NUTRITION ASSESSMENT

SOOL PLATEAU OF SOOL AND SANAAG REGION

Food Security & Nutrition Analysis Unit (FSNAU/FAO)
Ministry of Health and Labour (MOHL)
United Nations Children's Fund (UNICEF)

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FSAU

Ministry of Health and Labour
(MOHL)

unicef
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TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS

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

Acknowledgements

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Executive Summary

The Sool plateau pastoral livelihood zone cuts across Sool, Sanaag and Bari regions of north Somalia covering an area of about 46,644km2. The Sool-Sanaag plateau section of the livelihood zone in Somaliland has an estimated population size of 55,230 people out of the 82,376 in the whole livelihood zone. In October 2008, FSNAU in collaboration with the Ministry of Health and Labour (MOHL), UNICEF and partners conducted a nutrition survey among the pastoralist population of the Sool plateau livelihood zone. 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 593 children were assessed for nutritional information (anthropometric and non anthropometric), from 461 households. Results indicate a global acute malnutrition (GAM weight for height <-2 Z score or oedema) rate of **9.9%** (6.9-13.0) and severe acute malnutrition rate, SAM, (Weight for height <-3 or oedema) of **0.5%** (0-1.1) including one confirmed case of oedema (**0.2%)**, based on NCHS reference standards. The GAM rates were similar (9.9%7.2-13.7) using the WHO reference standards, while the SAM rates increased slightly, to 0.8% (0.4-2.0). This indicates an ***Alert*** nutrition situation based on WHO classification. The stunting and underweight rates reported were 10.9% and 17.3% respectively based on NCHS reference standards. The 90 days retrospective crude and under five mortality rates was estimated at **0.64** and **1.64** deaths per 10,000 per day respectively, and are at *serious* and *alert* levels respectively according to the WHO classification. The reported causes of death were diarrhoea, birth complications and accidents (physical injuries). Further analysis, indicated that the proportion of children aged 18-29 months of age were the most acutely malnourished compared to children from other age groups. It was noted that a slightly higher proportion of boys (10.4%) were acutely malnourished compared to girls (9.5%), however there was no statistical difference between the two groups. The percentage of children who had suffered from one or more communicable childhood diseases in the two weeks prior to the assessment was 23.3%; with 15.7%,7.9% and 1.7% reported to have suffered from diarrhoea, ARI and malaria (febrile illness) respectively. The moderately morbidity rates can be attributed to the lack of access to quality health services, poor sanitation and lack of safe water in the area. Despite the fact that there was no statistical relationship between acute malnutrition and morbidity, especially diarrhoea, morbidity is a major risk factor for malnutrition among the children assessed. About 49% of the households had access to toilet facilities, while the remaining proportion of the households used an open field. Access to safe water remains a challenge, with 41.7% of the households having access to clean drinking water. Almost a quarter (23.7%) of the households consumed less than four food groups in the preceding 24 hours, which mainly comprised of cereal, sugar and oil. Milk and meat are key components of the diet in the livelihood. Consumption of milk (65.9%) was high, while meat was lower (30.6%) among the households assessed. Only 3.9% of the assessed children were fed the recommended five times a day, with majority (79.4%) being fed 2-3 times a day. Breastfeeding practices were also very poor, with only 39.1% of the children aged 6-29 months reported to be breastfeeding. Introduction of complimentary foods for majority of the children was done earlier than at the recommended six months of age, with >90% of the children reportedly receiving foods other than breast milk as early as their first week of life.

The Post Gu 08 integrated nutrition analysis classified the nutrition situation as *Critical*. The poor Gu 08 rains had led to reduced water availability, poor pasture and subsequently the out migration of livestock to other neighbouring regions, reducing access to milk, meat and income from the sale of animals and animal products. This worrisome nutrition situation prompted immediate humanitarian interventions in the area, these included cash transfers, water trucking, and relief food. The Deyr (September/October 08) rains in the area were also adequate, the rains managed to replenish water catchments, and improve the pasture in the area. Livestock migrated back into the Sool plateau area, increasing access to meat and milk and income through the sale of animals and animal products. The improved performance of the Deyr seasonal rains and their consequent impact on milk consumption and household income coupled with the humanitarian interventions undertaken in the area, have helped to mitigate the *Critical* nutrition situation in the Sool plateau. However, it still very important to monitor the risk factors of malnutrition in the area, as the population still remains very vulnerable. Therefore there is great need to expand the delivery of basic health services and to ensure access to these services. Health education is also imperative to assist the community in making informed decisions on health matters. There is also need to improve the availability and accessibility of

adequate protected water in the area. Proper sanitation issues should also be addressed such as setting up adequate sanitation facilities to help control the spread of diarrhoea diseases. Inappropriate disposal of human waste is a predisposing factor to diarrhoeal diseases, and consequently affects the nutritional and health status of individuals. Rehabilitation of acutely malnourished children and women through the health centres should continue; this should be followed up with intensified nutrition and health education programmes focusing on child care practices. Interventions targeting and supporting the livestock industry are also important as the main source of livelihood in the area and should be encouraged.

Summary of Assessment Findings

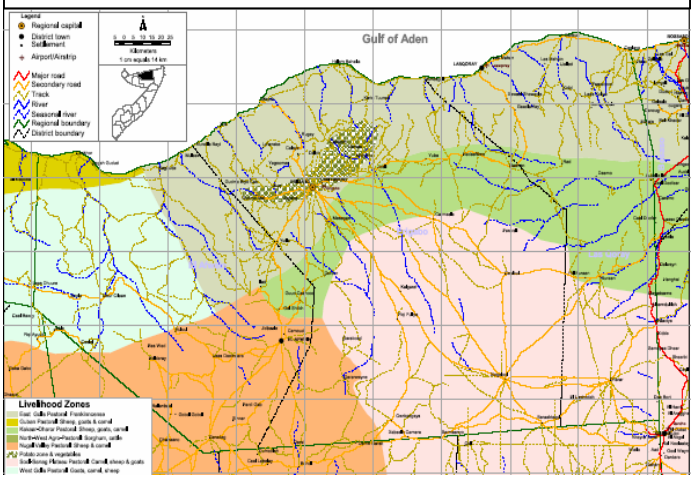
Table 1: Summary of Survey Findings Sool Plateau Pastoral Livelihood Zone

Indicator	Sool Plateau Results		
	N	%	CI
Total number of households surveyed	372		100
Mean household size	6.2		5.8-6.6
Total number of children assessed	593		100
Child Sex: Males	271	72.8	64.3-81.4
Females	101	27.2	18.6-35.7
Global Acute Malnutrition GAM (WHZ<-2 or oedema)	**59**	**9.9**	**6.9-13.0**
Severe Acute Malnutrition SAM (WHZ<-3 or oedema)	**3**	**0.5**	**0-1.1**
Oedema	1	0.2	0-0.5
Global Acute Malnutrition (WHO Anthro 2006)	59	9.9	7.2-13.7
Severe Acute Malnutrition (WHO Anthro 2006)	5	0.8	0.4-2.0
Global Acute Malnutrition (WHM<80% or oedema)	26	4.4	2.4-6.4
Severe Acute Malnutrition (WHM<70% or oedema)	0	0	0
Proportion of stunted children (HAZ<-2)	65	10.9	7.1-14.8
Proportion of underweight children (WAZ<-2)	101	17.3	12.3-21..8
Total children acutely malnourished (MUAC< 12.5cm or oedema	23	3.9	1.6-6.1
Children severely malnourished (MUAC< 11.0cm or oedema	3	0.5	0-1.1
Total women acutely malnourished (MUAC <18.0 cm) (N=363)	68	18.7	12.5-30.0
Total preg. women acutely malnourished (MUAC <23.0 cm) (N=43)	43	18.6	8.5-28.7
Proportion of children with Diarrhoea in 2 weeks prior to assessment	93	15.7	10.7-20.7
Proportion of children with ARI within two weeks prior to assessment	47	7.9	3.6-12.3
Children with suspected malaria in 2 weeks prior to assessment	10	1.7	0.1-3.3
Suspected measles within one month prior to assessment	1	0.2	0.1-3.3
Children (9-59 months) immunized against measles	1	0.2	0-0.5
Children who have ever received polio vaccine	449	75.7	68.0-83.4
Children who received vitamin A supplementation in last 6 months	283	47.7	35.0-60.5
Maternal Tetanus Immunization	68	18.7	13.0-24.5
Proportion of households who consumed ≤3 food groups	88	23.7	15.0-32.3
Proportion of households who consumed ≥4 food groups	284	76.3	67.7-85.0
Proportion of children 6-24 months who are breastfeeding (N=220)	86	39.1	32.6-45.6
Under five Death Rate (U5DR) as deaths/10,000/ day	**1.64**		0.88-3.04
Crude Death Rate (CDR) as deaths/10,000/ day (N=882)	**0.64**		0.35-1.18

1.0 Introduction

Historical Context

Figure 1: Livelihood zones North West Somalia

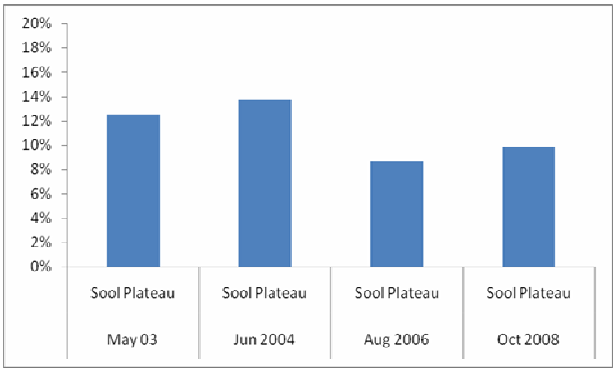


Sool Plateau livelihood zone is a pasture rich plain with bush and vegetation cover including Accacia Bucia and extensive grassy plains. It extends from Dararaweyne in Erigavo to Bixin in Banderbeyla, spanning across Sanaag, Sool and Bari regions and covering an area of about 46,644km2. Pastoralism is the main livelihood system with special focus on goats and sheep rearing; goats comprise between 60-70% of the total livestock reared. Excessive livestock pressure for the last four decades compounded by over-cutting of trees to make charcoal is gradually degrading the ecosystem Income is mainly accessed through the sale of livestock and livestock products, casual labour and trade spent on food and non food items while food (typically, meat, milk and cereals) is accessed through purchase and own production. The Sool-Sanaag plateau section of the livelihood zone in Somaliland has an estimated population size of 55,230 people out of the 82,376 in the whole livelihood zone (FSNAU baseline Profiles, September 2005). This livelihood zone experiences four seasons (Gu, Hagaa, Deyr and Jilaal/Diraac). The main rainy seasons are Gu (longest) and Deyr which is a short rainy season. Jiilaal is the longest dry season compared to the other seasons of the year and Hagar is a relatively shorter dry period. Sool plateau is a drought prone livelihood zone threatened by seasonal water scarcity, compounded by the environmental degradation of the area. The main water sources are boreholes, *berkads*, earthen dams and trucked water.

The FSNAU Post Gu 08' analysis classified the food security situation in the Sool plateau as being in Acute Food and Livelihood Crisis (AFLC), this was mainly due to consecutive seasons of failed rains. There was inadequate water availability in the area and poor pasture conditions. Livestock were forced to out migrate to neighbouring regions in search of water and pasture. In January 2009, the FSNAU Post Deyr 08/09 integrated analysis classified the Sool plateau as Borderline Food Insecure, an improvement from the previous season. This improvement was mainly attributed to the successful Deyr rainfall in the area, which replenished water catchments, improved the pasture, and subsequently led to in migration of livestock in the area.

1.2 Nutrition Situation and Health Context

Figure 2: Trends of Acute Malnutrition Sool Plateau 2003-2008



The The Post *Gu* '08 integrated nutrition analysis classified Sool Plateau of Sool and Sanaag region, as *Critical*. The drought conditions during the *Gu* '08 resulted in the out migration of livestock eastwards to the neighbouring Bari region, thereby limiting the consumption of milk and meat and reducing income. The current integrated nutrition analysis of the Post Deyr 08/09, classifies the nutritional situation of the livelihood as ***Alert.***

A nutrition assessment conducted in the area in the month of October 2008, indicated a global acute malnutrition (WHZ<-2 or oedema) rate of **9.9**% (6.9-13.0), and severe acute malnutrition (WHZ<-3

or oedema) rate of **0.5**% (0-1.1), with one (0.2%) case of oedema. The improvement is mainly attributed to the good September and October 08[1] rain performance, leading to increased access to food, water and income in the area. Humanitarian interventions - food aid and cash distributions by relief agencies during the last few months, and the control of diarrhoea outbreaks in the area have also positively contributed to the improved nutritional situation in the area.

1.5 Assessment Justification

The Post *Gu* '08 integrated nutrition situation analysis revealed a Critical nutrition situation in the Sool plateau. The high proportion of children with MUAC <12.5cm and increased numbers of malnutrition being recorded in the health facilities, high morbidity and wanting food security indicators[2] warranted the need to conduct a nutrition survey to determine the proportion of the population affected by acute malnutrition (determine the nutritional status of children between 6-59 months) and the immediate and underlying causes in order to instigate the required and appropriate humanitarian interventions in the area. Therefore in October 2008, FSNAU and partners conducted a comprehensive nutrition assessment with the following objectives:

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

2.0 Methodology

A two stage Probability Proportion to Size (PPS) sampling methodology was used to select 18 households from 25 clusters in the livelihood. A list of all settlements/villages/towns within the assessed livelihood in the region and their respective populations formed a sampling frame from which the clusters were selected randomly using EPinfo-ENA software (See appendix). A cross-sectional study was conducted among the population of Sool plateau pastoral livelihood. Both qualitative and quantitative data collection techniques were used. Quantitative data was collected through a standard household questionnaire for nutrition assessments in Somalia (see appendix). Retrospective mortality data for 90 days prior to the assessments was also collected among the study households using the standard questionnaires (see appendix 2). Quantitative data collected included household characteristics; child anthropometry, morbidity; vitamin A supplementation, measles and polio immunization coverage; dietary diversity; malaria related data, water and sanitation. Qualitative data was collected through focus group discussions and key informant interviews to provide further understanding of possible factors influencing nutritional status. Children aged 6-59 months from the selected households within the targeted clusters in the study area, were measured to record their anthropometric information, data on morbidity and child feeding were also collected from them. Retrospective mortality data was collected from all the households including those that did not have children aged 6-59 months.

A two-day training of enumerators and supervisors was conducted in Hargeisa town specific to this assessment was conducted just after the participants had received five day training on Nutrition Surveillance conducted by FSNAU and sponsored by the NIPHORN project. The training focused on methods of collecting quality data and covered interview techniques, sampling procedure, inclusion and exclusion criteria, sources and reduction of errors, taking of measurements (height, weight and MUAC), undertaking malaria RDTs, standardisation of questions in the questionnaire, levels of precision required in measurements, diagnosis of oedema and measles, verification of deaths within households, handling of equipment, and the general courtesy during the assessment. The training stressed the importance of quality data collection and used the Nutrisurvey Quality Checks software to demonstrate quality data collection checks.

[1] Food Security and Nutrition brief November 2008

[2] The drought experienced in the area due to four consecutive seasons of rain failure, livestock out migration resulting to reduced milk and meat consumption and income for the households -

Standardization of measurement and pre-testing of the questionnaire and equipment was carried out in the IDP settlement of Sheikh Nur. Quality of data was also ensured through (i) monitoring of fieldwork by coordination team, (ii) crosschecking of filled questionnaires on daily basis and recording of observations and confirmation of measles, severe malnutrition and death cases by supervisors. (iii) daily review was undertaken with the teams to address any difficulties encountered, (iv) progress evaluation was carried out according to the time schedule and progress reports shared with partners on regular basis, (v) continuous data cleaning and plausibility checks (vi) monitoring accuracy of equipment (weighing scales) by regularly measuring objects of known weights and (vii) continuous reinforcement of good practices.

All measurements were clearly stated by both the enumerators reading and recording them to reduce errors during recording. Data quality was also checked using the Nutrisurvey plausibility check, see appendix for details. Household and child data was entered, processed (including cleaning) and analysed using EPI6 software. Mortality data was entered and crude and < 5 child mortality rates generated in Nutrisurvey software.

3. Assessment results

Table 2: Household Characteristics of Study Population

Characteristics	Sool Plateau		
	N	%	CI
Total Households	372		100
Total number of children assessed	593		100
Sex of Children Assessed	289	48.7	44.1-53.3
Male	304	51.3	46.7-55.9
Female			
Household size (Mean):	6.2		5.8-6.6
Mean No of Under fives	1.8		1.7-1.9
Sex of Household Head:	271	72.8	64.3-81.4
Male	101	27.2	18.6-35.7
Female			
Household residential status:			
Resident	368	98.9	97.6-100.2
IDP < 3 months	3	0.8	0-1.7
IDP Pre 2007	1	0.3	0-0.8
Households Hosting recent IDPs	12	3.2	0.9-5.5
Yes	360	96.8	94.5-99.1
No			
Household's main source of Income	102	27.4	18.0-36.9
Animal and Animal Product Sales	5	1.3	0-3.2
Crop Sales/Farming	61	16.4	4.8-28.0
Trade	112	30.1	21.4-38.8
Casual Labour	36	9.7	3.8-15.5
Salaried/Wage Employment	22	5.9	3.3-8.6
Remittances/ Gifts	24	6.5	2.2-10.7
Self Employment	10	2.7	0.8-4.6
Others			

The nutrition assessments covered a total of 372 households. The mean household size was 6.2 (±0.2), while 1.8 (±0.04) was the mean number of a child in the household. The total number of children assessed was 593. The detailed results of the household characteristics of the study population are presented in the table 2. The results showed that a larger proportion (72.8%) of the households were male headed. Majority (98.9%) of the households were residents of the area, while the remaining proportion was internally displaced persons. A very small proportion (3.2%) of the households was hosting IDPs, with the mean number of persons being hosted as 1.8 (±0.32).

The household's main source of income was through the sale of animals and animal products and casual labour. Other sources of income for the households included petty trade, relying on remittances, and employment. There were also limited job opportunities in the area. Very few of the households (1.3%) reported crops sales or farming as the sources of income for the households as expected for pastoralists. The reliance of households on sales of animals and animal products was clearly demonstrated when the animals out migrated from the area during the Post Gu 08, when there were poor rains and pasture, the households left behind consumed less milk and meat products, and their income was reduced. During the Deyr rainy season water availability improved and pasture and the livestock migrated back.

3.1 Access to Water, Sanitation and Health Facilities

The sanitation and health facilities among the assessed population were unsatisfactory. Almost half (41.7%) of the households did not have access to clean water. The main source of water for drinking in the households was unprotected surface water (58.9%). Majority of the households (97.3%) did not treat water at the source; in addition 86.0% of the households did not treat their water during storage.

Half the proportion of the households (55%) took less than one hour to fetch water, while 23.4% took 1-2 hours, and the remaining proportion 20.7%, took more than four hours to collect water from the main

water point. Only 13.9% percent of the households had 3-4 water storage containers, while 40.3% and 45.7% had 1 and 2 containers respectively, for water storage. More than half of the assessed population (59.9%) did not have access to sanitation facilities, the main reason being lack of resources at household level (88.3%) to construct them. The remaining proportions of the households were nomads who were always on the move. A large proportion of the households (86.0%) washed their hands before eating, while 28.5% washed their hands before preparing food.

Table 3: Summary of Results illustrating Access to Safe Water

Characteristics	Sool Plateau		
	N	%	CI
Source of domestic water			
Tap/Piped	2	0.5	0-1.6
Tanker Truck	58	15.6	4.1-27.1
Tube Well	93	25.0	7.6-42.4
Spring	1	0.3	0-0.8
Surface Water	218	58.6	40.0-77.2
Source of Drinking Water			
Tap/Piped	1	0.3	0-0.8
Tanker Truck	97	26.1	10.0-42.1
Tube Well	54	14.5	0-29.5
Spring	1	0.3	0-0.8
Surface Water	219	58.9	40.2-77.6
Have access to safe water			
Yes	155	41.7	22.8-60.5
No	217	58.3	39.5-77.1
Reliable Water Supply			
Reliable Supply	108	29.0	13.6-44.4
Seasonal Supply	176	47.3	30.8-63.9
Occasional Problem	72	19.4	5.0-33.7
Frequent Problem	16	4.3	0-9.4
Water treated at Source			
Yes	10	2.7	0-5.6
No	362	97.3	94.4-100.3
Water treated at Storage			
Yes	52	14.0	7.0-20.9
No	320	86.0	79.0-93.0
Method of Treatment			
Boiling	25	50.0	25.5-74.5
Chlorination	8	16.0	0-32.4
Decanting	3	6.0	0-14.2
Other	9	18.0	0-40.5
Mean Time to water point			
<30 minutes	67	18.0	7.7-28.4
30-60 minutes	141	37.9	26.0-49.9
1-2 hours	87	23.4	11.8-35.0
>4 hours	77	20.7	7.5-33.9
No. Of Storage			
Containers	150	40.3	31.7-48.9
1-2	170	45.7	37.2-54.2
3-4	34	9.1	4.4-13.9
4-5	18	4.8	1.5-8.9
>5			

Table 4: Summary of and Sanitation results

Characteristics	Sool Plateau		
	N	%	CI
Type of toilet used			
VIP Latrine	23	59.9	45.8-74.1
Latrine	99	26.6	14.5-38.7
Bush	50	13.4	2.0-25.0
Reason for no access to			
toilet	20	9.0	1.5-16.5
Pastoral Movement	197	88.3	80.5-96.2
Lack of resources	6	2.7	0-7.2
No need			

3.2 Household Food Security

Figure 3: Household Consumption of Food Groups

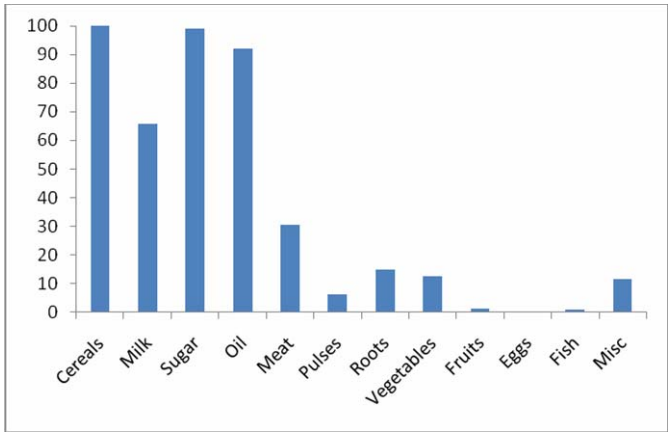


Table 5: Summary of results of households' main source of food

Characteristics	Sool Plateau		
Main source of food	N	%	CI
Own production	-	-	-
Purchase	362	97.3	95.2-99.4
Gifts	7	1.9	0.0-3.7
Bartered	1	0.3	0-0.8
Others	2	0.5	0-0.8
Main source of cereals			
Own production	1	0.3	0-0.8
Purchase	364	97.8	95.5-100.2
Gifts	7	1.9	0-3.9
Number of meals taken/day			
One	16	4.3	1.7-6.9
Two	175	47.0	37.9-56.1
Three	181	48.7	38.2-59.1

As illustrated in figure 3 cereals provided the bulk of the food in the household diet. Cereal based diets were consumed by all the assessed households, other foods mostly consumed by the households include sugar, oil, and milk (see table 5). A relatively lower proportion (<10%) of the households consumed the following food groups meat, pulses, vegetables, fruits and eggs in the study areas. According to the qualitative data collected, high food prices and inadequate supply of regular food commodities have led households to consuming less preferred foods. The preferred cereals consumed in the study population was mainly wheat flour, and rice, but now due to increased prices and availability, maize and sorghum are the main cereals being consumed. The main source of food was through purchases, (97.3%). Although 65% of the assessed population were consuming milk, the main sources were through purchase and not own production. This is because the livestock were in the gestation periods. However, consumption of milk and meat and income from sales contributed to improving the nutrition situation of the population.

About 48.7% of the households were consuming three meals a day, while 47.0% of the households consumed two meals a day, the remaining proportion of the households consumed a meal day. The average number of meals consumed in a day by the households was 2.4 (±0.06) According to key informants, there has been a reduction in the portions of meals consumed due to reduced access to food because of high food prices affecting the population.

3.2.1 Dietary Diversity

Table 6: Number of food groups consumed in assessed households			
Characteristic	**Sool Plateau**		
Food Groups Consumed	**N**	**%**	**CI**
No of food groups consumed			
Cereals	372	100	
Milk	245	65.9	55.4-76.3
Sugar	369	99.2	98.3-100.1
Oils	343	92.2	89.0-95.4
Meat	114	30.6	20.7-40.6
Pulses	23	6.2	0-12.8
Roots	55	14.8	7.1-22.4
Vegetables	47	12.6	6.6-18.6
Fruits	4	1.1	0.0-2.1
Eggs	1	0.3	0-0.8
Fish	3	0.8	0-1.7
Miscellaneous[3]	43	11.6	3.5-19.6
No. Having Diversified Diet			
1-3 food groups	88	23.7	15.0-32.3
≥ 4 food groups	284	76.3	67.7-85.0
Mean HDDS	4.4		± 0.15

Further analysis of the food consumed in the preceding 24 hours indicated a mean dietary diversity score of 4.4 (± 0.15). About a third (23.7%) of the households consumed less than four food groups a day, demonstrating that the households were not consuming a diversified diet.

Fruits and vegetables are good source of micronutrients that are crucial for healthy development and growth. Among the assessed households, the consumption of vegetables was very low (12.6%), while the consumption of fruits was very poor, with only 1.1% of the households consuming fruits in the preceding 24 hours. Fish is a good source of protein and minerals, however a very low proportion of households were consuming fish.

3.3 Child feeding, Morbidity, Immunization and Health Seeking Behaviour

Table 7: Morbidity, measles immunisation, polio vaccination and vitamin A supplementation			
Characteristics	**Sool Plateau**		
Incidence of major child illnesses	**N**	**%**	**CI**
Child fell sick two weeks prior to assessment	138	23.3	17.3-29.3
Proportion of children with diarrhoea 2 wks prior to assessment	93	15.7	10.7-20.7
Proportion of children with ARI within 2 wks prior to assessment	47	7.9	3.6-12.3
Children with febrile illness in 2 wks prior to assessment	10	1.7	0.1-3.3
Health Services Sought			
No Assistance Sought	26	18.8	6.8-30.9
Own Medication	4	2.9	0.5-5.3
Traditional Healer	2	1.4	0-3.6
Sheikh/Prayers	1	0.7	0-2.1
Private clinic	66	47.8	31.4-64.2
Public Health facility	39	28.3	9.9-46.2
Suspected measles within one month prior to assessment	1	0.2	0-0.5
Immunization Coverage			
Children (9-59 months) immunised against measles	217	36.6	23.5-49.7
Children who have ever received polio vaccine	449	75.7	68.0-83.4
Children who received vitamin A supplementation in last 6 months	283	47.7	35.0-60.5

High morbidity rates were noted among the children under five years in the assessed livelihood. The proportion of children reported to have fallen ill in the two weeks prior to the assessment was high at 23.3%. About three quarters, (76.1%) of the children sought medical assistance from health service. About 18.8% of the children who fell ill did not seek any assistance, while the remaining proportion tried self medication, traditional healers and prayers by the sheikh for healing.

The proportion of the assessed children who reportedly suffered from diarrhoea in the two weeks prior to the assessment was 15.7%. There was no statistical association between acute malnutrition and diarrhoea among the children in the study, however the link between diarrhoea, morbidity and acute malnutrition has been well documented from previous assessments in the region and their relationship can not be ignored. The proportion of children who had suffered from ARI two weeks prior to the assessment was 7.9%. Those reported to have suffered from febrile illness/suspected malaria was 1.7%. There was only one (0.2%) case of suspected measles reported. Measles immunization was low with only 36.6% of the assessed children vaccinated against measles. A higher proportion (75.7%) of children however had received the polio vaccination. However both polio and measles vaccination fell below the recommended Sphere

[3] Includes foods such as spices, chocolates, sweets, beverages etc

standards of 95%. Vitamin A supplementation among the assessed children was also below standards (47.7%).

3.3.1 Child Feeding Practices

Table 8: Summary of Results: Breastfeeding and Complimentary Feeding Practices

Characteristic	Sool Plateau		
	N	%	CI
Breastfeeding N=220	86	39.1	32.6-45.6
Reason for Ceasing Breastfeeding			
Pregnancy	6	40.0	13.6-66.4
Illness	8	53.3	21.8-84.9
Introduction of Complimentary food	572	96.5	93.9-99.0
< 1 week	13	2.2	0-4.4
1-3 months	5	0.8	0.13-1.6
4-6 months	3	0.5	0-1.3
>6 months			
Complimentary feeding frequency	8	1.3	0.0-2.7
1 time	124	20.9	11.0-30.8
2 time	347	58.5	51.5-65.6
3 time	91	15.3	11.1-19.6
4 time	23	3.9	1.8-5.9
5 time			

Poor feeding practices persist in the livelihood zone, like in other parts of Somalia. About 39.1% of the assessed children aged 6-24 months had stopped breastfeeding at the time of the assessment. The main reasons of ceasing breastfeeding reported by the mothers were due to illness and pregnancy. In addition, majority (96.5%) of the children were introduced to complimentary food at less than one week of age (sugar solution is usually given to children a few hours after birth). It is recommended that children should be introduced to complimentary foods at 6 months of age. Only 3.9% of the assessed children were fed the recommended five times a day. Slightly over half (58.5%) were fed three times a day, while 20.9% of the assessed children were fed twice a day, a small proportion (15.3%) of the children were fed four times a day. The 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. Poor breastfeeding practices do not only deny the children the multiple nutritive and health benefits associated with breast milk but also expose them to malnutrition, morbidity and even death.

3.4 Nutrition Status

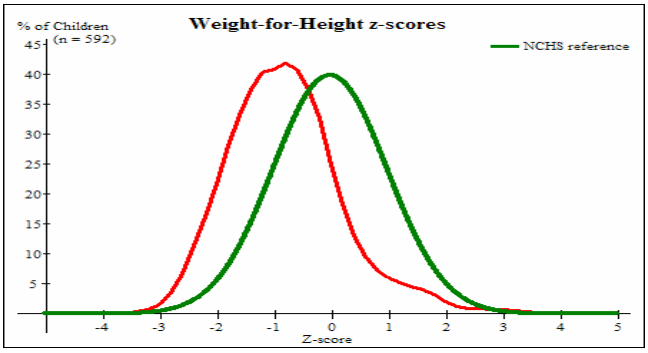
A total of 593 children in were assessed in the Sool plateau pastoral livelihood zone. The results show **Alert** nutrition levels (NCHS reference standards) among the population, with a GAM rate of **9.9%** and SAM rate of **0.5%.** When estimating the acute malnutrition rates using WHO Anthro (2006) reference standards, a more or less similar GAM rate (9.9%) and almost double SAM rate (0.8%) was reported.

Table 9: Nutrition Status of Assessed Children in Sool Plateau

Characteristic	Sool Plateau		
	N	%	CI
Global Acute Malnutrition (WHZ<-2 or oedema)	59	9.9	6.9-13.0
Severe Acute Malnutrition (WHZ<-3 or oedema)	3	0.5	0-1.1
Oedema	1	0.2	0-0.5
GAM estimates by WHO Anthro (2005)	59	9.9	7.2-13.7
SAM estimates by WHO Anthro (2005)	5	0.8	0.4-2.0
Global Acute Malnutrition (WHM<80% or oedema)	26	4.4	2.4-6.4
Severe Acute Malnutrition (WHM<70% or oedema)	0	0	-
Proportion of stunted children (HAZ<-2)	65	10.9	7.1-14.8
Proportion of underweight children (WAZ<-2)	101	17.3	12.3-21.8

A summary of the findings for the acute malnutrition rates is given in table 9. The current results indicate an **Alert** nutrition situation. The table also indicates the GAM rate and SAM rates as percent of the median (WHM). The proportion of children identified as stunted among the assessed population was 10.9% therefore classifying the chronic malnutrition situation as alert. A high prevalence of underweight (WAZ<-2) among the assessed children was noted at 17.3% in the assessed population.

Figure 4: Distribution Curve (WHZ <-2) Sool plateau pastoral livelihood zone



The distribution of the weight-for-height scores in the assessment was shifted towards the left depicting a poorer nutrition situation according to international (WHO) standards (Fig 3). A summary of the Nutrisurvey quality checks for the assessments are given in the appendix, they indicate that the data collected in the assessment is of good quality. The results of acute malnutrition among the surveyed population using weight for height <-2 Z score or presence of oedema, did not show any statistical difference between the two sexes.

Table 10 : Malnutrition rates (WHZ <-2 or oedema) for males and females

Nutrition Status	Males			Females		
	N	%	CI	N	%	CI
GAM (WHZ<-2 /oedema)	30	10.4	6.8-15.5	29	9.5	6.0-14.9
SAM (WHZ<-3 /oedema)	2	0.7	0.2-2.9	3	1.0	0.3-3.0

However a slightly higher proportion of acutely malnourished children compromised of boys rather than the girls (see table 10). Among the children assessed, 10.4% of the total boys in the sample size were acutely malnourished, compared to the 9.5% of the total girls in the sample size identified as malnourished. Nevertheless reasons as to why boys were more likely to be acutely malnourished need further investigations as in this study there were no direct issues noted. Analysis of distribution of acute malnutrition between the different age groups did not show any major differences in both assessments. Children aged above 54 months recorded the lowest proportion (7.4%) of acutely malnourished children; while children aged 18-29 months recorded the highest proportion (26.6%) of malnourished children. Further analysis did not show any significance statistical difference in risks of acute malnutrition between the children in the breastfeeding age bracket of 6-24 months and those aged 25-29 months, indicating that the two age groups had equal risks to malnutrition.

3.4.1 Acute Malnutrition using MUAC

Table 11: Child and Adult Nutrition Status by MUAC

Characteristics	Sool Plateau		
Child MUAC N= 439	**N**	**%**	**CI**
GAM (MUAC< 12.5 cm or oedema)	23	3.9	1.6-6.1
SAM (MUAC< 11.0 cm or oedema)	3	0.5	0-1.1

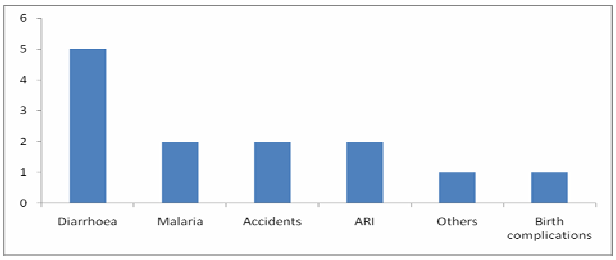
Based on MUAC measurements, acute malnutrition rates were lower than the rates recorded by WHZ. The assessed children recorded an acute malnutrition rate of 3.9% (MUAC< 12.5 cm or oedema). The proportion of children with a MUAC measurement less than 11cm was 0.5%.

Table 12: Adult malnutrition rates

Adult Women MUAC	N	%
Total pregnant acutely malnourished women (MUAC< 23.0 cm) N=43	8	18.6
Total non pregnant malnourished women (MUAC≤ 18.5 cm) N=283	9	2.8

Among the assessed women; the proportion of pregnant women with acute malnutrition (MUAC <23.0cm) was high at 18.6%. Pregnancy raises physiological and nutritional demands of women making them vulnerable to malnutrition. The proportion of non pregnant women acutely malnourished was low at 2.8%.

3.5 Mortality



A total of 13 deaths were reported in the assessed households within a 90 day recall period prior to the assessment. The crude and U5 mortality rates reported were estimated at **0.64** and **1.64** deaths per 10,000/per day respectively. Diarrhoeal diseases, ARI, suspected malaria, birth complications and accidents were the reported causes of mortality in the assessment. The main causes of mortality for children aged below 5 years were diarrhoea and ARI.

4 Discussion

The Post Gu 08 integrated nutrition analysis classified the nutrition situation as *Critical*, and identified the poor performance of the Gu rains in the area as a one of the key factors leading to the worrisome nutrition situation. The poor rains had led to reduced water availability, poor pasture and subsequently the out migration of livestock to other neighbouring regions. This out migration affected the households left behind, as there was now reduced access to milk and meat and income from the sale of these animals and products. The *Critical* nutrition situation was characterized by an increased proportion of children recording MUAC measurements of <12.5cm, increased numbers of children being reported as malnourished in health centres, increased morbidity rates and reduced dietary diversity and food access. This also prompted immediate humanitarian interventions in the area, these included cash transfers, water trucking, and relief food. The Deyr (September/October 08) rains in the area were also adequate, the rains managed to replenish water catchments, and improve the pasture in the area. The livestock migrated back into the Sool plateau area, and by so doing increased access to meat and milk and income through the sale of animals and animal products. The improved performance of the Deyr seasonal rains and their consequent impact on milk consumption and income coupled with the humanitarian interventions undertaken in the area, have helped to mitigate the *Critical* nutrition situation in the Sool plateau. The nutrition survey conducted in late October, reported GAM rate among the assessed children as **9.9%**, and the SAM rate is **0.5%**. This indicates an ***Alert*** nutrition situation.

The prevalence of chronic malnutrition was 10.9%, indicating an acceptable[4] situation. Malnutrition among the age groups indicated that the highest proportions of acutely malnourished children were aged between 18-29 months of age.

Malnutrition rates are high in this age group due to compromised complimentary feeding practices. Feeding and child care practices are also crucial indicators that affect the nutrition situation of the children in any population; nonetheless, it is unfortunate to note the feeding practices among the assessed children were sub-optimal. Poor child feeding practices including early cessation of breast feeding, early introduction to complimentary foods and poor quality and quantity of meals further place this age group at risk of malnutrition. It was worrying to note that only 3.9% of the assessed children were fed the recommended five times a day. Breastfeeding practices were very poor, with only 39.1% of the children aged 6-29 months breastfeeding. The benefits of breastfeeding include providing the required quantity and quality of nutrients required for optimal growth of children, and also assisting in boosting immunity to disease, therefore helping reduce the risk of malnutrition. Exclusive breast feeding practices were also wanting, with >90% of the children not being exclusively breast fed and receiving complimentary foods (water and sugar solution) as early as the first week of birth. Morbidity also plays a crucial role in the nutritional status of children, poor feeding practices accompanied by morbidity places the children at a high risk of malnutrition. Although there was no statistical association between acute malnutrition and morbidity, it is imperative to note that a high proportion of the acutely malnourished children had suffered one or more communicable diseases in the two weeks prior to the assessment. The proportion of assessed children that fell ill two weeks prior to the assessment was worrying at 23.3%, although in comparison to previous assessments in the area showed slight improvement, indicating that about a quarter of the children had suffered from a disease in the two weeks prior to the assessment. The rate of diarrhoea reported among the children

[4] Framework for the integrated analysis of the Nutrition Situation in Somalia – FSNAU/WHO/UNICEF,WFP/Concern Worldwide, IMC,ACF

was 15.7%, diarrhoea and malnutrition are directly related as demonstrated in previous assessments conducted in the region, and diarrhoea has a negative impact on the health and nutrition status of a child, however in this assessment, there was no statistically significant association between diarrhoea and malnutrition. High morbidity rates can be further attributed to the lack of quality health services, poor sanitation and lack of safe water in the area. Within the sampled area, there are very limited health facilities. Of the children assessed in the area, at least half were able to seek medical attention from private/ public health facilities. Those accessing health facilities were mainly those near the towns. About 18% of the children who were ill did not seek any assistance. Health seeking behaviour remains a challenge not only in the assessed livelihood, but in the country as a whole.[5]

Poor sanitation and lack of access to water are the key factors affecting the health situation in an area. About 49.0% of the households had access to toilet facilities, while the remaining proportion of the households used an open field. Poor disposal of human waste predisposes the population to disease. Access to safe water remains a challenge, with 41.7% of the households having access to protected drinking water. Lack of clean drinking water coupled with poor sanitation conditions predisposes the population to disease, especially diarrhoea, which in turn has a direct impact on the nutrition situation of the population. Other risk factors such as low immunization and vitamin supplementation further aggravate the vulnerable nutrition situation of the population. Vitamin A supplementation among the children in the assessed population fell below the required standards, as was case for measles and polio vaccination. However during the time of the survey, a Child Health day campaign was underway in the whole of Somaliland. The activities included vitamin A supplementation, polio and measles vaccination and de-worming. These positive efforts will go a long way in assisting to reduce the risk factors associated with malnutrition.

Although the nutrition situation of the Sool plateau has improved, and has also demonstrated the ability of a livelihood to recover from natural shocks with support from targeted humanitarian interventions, the nutrition situation still requires close monitoring as the population remains vulnerable. Other risk factors such as morbidity, lack of adequate health and sanitation facilities, poor feeding and child care practices and low immunization and supplementation coverage remain serious challenges and their possibility of further compromising the nutrition situation of the population cannot be underestimated.

5. Conclusions and Recommendations

As the population in the area still remains vulnerable to the risk factors affecting their nutritional status, it is important to consider relevant and effective interventions to help mitigate the worrisome nutritional status of the population. Therefore there is great need to expand the delivery of basic health services and to ensure access to these services. Health education is also imperative to assist the community in making informed decisions on health matters. There is also need to improve the availability and accessibility of adequate protected water in the area. Proper sanitation issues should also be addressed such as setting up adequate sanitation facilities to help control the spread of diarrhoea diseases. Rehabilitation of acutely malnourished children and women through the health centres should continue; this should be followed up with intensified nutrition and health education programmes focusing on child care practices. Interventions targeting and supporting the livestock industry are also important as the main source of livelihood in the area and should be encouraged. In summary the following points should be considered to improve the nutrition and health situation of the population in both short and long term:

1. Expanding delivery of basic health services including intensifying EPI services/linking vitamin A supplementation with polio vaccination programmes. It is also imperative to encourage the population to visit the health facilities by ensuring that the health services are available for all.
2. Improve water quality for household level consumption through establishment of water purification systems/encourage the population to boil drinking water to prevent water borne diseases, and promote improved sanitation and hygiene practices in the settlements.
3. Rehabilitation of acutely malnourished children and women through the existing health care centres,

[5] FSNAU KAP Study 2007

4. School feeding for school age children, this would not only assist in preventing malnutrition but would also improve the enrolment and attendance of children in the schools.
5. Intensify health & nutrition education focusing on care practices and micronutrient issues.
6. Promote the availability of micronutrient rich foods at household level through improving dietary diversification and consumption of fortified foods. Fish consumption should also be promoted as it is a readily available nutritious food.
7. Continued monitoring of the nutritional and food security situation.

6.0 APPENDICES

NUTRITION ASSESSMENT HOUSEHOLD QUESTIONNAIRE, 2008

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

Q1-8 Characteristics of Household

Q1. Household size[6] ?_____

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

Q3. Sex of household head[7]? 1=Male 2=Female

Q4a. How long has this household lived in this locality? 1= Resident 2= IDP<3 Months 3=IDP March '07 4= IDP Pre 2007

b. Are you hosting any recently (in the last 6 months) internally displaced persons? 1= Yes 2= No

c. If yes, Number of persons _____

d. If yes, what is the impact of IDPs on the household? 1=Receive food aid 2=Increased income for the household 3=Less resources available 4=

Q5. Does household have mosquito net? _____ 1= Yes 2= No **Q6.** If yes, ask to see the net: _____ 1= GFSOM label 2=Other type 3= Not seen

Q7. What is the household's main source of income? 1= Animal & animal product sales 2= Crop sales/farming 3= Trade 4= Casual labour 5= Salaried/wage employment 6= Remittances/gifts/zakat 7=Self-Employment (Bush products/handicraft) 8= Others, specify _____

Q8-15 Feeding and immunization status of children aged 6 – 59 months in the household.

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

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

First Name	Age (months) *(**if** child is more than 24 months old, **skip** to **Q13**)*	**Q8** Are you breastfeeding[8] the child? *(**if** no, skip to **Q10**)* *1=Yes* *2= No*	**Q9** **(If 6-24 months)** If you stopped breastfeeding before the child was 12 months, why did you stop? *1= Pregnancy* *2=Illness* *3=Child refused* *4= Other* *5= Never breastfed*	**Q10** **(If 6-12 months** At what age was child given water/ foods other than breast milk? *1= <1 weeks* *2=1wk – 3 months* *3=4-6 months* *4=6 months or more.*	**Q11** How many times do you feed the child in a day *(besides breast milk)*? *1= 1 time* *2=2 times* *3 = 3 times* *4=-4 times* *5= 5 or more times*	**Q 12** Has child been provided with Vitamin A in the last 6 months? *(show sample)* *1=Yes* *2= No*	**Q13** Has child been Vaccinated against measles? *1=Yes* *2= No*	**Q14** Has the child ever been given polio vaccine orally? *1=Yes* *2= No*
1								
2								
3								
4								

Q16-27 Anthropometry and morbidity for children aged 6 – 59 months in the household

First Name	Q15a Age	Q15b Sex *1=Male* *2=Female*	Q16 Oedema *1=yes* *2= No*	Q17 Height (cm) *To the nearest tenth of a cm*	Q18 Weight (kg) *To the nearest tenth of a kg*	Q19 MUAC (cm) *To the nearest tenth of a cm* *(≥6 mo)*	Q20 Diarrhea[9] in last two weeks *1= Yes* *2= No*	Q21 Serious ARI (*oof wareen/wareento)*[10] in the last two weeks *1=Yes* *2= No*	Q22 Febrile illness/ suspected Malaria[11] in the last two weeks *1=Yes* *2= No*	Q23 Suspected Measles[12] in last one month *1=Yes* *2= No*	Q24 Did the child sleep under a mosquito net last night? *1=Yes* *2= No*	Q25 Where did you seek healthcare assistance when child was sick? **(**If yes in ***Q20-23)*** *1=No assistance sought* *2=Own medication* *3=Traditional healer* *4=Sheikh/Prayers* *5=Private clinic/ Pharmacy* *6= Public health facility*	Q26 Is the child currently registered in any feeding centres? *1= SFP* *2= TFC* *3= OTP/CTC* *4= Other* *5=None*

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

1													
2													
3													
4													

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

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

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

Q 28 Food Consumption & Dietary Diversity

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

Food group consumed: What foods groups did members of the household consume in the past 24 hours (from this time yesterday to now)? Include any snacks consumed.	Did a member of your household consume food from any these food groups in the last 24 hours**?** *1=Yes* *0= No*	**Codes:* 1= Own production 6=Borrowed 2=Purchases 7=Gathering/wild 3=Gifts from friends/ relatives 8=Others, specify___ 4=Food aid 9=N/A 5=Bartered
Type of food		**What is the main source of the dominant food item consumed? *(Use codes above)?***
1. Cereals and cereal products *(e.g. maize, spaghetti, rice, caanjera, bread*)?		
2. Milk and milk products *(e.g. goat/camel/ fermented milk, milk powder)?*		
3. Sugar and honey?		
4. Oils/fats *(e.g. cooking fat or oil, butter, ghee, margarine)?*		
5. Meat, poultry, offal *(e.g. goat/camel meat, beef; chicken or their products)?*		
6. Pulses/legumes, nuts *(e.g. beans, lentils, green grams, cowpeas; peanut)*?		
7. Roots and tubers *(e.g. potatoes, arrowroot)?*		
8. Vegetables *(e.g. green or leafy vegetables, tomatoes, carrots, onions)?*		
9. Fruits *(e.g. water melons, mangoes, grapes, bananas, lemon)*?		
10. Eggs?		
11. Fish and sea foods *(e.g. fried/boiled/roasted fish, lobsters)?*		
12. Miscellaneous *(e.g. spices, chocolates, sweets, beverages, etc)?*		

Q29 In general what is the <u>main</u> source of staple food in the household? *(*Use codes in 29 above)* _____

Q30 Total number of food groups consumed in the household: _____

Q31	How many meals[13] has the household had in the last 24 hours (from this time yesterday to now)?	1= One	2=Two	3= Three

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

Access to water (quality and quantity)

Q32a What is the household's main source of drinking water? 1 = Tap/ piped water 2= Tanker truck 3= Tube well/ borehole 4= Spring 5= Bottled water 6= rooftop rainwater 7= Surface water (river, stream, dam, pond, open well; water catchments; berkad, etc)

Q32b What is the household's main source of water for other domestic uses? _____ *(Use codes in **Q33a** above)*

Q33a Is drinking water drawn from a protected/safe source? 1= Yes 2= No

Q33b If household has no access to safe protected water what is the main reason? 1= Not Available 2= Distance too far 3= Security Concerns 4= Cannot afford

Q33a Do you get a reliable supply of drinking water from this source? 1= Reliable supply 2=Seasonal supply 3= Occasional problems 4= Frequent problems

Q33b Is water treated at the: **a)** source? 1= Yes 2= No **b)** storage level? 1= Yes 2= No

Q33c If treated, what is the method of treatment? 1= Boiling 2= Chlorination 3= straining/filtering 4= Decanting/ letting it stand and settle 5= Other, specify

Q34 Average time taken to and from the nearest water point *(including waiting and collecting time)* 1= <30 min 2=30 – 60 min 3= 1-2 hrs 4= more than 2 hrs

Q35 Number of water collecting and storage containers of 10-20 litres in the household: 1=1-2 containers 2= 3-4 containers 3=4-5 containers 4= more than 5

Q36 How is water stored in the household? 1= Clean containers with cover 2= Closed plastic containers 3= open buckets/ pans 4= *Ashuun (*with *c*onstricted neck/end)

Access to Health Facility

Q37a Do you have access to a health facility?

1 = Yes 2 = No

Q37b If yes, do you use it? 1 = Yes 2 = No

Q37c If not, why not? 1 = Too expensive 2 = Too far 3 = Not enough time 4 = Security restrictions 5= Others

Sanitation and Hygiene (access and quality)

Q38a Type of toilet used by most members of the household 1= Bush/open ground 2= Traditional pit latrine/ Open pit 3= Ventilated Improved pit latrine (VIP) 4= Flush toilets

Q38b If household has no access to sanitation facility, what is the main reason? 1= Pastoral/ frequent movements 2= Lack resources to construct 3= Doesn't see the need

Q39 Distance between latrine and water source (if underground or surface source) 1=1- 30 metres 2=30 metres or more

Q40 How many households share/use the same facility? 1= One 2= 2- 9 3= 10 or more

Q41 What key times do you maintain hygienic hand washing practices 1= before eating 2= before preparing food 3= before feeding the baby 4= after cleaning the baby's bottom 5= after defecation 6 = None /Not applicable

Q42 What substance do you use in your household for washing utensils, hands; body and clothes? 1= Soap/Shampoo 2= Sand 3= Ash 4= Plant extracts 5= None

Checked by supervisor *(signed)*:

_____

Appendix 2: Mortality questionnaire – October 2008

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

No.	**1**: First Name	**2**: Sex *(1=M; 2=F)*	**3**: Age (yrs)	**4**: Born since __ **/ 07/ 2008**	**5**: Arrived since __ **/ 07/ 2008**	**6**: Reason for leaving	**7**: Cause of death
a) How many members are present in this household now? List them.							
b) How many members have left this household (out migrants) since **July __, 2008**? List them							
c) Do you have any member of the household who has died since **July __ 2008**? List them							

Codes

Reason for migration

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

Cause of death

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

Summary*

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

** For Supervisor Only*

Appendix 4: CALENDAR OF EVENTS – Sool plateau Nutrition assessment, OCT 2008

Year Significant Event		Age in Months	Monthly event specific to that year	Recurring yearly events
2008	**Dec**	N/A	**Not applicable**	
	Nov			
	Oct			
	Sept	1		
	Aug	2		**Xagaa**
	July	3	**Lamanaha jarmalka ee Laasqoray**	**xagaa**
	June	4	**26 June 1960(Somaliland independent**	**Gu,**
	May	5	**18 May,1st May,**	**Gu,**
	Apr	6		**Gu,**
	Mar	7	**International women day(8th march)**	**Jilaal**
	Feb	8		**Jiaal**
	Jan	9		**Jilaal**
2007	**Dec**	10	**Dhu'l-hijjah-1428**	**Deyr**
	Nov	11	**Shawal 12th iyo dhu'l-qada 13th 07**	**Deyr**
	Oct	12	**Ramadan illa 12th iyo 13th Shawal Idd- fidri- iyo Dagaalkii Lasanod ee dhexmaray (PL/SL)**	**Deyr**
	Sept	13	**Shaaban ill1 12th iyo Ramadaan 13th 07**	**Xaggaa**
	Aug	14	**Rajab iyo Shaaban**	**Xaggaa**
	July	15	**Rajab-1428 Hijrah**	**Xaggaa**
	June	16	**26th independence day from Britain Jumada al-oola**	**Gu**
	May	17	**Jumada al-oola**	**Gu**
	Apr	18	**Rabi'a al-thani**	**Gu**
	Mar	19	**Safar iyo Rabbi'il-awwal**	**Jilaal**
	Feb	20	**Muharram**	**Jilaal**
	Jan	21	**Dhu'al-hijjah**	**Jilaal**

2006	**Dec**	22		**Deyr**
	Nov	23	**Eid alfidri – ciidal fidri (idd ul fitri Shawaal**	**Deyr**
	Oct	24	**Ramdaan**	**Deyr**
	Sept	25	**Bilowgii ramdan (starting of ramadhan)**	**Xaggaa**
	Aug	26	**Shabcaan**	**Xaggaa**
	July	27		**Xaggaa**
	June	28	**Holiday –independence day from Britain 26**	**Gu**
	May	29		**Gu**
	Apr	30		**Gu**
	Mar	31		**Jilaal**
	Feb	32		**Jilaal**
	Jan	33		**Jilaal**
2005	**Dec**	34		**Deyr**
	Nov	35	**Iidii soofur labaad (Idd ul fitri)**	**Deyr**
	Oct	36		**Deyr**
	Sept	37		**Xaggaaa**
	Aug	38	**Shabcaan**	**Xaggaa**
	July	39		**Xaggaa**
	June	40	**Holiday –independence day from Britain 26**	**GU**
	May	41		**GU**
	Apr	42	**Mowliidkii u dan bayey (month of prophet mohamad s birth)**	**GU**
	Mar	43		**Jilaal**
	Feb	44		**Jilaal**
	Jan	45	**Iidii rafo (idd ul Haj)**	**Jilaal**

2004	**Dec**	46	**Tsunami Disaster of Bari Region**	**Deyr**
	Nov	47	**Iidii soon fur ee u danbaysay (idd ul firt**	**Deyr**
	Oct	48	**Bilowgii ramadaan tii u dan baysay (starting of ramadhan)**	**Deyr**
	Sept	49		**Xaggaa**
	Aug	50	**Shabcaan**	**Xaggaa**
	July	51		**Xaggaa**
	June	52	**Holi day – independence day from britain 26**	**GU**
	May	53	**mowliidkii kal hore (Month of prophet Mohamed birth) holid**	**GU**
	Apr	54		**GU**
	Mar	55		**Jilaaal**
	Feb	56	**Iidii arafo / xajkii kalhore**	**Jilaal Jilaal**
	Jan	57		**jilaal**
2003	**Dec**	58		**Deyr**
	Nov	59		**Deyr**

Appendix 5 : Focus Group Discussion Guide

FOCUS GROUP DISCUSSION GUIDE

Food Consumption and Feeding Practices

1. What is the common staple diet you are likely to find in households currently? *(List the types of foods consumed, their composition and how they are prepared)*

Meal	Foods	Composition	Method of preparation
Breakfast			
Lunch			
Supper			

2. a) For how long (duration) do mothers generally breastfeed their babies in this community?
b) What are the common foods normally given to children below 2 years in this community? How many times per day? (Specify ingredients)

Common foods	Age when introduced	Ingredients	Number of times given
Water			
Sugar solution			
Cows/camel/goat milk			
Semi solid foods(porridge and others)			
Solid foods (caanjera, rice, spaghetti),			

3. At the moment, what meals are given to children 0-2 years and how many times per day? (Specify ingredients)

Common foods	Ingredients	Number of times given
Water		
Cows/camel/goat milk		
Semi solid foods(porridge and others)		
Solid foods (caanjera, rice, spaghetti),		

4. Has there been any change in food consumption (diets) in the last three months? Specify and give reasons for change if any.

_____

_____

5. What constraints do households (women) normally face in providing adequate food for their families?

In terms of:

Effective breast feeding and child feeding	
Food acquisition & preparation	
Food processing, preservation & storage	
Food service and sharing/rations	

6. What would you say is the level of current availability and accessibility of the following foods?

Foods	*Codes:* 1= Absent/none 2= Low 3=medium 4= High	
	Availability	*Accessibility*
Meat		
Goat milk		
Cow milk		
Camel milk		
Spaghetti		
Beans/ peas		
Wheat		
Rice		
Maize		
Sorghum		
Sugar		
Cooking oil		
Potatoes		
Fish		

7. Urban Livelihood

Coping strategy	1= Yes 2=No
Shift to less preferred (low quality, less expensive) foods *(*from *osolo to obo)*?	
Limit the portion/quantity consumed in a meal *(Beekhaamis)*?	
Take fewer numbers of meals in a day?	
Borrow food on credit from the shop/market *(Deyn)*?	
Borrow food on credit from another household *(Aamah)*?	
Restrict consumption of adults in order for small children to eat?	
Rely on food donations from relatives *(Qaraabo)*?	
Rely on food donations from the clan/community *(Kaalmo)*?	
Seek or rely on food aid from humanitarian agencies?	
Send household members to eat elsewhere?	
Beg for food *(Tuugsi/dawarsi)*?	
Skip entire days without eating *(Qadoodi)*?	
Consume spoilt or left-over foods	

8. a) Have there been any population or animal movements in the past 3 months? If yes from where to where?

b) Have there been any reported animal deaths in the village? If yes what was the extent of this problem?

Water, Sanitation and hygiene

What is the main source of water for people in this village?	
Is drinking water treated at point of supplies and/or at point of use?	
What is the average distance to the water point?	

On average how much water is used by each person/day?	
How many people on average share a water point/source?	
How far away is the latrine from the water source for the majority?	
How many people on average share a toilet/latrine facility?	
How are children faeces disposed of?	
Do households have soap for body, utensils and clothes washing?	
How is prepared food stored/kept by most households	

10. Prices of major foods (flour, rice, milk, sugar, etc) and other essential commodities (water, cooking fuel, etc) for the village

Item/material	Price/unit in SSH (Exchange rate- 1US$ = _____SSH)	
	In August 2007	Now (November 2007)

11. What are the main sources of income for most households in order of priority?

……
……..

……
……..

……
……

12. What are the common illnesses in this village among children and adults?

	Illnesses	Possible causes/reasons
Children		
Adults		

13. Find out if there has been any formal support in this village in the last 3 months

Type of support/ programme	Agency	Targeted group (beneficiaries)

Appendix 7: Team Composition

Name	Team No	Cluster No	Title
Mohamed Hussein	4	15,16,7,20	Supervisor
Sahra Moh'd, Abdillahi	"	"	Enumerator
Hodan Jama Abdi	"	"	Enumerator
Farah Ahmed Arab	"	"	Enumerator
Mohamed Haji Noor	3	9,12,13.14,	Supervisor
Farhan Awil Omer	"		Enumerator
Amina Issa	"		Enumerator
Ali Abdillahi Jama	"		Enumerator
Abdillahi Warsameh	5	10,1,2,3	Supervisor
Brahin Brahin ousuf Noor	"		Enumerator
Sado Yousuf	"		Enumerator
Mukhtar Ahmed Salah			Enumerator
Fuad Hassan Mohamed	6	4, 5, 6, 8	Supervisor
Fadumo Ali FArah	"		Enumerator
Ahmed Hassan	"		Enumerator
Suleiman Abdillhi	"		Enumerator
Fadumo Cisma OOgle	"		Enumerator
Najah Abdillahi	"		Enumerator
Khalif Mohaed Ali	"		Enumerator
Farah Awil	1	21,22,25,23,19	Supervisor
Ebado Warsameh	"		Enumerator
C/qadir M. Baki	"		Enumerator
Faisa Husein Noor	"		Enumerator
Louise Masese – Report Writing	Nairobi	FSNAU	

Appendix 8: Plausibility Checks

Overall data quality

Criteria	Flags*	Unit	Good	Accept	Poor	Unacceptable	**Score**
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (1.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.538)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**4** (p=0.010)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**0** (4)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**4** (14)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**0** (1.05)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.22)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (-0.06)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	
			0	1	3	5	**0** (p=)
Timing	Excl	Not determined yet					
			0	1	3	5	
OVERALL SCORE WHZ =			<5	<10	<15	<25	**8** %

At the moment the overall score of this survey is 8 %, this is acceptable.

Appendix 9 : Child Referral Form

REFERRAL FORM FOR MALNOURISHED CHILDREN

Name of the village: _____
Date:_____

Name of the child:_____ Sex of child: _____

Age of child: _____ Name of caretaker: _____

Child diagnosed with (state the condition): _____

Child referred to: _____

Child referred by: _____

……

REFERRAL FORM FOR MALNOURISHED CHILDREN

Name of the village: _____
Date:_____

Name of the child:_____ Sex of child: _____

Age of child: _____ Name of caretaker: _____

Child diagnosed with (state the condition): _____

Child referred to: _____

Child referred by: _____

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