 61.2%. Polio immunization, although below the recommended Sphere standards of 95%, was high at 90%.

Table 7: Summary of Findings - Galcayo and Garowe IDPs

	Garowe IDPs		Galcayo IDPs	
Indicator	**N**	**%**	**N**	**%**
Total number of households surveyed	170		549	
Mean household size	4.88 SD=1.78		5,53 SD=2.07	
Total number of children assessed	323		1029	
Global Acute Malnutrition GAM (WHZ<-2 or oedema)	73	**22.6**	217	**21.1**
Severe Acute Malnutrition SAM (WHZ<-3 or oedema)	5	**1.5**	23	**2.2**
Oedema	1	0.3	5	0.5
Global Acute Malnutrition (WHO Anthro 2005)	64	19.8	236	22.9
Severe Acute Malnutrition (WHO Anthro 2005)	18	5.6	60	5.8
Global Acute Malnutrition (WHM<80% or oedema)	46	14.2	152	14.8
Severe Acute Malnutrition (WHM<70% or oedema)	2	0.6	9	0.9
Children with Diarrhoea 2 weeks prior to assessment	135	41.8	318	30.9
Children with ARI 2 weeks prior to assessment	121	37.5	215	20.9
Children with suspected malaria 2 weeks prior to assessment	42	13.0	243	23.6
Confirmed RDT (malaria) positive cases *Garowe N=506,, Galcayo N=1427*	28	**5.5**	60	**4.2**
Suspected measles within one month prior to assessment (9-59 months)	6 (N=305)	2.0	48 (N=980)	4.9
Children (9-59 months) reportedly immunized against measles	6 (N=305)	2.0	304 (N=980)	31.0
Children received polio vaccine	300	92.9	926	90.0
Children received vitamin A supplementation in last 6 months	7	2.2	630	61.2
Proportion of households who consumed ≤3 food groups	31	18.2	248	45.2
Proportion of households who consumed ≥4 food groups	139	81.8	301	54.8
Proportion of children 6-24 months who are breastfeeding	38 (N=106)	35.8	171 (N=344)	49.7
Proportion of children introduced to complementary foods before 6 months	106	99.1	339	98.5
Under Five Mortality Rate (U5MR) as deaths/10,000/ day	**0.31**			**0.66**
Crude Mortality Rate (CMR) as deaths/10,000/ day (N=882)	**0.38**			**0.41**

8 Bulbously, BuloElay, Buloajuran, Shimbiraley, Wershadda Gelleyda, Tawaka and Sinay

FSAU's Nutrition Analyst Abdulkarim Ducale with a protracted IDP child in Galcayo, FSAU, May 2008

Child feeding practices remain poor, only 49.7% of the children aged between 6-24 months were breastfeeding at the time of the assessment. Breastfeeding did not continue to the recommended 24 months, with majority of the children (96%) ceasing breastfeeding at ≤ 18 months of age. In addition nearly all 98.5% of the children were introduced to complementary foods before 6 months of age, with 83.4% being introduced to complementary foods before 3 months. Only 14.5% of the children aged 6-24 months were fed the recommended five times a day.

The mean number of food groups consumed in the 24 hours prior to the study, in the households was 4.8 ± 1.4, with only 54.8% of the households consuming the recommended diversified diet of four or more food groups in a day. The main food groups consumed were cereals (99%), sugar (96.4%), oil (83.9%), milk (57%), vegetables (44%), meat (29.2%), pulses (17.2%), the remaining food groups roots, fruits and fish were the least consumed (<10%) in the assessed households, despite the fact they are the main source of micronutrients. Forty seven percent of the households consumed two meals a day; while 31.5% of the households consumed one meal a day and the remaining percentage consumed three meals a day. Qualitative data collected indicates that the steep rise of food prices in the markets is having a negative impact on the household's purchasing power and food consumption.

In conclusion, the nutrition situation in Galcayo IDPs remains ***Very Critical***. The key underlying factors affecting the nutritional status of the children is morbidity, which is demonstrated by the statistical association between acute malnutrition and diarrhoea. Sanitation and health are critical factors demanding to be addressed among the IDP population, as these have a direct influence on morbidity and in turn malnutrition. It is therefore, imperative to immediately undertake interventions to rehabilitate acutely malnourished children, improve accessibility to health services, promote sanitation and hygienic practices and intensify nutrition and health education. These steps would assist in mitigating the current perilous nutrition situation.

Garowe IDPs Nutrition Assessment Findings

Garowe town is the capital town in the northeast region of Somalia. Garowe is host to IDPs, mainly from south Somalia, who have fled civil strife and food insecurity. There are six IDP settlements[9] in Garowe town; however the living conditions and environmental sanitation in these settlements are very poor, predisposing IDPs to disease and malnutrition. In May 2008, FSAU and partner agencies conducted an exhaustive nutrition survey among the IDP population in Garowe, the first nutrition survey to be conducted amongst the IDP population in the urban town, and therefore will serve as baseline information. The main objective of the survey was to determine the level of wasting among the children aged 6-59 months, and to analyze possible factors contributing to acute malnutrition.

The assessment was exhaustive, with a total of 323 children from 170 households assessed. A total of 281 households were assessed for mortality. Interestingly over 1/3 households did not have children <5years. The results indicate a global acute malnutrition rate of **22.6%** and severe acute malnutrition rate, SAM rate of **1.5%**. This indicates a ***Very Critical*** nutrition situation based on WHO classification. Based on NCHS references, the stunting and underweight rates reported were 28.5% and 41.8% respectively, somewhat lower than Galkayo but very concerning. One confirmed case of oedema (0.3%) was reported. The 90 days retrospective crude and under five mortality rates was estimated at **0.38** and **0.31** deaths per 10,000 per day respectively and are both at acceptable levels according to the WHO classification. The reported causes of death were diarrhoea, birth complications and accidents.

A Section of Garowe IDP Camp, FSAU, May '08

As anticipated, given the inadequate water availability, health facilities and poor sanitation, morbidity rates were very high, with an appalling **59.1%** of the assessed children reportedly suffering from one or more communicable diseases in the two weeks prior to the study. The incidences of reported diarrhoea, ARI and suspected malaria/febrile illness were 41.8%, 37.5% and 13.0% respectively. However the RDT conducted for malaria confirmed only **5.5%** cases of malaria positive for *Plasmodium falciparum*. The reported suspected measles was noteworthy at 2.0%. The association between morbidity and acute malnutrition, although not statistically significant was noted. For instance, diarrhoea remains a serious risk factor for acute malnutrition among the children, with a proportion of 47.9% of the acutely malnourished children suffering from diarrhoea.

Adequate and decent shelter, water, sanitation and health facilities remain a challenge to the IDP population. Only 12.8%

9 Waabari, Isku-raran, Dalaxiis, Riiga, Camay, Shyasin

of the households were able to access protected drinking water. Majority, 93% of the households did not have sanitation facilities and were using the open bush. There is evidently need for immediate and urgent sanitation and water interventions among the study population, who so far are have not received assistance of any type. A strong statistical association between diarrhoea and access to clean water (P=0.04) was noted during analysis, this further underlines the links between sanitation, health and malnutrition. Access to health services was also a challenge, with 35.8% of the children who fell ill during the two weeks prior to the study, not receiving any medical attention, while the rest sought assistance from private and public health facilities.

MUAC measurement

Measles immunization status for children 9-59 months was extremely low, using recall with only **2.0%** of the children receiving vaccines, equally low was the coverage of vitamin A supplementation at **2.2%**. Polio immunization, although below the recommended Sphere standards of 95%, was very high at 92.9%. Child feeding practices were below standard with only 35.8% of the children aged between 6-24 months were breastfeeding at the time of the assessment. In addition nearly all 99.1% of the children were introduced to complementary foods before 6 months, with 86.8% being introduced to complementary foods before 3 months. Breastfeeding did not continue to the recommended 24 months, with majority of the children (95.7%) ceasing breastfeeding at ≤ 18 months of age.

None of the children in the assessment aged 6-24 months were reported to have been fed the recommended five times a day, with a large proportion (73.6%) being fed two to three times a day. The mean number of food groups consumed by the assessed households in the 24 hours prior to the study was 5.3 ± 1.1, with 20.6% of the households consuming the recommended diversified diet of four or more food groups in a day. The main food groups consumed were cereals (99%), sugar (100%), oil (98.9%), milk (39.5%), meat (15.7%), pulses (29.7%), the remaining food groups roots, fruits and fish were the least consumed (<20%) in the households. Qualitative data collected indicates that the steep rise of food prices in the markets is having a negative impact on the household's food consumption patterns.

In conclusion, the nutrition situation in Garowe IDPs is ***Very Critical***. The key underlying factors affecting the nutritional status of the IDP population is morbidity which is demonstrated by the statistical association between acute malnutrition and diarrhoea and further established by the association between access to clean water and diarrhoea. Water, sanitation and health are critical factors that require to be addressed among the IDP population, as these have a direct influence on morbidity and subsequently acute malnutrition. No interventions have been targeted at the IDPs to date, though the need for adequate sanitation and health facilities, access to clean water and improved shelter conditions, remains urgent. It is, therefore, imperative to immediately undertake interventions to rehabilitate acutely malnourished children, improve health services accessibility, promote sanitation and hygienic practices and intensify nutrition and health education in the IDP settlements.

BAKOOL REGION

Bakool Pastoral Nutrition Assessment Findings

Bakool region comprises of five districts; Huddur, Tieglow, Wajid, Elbarde and Rabdure. The region is largely agropastoral with exception of Southern Inland Pastoral livelihood zone located in Elbarde district and parts of Rabdure and northern Huddur. The Southern Inland Pastoralists keep mainly camel, sheep and goats. A rapid nutrition assessment carried out in December 2007 among 500 children screened from five villages in Elbarde district indicated a ***Critical*** nutrition situation. In April 2008, FSAU in partnership with UNICEF and IMC, conducted a nutritional survey in the pastoral population in Elbarde and parts of Rabdure and Huddur districts. The main objective of the survey was to determine the level of wasting among children aged 6-59 months, and to analyze possible factors contributing to acute malnutrition. Using the two stage cluster sampling methodology (PPS), a total of **502** children, from **255** households aged 6 – 59 months were assessed, while **882** households were assessed for mortality.

Table 8: Summary of Findings - Bakool Pastoral Livelihood Assessment

Indicator	N	%	95% CI
Total number of households surveyed	255	100	
Mean household size	5.9		SD=2.2
Total number of children assessed	502	100	
Global Acute Malnutrition GAM (WHZ<-2 or oedema)	121	**24.1**	18.5 – 29.7
Severe Acute Malnutrition SAM (WHZ<-3 or oedema)	14	**2.8**	1.2 – 4.4
Oedema	0	0.0	-
Global Acute Malnutrition (WHO Anthro 2005)	133	26.5	22.5 – 30.5
Severe Acute Malnutrition (WHO Anthro 2005)	29	5.8	3.6 – 7.9
Global Acute Malnutrition (WHM<80% or oedema)	76	15.1	10.3 – 19.9
Severe Acute Malnutrition (WHM<70% or oedema)	6	1.2	0.0 – 2.4
Children with Diarrhoea 2 weeks prior to assessment	144	28.7	18.1 – 39.3
Children with ARI 2 weeks prior to assessment	154	30.7	18.6 – 42.7
Children with suspected malaria 2 weeks prior to assessment	65	13.0	6.7 – 19.1
Confirmed RDT (malaria) positive cases N=1259	44	3.4	1.5-5.4
Suspected measles within one month prior to assessment (N=466)	7	1.5	0.0 – 3.5
Children (9-59 months) reportedly immunized against measles (N=466)	152	32.6	18.9 – 46.4
Children received polio vaccine	242	48.2	33.8 – 62.6
Children received vitamin A supplementation in last 6 months	165	32.9	19.4 – 36.3
Proportion of households who consumed ≤3 food groups	194	75.8	70.1 – 80.9
Proportion of households who consumed ≥4 food groups	62	24.2	19.1 – 29.9
Proportion of children 6-24 months who are breastfeeding (N=166)	102	61.4	52.0 – 70.9
Under Five Mortality Rate (U5MR) as deaths/10,000/ day	**1.08**		0.0 – 2.17
Crude Mortality Rate (CMR) as deaths/10,000/ day	**0.69**		0.01 – 1.39

The results indicate a global acute malnutrition rate of **24.1%** (18.5 – 29.7) and severe acute malnutrition rate of **2.8%** (1.2 – 4.4). This indicates a ***Very Critical*** nutrition situation based on WHO classification. Although a direct comparison is not possible due to seasonal variations, these findings at the start of the *Gu* season (April 08) indicate a deterioration from the last nutrition survey conducted in the *Deyr 07* season December 2006, which indicated a GAM of 17.7% and 3.2%. Based on NCHS, the stunting and underweight rates reported were 14.5% (10.3 – 18.8) and 34.5% (30.0 – 38.9) respectively. No oedema cases were reported (*See Table 8 for Summary of Findings)*.

The 90 days retrospective crude and under five mortality rates were estimated at **0.59** and **1.08** deaths per 10,000 per day respectively, below alert levels according to the WHO classification. Majority of the reported deaths, for children aged below five years, were caused mainly by diarrhoea, followed by acute respiratory illness (ARI), and suspected measles. Other reported causes of death among adults were birth complications, accidents and anaemia. The integrated analysis of the nutrition situation in the pastoral areas of Bakool region conducted in January 2008 indicated a *Critical* situation with likelihood to worsen. As predicted, the current findings now show that the nutrition situation in the area has deteriorated to ***Very Critical*** levels. High morbidity rates were reported in the study population, with 43.2% of the assessed children reportedly suffering from one or more communicable childhood diseases in the two weeks prior to the assessment. The incidences of reported diarrhoea, ARI, suspected malaria/febrile illness in Elbarde were 28.6%, 30.6%, 13.0% respectively. However, Rapid Diagnostic Tests (RDT) conducted for malaria confirmed only **3.4%** cases of malaria as positive for *Plasmodium falciparum*. The reported suspected measles was low but significant at 1.5% (0.0 – 3.5). These levels were consistent with seasonal morbidity patterns recorded from the health facilities.

Previous studies have shown strong associations with morbidity, however, in this survey analysis did not show any direct association between morbidity and acute malnutrition, is important to note that the proportion of children that were both acutely malnourished and ill in the two weeks prior to the assessment was significant, at 44.6%. In addition, it was noted that 30.5% of the children reported to have suffered from diarrhoea, and 33.1% reported to have suffered from acute respiratory illness (ARI), were also acutely malnourished.

Adequate and appropriate water, health and sanitation facilities remain lacking, with as little as 12.5% of the households having access to clean drinking water, a deplorable 4.3% of the households having sanitation facilities, and a mere 14.2% of the children who were reported to be sick visiting a health facility or clinic for treatment. Poor coverage for health programmes is a crucial risk factor to the ***Very Critical*** nutrition situation in the study area. Measles vaccination coverage for eligible children (9-59 months old) in the study population was very low, at 32.6%, as was coverage for vitamin A supplementation at 32.8% and polio immunization at 48.2%, all fell well below the recommended 95% level (Sphere, 2004).

A rapid diagnostic test (RDT) for Malaria in Elberde, FSAU April 2008

Poor feeding practices persist in Bakool region and have been associated with high levels of acute malnutrition. Most children are introduced to breastfeeding very late after 2-3 days after birth, vis-à-vis the recommended 1-2 hours. Additionally they are also introduced to complementary foods after 2-3 days contrary to recommended international standard of age 6 months, with 86.7% being given other foods at less than 3 months of age. Breastfeeding does not continue to the recommended 24 months, with 95.2% ceasing breastfeeding at age 18 months and below.

At the time of the assessment, 61.4% of the children < 24 months were breastfeeding. Only 27.7% of the children aged 6-24 months were fed the recommended five times in a day. While there was no statistical association between acute malnutrition and complementary feeding frequency, it is critical to note that 82.3% of the acutely malnourished children were fed less than 5 times a day. In spite of this, analysis of distribution of levels of acute malnutrition between the different age groups did not show a significant difference in the likelihood of acute malnutrition between the breastfeeding age groups and older children. The food security and nutrition situation remains precarious, owing to major water shortages for both human and livestock consumption.

Decline in the production of milk, reduced livestock prices coupled with high inflation and increased food prices,[10] poor livestock body conditions and animal deaths have led to reduced food security at the household level. Majority (**81.9%**) of the household's main source of income was through the sale of animals and animal products. **74.5%** of the households relied on purchasing as their main source of food. The main source of cereals for the household was through purchases (**80.7%**), while 38.4% of the households main source of milk was through own production. The remaining proportion of the households were not consuming milk, which is a major source of nutrients for the children and is also sold to purchase other food and non food requirements. Although there was no statistical association between acutely malnourished children and the household's food sources, it is important to note that

10 FSAU Food Security Elbarde Pastoral Assessment Field Report April 2008

77.6% of the children who were acutely malnourished were from households whose main source of food was through purchases, thus highlighting the nutritional vulnerability of this group.

The mean number of food groups consumed 24 hours prior to the assessment in the households was 2.8 ±1.1, with only 23.9% of the assessed households consuming the recommended diversified diet of four or more food groups in a day. The main food groups consumed were cereals (**98%**), sugar (**82%**), milk (**62.4%**) and oils (**34.9%**) the remaining food groups; meat, pulses, roots, vegetables, fruits and fish were the least (**<10%**) consumed in the households, yet they are the main source of micronutrients. Although there was no statistical association between acute malnutrition and the number of food groups consumed by the children, **74.7%** of the acutely malnourished children consumed less than 4 food groups in the 24 hours prior to the assessment. Only **28.2%** of the households were able to consume 3 meals a day, with a high number of the households (**67.1%**) consuming two meals a day and the remaining percentage consuming a meal a day.

In conclusion the nutrition situation in Bakool Pastoral Livelihood zone is ***Very Critical***; a deterioration from the previous nutrition assessment conducted in December 2006. Even though the key underlying factors affecting the nutritional status of the children i.e. morbidity, poor child care, lack of safe drinking water and limited sanitation and hygiene facilities, remain key risk factors, it is important to note that food insecurity, is also currently a critical factor affecting the nutritional status of the population. Low consumption of milk due to reduced production, increased food prices with majority of the households currently relying on purchase of food as their main source, reduced quantity and quality of food intake are also contributing factors to the current poor nutrition status among the study population.

It is therefore important to immediately undertake short term interventions such as rehabilitation of acutely malnourished children, provision of targeted relief assistance, provision of water for human and animal consumption, improve coverage of health programmes and intensification nutrition and health education in the region.

Lot Quality Assurance Sampling (LQAS) Pilot in Bakool Pastoral Assessment

FSAU in September 2007 undertook to pilot and field-test the LQAS methodology among the protracted IDPs in Hargeisa, in order to compare the findings with a 30X30 assessment and explore its application in the nutrition surveillance system in Somalia. Results from the first pilot conducted in Somaliland in September 2007 indicated similar estimates of acute malnutrition from the two assessment designs[11]. Acute malnutrition rate of **9.6%** (6.1 – 13.1) was reported from the 198 children assessed using the LQAS (33X6) design. Comparable results (confidence limits overlapping) were reported from the conventional 30X30 design with acute malnutrition rates of **10.3%** (8.4 – 12.2). For hypothesis testing against a threshold of below or above GAM of **10%**; 19 children were found to be malnourished indicating levels above 10%[12] showing a prediction of a GAM rate above 10%. However, since the acute malnutrition levels were on the borderline and very close to the threshold (GAM≤10%), more field tests in other regions with serious (GAM rates of **10 – 14.9%** or critical (**15 – 19.9%**) acute malnutrition levels were recommended before the design could be adopted for nutrition situation categorization (hypothesis testing) and estimation of acute malnutrition levels for nutrition surveillance in Somalia. This pilot, in April 2008 among the pastoral population in Bakool region, is the second trial conducted in Somalia.

A healthy child awaits to be measured, Bakool, FSAU April '08

A two-stage 33 by 6 cross-sectional assessment was conducted alongside a Probability Proportional to Size assessment in 25 clusters among the Southern Inland Pastoral populations of Elbarde district and parts of Rabdure Huddur and districts in April 2008. Two-stage cluster (33 by 6) sampling methodology was used to select 6 children aged 6-59 months from each of the 33 clusters. A list of all the villages/ settlements and towns in the study population with their respective population was drawn and constituted the sampling frame[13], and was used to construct cumulative population figures for the assessment area from which 33 clusters were randomly drawn using the Nutrisurvey software. Systematic random sampling method was used for the second stage sampling of households and children, selecting every randomly drawn n^{th} household from a list of the households in the village/cluster based on the number of households in each cluster.

Quantitative data was collected through a standard household questionnaire for nutrition assessment and included household characteristics; child anthropometry, morbidity; vitamin A supplementation, measles and polio immunization coverage; dietary diversity; and access to water and sanitation. Qualitative data was collected by an interagency team comprising of assessment supervisors and coordinators, through focus group discussions and key informant interviews, to provide further understanding of possible factors influencing nutritional status. All eligible children in a sampled household were assessed giving a total of 202 children. Three households and ten clusters overlapped during selection and data collection in the two sampling designs. Household and child data was entered, processed (including cleaning) and analyzed using EPI Info- ENA software.

11 FSAU Nutrition Update, October 2007

12 13 malnourished children are required to hypothesize GAM levels of ≥10%.

13 Bakool pastoral has an estimated population size of 52,925 based on UNDP 2005 and further verified by the assessment team

Results

Results from the 33X6 LQAS design were compared to the PPS, SMART, design for both child data (malnutrition, morbidity and health programmes coverage) and household data (household dietary diversity; access to water, mosquito, sanitation facility as well as access to washing detergent) as illustrated in *Table 9*.

Table 9: Comparative Analysis of findings using PPS and LQAS methodologies

Indicator	Prevalence		95% CI		CI Width		Standard Error		Design Effect	
	PPS	33X6	PPS	33X6	PPS	33X6	PPS	33X6	PPS	33X6
GAM (WHZ)	24.1	21.3	18.5 – 29.7	15.3 – 27.3	±5.64	±5..97	2.76	2.93	2.09	1.03
SAM (WHZ)	2.8	3.0	1.2 – 4.4	0.7 – 5.2	±1.63	±2.25	0.79	1.11	1.16	0.85
GAM (WHM)	15.1	12.9	10.3 – 19.9	7.8 – 18.0	±4.80	±5.11	2.34	2.51	2.14	1.13
SAM (WHM)	1.2	1.5	0.0 – 2.4	0.0 – 3.2	±1.22	±1.69	0.60	0.83	1.52	0.94
GAM (MUAC<12.5 cm)	5.6	2.3	3.0 – 8.3	0.0 – 5.0	±2.68	±2.70	1.30	1.32	1.40	1.40
SAM (MUAC<11 cm)	0.6	0.0	0.0 – 1.4	0.0 -	±0.77		0.37	0.0	0.91	-1.00
Stunting (HAZ)	14.5	9.9	10.3 – 18.8	5.0 – 14.8	±4.23	±4.93	2.06	2.42	1.72	1.32
Underweight (WAZ)	34.5	25.7	30.0 – 38.9	19.0 – 32.5	±4.44	±6.75	2.17	3.31	1.04	1.15
Illness (total morbidity)	43.2	56.9	29.2 – 57.2	43.4 – 70.5	±14.00	±13.58	6.84	6.67	9.58	3.64
Diarrhoea	28.6	33.7	18.1 – 39.2	24.4 – 42.9	±10.57	±9.23	5.16	4.53	6.55	1.85
ARI	30.6	39.1	18.6 – 42.7	23.9 – 54.3	±12.06	±15.19	5.89	7.46	8.20	4.69
Febrile illness	12.9	23.3	6.7 – 19.1	13.6 – 33.0	±6.24	±9.71	3.04	4.76	4.13	2.55
Suspected measles	1.5	2.2	0.0 – 3.4	0.0 – 4.7	±1.95	±2.60	0.95	1.28	2.91	1.43
Measles immunization	32.6	14.5	18.8 – 46.3	7.5 – 21.5	±13.77	±7..02	6.73	3.44	9.60	1.77
Vitamin A supp	32.8	11.9	19.4 – 46.3	4.3 – 19.4	±13.44	±7.53	6.56	3.70	9.81	2.63
Polio immunization	48.2	45.1	33.7 – 62.6	31.9 – 58.2	±14.42	±13.16	7.04	6.46	9.98	3.39
Access to mosquito net	17.3	11.0	9.1 – 25.5	1.9 – 20.1	±8.20	±9.13	4.00	4.48	2.87	2.03
Poor dietary diversity (=<3 fd Gps)	23.9	35.0	13.6 – 34.1	21.5 – 48.5	±11.18	±13.51	5.46	6.63	7.92	1.91
Access to safe water	12.6	2.0	1.9 – 23.1	0.0 – 6.1	±10.60	±4.08	5.17	2.00	6.23	2.03
Access to latrine	4.3	8.0	0.0 -10.1	0.0 – 16.3	±5.79	±8.30	2.83	4.07	4.96	2.23
Access to detergent	24.8	34.0	14.3 – 35.2	17.1 – 50.9	±10.45	±16.90	5.10	8.21	3.57	2.48

The following were noted from the LQAS results in comparison to the results from PPS method:

- Comparable levels of acute malnutrition when decision rule is applied [14] but consistently higher levels of morbidity (illness, diarrhoea, ARI, febrile illness and suspected measles
- Generally lower levels of coverage for health programmes (Vitamin A supplementation, measles and polio immunization
- Comparable and mixed levels (some lower, others higher) for household characteristics
- Generally wider confidence intervals, as expected from the smaller sample size (202 as opposed 502 assessed for PPS). In the same note, standard error was generally higher, while the design effect was lower for the LQAS design. The standard error for household variables however recorded mixed results (some lower and others higher).

Discussion

Analysis of the findings from the two assessment designs, indicate similar estimates of acute malnutrition. Acute malnutrition rate (WHZ<-2 and/or oedema) of **21.3%** (15.3 – 27.3) was reported from the 202 children assessed using the LQAS (33X6) design. Comparable results (confidence limits overlapping) were reported from the PPS design with acute malnutrition rates (WHZ<-2 and/or oedema) of **24.1%** (18.5 – 29.7). Both results indicated a ***Very Critical*** (GAM rate >20%) nutrition situation. For hypothesis testing against a threshold of below or above GAM of 20%; 43 children were found to be acutely malnourished, indicating levels above 20%. In addition having entered the LQAS data in the field with more than 33 acutely malnourished children in the LQAS design, we were able to predict, and correctly so, that the GAM rates were likely to be above 20%. This was in advance of entering the more time consuming PPS SMART information.

Because of the similarity of findings based on the two sampling methodologies, and the less resource and time demands of the latter method, LQAS could be adopted in the nutrition surveillance system for Somalia to fill information gaps during the seasonal (post *Gu* and post *Deyr*) assessments and for areas with limited accessibility; and in planning of interventions in emergency settings whereby one only needs to get an overall idea of the situation such as an urban area. However, since some variables did not produce consistent results, a third field test is still recommended before the design can be fully adopted for malnutrition situation categorization (hypothesis testing) and estimation of acute malnutrition levels for nutrition surveillance in Somalia.

Children Outside their Shelter in Galcayo IDPs Settlement, FSAU, May '08

14 33 malnourished children are required to hypothesize GAM levels of ≥20%.

QUALITY CHECKS

Digit preference (DP) for weight and height: Indicates how accurately children were weighed and recorded and when done correctly there should not be any digit preference. This normally occurs when enumerators round off to the nearest cm/kg or half cm/kg. Digit Preference Score (0-5 good, 5-10 acceptable, 10-20 poor and > 20 unacceptable)

Standard Deviation (SD) of WHZ: Indicates whether there was a substantial random error in measurements. In a normal distribution the SD is equal to +1, but should lie between 0.8 and 1.2 Z score. SD increases as the proportion of erroneous results in the dataset increases.

Skewness of WHZ: This is a measure of degree of asymmetry of the data around the mean. A normal distribution is a symmetrical and has zero skewness and should lie between +1 or -1.Positive skewness indicates a long right tail and negative skewness indicates a long left tail.

Kurtosis of WHZ: This demonstrates the relative peakedeness or flatness compared to a normal distribution. The normal distribution has zero kurtosis and surveys should lie between +1 and -1.Posotive kurtosis indicates a peaked distribution while negative is a flat one.

Percent of flag (WHZ): Flags are measurements that are highly unlikely to occur in nature and are, therefore, highlighted by measurements' software. These incoherent measurements should be corrected or discarded prior to analysis, 0% flags is ideal but should be less that 2-3% of children measured.

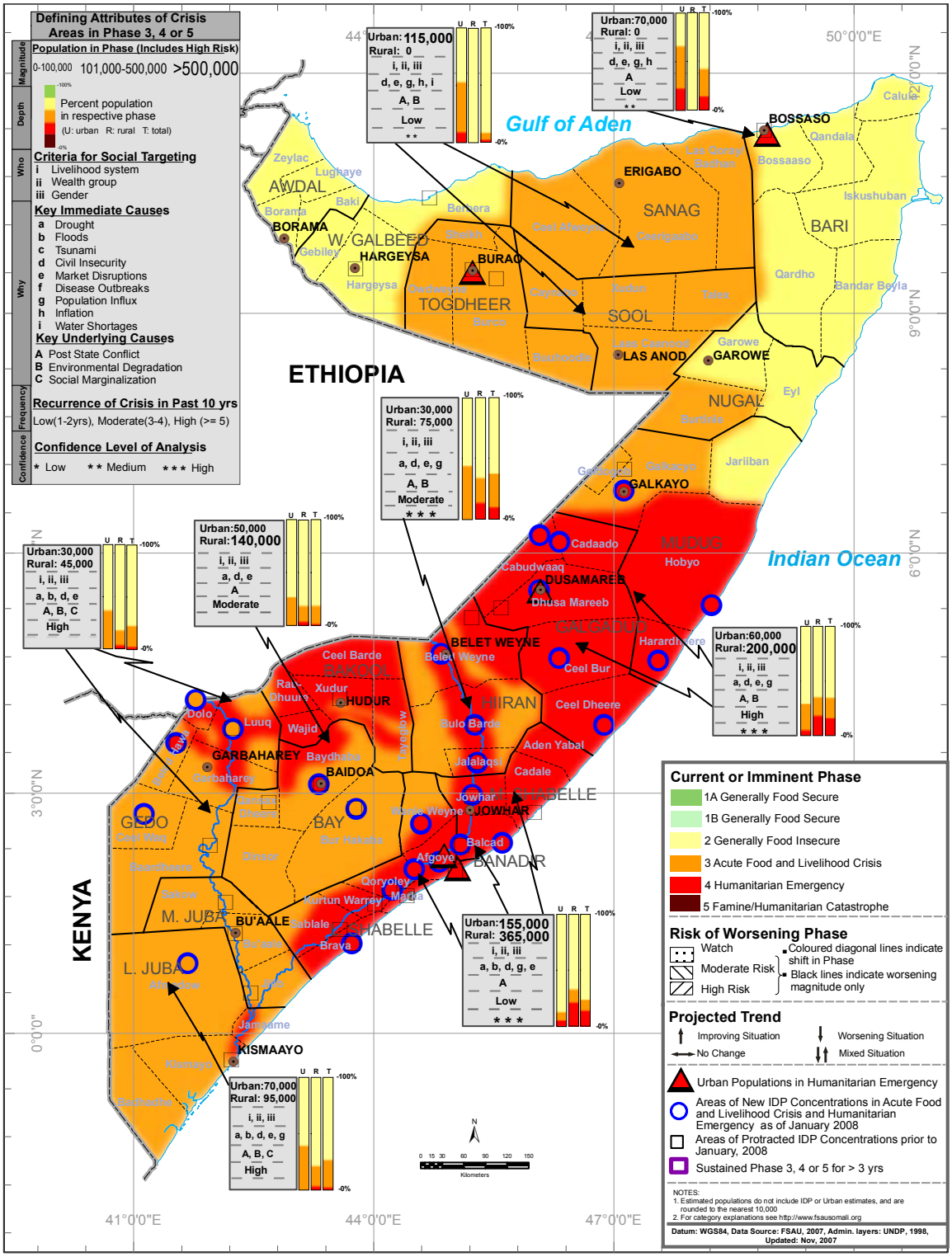
Age distribution: This allows for a view of the representativeness of the sample, and should be similar to the distribution within the population. Age bias is of particular concern for anthropometry. As younger age groups (6-29) are more likely to acutely malnourished than the older age group (30-59).This means under representation of the younger age group may give lower prevalence than the actual one and vice versa. The age ratio allows a view of this relationship and should be between 0.78 and 1.18 with an ideal ratio is 0.98.

Sex ratio: Allows a view of the representativeness of the sample and should be similar to the distribution within the population. This should not vary too much from the expected sex ratio and should like between 0.8 and 1.2**.**

Table 10: Findings on the quality checks for the Nutrition Assessments Conducted

	Shabelle Agro pastoral	Shabelle Riverine	Shabelle IDP	Adale	Bakool Pastoral (Elbarde)	Garowe	Galkayo	Gedo Pastoral	Gedo A gro-pastoral	Gedo Riverine
Digit Preference score-Weight	4 (good)	3.45 (good)	6.72 (acceptable)	9.81 (acceptable)	4.54 (good)	6.00 (acceptable)	4.33 (good)	4.31(good)	3.83 (good)	5.4 (acceptable)
Digit Preference score-Height	11.62 (poor)	9.07 (acceptable)	8.02 (acceptable)	14.32 (poor)	5.59 (acceptable)	9.11 (acceptable	7.27 (acceptable	8.18 (acceptable	19.8(poor)	19.9 (poor)
Age preference	18, 25, 36, 48.	18, 48, 49	13, 25, 30, 47.	48	, 49	None	25	49	59	None
SD of WHZ	1.25	1.31	1.16	1.42	0.77	1.03	0.92	1.04	1.09	1.14
Skewness of WHZ	0.88(<1: normal)	0.35(<1: normal)	0.34	1.16(>1: problem)	-0.27 (<1: normal)	1.18	0.75 (<1: normal)	0.86 (<1: normal)	1.16	0.96 (<1: normal)
Kurtosis of WHZ	3.16(>1:problem)	0.39 (<1: normal)	0.63 (<1: normal)	4.04 (>2:problem)	-0.05 (<1: normal)	3.29(>2: problem)	1.72	1.86	3.19 (>2:problem)	2.02 (>2:problem)
Percent of flags	9 case (1.2%)	4 cases (0.6%)	(2 cases)0.3%	(3 cases) 0.9%	0.0%	(2 cases) 0.6%	(2 case) 0.2%	(2 cases) 0.2%	(5 cases) 0.7	(4 cases) 0.5%
Age groups (6-29)	No bias	No bias	No bias	No bias	No bias	No bias	No bias	No bias	No bias	No bias
Age Groups(30-59)	No bias	No bias	No bias	No bias	No bias	No bias	No bias	No bias	No bias	No bias
Sex Ratio (M/F)	1.02	1.07	1.08	1.20	1.02	1.27	1.00	1.08	1.31	1.24

Map 2. SOMALIA INTEGRATED PHASE CLASSIFICATION MAP:
Rural, Urban and IDP Populations: Projections to the end of June '08



Trainings and courses

FSAU conducted four workshops in the North West regions to disseminate findings from the Knowledge Attitudes and Practices Study (KAPS) on Infant and Young Child Feeding and Health Practices (September 2007). These were conducted in Hargeisa, Burao, Erigavo, Lasanod (June 12-16th, 2008), each with an average of 50 participants. Similar training will be conducted in South Central Zone later in the year.

Other FSAU publications

- Press Release: Rising Food Prices and Deepening Drought: More than 2.6 Million People are in Crisis, April 30th, 2008
- Food Security and Nutrition Quarterly Brief: Focus on Gu Season Early Warning
- FSAU/FEWSNET Market Data Update, June 2008
- FSAU/FEWSNET Climate Data Update, June 2008

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