FSNAU
Food Security and Nutrition Analysis Unit - Somalia

NUTRITION UPDATE

May - June 2009

Overview

In the months of May and June '09, FSNAU in collaboration with partners, conducted 16 representative nutrition surveys in the Somali population *(See Map 5 page 15)*. 13 of the surveys were livelihood based while 3 were region/district specific. The standard two stage cluster sampling methodology was applied in all surveys, with smaller samples selected for 2 of the 16. Analyses of findings are based on the WHO 2006 child growth standards and estimated with 95% confidence using the Nutrisurvey software. For the smaller samples sizes, the results are presented as a probability analysis using the recently developed Centre for Disease Control (CDC) calculator. Preliminary findings indicate a varied situation with a ***Very Critical*** nutrition situation in the Bay agro-pastoral and Bakool pastoral livelihood zones, where global acute malnutrition (**GAM) levels above 20%** were reported (*See Figure 1*). In Adale district and the Shabelle agro-pastoralists in south Somalia, the Hawd and Addun pastoralists in central and northeast, and the East Golis and Kakaar/Gebi pastoralists in the north, the nutrition situation is ***Critical*** with **GAM levels of 15-19.9% ,** while in Shabelle IDPs, Shabelle riverine, Bakool agro-pastoral, and West Golis livelihood zones, the nutrition situation is ***Serious,* with GAM levels of 10-14.9%**. The crude and under-five mortality rates in all assessments are below the WHO alert thresholds of *1/10000/day* and *2/10000*/day respectively, with the exception of the Shabelle agro-pastoralists who are faced with elevated levels, likely linked to a recent Acute Watery Diarhoea (AWD) outbreak.

Bay & Bakool regions

Preliminary results of the Bay agro-pastoral survey indicates a ***Very Critical*** nutrition situation[1] with a global acute malnutrition (GAM) rate (weight for height < -2 z scores or oedema) of **23.9%** (19.2 – 29.4) and a severe acute malnutrition (SAM) rate (weight for height < -3 z score or oedema) of **5.2%** (3.9 - 6.9) including one case of oedema, 0.1%**.** These results indicate a sustained crisis from the most recent survey conducted in November 2007 when 20.6% GAM and 5.6% SAM were reported. Similarly, the Bakool pastoral survey indicates a sustained ***Very Critical*** nutrition situation[2] with a GAM rate of **20.8%** (Pr=0.90) and a SAM rate of **0.5%** (Pr=0.91). The alarming nutrition situation is likely attributed to high morbidity exacerbated by poor access to safe water and sanitation facilities in both livelihoods, and specifically for Bakool pastoralists, due to poor access to milk for children following the out-migration of livestock in search of pasture. The Bakool agro-pastoral survey reports a GAM rate of **14.9%** (12.1- 18.3) and a SAM rate of **3.4%** (2.1-5.4) including one case of oedema, 0.2% which indicates a lower prevalence rate compared to the July 2008 survey[3]. The improved situation is likely associated with access to humanitarian interventions such as selective feeding, general food distributions and increased access to milk following in-migration of livestock from the bordering pastoral livelihood zones. The retrospective crude and under-five year mortality rates across the three livelihood zones are below the alert threshold levels of *1/10,000/day* and *2/10,000/day* according to WHO classification.

A man and a goat taking water, L. Shabelle, FSNAU

Shabelle IDPs, Agro-pastoralists, Riverine and Adale District

The preliminary results for the Shabelle IDP survey indicate a sustained ***Serious*** nutrition situation[4] since November 2008, with a GAM rate of **11.7**% (8.8-14.7) and a SAM rate of **3.5**% (2.0-5.1) including one case of oedema, 0.2%. The Shabelle agro-pastoral survey, indicates a GAM rate of **19.6%** and a SAM rate of **8.2%** (Pr=0.90), although not statistically different this places this population the ***Critical*** Phase , a deterioration from the ***Serious*** phase from *Deyr* '08/09. This deteroriation is likely linked to a recent AWD outbreak. The Adale district nutrition survey findings indicate a GAM rate of **16.5%** (13.5-20.0) and a SAM rate of **5.1%** (3.5-7.4) with one case of oedema, a deterioration from a year ago though not significant. In the Shabelle riverine livelihood survey, where a smaller sample was used (33*6), the probability analysis, indicates a likelihood of the GAM levels falling within the **10.0 – 14.9%** range (Pr=0.61) and a SAM rate of **2.0% (0.7-5.1**), these results are consistent with 6 months ago. Morbidity is a key factor in the sub-optimal nutrition situation in the Shabelle regions. The Somalia Health Cluster early warning system (EWARS) June 2009 report indicates acute respiratory tract infections (ARI) as the leading determinant of morbidity in Shabelle, followed by acute watery diarrhoea (AWD). On-going civil insecurity particularly in Mogadishu leading to internal displacements of people to Shabelle rural areas also continues to limit access to food and health care and predisposes communities to increased exposure to disease. The retrospective crude and under-five year mortality rates for Shabelle IDPs and Adale district are below the WHO alert threshold levels[5], however, for Shabelle agro-pastoralists, the rates, of **1.02** (0.71-1.46) and **2.43** (1.48-3.98) respectively, are slightly elevated.

Central and parts of North east Regions

Preliminary findings from the surveys conducted in central and parts of Northeast regions indicate a ***Critical*** nutrition situation with a GAM rate of **18.0%** (13.8-23.1) and a SAM rate of **5.5%** (3.7-7.9) in the Hawd pastoral livelihood zone. However, statistical analysis between this and the previous[6]survey conducted in November 2008 indicates no significant difference in the GAM (*p=0.30*) and SAM rates (*p=0.40)*. For the Addun livelihood zone, findings indicate a sustained ***Critical*** nutrition situation[7] with a GAM rate of **17.3%** (13.8-21.5) and a SAM rate of **2.6%** (1.6-4.4). In the Cowpea Belt agro-pastoral livelihood, findings indicate a ***Serious*** nutrition situation with a GAM rate of **14.9%** (12.4-18.7) and a SAM rate of **3.3%** (2.6-5.4) respectively. The retrospective crude and under-five mortality rates across the three livelihood zones are below the alert WHO threshold levels. In the Coastal Deeh where the 33x6 cluster methodology was used, there is a high probability (Pr=0.9) of the GAM rate being in the 10-14.9% range with SAM levels above **2.0%** (Pr. =0.91). These results indicate a sustained ***Serious*** nutrition situation, consistent with the *Deyr* 08/09 integrated analysis and the previous nutrition assessment[8] conducted in May 2007. At the request of operational agencies, region

1 Consistent with the November 2007 survey indicated similar findings with a GAM rate of 20.6% (17.9 - 23.2) and SAM rate of 5.9% (4.3 – 7.4) (WHO GS)
2 The June 2008 survey indicated a GAM rate of 24.2% (18.5 – 29.7) and a SAM rate of 2.8% (1.2 – 4.4)
3 The July 2008 survey indicated a GAM rate 25.2% (22.1 – 28.6) and a SAM rate of 3.8% (2.6 – 5.6)
4 The November 2008 survey indicated a GAM rate of 12.3% (9.7-15.5) and a SAM rate of 2.8% (1.7-4.8)
5 *1/10,000/day* and *2/10,000/day*.
6 The Nov. 2008 Hawd assessment indicated GAM and SAM rates of 21.9% (16.5-28.6) and 7.1% (4.5-10.9) respectively
7 The Nov. 2008 indicated a GAM rate of 18.9% (13.9-25.3) and SAM rate of 6.3% (3.5-10.8)
8 The May. 2007 results indicated GAM and SAM rates of 15.8% (12.8-19.3) and 2.1% (1.2-3.5) respectively

The FSNAU is managed by FAO and funded by USAID/OFDA, the EC, SIDA and UNICEF

based surveys were also conducted concurrently, and results for the Galgadud Region assessment report a GAM rate of **14.3%** (10.3-19.3) and a SAM rate of **3.3%** (1.9-5.3) including one oedema case, 0.1%. In Mudug region, assessment results indicate a GAM rate of **18.3%** (15.4-21.6) and a SAM rate of **4.9%** (3.7-6.6) including one oedema case 0.1%. These results indicate an alarming nutrition situation consistent with the post *Deyr* '08/09 integrated analysis classification for the regions. The crude and under-five mortality rates for both Galgadud and Mudug regions were below the respective WHO alert thresholds.

Northwest & Northeast pastoral livelihood zones – Golis/Guban/ Kakaar/Gebi Valley

Preliminary results indicate a ***Serious*** nutrition situation in West Golis with a GAM rate of **13.3%** (10.4-16.9) and a SAM rate of **2.5%** (1.5-3.9), with no reported cases of oedema among the assessed children. The improved nutrition situation in the last six months[9] is attributed to increased access to milk, as previously out migrated livestock have now returned following good *Hays* rains and increased access to humanitarian services (health care, selective feeding and general food distributions). In the East Golis, a GAM rate of **17.4% (**14.5-20.7) and a SAM rate of **2.8%** (1.7-4.6) was reported, while in the Karkaar/Gebi valley, the nutrition situation indicates a GAM rate of **15.0%** (11.4-19.5) and a SAM rate of and **3.3%** (1.9-5.7). These results indicate a ***Critical*** nutrition situation in East Golis/Gagaab and Karkaar/Gebi livelihood zones associated with poor access to milk, due to poor recent rains in these areas and subsequent outmigration of livestock, in addition to limited services to basic services and nutritional rehabilitation centres, given the remoteness of the area. The retrospective crude and the under-five mortality rates for the West Golis/Guban, East Golis/ Gagaab and Karkaar/Gebbi livelihood zones are below the WHO alert thresholds respectively.

9 The October 2008 Nutrition survey findings indicated a GAM rate of 22.3% (17.2-28.4) and a SAM rate of 6.6% (4.4-9.7) based on WHO (2006) Growth standards

ACUTE WATERY DIARRHEA UPDATE (AWD) - *Highlight from the Somali Health Cluster Bulletin No. 24, June 2009*

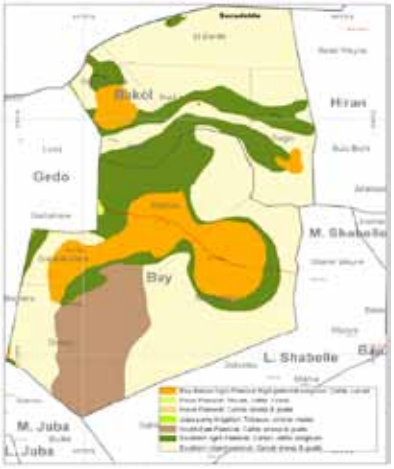
- With the exception of Lower and Middle Juba, most regions show a declining trend of acute watery diarrhoea due to effective response and preventive measures in place. In Jilib and Kismayo, where cholera cases have been confirmed, the AWD caseloads peaked in mid June (week 24). Increased AWD cases have also been reported in Jamame, Marere and Hagar districts of Lower Juba ,though samples tested negative for cholera. Makeshift cholera treatment centres have been established in affected villages. The health cluster is working closely with the water and sanitation cluster to contain the situation in the affected areas.
- For Lower Shabelle, the health sector's early warning system (EWARS which is based on syndromic approach) has reported ARI as a leading cause of morbidity in week 22-25, followed by AWD.

FSNAU and Partners are currently conducting the Post *Gu* '09 seasonal assessment for detailed analysis of the integrated nutrition and food security situation in all parts of Somalia and Somaliland. The results will be released on August 21st in Nairobi, followed by regional presentations in country.

BAY AND BAKOOL AGRO-PASTORAL AND BAKOOL PASTORAL LIVELIHOOD ASSESSMENT FINDING

Bay and Bakool regions comprise of two predominant livelihoods systems; the Southern Inland Pastoral, predominantly in Elberde and Rabdhure districts (referred herein as Bakool pastoralists); and the agro-pastoral livelihood in the remaining districts of Bakool (Tieglow, Wajid Huddur and parts of Rabdhure) and all the four districts (Baidoa, Qansahdhere, Dinsor and Burhakaba) in Bay region (*see Map 1*). The two regions have a high agricultural potential with Bay region serving as the sorghum basket for Somalia.

Map 1: Bay and Bakool Livelihood Zones



Like other areas in southern and central Somalia, the two regions have been affected negatively by the recurrent shocks particularly civil insecurity, and drought. This has led to livelihood disruptions, including loss of livestock and crop failures. According to the most recent post FSNAU *Deyr*' 08/09 integrated analysis[10], Bakool region showed a mixed picture with some areas in the pastoral and agro-pastoral livelihoods showing a deterioration in the food security situation, while others showed improvements. The improvement was as a result of good *Deyr* '08/09 rains, which resulted in improved crop production and rangeland conditions in parts. The food security situation in Bay region remained in the **Borderline Food Insecure** (BFI) phase, with the exception of areas in northern Baidoa where deterioration was noted following consecutive seasons of crop failure.

10 Technical Series Report No V. 16, February 20, 2009: Nutrition Situation Post *Deyr*'08/09

Figure 1: Trend in levels of acute malnutrition (WHZ< -2 or oedema , WHO 2006) in Bakool region 2002- 2009

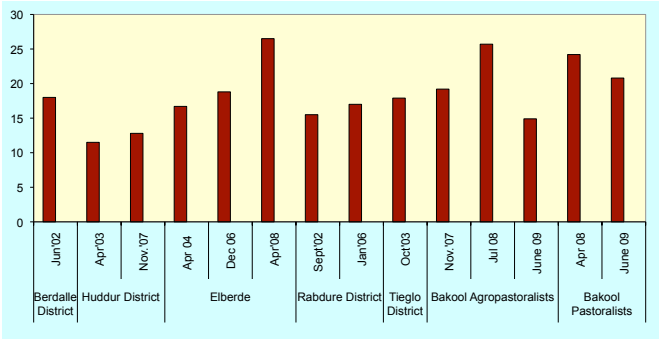
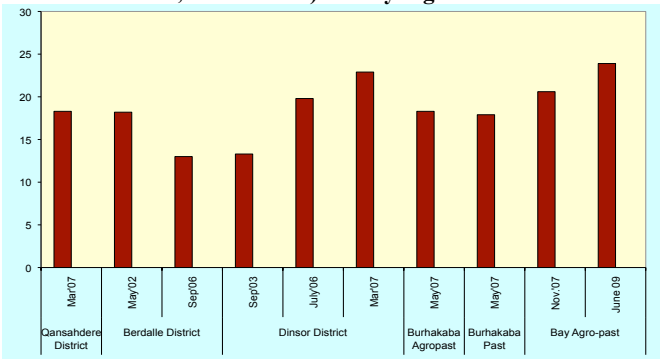


Figure 2: Trend in levels of acute malnutrition (WHZ< -2 or oedema, WHO 2006) in Bay region 2002- 2009



The nutrition situation in the two regions has remained unstable over the last few years ranging between *Serious to Very Critical* levels as indicated graphically *(see figures 1and 2)* Representative nutrition surveys were not completed during the *Deyr* 08/09 due to insecurity, however the integrated analysis of available data at the time, categorized the nutrition situation as *likely to be Very Critical* in Bakool region, and

likely to be Critical in Bay region. The poor nutrition situation in the two regions is largely attributed to poor dietary diversity, chronically high morbidity, consumption of unsafe water, poor sanitation and hygiene, and sub optimal child care and feeding practices. Between the 29th of May and 10th of June 2009, FSNAU and partners[11] conducted three inter-agency nutrition assessments: two in Bakool region assessing the agro-pastoral and pastoral livelihoods, and one in Bay region covering the agro-pastoral livelihood. Using a two-stage PPS sampling methodology, 882, 617 and 686 children aged 6-59 months from 534, 368 and 435 households were assessed from Bay agro-pastoral, and Bakool agro-pastoral and pastoral livelihoods respectively. The results of the assessments are presented in *Table 1*.

In Bay ago-pastoral livelihood, the results indicate a GAM[12] rate of **23.9%** (19.2 – 29.4) and a SAM rate of **5.2%** (3.9 - 6.9) including one oedema case, 0.1%. This indicates a ***Very Critical*** nutrition situation and a deterioration from the Post *Deyr*'08/09 integrated analysis in January 2009 where the situation was classified as *likely* to be *Critical*. The deterioration is likely attributed to chronic high morbidity, worsened with the diminished access to humanitarian health and nutrition services provided by national and international agencies. The persistently poor child care practices and limited access to safe water and adequate sanitation services, have also continued to impact negatively on the nutrition situation and together with high morbidity are the major underlying causes of malnutrition in Bay region. A further concern was that 9.8% of the assessed pregnant women were identified as acutely malnourished with a MUAC<23 cm. However, the respective crude and under-five year mortality rates of **0.68** (0.48-0.96) and **1.18** (0.62-2.16) were below the alert threshold.

In Bakool region, the agro-pastoral nutrition assessment reported a GAM rate of **14.9%** (12.1- 18.3) and a SAM rate of **3.4%** (2.1-5.4) including one case of oedema, 0.2% based on WHO 2006 standards. Given that the confidence intervals of the GAM rates from the current and the previous assessment conducted in July 2008 where a GAM rate **26.5%** (22.5 – 30.5) was reported, do not overlap, the current results indicate a significant improvement in the nutrition situation from ***Very Critical*** in 2008 to ***Serious*** levels in 2009. The improvement is likely due to improving food security and the positive impact of humanitarian services including targeted supplementary food programmes, and general food distribution. The recorded crude and under-five years mortality rates of **0.53** (0.34 – 0.82) and **0.98** (0.40-2.37) respectively, were below the alert threshold according to WHO classifications. The Bakool pastoral nutrition assessment reported a very concerning GAM rate of **25.1%** (18.6 – 32.8) and a SAM rate of **1.2%** (0.5 – 2.6) rate. These results indicate a sustained ***Very Critical*** nutrition situation as recorded from the previous nutrition assessment in April 2008 when a GAM rate of 24.2% (18.5 – 29.7) and a SAM rate of 2.8% (1.2 – 4.4) were reported. The underlying causes of acute malnutrition in the expansive pastoral areas include food insecurity, specifically reduced access to milk for children following outmigration of livestock, high morbidity coupled with limited access to health services, poor child care and feeding practices and limited access to safe water and adequate sanitation facilities. The respective crude and under-five mortality rates of **0.61** (0.37 – 0.99) and **0.77** (0.31 – 1.93)/10,000 persons/day were below the alert levels.

Further analysis of the survey data indicates ***Serious*** stunting rates of **32.4%** and **32.6%** in Bay and Bakool agro-pastoral respectively and a ***Alert*** level of **29%** in the Bakool pastoral livelihood *(WHO classification)*. Stunting, a reflection of chronic malnutrition has been a particular concern in Bay region, where consistently high levels (median rates of 39%) have been reported since 2000, these are the highest national levels since FSNAU nutrition data collection commenced. The proportion of the children who were underweight is equally high, ranging from ***Serious*** rates of 27.4% among the Bakool pastoral to ***Critical*** rates of 40.7% among the Bay agro-pastoral population again indicating a specific nutritional vulnerability in the Bay agro-pastoral population.

Child morbidity in these regions has remained high, impacting negatively on child growth and development. The proportion of children who reportedly suffered from one or more communicable childhood diseases during the two weeks prior to the assessment were 44.6%, 21.5% and 38.0% out of those surveyed in Bay and Bakool agro-pastoral, and Bakool pastoral populations respectively. The respective incidences of reported diarrhoea, ARI and suspected malaria were reasonable at 20.4%, 25.8% and 12.1% respectively, in Bay agro-pastoral 12.1%; 4.7% and 7.1% respectively in Bakool agro-pastoral, and 18.7%, 25.5% and 4.5% respectively in Bakool pastoral populations. However, Rapid Diagnostic Testing (RDT) for malaria, revealed a low malaria prevalence of less than 2% malaria in the three assessed populations. The reported measles prevalence ranged between 0.3% in Bay agro-pastoral to 2.2% in Bakool pastorals indicated in *Table 1*. Morbidity has shown a strong correlation with acute malnutrition, where the acutely malnourished children in Bay (*RR=1.4; CI: 1.2 – 1.6; p=0.00*) and Bakool (*RR=1.7: CI: 1.3 – 2.4; P=0.001*) agro-pastoral populations were 1.4 and 1.7 times respectively, more likely to be acutely malnourished than their counterparts who were not ill ($p<0.05$).

Polio immunization, vitamin A supplementation and measles vaccination status by respondents' recall, were reportedly low in the three assessments. A total 43.2%, 75.7% and 68.4% of the assessed children in Bay and Bakool agro-pastoral and pastoral livelihood systems respectively, were reportedly immunized against measles in the previous 6 months. Polio immunization status was 67.5%, 85.8% and 81.0% respectively, and Vitamin A supplementation status of 50.1% and 59% and 74.5% was reported in Bay and Bakool agro-pastoral and Bakool pastoral populations, respectively. The overall status of these health programmes were far below the recommended levels of 95% (Sphere, 2004) which deprives the affected children the nutritive and health benefits associated with these health services. The reported tetanus vaccination status among the assessed women of reproductive age (15-49 years) was equally low, ranging from 44-70.2% in the assessed populations.

11 UNICEF, IMC WFP, WVI, and SRCS
12 GAM rates are computed using the WHO (2006) Growth standards.

Dietary diversity is a concern in both regions, with the results indicating a *Critical*[13] situation in Bay region with 48.6% of the assessed households reportedly consuming three or fewer food groups in the 24 hours prior to the assessment. In Bakool region, results show a *Very Critical* dietary diversity with 55.3% and 60.5% of the Bakool agro-pastoral and pastoral population respectively, reportedly consuming a poorly diversified diet comprised of three or fewer food groups. The most commonly consumed food groups across livelihoods were cereals, sugar, oil and milk. The majority (>60%) of the assessed households reported purchase as the main food source.

Child feeding and care practices have remained sub-optimal across the country with current results indicating early cessation (within the first year of birth) of breastfeeding and infrequent child feeding practices in the three assessed livelihoods. This predisposes children to malnutrition early in life and hence the associated vulnerability to morbidity. In addition, access to safe water, adequate sanitation facilities and health services has remained low in both regions. The current results show a very low access to safe water with only 1.7% - 16.2% of the assessed households in the three livelihoods reportedly accessing safe drinking water, 9% - 32.1% accessing sanitation facilities such as latrines and 17% - 47% of the households reportedly accessing health services. It is important to note that poor access to safe water and sanitation services exposes the population to water borne or sanitation related diseases such as diarrhoea, while low access to health services may lead to complications or even death of curable diseases.

In conclusion, the nutrition situation in the Bay agro-pastoral and Bakool pastoral population is ***Very Critical*** and ***Serious*** in Bakool agro-pastoral livelihood. The concerning nutrition situation is likely attributed to the combination of multiple factors: poor child feeding and care practices, health related factors such as exposure to diseases, poor water and sanitation facilities, and limited access to basic health services among other factors. A further factor is the limited access to milk, which is exacerbated during times of poor rainfall when livestock move from the home. Immediate interventions required include rehabilitation of acutely malnourished children, increased provision of mobile health services for remote populations, increased access to potable drinking water and improved sanitation services and support to improve child care practices. The disruption of humanitarian interventions as a result of insecurity has also contributed to the worsening of the nutrition situation in parts and hence it is crucial to improve the security situation for both livelihood activities and enhanced humanitarian access.

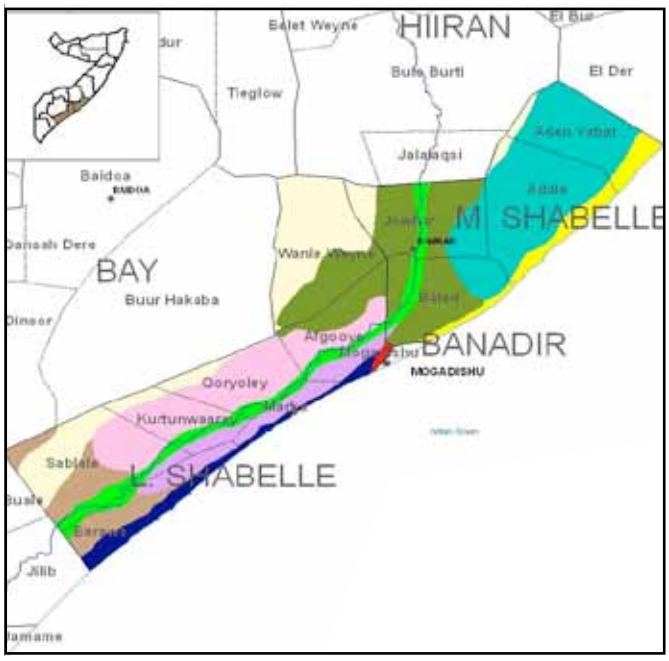
13 FSNAU 2008: Framework for Estimating the Nutrition Situation

Table 1. Summary of Bay and Bakool Livelihoods Nutrition Assessment Findings (June 2009)

Indicator	Bay Agro-pastoral		Bakool Agro-pastoral		Bakool Pastoral	
	N	*% (CI)*	*n*	*% (CI)*	*n*	*% (CI)*
Total number of households assessed for children	534	100.0	368	100.0	435	100.0
Total number of assessed children	882	100.0	617	100.0	686	100.0
Child Malnutrition						
Global Acute Malnutrition (WHO 2006)	211	**23.9** (19.2- 29.4)	92	**14.9** (12.1 -18.3)	172	**25.1**(18.6-32.8)
Severe Acute Malnutrition (WHO 2006)	46	**5.2** (3.9 – 6.9)	21	**3.4** (2.1 – 5.4)	8	**1.2** (0.5 – 2.6)
Oedema	1	0.1	1	0.2		
Global Acute Malnutrition (NCHS)	200	22.7 (18.7-27.3)	90	14.6 (11.7-18.1)	173	25.2 (19.0-32.7)
Severe Acute Malnutrition (NCHS)	23	3.4 (2.1 – 5.4)	14	2.3 (1.4 – 3.6)	9	1.3 (0.6-2.9)
Global Acute Malnutrition (WHM<80% or oedema - NCHS)	122	13.8 (10.5 - 17.1)	58	9.4 (6.7 - 12.1)	94	13.7 (9.2-18.1)
Severe Acute Malnutrition (WHM<70% or oedema - NCHS)	8	0.9 (0.2 – 1.5)	6	0.9 (0.1 – 1.7)	0	0
Global Acute Malnutrition by MUAC (<12.5 cm or oedema)	144	16.3 (13.4 - 19.2)	24	6.5 (3.7 – 9.3)	135	19.7(13.7 – 25.6)
Severe Acute Malnutrition by MUAC (<11.5 cm or oedema)	29	3.2 (2.0- 4.4)	2	0.5 (0.2 – 1.3)	18	2.6 (0.7 – 4.5)
Proportion of children Stunted (HAZ<-2)	339	32.4 (35.1 – 41.8)	201	32.6 (27.2 – 38.5)	199	29.0 (22.2 – 36.9)
Proportion of children Underweight (WAZ<-2)	359	40.7 (35.5 – 46.2)	186	30.2 (24.4 - 35.8)	188	27.4 (21.7 - 33.9)
Child Morbidity						
Children reported ill in the previous 2 weeks	394	44.6 (36.7 – 52.5)	133	21.5 (16.5 – 26.6)	261	38.0 (31.6 – 44.4)
Children reported with diarrhoea in the 2 weeks prior to assessment	180	20.4 (16.4 – 24.4)	75	12.1 (8.7 – 15.5)	128	18.7 (13.1 – 24.2)
Children reported with ARI within two weeks prior to assessment	228	25.8 (17.3–34.3)	29	4.7 (1.3 – 8.1)	175	25.5 (20.2 – 30.8)
Children reported with febrile illness in the 2 weeks prior to assessment	107	12.1 (8.5 – 15.8)	44	7.1 (4.6 – 9.6)	31	4.5 (1.7 – 7.3)
Total assessed population confirmed positive for malaria (RDT)	19	1.3 (0.8 – 2.0)	2	0.1	4	0.3 (0.1 – 0.8)
Children reported with suspected measles within one month prior to assessment	3	0.3	7	1.1	15	2.2 (0.6 – 3.8)
Child Immunization Status						
Children (9-59 months) immunised against measles (Recall)	381	43.2 (32.8 – 53.6)	278	75.7 (68.3 – 83.1)	469	68.4 (58.3 – 78.5)
Children who have ever received polio vaccine (Recall)	596	67.5 (57.9 – 77.1)	315	85.8 80.6 – 90.9)	556	81.0 (72.6 – 89.5)
Children reported to have received vitamin A supplementation in last 6 months (Recall)	438	50.1 (37.5 – 62.6)	216	59.0 (50.1 – 67.8)		74.5 (65.0 – 84.0)
Maternal Health & Nutrition						
Total women acutely malnourished (MUAC<23.0 cm)	12	9.8 (6.4 – 13.3)	28	7.7 (5.2 – 11.0)	41	9.5 (4.7 – 17.5)
Pregnant women acutely malnourished (MUAC<23.0 cm)	9	8.8 (6.4 – 13.3)	26	33.3 (22.2 – 44.4)	33	32.0 (20.1 – 44.0)
Non pregnant women acutely malnourished (MUAC≤18.5 cm)	3	0.6	2	0.7	8	2.4
Women who received tetanus immunization (Recall)	232	44.2 (34.9 – 53.6)	246	68.7 (61.5 – 75.9)	302	70.2 (60.1 – 80.4)
Household Essential Indicators						
Proportion of households who reported to have consumed ≤3 food groups	260	48.6 (38.2 – 59.1)	202	55.3 (45.4– 65.2)	263	60.5 48.5 – 72.5)
Access to safe/protected drinking water	9	1.7 (0.1-5.1)	59	16.2 (2.1 - 30.4)	39	9.0 (0.7-17.2)
Access to latrine	50	9.4 (0-18.8)	117	32.1 (19.3 – 44.9)	40	9.2 (2.1- 16.3)
Access to health facility	91	17.5 (5.1-29.8)	173	47.3 (28.6 – 66.1)	153	35.2 (17.9 – 52.4)
Mortality						
Under-five Mortality Rate (U5MR) as deaths/10,000/ day	**1.18** (0.62 – 2.16)-		**0.53** (0.34 – 0.82)		**0.77** (0.31 – 1.93)	
Crude Mortality Rate (CMR) as deaths/10,000/ day	**0.68** (0.48 - -0.96)-		**0.98** (0.40 – 2.37)		**0.61** (0.37 – 0.99)	

Middle and Lower Shabelle Regions

Map 2: L. and M. Shabelle Livelihoods



Middle and Lower Shabelle regions comprises of riverine, agro-pastoral and urban livelihoods *(see Map 2)*, with a large number of IDPs settling in the Afgoye corridor as a result of continued insecurity in Mogadishu. The riverine livelihood zone is located within 10km of the Shabelle river, where maize, sesame and a variety of vegetables and fruits are cultivated, with limited livestock holdings as a result of tsetse fly infestation. Further on from this is the agro-pastoral zone, which extends 20-40km from the Shabelle river with maize, cowpeas, sesame and fruit cultivation with some livestock holdings.

The agricultural potential, as well as the labour and income opportunities experienced in the area, makes it a haven for vulnerable populations in normal and bad years. This has resulted in a high density population living in this area, aggravated by high in-flow of IDPs from neighbouring Mogadishu. Out of the newly displaced population (96,000) in May, 26,000 people have moved to the Afgoye corridor, where they join more than 400,000 previously displaced people.

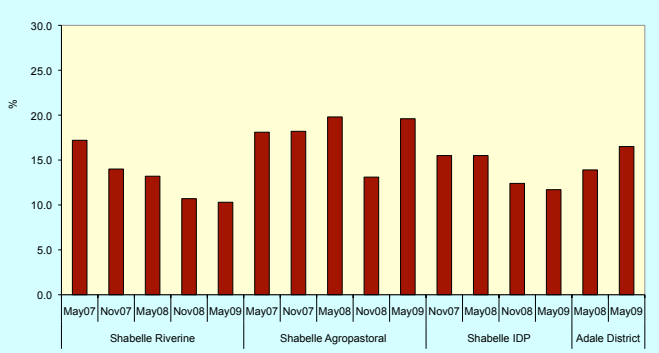
In May 2009, FSNAU and partners conducted four inter-agency nutrition assessments among the populations in the IDPs, agro-pastoral and riverine livelihood zones in Middle and Lower Shabelle regions and Adale district in the southeast of Somalia. This was in response to the need to monitor the levels of acute malnutrition and to inform on the appropriate interventions following a series of shocks to the livelihoods, with a special request from Medair for a district focus in Adale.

A two-stage PPS sampling methodology was used for the IDPs and agro-pastoral livelihoods as well as Adale district, while the 33x6 cluster sampling method was used for the riverine livelihood in the Middle and Lower Shabelle regions. A total of 597, 536, 203 and 667 children aged 6-59 months from 360, 332, 110 and 383 households were assessed respectively from the IDP settlements, agro-pastoral population, riverine population and Adale district.

Using the WHO 2006 Growth Standards, the results reported a GAM rate of **11.7**% (8.8-14.7) among the Shabelle IDPs with a SAM rate of **3.5**% (2.0-5.1) including one oedema case (0.2%). This indicates a stable situation from the previous GAM rate of 12.3% (9.7-15.5) but a continued increase in the proportion of severely malnourished children from the 2.8% (1.7-4.8), although a decrease in the numbers of oedema cases from seven (1.0%: 0.2-1.9) reported in the last comprehensive assessment in November 2008 (*See Table 2)*. The change however, is not statistically significant ($p>0.05$) and indicates a sustained ***Serious*** level. The 90 days respective crude and under-five year mortality rates were **0.50** (0.28-0.88) and **1.00** (0.46-2.19) respectively, both being below the retrospective alert thresholds.

The results for the riverine livelihood (33x6 cluster sampling) indicate a GAM rate of **10.3%** (5.4-15.3) and a SAM of **2.0%** (0.1-3.9) with two (1.0%) oedema cases. When comparing with the previous assessment from November 2008, where a GAM rate of 10.8% (8.6-13.5) and a SAM rate of 2.5% were reported (1.4-4.4), the nutrition situation remains stable as ***Serious,*** as classified in the *Deyr'* 08/09 season.

Figure 3. Trends in Levels of Acute Malnutrition (WHZ<-2 or oedema, WHO 2006) in M & L Shabelle, 2007-2009



The Shabelle agro-pastoral assessment results displayed a high standard deviation on the weight-for-height z-scores (WHZ) on the plausibility check of EPI-ENA, which fell just beyond the acceptable margins of 1.2 at 1.22 indicating a problem with the overall data quality. Therefore this needs to be considered when intepreting the results.

The results indicated deteroriation in the nutrition situation 19.6% (14.6-28.8) and a SAM of 8.2 (5.7-11.6) *(See figure 3)*. This critical situation indicates a high propability of deteroriation from *Serious* results reported six months ago of 12.5% (10.6-14.6) GAM and 2.2% (1.3-3.6) SAM. Given the recent AWD outbreak and the elavated mortality, the deteroriation is likely linked to disease. The 90 days retrospective crude and under-five year mortality rates were **1.02** (0.71-1.46) and **2.43** (1.48-3.98) respectively, are of concern as they are above the alert threshold levels according to WHO classification and indicating a *Serious* situation.

Adale district also displayed a high score of WHZ standard deviation (SD) at 1.25, therefore as with the Shabelle agro-pastoral caution should be taken in the intepretation. Interestingly for both surveys the elavated SD only applied when referring to the WHO GS and not the NCMS. For Adale a GAM of 16.5% (13.5 -20) and SAM 0f 5.1% (3.5-7.4) were reported, with one oedema case. When compared to the most recent comparable survey from 12 months ago, these results indicate deteroriation from *Serious* to ***Critical*** though it is not significant. The results from May 2008 reported a GAM of 13.9% (11.1-16.8) and a SAM of 5.1% (3.2-7.0). The 90 days retrospective crude and under-five year mortality rates were **0.48** (0.30-0.78) and **1.09** (0.57-2.05) respectively, both being below the alert threshold levels.

Table 2. Summary of Findings by Livelihood Zone in L. &M. Shabelle (May 2009)

	IDPs (N=597)		Agro-pastoral (N=536)		Riverine (N=203)		Adale district (N=667)	
Indicator	**n**	**% (CI)**	**N**	**% (CI)**	**N**	**% (CI)**	**n**	**% (CI)**
Total number of households assessed for children	360	100	332	100	110	100	383	100
Total number of households assessed for mortality	581	100	554	100	-	-	600	100
Child Malnutrition								
Global Acute Malnutrition (WHO 2006)	70	**11.7** (8.8-14.7)	105	**19.6%** (14.6-29.9)	21	**10.3** (5.4-15.3)	110	16.5 (13.5-20.0)
Severe Acute Malnutrition (WHO 2006)	21	**3.5** (2.0-5.1)	44	8.2 (5.7-11.6)	4	**2.0** (0.1-3.9)	34	5.1 (3.5-7.4)
Oedema	1	0.2	5	0.9	2	0.1	1	0.1
Global Acute Malnutrition (NCHS)	55	9.2 (6.2-12.2)	107	20 (15.1-25.4)	21	10.3 (5.8 – 14.9)	107	16 (12.7-19.3)
Severe Acute Malnutrition (NCHS)	9	1.5 (0.4-2.6)	18	3.5 (2.4-4.7)	2	1.0	18	2.7 (1.2-4.2)
Global Acute Malnutrition (WHM<80% or oedema - NCHS)	33	5.5 (3.5-7.5)		14.2 (9.8-18.5)	14	6.9 (3.1-10.7)	62	9.3 (6.6 - 12.0)
Severe Acute Malnutrition (WHM<70% or oedema - NCHS)	5	0.8 (0.1-1.5)		1.3 (0.5-2.1)	2	1.0	0	
Global Acute Malnutrition by MUAC (<12.5 cm or oedema)	38	6.3 (4.5-8.3)	38	7.1 (4.0-10.2)	28	13.8 (8.2-19.4)	41	6.1 (3.8-8.5)
Severe Acute Malnutrition by MUAC (<11.5 cm or oedema)	4	0.7 (0.1-1.3)	7	1.3 (0.3-2.3)	9	4.4 (1.4-7.5)	16	2.4 (0.9-3.9)
Proportion of children Stunted (HAZ<-2)	209	35.0 (28.2-41.7)	200	37.3 (32-43)	83	40.9 (32.2 – 49.5)	188	28.2 (24.6-32.1)
Proportion of children Underweight (WAZ<-2)	137	22.9 (17.0-28.9)	183	34.5 (24.1-40.2)	62	30.5 (22.5-38.6)	164	24.6 (19.8-30.2)
Child Morbidity								
Children reported ill in the previous 2 weeks	337	57.3 (50.8-63.8)	255	47.6 (36.9-58.2)	86	42.4 (34.2-50.5)	193	28.9 (20.7-37.2)
Children reported with diarrhoea in 2 weeks prior to assessment	196	32.8 (26.1-39.5)	121	22.6 (14.3-30.8)	34	16.7 (9.0-24.5)	39	5.8 (2.4-9.3)
Children reported with ARI within two weeks prior to assessment	184	30.8 (22.1-39.6)	152	28.4 (18.5-38.2)	34	16.7 (12.2-21.3)	112	16.8 (9.9-23.6)
Children reported with febrile illness in 2 weeks prior to assessment	119	9.9 (14.5-25.3)	75	14.0 (7.8-20.2)	40	19.7 (12.4-27.0)	68	10.2 (4.5-15.9)
Proportion confirmed positive for Malaria (RDT)	1	0.1	2	0.2	-	-	0	
Children reported with suspected measles within one month prior to assessment	13	2.2 (0.5-3.9)	10	1.9 (0.3-3.4)	2	0.9	8	1.2
Child Immunization Status								
Children (9-59 months) immunized against measles (Recall)	320	57.2 (46.8-67.8)	128	26.1 (14.6-37.6)	65	35.1 (22.6-47.7)	546	86.4 (80.4-92.4)
Children who have ever received polio vaccine (Recall)	444	74.5 (64.2-84.8)	293	54.7 (42.6-66.7)	154	75.9(67.5-84.2)	610	91.4 (88.0-94.9)
Children reported to have received vitamin A supplementation in last 6 months (Recall)	246	41.3 (32.4-50.1	186	34.7 (21.6-47.8)	63	31.0 (19.4-42.7)	524	78.67 (68.9-88.1)
Maternal Health & Nutrition								
Total women acutely malnourished (MUAC<23.0 cm)	5	1.4	27	7.9 (4.5-11.4)	2	1.8	2	0.4
Pregnant women acutely malnourished (MUAC<23.0 cm)	5	7.1 (0.4-13.9)	0		0		1	1.2
Non pregnant women acutely malnourished (MUAC≤18.5 cm)	0	0.0	27	9.7 (5.5-14.0)	2	10.0	1	0.3
Women who received tetanus immunization (Recall)	240	66.1 (56.6-75.6)	107	31.7 (22.2-41.1)	66	58.4 (45.2-71.6)	197	42.6 (29.8-55.5)
Household Essential Indicators								
Proportion of households who reported to have consumed ≤3 food groups	10	2.8 (0.6-5.0)	4	1.2 (0.1-2.3)	3	2.7	13	3.4 (0.8-6.0)
Access to mosquito Net	16	4.5 (0.4-8.7)	71	21.2 (9.1-33.3)	30	26.8 (17.9-35.6)	12	3.1 (1.1-5.2)
Access to safe/protected drinking water	304	85.9 (76.8-94.9)	27	8.1 (3.0-13.2)	21	19.1 (5.8-32.4)	92	24.1 (9.7-38.5)
Access to latrine	330	93.1 (85.0-101.4)	90	27.1 (14.8-39.4)	41	37.2 (22.7-51.9)	60	15.7 (8.1-23.3)
Access to health facility	296	83.8 (73.2-94.5)	95	28.6 (12.4-44.8)	35	31.8 (16.8-46.9)	82	21.4 (6.9-35.9)
Mortality								
Under 5 Mortality Rate (U5MR) as deaths/10,000/ day*	**1.00** (0.46-2.19)		**2.43** (1.48-3.98)		Not assessed		**1.09** (0.57-2.05)	
Crude Mortality Rate (CMR) as deaths/10,000/ day	**0.5** (0.28-0.88)		**1.02** (0.71-1.46)		Not assessed		**0.48** (0.30-0.78)	

The proportion of children who had suffered one or more communicable diseases during the two weeks prior to the assessment were 57.3%; 47.6%; 42.4% and 28.9% in the assessed IDPs, agro-pastoral, riverine livelihoods and Adale district populations respectively. As shown in *Table 2*, the incidence of reported diarrhoea in the two weeks prior to the assessment was high in the IDPs, agro-pastoral and riverine livelihoods (32.8%; 22.6% and 16.7% respectively) and relatively low in Adale district (5.8%).

High incidences of ARI (30.8%; 28.4%; 16.7% and 16.8%) and febrile illness (9.9%; 14.0%; 19.7% and 10.2%) were also reported in the assessed IDPs, agro-pastoral, riverine livelihoods and Adale district populations respectively. However, few cases were confirmed with the rapid diagnostic test (RDT) for malaria in all livelihood zones (*see Table 2*). Morbidity is normally highly correlated with acute malnutrition: illustrated in the riverine livelihood children who had reported ill within two weeks prior to the assessment nearly twice as likely to be acutely malnourished than those who were well (RR=1.814; 1.05-3.137). Although cases of suspected measles were low, it continues to be a risk factor in undernourished populations. According to the Sphere (2004) minimum operating standards, vaccination coverage for measles, as well as polio and vitamin A supplementation, should be above 95%. However, for all livelihoods vaccination status by recall falls short of this goal.

A high proportion of the assessed households in the IDP settlements had access to a health care facility (83.8%) while the agro-pastoral, riverine livelihoods and Adale district had low health facility access (28.6%; 31.8% and 21.4%

respectively). This pattern is emulated in other indicators, such as access to safe water (85.9%; 8.1%; 19.1% and 24.1% in the IDPs, agro-pastoral, riverine livelihoods and Adale district respectively) and sanitation (93.1%; 27.1%; 37.2% and 15.7% respectively), with the IDPs consistently showing higher access rates than those in other livelihoods, except for access to mosquito nets ,where all livelihood groups show poor access (*see Table 2*). This illustrates the improved access to services granted to the IDPs as a result of humanitarian interventions, although sustained efforts are required to provide further improvements and to mitigate the risks to morbidity and malnutrition. Significant efforts in improving access to services amongst the other livelihoods are required to bring these livelihoods to the same level of access experienced by the IDPs.

The onset of the *Gu'* rains in Lower and parts of Middle Shabelle were reported to be promising, as highlighted in the Food Security and Nutrition Brief released in May 2009. In Lower Shabelle, crop establishment was good and water catchments and pasture replenished, resulting in expected improvements in food access, increased labour opportunities, decreased cereal prices, increased livestock prices as well as improved milk consumption and dietary diversity. Although the price of food and other essential indicators have declined, they are still high as compared to previous years, limiting access by poor households. Furthermore, IDPs continue to remain vulnerable with a high (>60%) dependence on food aid. In the current assessments, dietary diversity was high across all livelihoods, with less than 3% of the assessed households in all groups consuming less than 4 food groups in a 24-hr recall period.

Overall, the Shabelle IDPs, and riverine livelihoods have reported a sustained ***Serious*** nutrition situation when compared to the previous assessments with Adale district and the agro-pastoral populations with ***Critical*** rates reported indicating deteroriation. Although improvements are being reported in some food security indicators, issues of child care and feeding practices as well as the access to health, sanitation and safe water continue to compromise the nutritional status of children, particularly in the agro-pastoral, riverine livelihoods and Adale district. Whilst the IDPs report improved indicators in access to basic services, they remain in a precarious situation in need of continued support, especially for those who have recently fled the intensifying insecurity in Mogadishu and the surrounding areas.

GLOBAL FOOD CRISIS - IMPACT ON NUTRITION

Global financial and economic crisis – the most vulnerable are at increased risk of hunger and malnutrition – *Excerpts from SCN advocacy brief on crisis and nutrition July, 2009*

Recent estimates suggest that soaring food prices coupled with the global economic crisis will increase the total number of the world's hungry people to more than one billion in 2009. The consequences on households' food consumption and nutritional status are most acutely felt in Low Income Food Deficit Countries (LIFDCs) and in the poorest population groups. The present global financial and economic crisis thus creates new challenges in achieving the first Millennium Development Goal (MDG1, Eradicate Extreme Poverty and Hunger) and is likely to have repercussions on other MDGs, especially on maternal health and child mortality (MDGs 4 and 5).

A market in Hargeisa Town, FSNAU, July '09

Experience from previous food crises show that the first move by poor households is to reduce food expenses and cut down on non-staple food consumption. These coping mechanisms first affect the diversity (micronutrient content) and safety of diets, the size of portions and ultimately the energy intake. This is compounded by cutbacks on other expenditures, such as health costs, further jeopardizing the nutritional situation of vulnerable families. Women and children are particularly at risk, as they have special nutritional needs and are among the most vulnerable, given their low social status in many countries. Moreover, whereas women are usually the last to benefit from increased household income, they are usually the first to make sacrifices when the financial situation deteriorates.

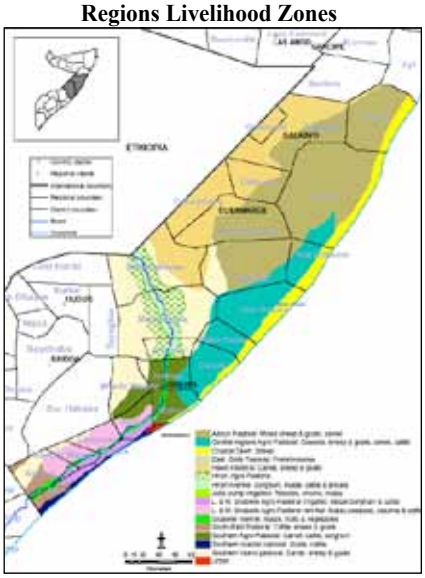
An effective response to the hunger and malnutrition dimensions of the crisis require joint action by stakeholders from different sectors and institutional backgrounds (government, UN agencies, bilateral partners NGO/CSOs). The SCN can facilitate this interaction at global, regional and national levels.

For further information, refer to the Report of the 35th SCN Annual Session (Hanoi, 2008) and to the SCN side event on Impact of High food prices on Nutrition (34th session of the Committee on Food Security, Rome, 2008) at: **www.unscn.org - scn@who.int**

CENTRAL & NORTHEAST REGIONS LIVELIHOOD ASSESSMENT FINDINGS (ADDUN, HAWD, COWPEA BELT AND COASTAL DEEH)

The Cowpea belt agro-pastoral and pastoral livelihoods of Addun, Hawd and Coastal Deeh in Central and Northeast Somalia *(see Map 3)* have displayed different phases of nutritional crisis with persistent *Serious* to *Critical* nutrition situations. The FSNAU Post *Deyr* '08/09 integrated nutrition analysis indicated the respective pastoral livelihoods of Hawd and Addun had either deteriorated to ***Very Critical*** from the *Critical* phase in Post *Gu* '08 or remained in ***Critical*** levels with aggravating food security indicators.

Map 3: Central and parts of Northeast Regions Livelihood Zones



The Coastal Deeh and the agro-pastoral livelihood (Cowpea belt areas) of Elbur, Eldhere and Haradhere districts, though lacking sufficient data for definite phase classification, were estimated to have sustained a ***Serious*** phase while the situation in the Cowpea belt was predicted to deteriorate further, mainly due to total crop failure in the *Deyr* '08/09. These areas have suffered severe drought conditions for 4 seasons leading to household food insecurity due to asset loss, high inflation and increased food prices. The area also hosts a large population of displaced persons (IDPs) and faces civil insecurity, on a regular basis which has hindered humanitarian interventions in the regions.

Drought is intensifying in the central regions following poor *Gu* rains now five consecutive seasons of rain failure. Roughly 60% of the population in Galgadud and Mudug regions are already either in **Acute Food and Livelihood Crisis** or **Humanitarian Emergency** due to the drought, hyperinflation and conflict, which have affected rural, urban and IDP populations. Water prices increased between April and May '09 by 32% (from 190,000-250,000 SoSh/drum) except for Addun and the Cowpea Belt where prices have not changed (80,000-100,000 SoSh/drum). Livestock migrations after the onset of the rains within and into northern Mudug have been observed. With slight livestock body improvement in May, livestock prices have increased. In these regions, purchasing power of the people, including urban people and IDPs, has been improving since May as a result of falling food commodity prices and reduction of the cost of minimum basket.

In May 2009, FSNAU and partners conducted four livelihood based nutrition assessments in the Addun, Hawd, Cowpea belt and Coastal Deeh population groups of central and northeastern Somalia. The main objectives of the assessments were to determine the nutritional status of children aged 6-59 months and to monitor the trends of malnutrition in the different livelihoods. The standard two-stage cluster sampling (PPS) was used in all the assessments, except in the Coastal Deeh, where a 33 by 6 cluster sampling was used, to assess children ranging in number from 693 to 831 from 25 clusters. The results of the livelihood assessments are presented in *Table 3.*

The findings reported a GAM and SAM rate[14] of **17.3%** (13.8-21.5) and **2.6%** (1.6-4.4) respectively in the Addun pastoral livelihood with crude and under-five mortality rate of **0.55** (0.31-0.98) and **1.36** (0.67-2.78) indicating a ***Critical*** nutrition situation. Compared to the results of the assessment conducted in November 2008, where GAM and SAM rates of 18.9% (13.9-25.3) and 6.3% (3.5-10.8) were reported with respective crude and under-five mortality rates of 0.63 (0.32-1.26) and 1.94 (0.88-4.26), the findings do not indicate a significant change in the overall nutrition situation. The CDC probability calculator between the two surveys however, shows a significant reduction in the SAM rates with a 94.7% Probability[15] (p=0.053) that the rates are different.

The respective GAM and SAM rates of **18.0%** (13.8-23.1) and **5.5%** (3.7-7.9) were reported in Hawd pastoral livelihood with crude and under-five mortality rates of **0.71** (0.40-1.25) and **0.92** (0.48-1.77), also indicating a ***Critical*** nutrition situation. Although indicating a slight improvement from the *Very Critical* nutrition situation reported in the November 2008 assessment when GAM and SAM rates of 21.9% (16.5-28.6) and 7.1% (4.5-10.9) with crude and under-five mortality rates of 0.93 (0.59-1.45) and 1.80 (0.87-3.69),were reported it is not significant and the CDC probability calculator did not show any significant difference in the GAM (*p=0.29*) and SAM (*p=0.40*) rates.

In the agro-pastoral Cowpea belt livelihood, the findings reported respective GAM and SAM rates of **14.9%** (12.4-18.7) and **3.3%** (2.6-5.4) with crude and under-five mortality rates of **0.20** (0.08-0.48) and **0.28** (0.07-1.16) indicating a ***Serious*** nutrition situation. Even though there is lack of comprehensive nutrition assessment data to directly compare the results with, they are consistent with the *Deyr* 08/09' integrated analysis, which had predicted a *Serious* situation with risk to deteriorate. The results of the 33X6 cluster (LQAS) assessment in the Coastal Deeh indicate a high probability that the GAM rate is above **12.6%** (Pr.=0.90) and SAM rate is above **2.0%** (Pr.=0.91). These results indicate a ***Serious*** nutrition situation, again consistent with the *Deyr* 08/09 integrated analysis and the previous nutrition assessment conducted in May 2007, which reported GAM and SAM rates of 14.9% (12.1-17.7) and 1.1% (0.3-1.9) respectively, indicating no significant change in the GAM rate (*p=0.67*).

14 All the GAM and SAM rates discussed here are computed using the WHO (2006) standards

15 A one-tailed 75% and 2-tailed 87.5% probability is considered operationally different between two surveys.

Table 3. Summary of Findings by Livelihood Zone in Central & Northeast (May 2009)								
	Addun (N=831)		Hawd (N=751)		Cowpea Belt (N=693)		Coastal Deeh (N=202)	
Indicator	**n**	**% (CI)**	**n**	**% (CI)**	**n**	**% (CI)**	**n**	**% (CI)**
Total number of households assessed for children	501	100.0	423	100.0	367	100.0	109	100.0
Total number of households assessed for mortality	651	100.0	583	100.0	571	100.0		-
Child Malnutrition								
Global Acute Malnutrition (WHO 2006)	144	**17.3** (13.8 - 21.5)	135	**18.0** (13.8 -23.1)	103	**14.9** (12.4 - 18.7)		**>12.6%;**Pr=0.90)
Severe Acute Malnutrition (WHO 2006)	22	**2.6** (1.6 - 4.4)	41	**5.5** (3.7 - 7.9)	23	**3.3** (2.6 - 5.4)		**(>2.0%;**Pr=0.91)
Oedema	2	**0.2**	1	**0.1**	3	**0.4**	1	**0.5 (>0.01%;**Pr=0.91)
Global Acute Malnutrition (NCHS)	130	15.6 (11.7-19.6)	127	16.9 (12.5-21.4)	102	14.7 (11.3-20.6)	36	(>6.6%;Pr=0.90)
Severe Acute Malnutrition (NCHS)	14	1.7 (0.5 - 2.9)	28	3.7 (2.0 - 5.5)	15	2.2 (0.1 - 6.7)	4	(>0.01%;Pr=0.91)
Global Acute Malnutrition (WHM<80% or oedema – NCHS)	72	8.7 (6.0 - 11.3)	85	11.3 (7.5 - 15.1)	58	8.4 (3.1 - 19.8)	26	12.9 (7.3-24.5) (>7.4%;Pr=0.90)
Severe Acute Malnutrition (WHM<70% or oedema – NCHS)	9	1.1 (0.1 - 2.0)	7	0.9 (0.4 - 1.5)	3	0.4	1	0.5 (>0.01%;Pr=0.91)
Global Acute Malnutrition by MUAC (<12.5 cm or oedema)	41	4.9 (3.2 - 6.7)	55	7.3 (4.1 - 10.6)	30	4.3	17	8.4(1.0-18.1) >1.6%;Pr=0.90)
Severe Acute Malnutrition by MUAC (<11.5 cm or oedema)	12	1.4 (0.8 - 2.1)	14	1.9 (0.6 - 3.2)	5	0.7	9	4.5 (>0.01%;Pr=0.95)
Proportion of children Stunted (HAZ<-2)	193	23.2 (19.1 -27.3)	136	18.1 (0.7 - 35.5)	139	20.1 (16.0 -24.1)	64	31.7 (15.1-48.3 (>20%;Pr=0.90)
Proportion of children Underweight (WAZ<-2)	184	22.1 (18.2 - 26.1)	149	19.8 (10.8 - 38.9)	138	19.9 (8.8 - 31.1)	54	26.7 (16.4-37.1) (>19.5%;Pr=0.90)
Child Morbidity								
Children reported ill in the previous 2 weeks	295	35.5 (27.4 - 43.6)	284	37.8 (31.4 - 44.2)	121	17.5 (12.1 – 22.8)	82	40.6 (30.4 - 50.7)
Children reported with diarrhoea in 2 weeks prior to assessment	166	20.0 (14.8 - 25.2)	124	16.5 (12.0 - 21.1)	70	10.1 (6.0 - 14.3)	59	29.2 (19.2 - 39.3)
Children reported with ARI within two weeks prior to assessment	113	13.6 (8.2 - 19.0)	102	13.6 (9.7 - 17.5)	43	6.2 (2.7 - 9.7)	36	17.8 (10.1 - 25.5)
Children reported with febrile illness in 2 weeks prior to assessment	125	15.0 (9.5 - 20.6)	130	17.3 (12.8 - 21.8)	32	4.6 (2.2 - 7.1)	17	8.4 (3.5 - 13.3)
Children reported with suspected measles within one month prior to assessment	41	4.9 (1.9 - 7.9)	60	8.0 (4.1 - 11.9)	6	0.9	3	1.5
Child Immunization Status								
Children (9-59 months) immunized against measles (Recall)	261	31.4 (20.7 -42.1)	380	52.9 (43.4 - 62.4)	452	68.1 (57.3 - 78.8)	88	46.8 (32.9 - 60.7)
Children who have ever received polio vaccine (Recall)	421	50.7 (41.6 - 59.7)	469	62.5 (53.4 – 71.5)	531	76.6 (67.8 - 85.4)	127	62.9 (50.6 – 75.2)
Children reported to have received vitamin A supplementation in last 6 months (Recall)	343	41.3 (31.4 -51.1)	360	47.9 (38.0 - 57.9)	477	68.8 (58.6 -79.1)	72	35.6 (23.5 - 47.8)
Maternal Health & Nutrition								
Total women acutely malnourished (MUAC<23.0 cm)	16	3.3 (1.3 – 5.3)	14	3.4 (1.4 – 5.3)	12	3.4	7	6.4 (1.3 – 11.5)
Pregnant women acutely malnourished (MUAC<23.0 cm)	14	19.7 (9.3 – 30.1)	13	17.1 (7.5 – 26.7)	10	14.3 (3.5 – 25.1)	6	24.0 (7.2 – 40.8)
Non pregnant women acutely malnourished (MUAC≤18.5 cm)	2	0.5	1	0.3	2	0.7	1	1.2
Women who received tetanus immunization (Recall)	166	34.5 (24.6 – 44.5)	131	31.5 (23.2 – 39.8)	162	45.3 (33.1 – 57.4)	61	56.0 (42.2 – 69.8)
Household Essential Indicators								
Proportion of households who reported to have consumed ≤3 food groups	46	9.2 (4.0 – 14.4)	51	18.6 (11.5 – 25.6)	33	10.3 (4.7 – 16.0)	23	22.8 (11.4 – 34.1)
Access to mosquito Net	243	48.5 (40.7 – 56.3)	225	53.2 (38.2 – 68.2)	95	25.9 (15.4 – 36.4)	33	30.3 (17.3 – 43.2)
Access to safe/protected drinking water	221	44.1 25.5 – 62.7	131	31.0 (12.3-49.7)	104	28.3 (10.7-45.9)	38	34.9 (19.2- 50.5)
Access to latrine	227	45.3 (32.3-58.4)	195	46.1 (28.6-63.6)	174	47.4 (33.8- 61.0)	42	38.5 (23.5-53.6)
Access to health facility	186	37.1 (19.9-54.3)	139	32.9 (14.5- 51.2)	101	27.5 (10.2-44.9)	59	54.1 (40.1-68.1)
Mortality								
Under 5 Mortality Rate (U5MR) as deaths/10,000/ day*	**1.36** (0.67 – 2.78)		**0.92** (0.48 – 1.77)		**0.28** (0.07 – 1.16)		-	
Crude Mortality Rate (CMR) as deaths/10,000/ day	**0.55** (0.31 – 0.98)		**0.71** (0.40 – 1.25)		**0.20** (0.08 – 0.48)		-	

The proportion of children who had suffered from one or more communicable childhood diseases during the two weeks prior to the assessments were 35.5%, 37.8% and 17.5% in the assessed Addun, Hawd and Cowpea belt populations. As shown on *Table 3*, the incidence of reported diarrhoea in Addun, Hawd and Cowpea belt populations (20.0%; 16.5% and 10.1%) in the two weeks prior to the assessments and the reported incidences of ARI (13.6%, 13.6% and 6.1%) were generally high. A significant proportion of assessed children were also reported to have had febrile illnesses (15.0%, 17.3% and 4.6% among Addun, Hawd and Cowpea belt populations) but rapid diagnostic tests (RDT), due to logistic challenges, were not conducted to confirm if the fever were malaria related or not. These levels were consistent with seasonal morbidity patterns recorded from the health facilities in the area.

Although only a small proportion consumed a poorly diversified diet of less than four food groups in a 24-hour recall (9.2%, 18.6% and 10.3% in the assessed Addun, Hawd and Cowpea belt households), most of the food was not produced by the households, but was sourced through purchases (79.8-92.2%) and food aid (3.5-15.8%). Poor access to safe drinking water (28.3-44.1%), sanitation facilities (45.3-47.4%) and health facilities (27.5-37.1%) in the assessed Addun, Hawd and Cowpea belt households together with low coverage of health programmes continue to predispose children to illnesses and malnutrition *(see Table 3)*. Past studies have shown strong associations between malnutrition and child illnesses, especially diarrhoea.

Galgadud and Mudug Regional Assessments Findings

In May 2009, FSNAU and partners conducted two (concurrently with the four livelihood nutrition assessments) regional assessments in Galgadud and Mudug regions. The two regional assessments conducted at the request of WFP, were to provide information for response analysis. Using the standard two-stage cluster sampling (PPS), 916 and 749 children from 482 and 461 households selected from 27 and 26 clusters were assessed in Galgadud and Mudug regions respectively. The results of the regional assessments are presented in *Table 4*. Results of the Galgadud Region assessment recorded a GAM rate of **14.3%** (10.3-19.3) and a SAM rate of **3.3%** (1.9-5.3) including one oedema case, 0.1%. The crude and under-five mortality rates of **0.39** (0.19-0.79) and **0.54** (0.13-0.93) respectively, were below the respective emergency thresholds of *1.0 deaths/10,000 persons/day and 2.0 deaths/10,000 persons /day* and *acceptable* according WHO standards. Although this was the first regional assessment and there are no results to directly compare to, the results indicate a ***Serious*** nutrition situation consistent with

the post *Deyr*'08/09 analysis classification of the Cowpea belt and coastal Deeh livelihoods of this region. In Mudug Region, assessment results recorded a GAM rate of **18.3%** (15.4-21.6) and a SAM rate of **4.9%** (3.7-6.6) including one oedema case, 0.1%. The results indicate a ***Critical*** nutrition situation. The crude and under-five mortality rates of **0.66** (0.23-1.88) and **1.30** (0.74-2.27) respectively, indicate *acceptable* levels according to WHO standards. Again this was the first regional assessment in Mudug and there are no results to directly compare to. However, the results are consistent with the post *Deyr* '08/09 integrated nutrition analysis classification and current finding among the predominant Addun and Hawd pastoral livelihoods of this region.

Similar proportions of the assessed children were reported to have suffered from one or more communicable childhood diseases during the two weeks prior to the assessments in Galgadud (34.7%) and Mudug (35.9%) regions. As shown on *Table 4*, high incidences of mother's recall of diarrhoea in Galgadud (16.4%) and Mudug (18.3%) in the two weeks prior to the assessments were reported. Incidences of ARI (13.5% and 13.0%), febrile illness (11.1% and 18.3%) and suspected measles (4.9% and 3.5%) were also reported in Galgadud and Mudug regions. The level of polio immunization, measles immunization and Vitamin A supplementation status (51.3%, 34.7% and 37.9%,) like in other areas of Somalia, remained low in Mudug region and far below the Sphere (2004) recommendations for a coverage of at least 95% of eligible children, but were slightly better (69.4%, 61.0% and 60.5% respectively) in Galgadud, reflecting the comparative presence of intervention programmes in the region. About 6% and 10% of the assessed households in Galgadud and Mudug regions respectively, were reportedly consuming a poorly diversified diet comprised of three or fewer groups, while access to the basic human services, safe water, sanitation facilities and health services was low ranging from 32% - 55%.

A comparison between the GAM rates of the two regional assessment results using the CDC Calculator indicates a probable difference between the two regions (*p=0.01*), however comparing the results with those of individual livelihood assessments does not show any significant difference (for instance in Galgadud and Addun, *p=0.31*). Although both regions have experienced long spells of drought with five consecutive seasonal rain failures including the *Gu* '09, Galgadud region has benefited more from humanitarian interventions than Mudug. The presence and intervention programmes of WFP, MSF, SC-UK, ACF in different districts of Dusamareb, Adado, Guricel, Abudwaq and Eldhere, although faced with intermittent interruption by civil insecurity, have possibly played a role in mitigating the nutrition and food security situation in Galgadud region. Agencies have recognised this gap and are planning or already extending/ scaling up their programmes in Mudug region. The poor *Gu'*09 rains in most of the drought affected areas of Galgadud and Mudug regions, leading to poor vegetation conditions and water shortage, as well as poor crop establishment and production in the cowpea belt and a pervasive civil insecurity situation are likely to aggravate the food security and nutrition situation in the Central and northeast areas of Somalia.

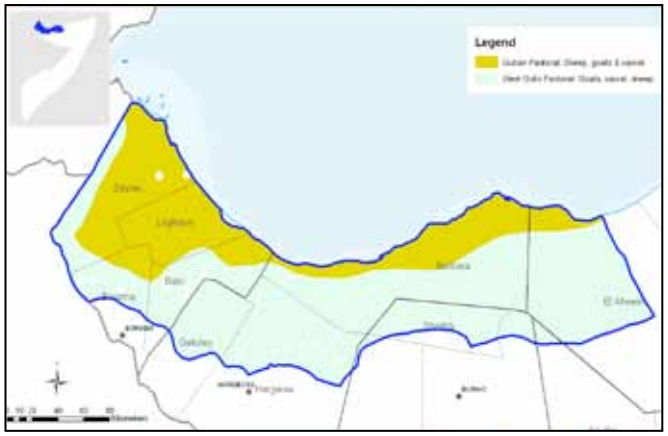
Table 4. Summary of findings in Galgadud and Mudug Regions (May 2009)

	Galgadud (N=916)		Mudug (N=749)	
Indicator	**n**	**% (CI)**	**n**	**% (CI)**
Total number of households assessed for children	482	100.0	461	100.0
Total number of households assessed for mortality	646	100.0	629	100.0
Child malnutrition				
Global Acute Malnutrition (WHO 2006)	131	**14.3** (10.3 - 19.3)	137	**18.3** (15.4 -21.6)
Severe Acute Malnutrition (WHO 2006)	30	**3.3** (1.9 - 5.3)	37	**4.9** (3.7 - 6.6)
Oedema	1	**0.1**	2	**0.3**
Global Acute Malnutrition (NCHS)	122	13.3 (9.2-17.5)	139	18.6 (15.3-21.8)
Severe Acute Malnutrition (NCHS)	20	2.2 (0.8 - 3.5)	19	2.5 (1.1 - 3.9)
Global Acute Malnutrition (WHM<80% or oedema - NCHS)	73	8.0 (4.6 - 11.3)	86	11.5 (9.5 - 13.4)
Severe Acute Malnutrition (WHM<70% or oedema - NCHS)	9	1.0 (0.3 - 1.7)	9	1.2 (0.3 - 2.1)
Global Acute Malnutrition by MUAC (<12.5 cm or oedema)	41	4.5 (1.4 - 7.6)	40	5.3 (3.5 - 7.2)
Severe Acute Malnutrition by MUAC (<11.5 cm or oedema)	9	1.0	12	1.6 (0.6 - 2.7)
Proportion of children Stunted (HAZ<-2)	174	19.0 (14.8 -23.2)	155	20.7 (17.9 - 23.5)
Proportion of children Underweight (WAZ<-2)	159	17.4 (13.3 - 21.4)	176	23.5 (20.0 - 27.0)
Child Morbidity				
Children reported ill in the previous 2 weeks	318	34.7 (27.7 - 41.7)	269	35.9 (28.4 - 43.4)
Children reported with diarrhoea in 2 weeks prior to assessment	150	16.4 (12.4 - 20.4)	137	18.3 (12.7 - 23.9)
Children reported with ARI within two weeks prior to assessment	124	13.5 (9.7 - 17.4)	97	13.0 (6.5 - 19.4)
Children reported with febrile illness in 2 weeks prior to assessment	102	11.1 (68 - 15.5)	137	18.3 (12.8 - 23.8)
Children reported with suspected measles within one month prior to assessment	45	4.9 (2.4 - 7.4)	26	3.5 (0.9 - 6.1)
Child Immunization Status				
Children (9-59 months) immunized against measles (Recall)	534	61.0 (52.6 -69.5)	248	34.7 (23.8 - 45.6)
Children who have ever received polio vaccine (Recall)	636	69.4 (61.5 - 77.3)	384	51.3 (42.1 – 60.4)
Children reported to have received vitamin A supplementation in last 6 months (Recall)	554	60.5 (53.4 -67.5)	284	37.9 (27.1 - 48.8)
Maternal Health & Nutrition				
Total women acutely malnourished (MUAC<23.0 cm)	18	3.6 (1.3 – 5.9)	15	3.3 (1.3 – 5.3)
Pregnant women acutely malnourished (MUAC<23.0 cm)	16	16.5 (6.7 – 26.3)	11	14.7 (6.3 – 23.1)
Non pregnant women acutely malnourished (MUAC≤18.5 cm)	2	0.5	4	1.0
Women who received tetanus immunization (Recall)	215	42.9 (32.9 – 52.9)	161	35.2 (24.9 – 45.6)
Household Essential Indicators				
Proportion of households who reported to have consumed ≤3 food groups	49	10.2 (3.1 – 17.2)	28	6.1 (3.2 – 8.9)
Access to mosquito Net	187	38.8 (29.4 – 48.2)	232	50.4 (39.6 – 61.3)
Access to safe/protected drinking water	245	50.8 (33.6 – 68.1)	160	34.8 (19.0-50.6)
Access to latrine	212	44.0 (31.3-56.6)	251	54.6 (41.7-67.4)
Access to health facility	173	35.9 (19.3-52.5)	150	32.6 (15.7-49.5)
Mortality				
Under 5 Mortality Rate (U5MR) as deaths/10,000/ day*	**0.54** (0.13 – 0.93)		**1.30** (0.74 – 2.27)	
Crude Mortality Rate (CMR) as deaths/10,000/ day	**0.39** (0.19 – 0.79)		**0.66** (0.23 – 1.88)	

Northwest Golis/Guban, Northeast Golis/Gagaab and Karkaar/Gebi Valley Livelihood Zones

The West Golis/Guban livelihood zones cover the coastal plains and highlands of Somaliland cutting across four regions: Awdal, Galbeed, Sanaag and Togdheer/Sahil. The livelihoods are predominantly pastoral with goat/sheep, cattle and camels being reared. The East Golis/Gagaab livelihood zone encompasses the coastal and highland areas of northeast Somalia, covering Bari and parts of Sanaag region. The livelihood here is predominantly pastoral, in addition to harvesting frankincense. The East Karkaar/Gebi Valley livelihood zone lies between the East Golis Mountains and the Sool Plateau livelihood zones *(see Map 4)*. The livelihood is predominantly pastoral; they keep goat sheep and camel, in the Sanaag region, the livelihood is referred to as Gebi Valley, while in the Bari region it is referred to as Karkaar.

Map 4: Guban and West Golis Livelihood Zones



The integrated analysis conducted during the Post *Deyr* '08/09 indicated the West Golis/Guban livelihood zones to be in a *Very Critical* nutrition phase, with a GAM rate of 22.3% (15.3-26.2), and a SAM rate of 6.6%, according to the WHO 2006 growth standards. The alarming nutrition situation was mainly attributed to household food insecurity following the failure of the *Hays* rains in January 2008 and the resultant abnormal out-migration of livestock southwards toward the Hawd plains. In addition after the dry spell, the area experienced freezing rains that left large numbers of livestock dead, leading to declined meat and milk consumption. The East Golis livelihood zone of Sanaag region was also classified to be in *Very Critical* nutrition phase with results from a rapid nutrition assessment indicating high proportions of children (27.4%) with MUAC measurements of <12.5cm. The poor nutrition situation in the livelihood was attributed mainly to reduced availability of food at the household level, specifically milk and meat, due to the failure of the *Deyr* '08/09 rains in the area.

The lack of adequate pasture and water led to out-migration of livestock southwards to the Hawd and Sool Plateau. The household food insecurity was further compromised by the high food prices, poor access to clean water and inadequate sanitation and health facilities in the area. On the other hand the East Golis/Gagaab livelihood zone of Bari region was classified as *likely to be Alert* as nutrition data available for the area at the time suggested *Alert* levels, yet the data was not strongly conclusive. The Karkaar/Gebi livelihood zone of Sanaag region was classified as *Serious*, mainly attributed to the poor *Deyr* '08 rains that led to the out-migration of livestock in search of pasture and water thus reducing the household consumption of meat, milk and income. The Karkaar livelihood zone of Bari region had received adequate rains and therefore the household consumption and income from meat and milk was fair, the nutrition situation was classified as *Alert*.

Between the 10th and 18th June 2009, FSNAU and partners[16] conducted three livelihood based nutrition surveys to determine the current nutritional situation, and establish the underlying factors. Using two-stage PPS sampling methodology, a total of 480, 369 and 407 households from the West Golis, East Golis/Gagaab and Karkaar/Gebi respectively were assessed for anthropometry data, while 754, 584 and 609 households with a mean household size of 6.2 (±2.5), 5.7(±2.4) and 6.3 (±2.2) respectively were assessed for mortality. About 25%, 19% and 52%, of the assessed households from the West Golis/Guban, East Golis/Gagaab and Karkaar/ Gebi livelihoods, were female headed, with 5.4%, 2.2% and 1.7% of the assessed households hosting IDPs and returnees mainly from southern Somalia. A total of 772, 603 and 674 children aged 6-59 months from the West Golis/Guban, East Golis/ Gagaab and Karkaar/Gebi livelihood zones, were assessed.

Results using the WHO 2006 growth standards, reported a GAM rate of **13.3%** (10.4-16.9) and a SAM rate of **2.5%** (1.5-3.9), with no case of oedema among the assessed children in the West Golis/Guban livelihood zone, while a GAM rate of **17.9%** (14.4-22.0) and **15.0%** (11.4-19.5) and a SAM rate of **3.3%** (1.9-5.8) and **3.3%** (1.9-5.7) was reported in the East Golis/Gagaab and Karkaar/Gebi livelihood zones respectively. The SAM rates reported were significantly lower when analysing the data using NCHS 1977 reference, and reported SAM rates of 1.4% (0.8-2.6), 1.5% (0.7-2.9) and 1.5% (0.7-3.2), respectively. These results indicate a ***Serious*** nutrition situation in the West Golis/Guban livelihood zone, and a ***Critical*** nutrition situation in East Golis/Gagaab and Karkaar/Gebi[17] livelihood zones according to WHO classification. The retrospective crude mortality rate for a 90 days recall was **0.46** (0.27-0.79), **0.35** (0.10-1.18) and **0.23** (0.10-0.56) deaths/10,000 persons, indicating an acceptable[18] situation according to WHO classification in the West Golis/ Guban, East Golis/Gagaab and Karkaar/Gebi livelihood zones respectively. The under-five mortality rate (U5MR) among the population assessed in the East Golis/Gagaab livelihood zone was **1.06** (0.36-3.08), slightly elevated, according to WHO classification. The under-five mortality rate among the population assessed in the West Golis/Guban and Karkaar/ Gebi livelihood zones was classified as acceptable (0.82 {0.34-1.99} and 0.82{0.28-2.39}. See *Table 5* for summary of results.

16 UNICEF and MOHL (Somaliland) and MOH (Puntland)
17 Karkaar/Gebbi livelihood zone is on the border line between Serious and Critical nutrition situation, as it falls at 15%
18 Acceptable - <0.5/10,000/day

The proportion of the assessed children from the West Golis/Guban, East Golis/Gagaab and Karkaar livelihood zones that had suffered from one or more communicable childhood diseases during the two weeks prior to the assessment was 16.2%, 34.2% and 26.6% respectively. The proportion of children that had reportedly suffered from diarrhoea in all the livelihoods was below 15% (*see table 5* for results), while the proportion of children reported to have suffered from ARI was low among the West Golis/Guban (4.4%) and high among the Karkaar/Gebi (9.6%) and East Golis/Gagaab (21.1%) livelihood zones. In all livelihoods, cases of suspected measles were reported, a high number being reported in the Karkaar/Gebi livelihood zone (*see table 5* of results).

Table 5: Summary of Key Findings West Golis/Guban, East Golis/Gagaab and Karkaar/Gebi Livelihood Zones

	West Golis/Guban		East Golis		Gebi/Karkaar	
Indicator	**n**	**% (CI)**	**n**	**% (CI)**	**n**	**% (CI)**
Total number of households assessed for children	480	100	369	100	407	100
Total number of households assessed for mortality	754	100	584	100	609	100
Total number of children assessed:	772	100	603	100	674	100
Child Malnutrition						
Global Acute Malnutrition (WHO 2006)	103	**13.3** (10.4-16.9)	105	**17.9** (14.4-22.0)	101	**15.0** (11.4-19.5)
Severe Acute Malnutrition (WHO 2006)	19	**2.5** (1.5-3.9)	17	**3.3** (1.9-5.8)	22	**3.3** (1.9-5.7)
Oedema	0		3	0.5 (0.1-1.6)	1	0.1
Global Acute Malnutrition (NCHS)	104	13.5 (11.2-16.1)	113	19.1 (15.6-23.1)	100	14.8 (11.0-19.8)
Severe Acute Malnutrition (NCHS)	11	1.4 (0.8-2.6)	9	2.0 (1.2-3.2)	10	1.5 (0.7-3.2)
Global Acute Malnutrition (WHM<80% or oedema - NCHS)	58	7.5 (5.8-9.7)	65	10.8 (8.5-13.6)	60	8.9 (6.2-12.5)
Severe Acute Malnutrition (WHM<70% or oedema - NCHS)	0	0	0		1	0.1
Global Acute Malnutrition by MUAC (<12.5 cm or oedema)	19	2.5 (1.5-3.9)	10	1.7 (0.8-3.1)	33	4.9 (1.9-7.9)
Severe Acute Malnutrition by MUAC (<11.5 cm or oedema)	1	0.1	1	0.2	4	0.6
Proportion of children Stunted (HAZ<-2)	55	7.1 (5.8-9.7)	66	10.9 (8.6-13.8)	94	13.9 (10.7-17.9)
Proportion of children Underweight (WAZ<-2)	147	19.0 (16.4-22.0)	103	17.1 (14.2-20.4)	118	17.5 (13.3-22.8)
Child Morbidity						
Children reported ill in the previous 2 weeks	125	16.2 (13.7-19.0)	206	34.2 (30.4-38.1)	179	26.6 (21.3-31.8)
Children reported with diarrhoea in 2 weeks prior to assessment	83	10.8 (8.7-13.2)	88	14.6 (11.9-17.7)	87	12.9 (9.2-16.6)
Children reported with ARI within two weeks prior to assessment	34	4.4 (3.1-6.2)	127	21.1 (17.9-24.6)	65	9.6 (6.7-12.6)
Children reported with febrile illness in 2 weeks prior to assessment	29	3.8 (2.6-5.4)	59	9.8 (7.6-12.5)	87	12.9 (9.2-16.6)
Children reported with suspected measles within one month prior to assessment	7	0.9 (0.4-1.9)	11	1.8 (1.0-3.3)	42	6.2 (3.4-9.1)
Child Immunization Status						
Children (9-59 months) immunised against measles (Recall)	653	84.6 (81.8-87.0)	385	65.0 (61.0-68.8)	451	66.9 (58.7-75.2)
Children who have ever received polio vaccine (Recall)	735	95.2 (93.4-96.6)	496	82.3 (78.9-85.2)	531	78.7 (69.9-87.6)
Children reported to have received vitamin A supplementation in last 6 months (Recall)	712	92.2 (90.1-94.0)	361	59.9 (55.8-63.8)	470	69.7 (60.8-78.7)
Maternal Health & Nutrition						
Total women acutely malnourished (MUAC<23.0 cm)	59	12.2	21	5.7	14	3.5
Pregnant women acutely malnourished (MUAC<23.0 cm)	0		0		13	22.4 (10.8-34.0)
Non pregnant women acutely malnourished (MUAC≤18.5 cm)	59	14.9	21	6.5 (4.2-9.9)	1	0.3
Women who received tetanus immunization (Recall)	336	69.6 (65.2-73.6)	207	55.8 (50.6-60.9)	233	58.8 (49.8-67.9)
Household Essential Indicators						
Proportion of households who reported to have consumed ≤3 food groups	65	13.5 (10.7-17.0)	63	17.1 (13.5-21.4)	57	14.0 (6.4-21.6)
Access to mosquito Net	283	59.0 (54.4-63.4)	121	32.8 (28.1-37.9)	202	49.6 (39.9-59.4)
Access to safe/protected drinking water	199	41.5 (37.1-46.1)	82	22.2 (18.2-26.9)	59	14.5 (5.2-23.8)
Access to latrine	248	51.7 (47.1-56.2)	175	47.4 (42.2-52.7)	55	13.5 (3.4-23.7)
Access to health facility	253	52.7 (48.1-57.2)	75	20.3 (16.4-24.9)	262	64.4 (46.3-82.5)
Mortality						
Under 5 Mortality Rate (U5MR) as deaths/10,000/ day*	**0.82** (0.34-1.99)		**1.06** (0.36-3.08)		**0.82** (0.28-2.39)	
Crude Mortality Rate (CMR) as deaths/10,000/ day	**0.46** (0.27-0.79)		**0.35 (**0.10-1.18)		**0.23** (0.10-0.56)	

The reported cases of suspected febrile illness among the children in all the livelihoods is also indicated in *table 5*, with high rates being reported among the children assessed in the East Golis/Gagaab and Karkaar/Gebi livelihood zones. No disease outbreaks were reported in any of the livelihood zones assessed. Sick children, especially from diarrhoea are often more likely to be acutely malnourished than their healthy counterparts, although none of the surveys illustrated a statistical association between acute malnutrition and morbidity. Among the children assessed in the West Golis/Guban livelihood zone, the immunization status was fair (Measles 84.6%, Polio 95.2% and Vitamin A supplementation 92.2%), although it slightly fell below the recommended Sphere (2004) standards of 95%. There was a notable improvement from the previous assessments conducted in the same livelihood in October and can mainly be attributed to the UNICEF/MOHL Child Health Days campaign in the area earlier in the year. However the immunization status of the children assessed among the East Golis/Gagaab and Karkaar/Gebi livelihood zones was lower, with only 65% and 66.9% vaccinated against measles, 82.3% and 78.7% reported to have received oral polio vaccine and 59.9% and 69.7% that had received Vitamin A supplementation respectively. The East Golis/Gagaab livelihood zone had the lowest proportion of households (20.3%) with access to health facilities.

A focus group discussion in a recent assessment

The proportion of households that had access to health facilities in the West Golis/Guban and Karkaar/Gebi livelihood zones was 52.7% and 64.4% respectively. A substantial effort to improve the accessibility to health facilities in all the livelihood zones assessed is essential to improve the overall health of the population. The relationship between safe water, adequate sanitation and disease is apparent, safe water and adequate sanitation are fundamental requirements in the prevention of disease especially diarrhoea, however access to safe water and adequate sanitation facilities in all the livelihoods assessed remains a challenge. A large proportion of the households in all the livelihoods (Karkaar/Gebi 14.5% households), did not have access to protected safe water (*see table 5* for all results). Access to sanitation facilities was also very poor, with a large proportion of the households in all livelihoods not having appropriate access to sanitation facilities. This situation which predisposes the population to diseases especially diarrhoea, has a direct effect on the nutritional status of individuals.

The food security situation in West Golis/Guban areas has improved over the last six months. The areas depend on the *Hays* rainfall which comes once a year in January immediately after the *Deyr* season. The rains in the livelihood were satisfactory, and have led to improved pasture and water availability resulting in good livestock conditions and in-migration of animals to the area. As a result, household income and meat and milk consumption has improved. The nutrition survey conducted in the same livelihood in October 2008 revealed that only 33.5% of the assessed households were consuming milk. However results from the June 2009 nutrition assessment have shown that over 60% of the households are now consuming milk. The dietary diversity situation reported in October 2008 was *Critical*[19], with almost one quarter (23.6%) of the assessed households consuming a less diversified diet (≤3food groups). Results from the most recent nutrition assessment are now showing an improvement in dietary diversity from a *Critical* to *Serious* situation, with only 13.5% of the households consuming ≤3 food groups a day. In the East Golis/Gagaab and Karkaar/Gebi livelihood zones, however, the food security situation is precarious, as there is an emerging drought in the north, especially in the regions of Sool, Sanaag and north eastern Togdheer due to recent rain failure, which is compounded by the three previous seasons of relatively poor and patchy rainfall[20]. Pasture resources in areas which received moderate rains were quickly depleted due to large livestock in-migration from neighbouring rain deficit areas. The dietary diversity in East Golis/Gagaab and Karkaar/Gebi livelihood zones is classified as *Serious*[21], with 17.1% and 14.0% of the assessed households consuming ≤ 3 food groups only in a day respectively. Milk consumption at household level in the Karkaar/Gebi livelihood zone, still remains high, with 70% of the households reportedly consuming milk 24 hours prior to the assessment. In the East Golis/Gagaab livelihood zone (that also reports the highest GAM rates (*see table 5*) the lowest milk consumption was reported, with only half of the assessed households consuming milk in the 24 hours preceding the assessment.

The West Golis/Guban nutrition situation has improved from *Very Critical* to ***Serious,*** mainly following the good rains which have led to increased access to water and pasture, better livestock body condition and resulted in improved access to household income and meat and milk consumption. In addition the *Very Critical* nutrition situation reported in the *Post Deyr* '08/09 elicited response from agencies like UNICEF and WFP, who initiated supplementary and therapeutic feeding programmes in the area. The MOHL, in collaboration with UNICEF, also conducted child health days in the area and conducted immunization activities for the children and also provided mobile health clinics. Nonetheless, the livelihood still remains vulnerable and needs to be closely monitored. The population also remains susceptible to chronic risks such as poor child care and feeding practices, poor sanitation, inadequate supply of safe drinking water and limited access to health facilities.

The East Golis/Gagaab and Karkaar/Gebi livelihood zones have deteriorated to a ***Critical*** status**.** This is mainly due to the emerging drought in the area, resulting to a high level of livestock off-take, as well as high abortion rates, culling of kids/lambs and drought induced livestock disease, which have resulted in reduced household income and consumption of meat and milk. In addition, persistent risks, namely the high morbidity rates and lack of access to safe water, adequate sanitation and health facilities and inadequate targeted feeding and/or health programmes to support the vulnerable populations, further underscore the ***Critical*** situation nutrition situation observed. Therefore it is vital to closely monitor the food security and nutrition indicators, as well as to immediately start initiatives to rehabilitate severely acutely malnourished children, improve accessibility to health, and sanitation services and improve child care and feeding practices. Programmes also aimed directly at improving household food security and livestock conditions should be implemented to mitigate the effects of the drought.

19 According to FSNAU Nutrition Categorization Table

20 Food Security and Nutrition Quarterly Brief; Issued June 12th 2009; Food Security and Nutrition Analysis Unit

21 According to the FSNAU Framework for Estimating the Nutrition Situation Draft 6 February 2008

Table 6: Plausibility Checks

Surveyed area	Date	Criteria	Missing/Flagged data	Overall sex ratio	Overall age distribution	Dig Preference score-weight	Dig Preference score-Height	SD WHZ	Skewness WHZ	Kurtosis WHZ
Bay Agropastoral	Jun-09	Category	Good	Good	Poor	Good	Poor	Good	Good	Good
		Score	0	0	4	0	4	0	0	0
Bakool Pastoral	Jun-09	Category	Good	Poor	Poor	Acceptable	Unacceptable	Good	Good	Good
		Score	0	4	4	2	10	0	0	0
Bakool Agropastoral	Jun-09	Category	Good	Good	Acceptable	Good	Poor	Good	Good	Good
		Score	0	0	2	0	4	0	0	0
Shabelle Region										
Adale	May-09	Category	Acceptable	Good	Poor	Good	Good	Unacceptable	Good	Good
		Score	5	0	4	0	0	20 (SD:1.25)	0	0
Shabelle IDP	May-09	Category	Good	Good	Good	Good	Acceptable	Acceptable	Good	Good
		Score	0	0	0	0	2	2	0	0
Shabelle Agropastoral	May-09	Category	Good	Good	Acceptable	Acceptable	Acceptable	Unacceptable	Good	Good
		Score	0	0	2	2	2	20 (SD1.22)	0	0
Shabelle Riverine	Jun-09	Category	Good	Good	Poor	Poor	Acceptable	Acceptable	Good	Good
		Score	0	0	4	4	2	2	0	0
Central and parts of northeast regions										
Galgadud	May-09	Category	Acceptable	Good	Good	Good	Acceptable	Good	Good	Good
		Score	5	0	0	0	2	0	0	0
Mudug	May-09	Category	Acceptable	Good	Poor	Good	Acceptable	Acceptable	Good	Good
		Score	5	0	4	0	2	2	0	0
Addun	May-09	Category	Good	Good	Poor	Good	Acceptable	Good	Good	Good
		Score	0	0	4	0	2	0	0	0
Cowpeabelt	Jun-09	Category	Good	Good	Good	Acceptable	Acceptable	Good	Good	Good
		Score	0	0	0	2	2	0	0	0
Hawd	Jun-09	Category	Acceptable	Good	Good	Good	Good	Acceptable	Good	Good
		Score	5	0	0	0	0	2	0	0
Coastal deeh	Jun-09	Category	Good	Good	Poor	Acceptable	Acceptable	Poor	Good	Good
		Score	0	0	4	2	2	6	0	0
NW/NE regions										
West Golis Guban	Jun-09	Category	Good	Good	Poor	Good	Acceptable	Good	Good	Good
		Score	0	0	4	0	2	0	0	0
Gebi	Jun-09	Category	Good	Poor	Poor	Good	Good	Good	Good	Good
		Score	0	4	4	0	0	0	0	0
East Golis	Jun-09	Category	Good	Poor	Good	Good	Acceptable	Acceptable	Good	Good
		Score	0	4	0	0	2	2	0	0

GUIDANCE FOR USE OF THE PLAUSIBILITY CHECKS

(See Table 6)

Digit preference DP for weight and height: Indicates how accurately children were weighed and when done correctly there shouldn't be any digit preference. This normally occurs when enumerators round to the nearest cm/kg or half cm/kg. The signs; +, ++, +++ indicate if there was any DP for a number and if it was, mild, moderate or severe, respectively.

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 shoud lie between 0.8 and 1.2 Z score. SD increases as the proportion of erroneous results in the data set 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: Flags are measurement 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 (6-29) children are more likely to be malnourished than 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 of 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.

OTHER RELEVANT INFORMATION

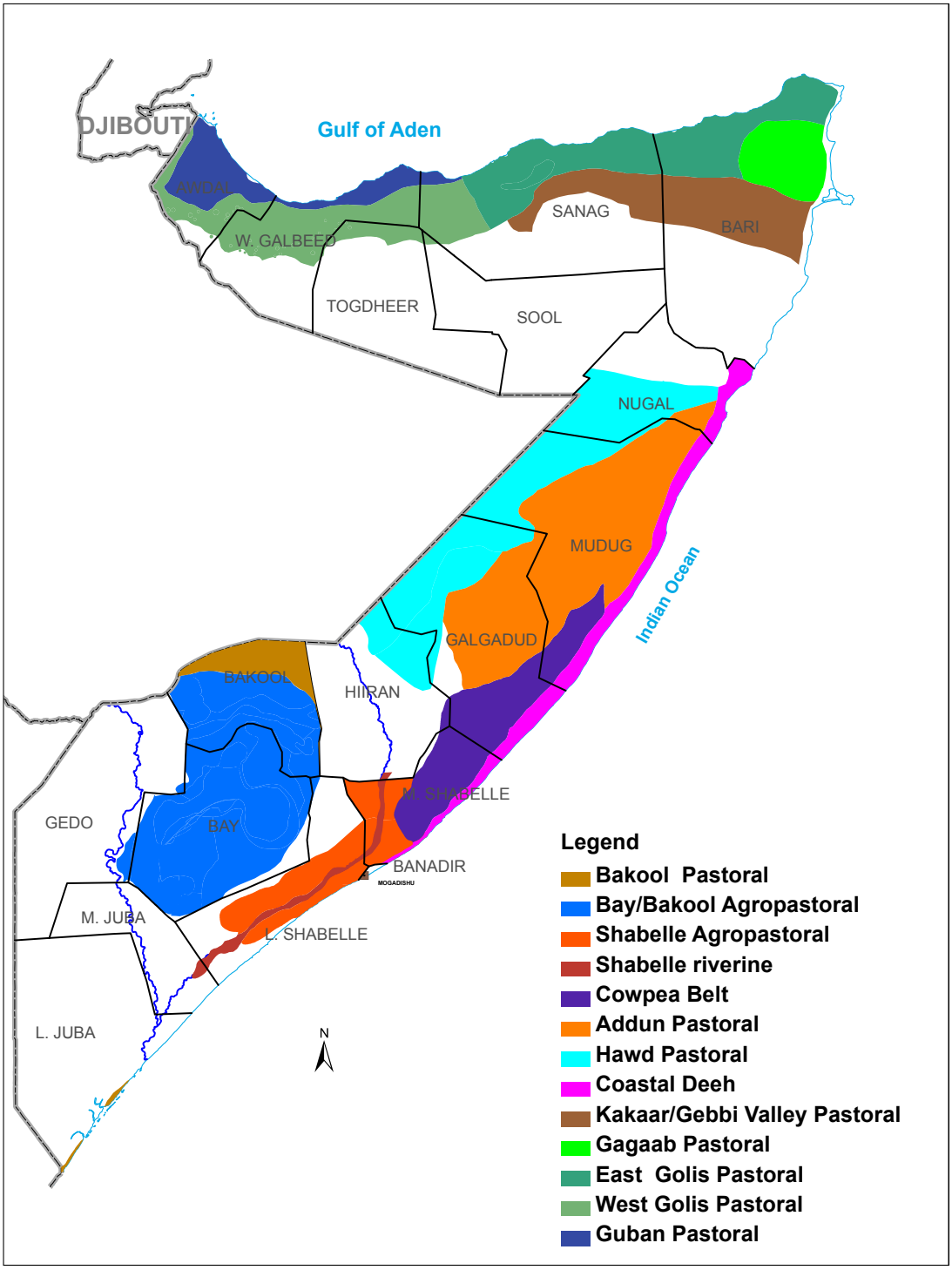
Micronutrients Deficiency Study

FSNAU, in collaboration with the Local Authorities, UNICEF, WHO, WFP and with the technical lead from the Institute of Child Health (ICH), University of London, conducted a Micronutrient Deficiency Disorders (MDD) study in South Central regions in July 2009. This is the third of 3 surveys (earlier conducted in Puntland in April and Somaliland in May), which aim to assess the public health significance of the major micronutrient deficiencies (iron, iodine and vitamin A) both for creating a baseline as well as to inform and guide an appropriate response strategy in the Somali population.

This information also incorporates infant, child and maternal nutritional status, malaria prevalence and relevant household indicators that provide a deeper analysis and understanding of the factors affecting malnutrition in Somalia. Preliminary findings will be shared in September 2009 (See the March-April Nutrition Update for more details).

Sphere revision: On July 24th, 2009, the Somalia Nutrition Working Group/Cluster met to review the Sphere 2004 handbook and provide feedback for the 2010 review process. The meeting was facilitated by Concern Worldwide. Comments have been compiled and forwarded to the focal point for the Nutrition chapter, SCUK London, to be incorporated in the 2010 edition.

Map 5: Livelihood Zones assessed in May-June 2009



Other FSNAU Publications:

FSNAU Food Security and Nutrition Quarterly Brief, April 2009
FSNAU/FEWSNET Market Data Update, July 2009
FSNAU/FEWSNET Climate Data Update, July 2009
FSNAU Technical Series Report Nutrition Situation, February 2009
FSNAU Technical Series Report, Post Gu '09 Analysis (Forthcoming)
FSNAU Technical Series Report, SIS Manual February 2009
FSNAU Technical Series Report, Data Systems Team Manual, February 2009
FSNAU Technical Series Report, Field Management Manual, February 2009

Physical Address: United Nations Somalia, Ngecha Road Campus. Postal address: PO Box 1230, Village Market, Nairobi, Kenya
Telephone: +254-20-4000500. Fax: +254 20 4000555, General email: info@fsnau.org
Comments and information related to nutrition: grainne.moloney@fsnau.org, Website: http://www.fsnau.org