

SAHIL REGION SOMALILAND

**NUTRITION SURVEY
April-May 2002**

FSAU/MOHL/UNICEF



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
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EXECUTIVE SUMMARY

In 2001, the below normal rainfall in some parts Somaliland  negative implications in parts of Sahil Region, mainly in the coastal belt. The continued 'livestock bar  was also impacted negatively on the pastoral communities of Somaliland. Thus the local authorities became concerned about the food security situation of the pastoralists in the coastal belt of Sahil and by April 2002, the Mayor of Sahil described problems extending to the sub-coastal and mountainous areas of the region. The Ministry of Health and Labour (MOHL) in Somaliland and the Nutrition Working Group of the SACB recommended that a nutrition survey be undertaken in the region to establish the true state of the population. Therefore, from 25th April to 5th May 2002, FSAU Nutrition Project led a nutrition survey in Sahil Region, in collaboration with MOHL, UNICEF and SRCS.

The main objective of the survey therefore was to determine the level of malnutrition in Sahil region, analyse and interpret the results using the available contextual information and make feasible recommendations. Using the two-stage cluster sampling methodology, a total of 906 children aged 6-59 months or measuring 65-110 cm height or length were examined, and their nutritional status assessed based on weight and height measurements and detection of oedema as well the Mid Upper Arm Circumference (MUAC). Information on factors influencing household food economy, health, childcare, water and environmental sanitation was collected at both individual level and through focus group discussions. Thorough training of enumerators was conducted by FSAU nutritionists followed by pre-testing of the questionnaire before the commencement of the actual data collection. A number of additional quality control measures were also set in place.

The prevalence of global (total) malnutrition, defined as $W/H < -2$ z-scores or oedema was 11.8% (95% CI 9.8-14.1) and the prevalence of severe malnutrition defined as $W/H < -3$ z-scores or oedema was 2% (95% CI 1.2-3.2). About 7.5% of the children had experienced an episode of acute respiratory infection during the two weeks prior to the survey, 16% had diarrhoea while 10% had malaria. About 83% of the children had received Vitamin A supplementation in the previous six months, 75% had been immunised against measles and about 70% had received at least three doses of measles vaccination in the last one year. Just below 9% of the households surveyed had moved to settle in new places of residence.

Almost 90% of the children were fed at least three times a day. The most common food fed to children included rice, "anjera"¹, milk and tea. The majority of the children (about 94%) included in the survey were not exclusively breastfed in their first six months and half received foods other than breast milk their first three months of life. Some mothers reported having to respond to the reduced access to food by spending a greater proportion of their time collecting bush products or engaging in other activities that separated them from their young children, thus further compromising childcare. In an effort to cope with food insecurity, some households were relying on borrowing (food and money) and increasing exchange of commodities for purchases e.g. selling animals and animal products in exchange for cereals.

¹ Pancake based on wheat flour

SUMMARY OF FINDINGS

Indicator	Number	Percentage
Children under five years screened during the survey	906	
Male children in the sample	444	51
Female children in the sample	464	49
Global acute malnutrition Weight for Height <-2 Z-score or presence of oedema	107	11.8 (CI 9.8-14.1)
Severe acute malnutrition Weight For Height <-3 Z-score or presence of oedema	18	2 (CI 1.2-3.1)
Children with diarrhoea in two weeks prior to the survey.	142	15.7
Children with ARI in two weeks prior to the survey.	249	27.5
Children with malaria in two weeks prior to the survey	93	10.3
Children receiving Vitamin A during six months prior to the survey.	750	82.8
Proportion of children immunised against Measles	677	75.3
Proportion of households that had moved to a different locality in the previous six months	40	8.8

1 INTRODUCTION

1.1 Survey Justification

With an economy, heavily dependant on livestock, the Sahil Region has suffered substantially from the impact of the ban on importation of Somali livestock imposed by some of the major importing countries in the Gulf Region. Both livestock owners and the many others depending on related commercial and port activities have been negatively affected. In addition to this, the region experienced a period of drought in 2001, which has further raised concerns about food security. Thus, the local authorities became concerned about the food security situation of the pastoralists in the coastal belt of Sahil and by April 2002, the Mayor of Sahil described problems extending to the sub-coastal and mountainous areas of the region.

Local authorities in Sahil had expressed concern of food insecurity in the region. However, little information existed on the nutritional status of the population. This led the Ministry of Health and Labour (MOHL) in Somaliland and the Nutrition Working Group of the SACB to recommend for a nutrition survey to assist in establishing the true state of the population. A *regional* area survey was necessary as it was suspected that the population initially highlighted as vulnerable in the coastal lowlands had moved to other places either for pasture and water or to escape the adverse weather conditions at the coastal strip.

1.2 Survey Objectives

- To determine the levels of malnutrition in Sahil Region based on anthropometric measurements using the Weight for Height of children between 6-59 months or 65-110cm.
- To determine the immunisation coverage (coverage of measles vaccination, polio vaccination and Vitamin A supplementation) in the Region.
- To determine the incidences of diarrhoea, measles and ARI two weeks prior to the survey.
- To describe the possible causes of malnutrition in the region.
- To establish a baseline information on the nutritional status of the Region for future references.

2 BACKGROUND INFORMATION

2.1 Description of the region

Sahil is the youngest and smallest region in Somaliland and has five districts, namely: Berbera, Sheikh, Mandera, Bulahar and Hagal Districts. Berbera and Sheikh are most populated districts, with almost half of the region's population. Berbera is the capital of the region and main port of Somaliland.

There are two main ecological systems in Sahil, namely the coastal (*Guban*) and the mountainous belts (*oogo*). There are significant variations in the weather patterns of these ecological zones leading to movements of population within the region in some periods of the region. The coastal belt is usually cold between the months of November and January while May to September is normally characterized by adverse hot and windy weather conditions. Thus, there is normally population movement from the coastal belt to cool mountainous areas in May and return in August.

With exception of the periods prior to establishment of the Somaliland Government, Sahil has been a relatively peaceful place with limited insecurity occurrences. However, mines planted during the war remains a major security issue in the region hampering travelling to some parts of the region.

2.2 Economy

The main food economy zones in Sahil are the Urban (because of livestock ban, urban population has gradually increased and emerged as major FEZ) and Pastoral (initially the main food economy zone until the imposition of livestock ban) the agro-pastoral as the minority. Pastoralists mainly keep sheep; goats and camels while the agro-pastoralists who mainly occupy the cool mountainous lowlands and plateaus grow fruits and vegetables (guava, papaya, tomato and cabbages) as their cash crops in addition to keeping livestock. The agro-pastoralists also grow sorghum, maize and cowpea, all in small scale. Cereal production, however, remain marginal. Vegetables and fruits are supplied to urban centres of Berbera and Sheikh as well as other towns in the region. Fishing activities are also undertaken along the beaches of the Gulf of Aden.

The urban food economy zone mainly includes the residents of Berbera, and Sheikh town. The residents of Berbera town depend on Berbera port related activities as the main source of livelihood. Spillover effect of the port related activities reach the surrounding villages and most of the other urban centres. Small scale trading and other related port activities are, therefore, by far the main sources of income. Within the pastoral and agro-pastoral villages especially those along the main road like Dacar Budhuq, Abdalla, Lafaruq, Hudisa etc, there is also a significant segment of the population depending on small-scale trading like operating restaurants, operating small shops etc besides keeping livestock (goats, sheep and camel), which would normally be regarded as long-term assets.

Berbera continues to attract a large number of populations not only from the region but also from different parts of Somaliland largely in search of employment opportunities at the port. Berbera serves as the main entry port for imported commodities to Somaliland. The imports include non-food items (like clothes, soaps, fuel, equipment, machinery, non-food household items etc) and food items (mainly rice, wheat flour, cooking oil, sugar, milk powder and pasta).

It also serves as the main export facility for livestock to the Gulf States. Thus, Berbera remains the biggest economic base in the region. The economic activities in Berbera include portering, employment in both government sectors and expanding private businesses, transportation of animals to the port as well as domestic work in individual houses. Small scale trading and remittance also contributes as income sources to the community of the town. Fishing also plays a role as source of livelihood for some people not only in Berbera town but also in other coastal villages. The fish is mainly sold to the restaurants in Hargeisa. There are therefore a large population of immigrant labourers in Berbera. Most of these immigrants live in the squatter villages of the town with huge reliance on port activities as an income source.

Since the imposition of livestock ban in September 2000, the volume of commodities passing the port was greatly diminished. The volume of livestock (combined heads of goats, sheep, camels and cattle) reduced from around 1.7 million animals between January and Mid September 2000 (before the ban) to a paltry 56,000 animals in 2001 (refer to February 2002 FSAU Monthly Food Security Report). The year 2002 has also witnessed low levels of livestock export through Berbera port (see table below and May 2002 Monthly Food Security Report). The Berbera port also reports considerably low volumes of imports (non-food and food items) especially since January 2002. Some of the reasons for the low volume of livestock exports through Berbera are: 1) Shift of trade from Berbera to Bossasso port in Puntland because one of the main livestock traders in Somaliland had shifted his operations from Berbera port to Bossasso port, boosting exports from Bossasso. 2) Alternative markets for

livestock was found in Saudi Arabia as well as Egypt for big ruminants in which Bossaso port provided the major avenue

The table below shows the volume of livestock exports through Berbera port in the last four months.

LIVESTOCK EXPORT 2000 & 2002

Berbera**	Camels	Cattle	Shoats	Total
January 2000	1,890	8,140	378,149	388,179
January 2002	1,369	3,324	23,000	27,693
February 2000	5,861	17,040	867,916	890,817
February 2002	1,922	3,468	59,349	64,739
March 2000	8,759	25,159	1,099,087	1,133,005
March 2002	1,018	2,390	22,932	26,340
April 2000	8,759	32,211	1,124,760	1,165,730
April 2002	2,020	854	6,777	9,651

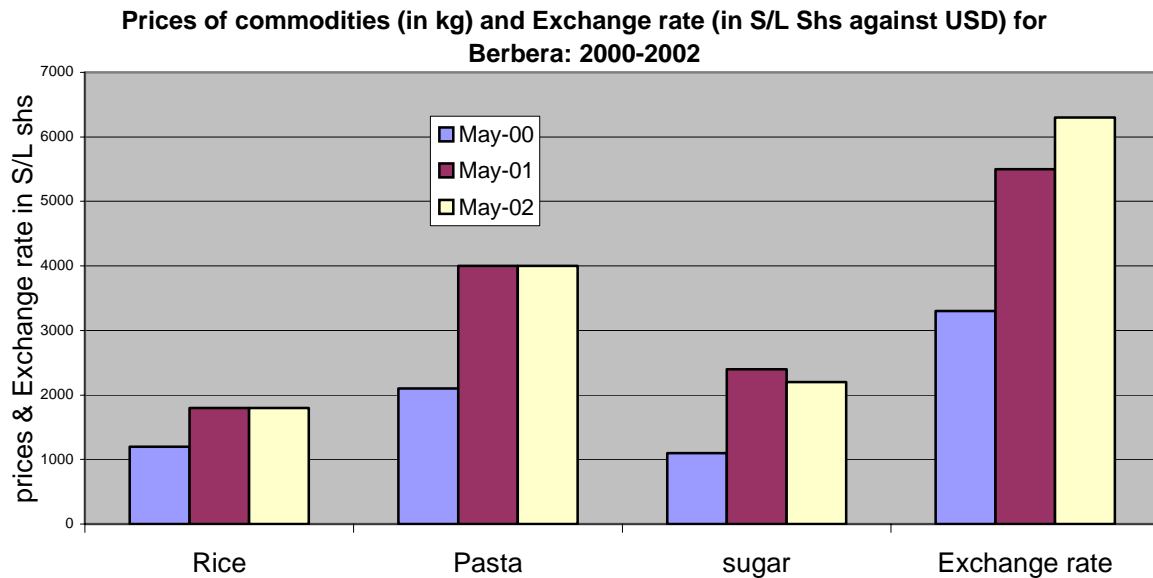
Source: May 2002 Monthly Food Security Report

With developments in limitation of livestock export, pastoralists in the region have faced dwindling economic opportunities. The subsequent generally below normal rains in Somaliland in 2001 with localized rain failures in some areas within the region further worsened the pastoral economy. Not only was the livestock productivity eroded but also their marketability as they became weaker. The Eastern part of Berbera (areas around Lasdure and Hagaal) was the worst hit owing to their over-reliance on livestock and livestock products. The other affected areas included Bula har, Ceel lahelay, Geeri, Samawada, and Ceel sheikh.

2.3 Food Security

With the continued slowdown in the economy since 2000, the population in Sahil have faced mixed threats to their food security situation. The poor in the various food economy zones of the region were the most affected. The urban poor of Hargeisa (mainly returnees, IDPs and other poor groups from normal residents), who otherwise depend on purchases had their purchasing power reduced and therefore had difficulties in finding for their households.

On the other hand, for there are also the pastoral communities that normally depend on milk and other livestock products. Moreover, with the onset of Gu rains in April, milk is currently available in most villages and at affordable prices, a scenario beneficial for consumers but unattractive for milk sellers. A litre of both camel and cattle cost S/L shillings 2500 in Berbera but is as low as S/L shilling 1000/per litre in some pastoral villages like Biyooley, lower prices compared to Hargeisa where a litre sells at S/L shillings 2,900-3,200. Because of continued livestock ban imposition since September 2000, the economic livelihood of these people has been greatly eroded. The year 2001 also experienced a general below normal rainfall, which had impact on the productivity of animals in the region and lowered their marketability even further. In addition, there were some localized rain failures with significant negative impact on the pastoral livelihoods in some pockets of coastal Sahil. The areas most affected by the localized rain failure were mainly in the coastal belt to east of Berbera. By the time of the survey, most people initially considered as vulnerable in the coastal belt either had moved to mountainous areas in pursuit of pasture and water, or had moved to the main towns of the region for economic pursuits. An equally large number of people have moved to the interior mountains to escape the adverse hot windy monsoon weather conditions that have just begun in the coastal belts.



As noted in the graph there was remarkable rise in import commodity prices in the Berbera town after the imposition of livestock ban in 2000 with an increase of at least 50% of most imported food stuffs reported here. The value of Somaliland shillings had also correspondingly deteriorated against the dollar from S/L Shs 3,500 per US Dollar to a low of S/L shillings 7,000 against the dollar in November 2001. The S/L Shs has however, marginally appreciated since January 2002 to about S/L Shs 6,300 against the dollar in May 2002.

2.4 Humanitarian Assistance and Food Aid Distribution

Water

The major urban centres in the region receive piped water from the protected wells and boreholes with support from international NGOs. Villages in the region mainly obtain water from *berkads* and unprotected wells.

Since April 2002, Gu rains has been received in most areas of the region. The water situation had subsequently improved for both human and livestock consumption. However, with exception of few pockets in the coastal belt, the areas have reliable water sources.

COOPI has rehabilitated a number of wells and boreholes in the region. Other organisations in the water sector include SRCS, UNICEF and Handicap International. The work of these organisations in rehabilitation and construction of water points has greatly alleviated water problems in Sahil.

A number of both UN and international non-governmental organisations also work varied sectors in the region. Some of these organisations include: 1) Danish Demining Group (DDG) which does mine clearance throughout the country; 2) COOPI is involved in supporting health projects; 3) SRCS manages two health facilities among other activities; 4) Action Nord Sud is involved in agriculture developments; 5) International Rescue Committee (IRC) is involved micro-enterprise and business training targeting mainly women in the region; 6) Life and Peace is involved in advocacy activities for peace and development in the country; 7) Save the Children USA is involved in capacity building; 8) Terra Nuova and Vet Aid are involved in provision of veterinary services in the whole country, Sahil included; 9) UN organisations like UNICEF, WFP, UNESCO, WHO, UNDP etc are involved in various supportive activities in the region e.g. Health, education, food security (distribution) peace building and development, capacity building, water etc.

Following reported vulnerability in the eastern parts of Berbera District, WFP distributed food in the area in November 2001. Approximately 88 MT (consisting of cereals, pulses and oil) was distributed about 5220 beneficiaries in eastern Berbera.

2.5 Health and Nutrition

Health services in the region

Sahil region is seven with 8 health facilities: 1 main hospital in Berbera town, 3 MCHs and 4 OPDs. Two of these facilities: Sheikh MCH and Hudisa are supported by SRCS; Berbera Hospital is supported by COOPI while the others are directly managed by MOHL. UNICEF provides renewable supplies to all the facilities in

the region.

Berbera Hospital is supported by COOPI and offers a wide range of inpatient and outpatient health services.


Berbera Central MCH run by the MOHL is centrally located in Berbera town and offers out patient and other MCH services to residents of the town.

In **Sheikh District** there are two health facility supported SRCS. These are the MCH/OPD in Sheikh town and the OPD at Hudiso village.

Other MCHs and health posts in the region include: Dacar Budhuq MCH, Bulahar, Bixin, Lafaruuq and Suuqsade, Abdaal health posts.

There are a number of private clinics in Berbera and Sheikh Towns. Other major villages like Dacar Budhuq and Abdaal also have private health care services thereby complementing the government and Agencies' efforts in bringing health services closer to the people.

The most commonly diagnosed diseases in these facilities in the last three months were malaria, acute respiratory infection and diarrhoea. Malaria is reported to be prevalent particularly common among agropastoral villages like Hudiso and Biyooley that live in the mountainous plateaus. The coastal settlements like Berbera, Bixin indicate generally low prevalence of malaria in the previous months.

The nutritional surveillance data collected from Sheikh MCH, a facility with regular and reliable nutrition surveillance activity, showed very low numbers of malnourished children between the years 2001 and 2002. 

3 METHODOLOGY

3.1 Study Design

This study was both descriptive and analytical in nature. It utilised cross-sectional data collected through a standard questionnaire (see appendix 2). Additional qualitative data were collected during the study through two focus group discussion sessions.

A two-stage cluster sampling methodology was used, in which 30 clusters were randomly selected from Sahil Region. Using an estimated population of 43,000 (MOHL/UNICEF estimates for the survey: April 2002) a cluster interval of 1,455 was calculated. A random number of 700 were chosen within the cluster interval to determine the first cluster. The subsequent clusters were determined by adding the cluster interval (1,455) to the first randomly selected number (see appendix 1). Nine hundred and six children between the heights/length of 65 – 110cm were screened during the survey.

Data collection took place between 30th April and 4th May 2002. Children had measurements taken for weight, height and presence of bilateral oedema. Their caretakers were interviewed as to whether children had received Vitamin A or Measles vaccination in the past 6 months, or had suffered from diarrhoea, measles or acute respiratory infection in the two weeks prior to the survey and other demographic questions.

3.2 The sampling procedure

3.2.1 Study population and sampling criteria

The study population consisted of people living in the district and comprised all the children aged 6-59 months or measuring 65-110 cm for height/length. On the visit to each cluster, the centre was identified and a pen was spun to determine the direction to follow in the selection of the households with children aged 6 to 59 months. The total number of the households from the centre to the end was established and given numbers to enable random selection. From the first household with a child aged 6-59 months, the same direction was followed to get the next household. On reaching the edge of the cluster the right-hand direction was followed until details of 30 children were collected from that cluster. If the child or primary caregiver was absent, an appointment was booked for a later visit in the course of survey.

3.2.2 Anthropometric measurements

The anthropometric data was collected using the procedure stipulated by the WHO (1995) for taking anthropometric measurements. Adherence to this procedure was ensured. The protocol used was as follows: Salter Scale with calibrations of 100g-unit was used. This was adjusted before weighing every child by setting it to zero. The female children were lightly dressed before having the weight taken while clothes for the male children were removed. Two readings were taken for each child and the average recorded on the questionnaire. For height/length, a vertical or horizontal measuring board reading a maximum of 175cm and capable of measuring to 0.1cm was used to take the height or length of a child. The child was barefooted, had hands hanging loosely with feet parallel, and heels, buttocks, shoulders and back of the head touching the board. The head was held comfortably erect with the lower border of the orbit of the eye in the same horizontal plane as the external canal of the ear. The headpiece of the measuring device was then pushed gently, crushing the hair and making contact with the top of the head. Height/length was then read to the nearest 0.1cm. Two readings were recorded and the computed average used in the analysis. In addition to the Weight for Height measurement, the Mid Upper Arm Circumference (MUAC) was taken.

3.2.3 Child age determination

Difficulties were encountered in determining the exact ages of children. Useful documents like growth monitoring/clinic attendance cards, or any other viable formal card were used when available. Calendars of events (see Appendix 3) were also used to assist in age determination. Although absolute accuracy could not always be guaranteed, ages were still regarded as important indicators for use in further analysis of the data. The nutrition indicator employed the weight for height ratio as the interest was in wasting status (acute malnutrition).

3.3 Description of survey activities

Major Activity	Period
Preparation of tools and methodology	4 th April-24 th April 2002
Review of secondary data and standardisation of methodology	4 th April-8 th May 2002
Training of enumerators	25 th -27 th April 2002
Cluster Identification	28 th April 2002
Collection of cross-sectional data and qualitative survey	30 th April-4 th May 2002
Entry of data from cross-sectional survey	1 st -5 th May 2002
Analysis of data and preparation of first draft	6 th -11 th May 2002
Report writing	18 th -26 th May 2002

Six teams, each with two enumerators conducted the survey. These were supervised by five supervisors - four from MOHL and one from SRCS. Head of Nutrition in MOHL, PHC coordinator in Sahil and two qualified FSAU nutritionists undertook overall coordination and supervision. MOHL assisted in the identification of the qualified enumerators who were selected on the basis of their experience with previous nutrition surveys and multi-indicator cluster surveys. The FSAU nutritionists visited twenty-six of the thirty clusters during data collection exercise.

3.4 Quality control procedures

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

Rigorous pre-testing of the questionnaire and equipment was carried out in Hargeisa. These involved familiarisations in village/cluster entry, exercising the questionnaire, sampling procedure, correct taking of measurements and documentation. After the field exercise, views were exchanged to address the difficulties identified, appropriateness of the questions reviewed and appropriate changes were made.

Quality of data was also ensured through (i) close monitoring of fieldwork by FSAU nutritionists, (ii) crosschecking of filled questionnaires on daily basis and (iii) daily review undertaken with the enumerators to address any difficulties encountered, (iv) progress evaluation carried out according to the time schedule and progress reports shared with partners on regular basis, (v) continuous data cleaning and data entry by qualified nutritionists in the field that facilitated immediate detection of outliers and other errors which were either repeated or replaced depending on the magnitude of the error and (vi) monitoring accuracy of equipment through checks by measuring objects of known weights.

3.5 Data analysis

3.5.1 Entry, cleaning, processing and analysis

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

3.5.2 General characteristics of study population

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

3.5.3 Creation of nutritional status indices

The anthropometric measurement, Weight for Height (W/H) was used to assess the nutritional status of the study children. Weight for Height (W/H) expressed the weight of the child as a percentage of the expected weight for the standard child of that height as given by NCHS. W/H measures acute malnutrition or wasting. Using EPINUT, Z-scores were generated and the anthropometric indicator, W/H, was used to classify children into categories of nutritional status as follows:

- < -3 Z-Scores or oedema=Severe acute malnutrition
- 3 Z-Scores ≤ -2 Z-Scores or oedema = Moderate acute malnutrition
- <-2 Z-score or oedema=Global/total acute malnutrition
- ≥ -2Z-Scores = Normal

4 SURVEY RESULTS

4.1 Characteristics of the study population

Of the total 906 children surveyed 51% were female and 49% were male. The 906 children were found in 454 households. Of the households surveyed 74.7% were male headed with an average household size of 7.3 (SD=2.6) while 25.3% were female headed with an average household size of 6.8 (SD=2.8). The overall mean household size in Sahil Region was 7.2 (SD=2.7), and the difference in size between male and female headed households was not statistically significant. The number of under-fives in a household was high at an average of 2 in a household.

Table 1. Distribution of the sample population by sex and age groups

Age categories	Males	Females	Total
6-11	59 (13.3%)	54 (12.5%)	113 (12.5%)
12-23	84 (18.9%)	96 (20.8%)	180 (19.9%)
24-35	99 (22.3%)	120 (26%)	219 (24.2%)
36-47	101 (22.7%)	100 (21.6%)	201 (22.2%)
48-59	101 (22.7%)	92 (19.9%)	193 (21.3%)
Total	444 (49%)	462 (51%)	906 (100%)

The majority of the surveyed households (91.2%, n=414) were located in their original areas of residence, 8.8% (n=40) from had moved form their location to a different locality within the past six months. The areas of origin of the migrants and the returnees are detailed in Table 2. Those households that had migrated from coastal areas reported having done so earlier than they usually would due to localised rain failure in both Gu and Deyr of 2001 and food insecurity. These households are likely to return to their place of more permanent residence when the situation improves. Accordingly, these people are considered as 'migrants' and not 'IDPs'.

Table 2. Main places of origin of the migrants and returnees

Place of origin	Proportion	Number (N=40)
Movement within the region (mainly from coastal belt)	80%	32
Movement from outside (mainly returnees and refugees from Ethiopia)	20%	8

4.2 Food sources, income sources and coping strategies

Table 4. Current socio-economic status of the study population

As illustrated in Table 4, 91% of the households surveyed do either purchase or use their own meat and milk as the primary source of food. As expected, the use of household agricultural production is insignificant. Some of the main food items purchased included imported rice, wheat flour, cooking oil and pasta, as well as sugar.

The proportion of households relying on small businesses like operating a teashop and those relying on casual work were the dominant sources of income for food purchases. It was noted that a proportion (7.7%) of households relied on sale of animals and animal products as a source of income, a fact explained by lack of market for livestock following the livestock ban in September 2000. Reliance on small businesses was widespread restaurants and small shops were operated even in the small villages, which were mainly located along the main road. Livestock was reportedly considered "long-term" assets and households tended to venture into other avenues as immediate sources of income. Casual work was however more dominant in the two main urban centres of Sahil (Berbera and Sheikh. Remittance was also a source of income mainly to families residing in urban centres.

		Households (454)	% 100
Main food source	Purchasing	359	79.1
	Own produced milk and meat	56	12.3
	Remittances/begging	25	5.5
	Own crop production	9	1.9
	Others (fishing & wild foods)	5	1.2
Main income	Small business (e.g. tea shop)	150	33.0
	Casual work	132	29.1
	Salaried employment	93	20.1
	Sale of animals and animal products	35	7.7
	Remittances	26	5.7
	Others (sale of crops, collection of firewood, selling water etc.)	27	5.9
Coping strategies-	Changing purchases	217	47.8
	Borrowing	145	32.0
	Increased sale of livestock	42	9.0
	Begging	18	4.0
	Others*	32	7.2
Water source-	Tap water tapped from wells or boreholes	291	64.1
	Berkads	78	17.2
	Stream/river	37	8.0
	Track vendor/Tanker	33	7.7
	Others (open wells)	15	3.0
Toilet	With access to toilet	296	65.2
Medical assistance	Seeking medical help	443	
	Public health facilities	212	47.8
	Private clinic	186	42.0
	Traditional healers	45	10.2

The coping strategies also varied although changing of items by purchasing and borrowing were the dominant avenues for coping with the stressful periods.

4.3 Water and sanitation

The survey was done at the commencement of the *Gu* rains and many of the villages had experienced good rainfall with the exception of Suuqsade and Ximan Sheikh District that only received showers at the time this survey was conducted. Neither had the coastal belt received rains with the result that both animals and humans had moved to the mountainous strip in search of water and pasture. Qualitative findings indicated that most households (about 64%) had access to good and reliable water source. As indicated in the table, protected wells, and piped/tap water were the dominant water sources especially for the towns. According to the data in Table 4, about 17% of the households got water from *berkads* and 8% from stream/river. Berkads and stream/river were the main sources of water for rural households. At least 50% of the households had access toilets. A high proportion (47%) of the households in rural villages reported not having toilets when compared to urban residents (21%).

4.4 Health services

A high proportion (97.6%) of the households reported taking their children for health care when they are unwell. About 90% of those who sought assistance during illness attended public or private health facilities while about 10% visited traditional healers. The findings noted no statistical difference between urban and rural village residents with regard to places where they seek assistance during sickness.

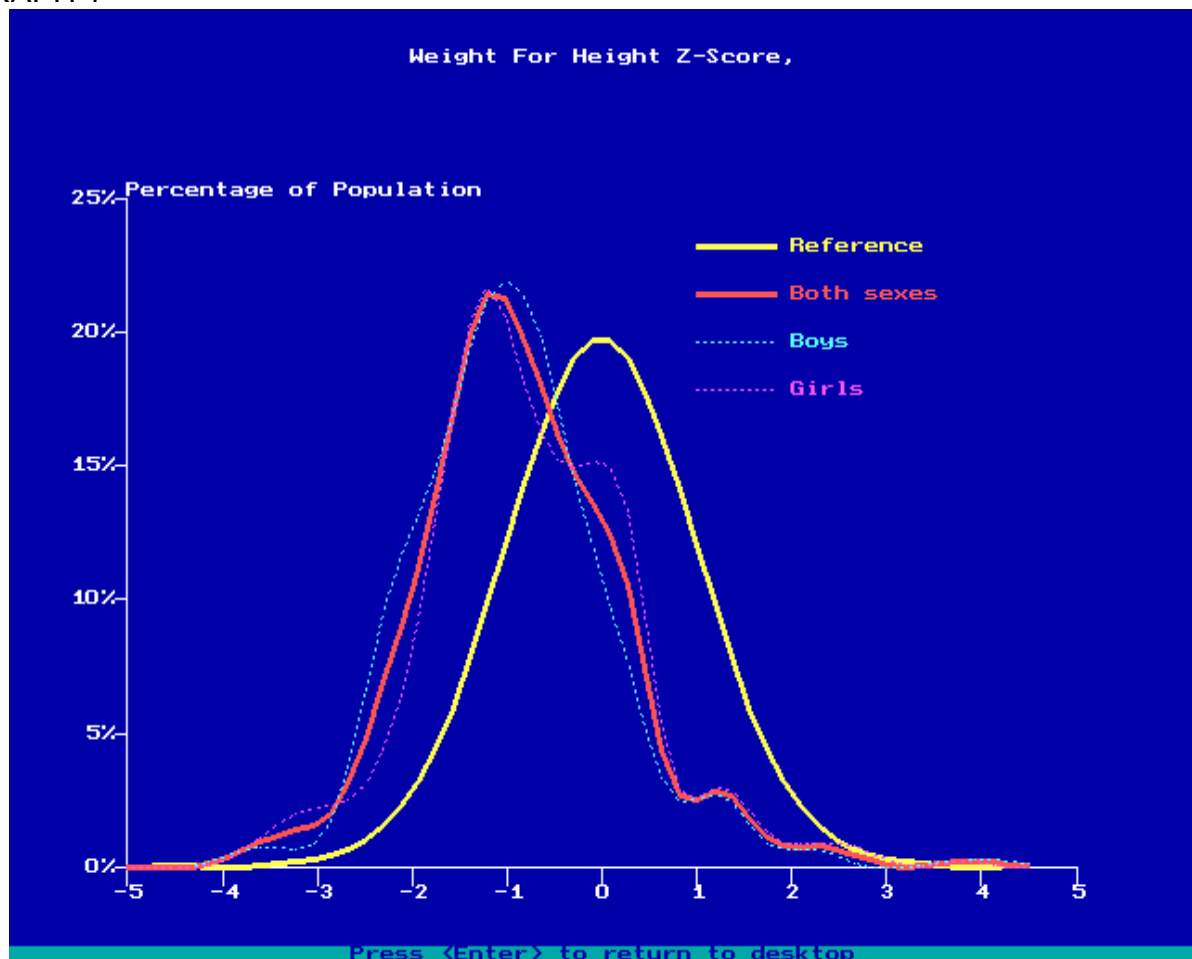
4.5 Nutritional status

Table 5 Malnutrition prevalence using W/H Z-score categories

Nutrition status categories	Males 444		Females 462		Total 906	
	Proportion	No.	Proportion	No.	Proportion	No.
Total malnutrition (W/H<-2 z score + oedema)	14.0% (C.I. 10.9-17.6)	62	9.7% (C.I. 7.3-12.9)	45	11.8% (C.I.9.8-14.1)	107
Severe malnutrition (W/H<-3 z score + oedema)	1.4% (C.I. 0.6-3.1)	6	2.6% (C.I. 1.4-4.6)	12	2.0% (C.I.1.2-3.2)	18
Oedema	0.2%	1	0.6%	3	0.4%	4

The prevalence of global/total acute malnutrition defined as W/H<-2 z-scores or oedema was 11.8% (95% CI – 9.8-14.1). The prevalence of severe acute malnutrition defined as W/H<-3 z-scores or oedema was 2.0% (95% CI –1.2-3.2).

GRAPH 1



As can be noted from the graph presented above, the nutritional status of the Sahil children exhibited a normally distributed curve with a mean of -1 ($SD=1$) and a median of almost one. The curve has slightly shifted to the left indicating a slight negative shift in the nutritional status of children.

Table 6 Malnutrition prevalence using H/A Z-score categories

Nutrition status categories	Males 444		Females 462		Total 906	
	Proportion	No.	Proportion	No.	Proportion	No.
Total malnutrition (W/H<-2 z score + oedema)	13.3% (C.I. 10.3-16.9)	59	13.2% (C.I. 10.3-16.7)	61	13.2% (C.I.11.1-15.7)	120
Severe malnutrition (W/H<-3 z score + oedema)	4.7% (C.I. 3.0-7.3)	21	3.5% (C.I. 2.1-5.7)	16	4.1% (C.I.2.9-5.6)	37

As noted in the Table 6 above, stunting levels (indicating levels of chronic undernutrition) were low, suggesting that Sahil Region has not had serious longer-term problems of malnutrition. There was no significant difference in the nutritional status between the sexes.

Table 7 Distribution of nutritional status (W/H z-scores) by sex

	Severe (<-3 + oedema)	Moderate	Total malnutrition	Normal	TOTAL
Males	6 (1.4%)	56 (12.60%)	62 (14.0%)	382 (86%)	444 (49.0%)
Females	12 (2.6%)	33 (7.1%)	45 (9.7%)	417 (90.3%)	462 (51.0)
Total	18 (2.0%)	89 (9.8%)	107 (11.8%)	799 (88.2%)	906 (100%)

Although more boys than girls were malnourished, the difference was not significant.

Table 8. Nutrition status (W/H z-scores) according to age groups

Age groups	Severe (<-3 + oedema)	Moderate	Total malnourished	Normal	Total
6-11 months	1 (0.9%)	7 (6.2%)	8 (7.1%)	105 (92.9)	113 (12.5%)
12-23 months	7 (3.9%)	29 (16.1%)	36 (20.0%)	144 (80.0%)	180 (19.8%)
24-35 months	3 (1.4%)	14 (6.4%)	17 (7.8%)	202 (92.2%)	219 (24.2%)
36-47 months	2 (1.0%)	17 (8.5)	19 (9.4%)	182 (90.5%)	201 (22.2%)
48-59 months	5 (2.6%)	22 (11.4%)	27 (14.0%)	166 (86.0%)	193 (21.3%)
Total	18 (2.0%)	89 (9.8%)	107 (11.8%)	799 (88.2%)	906 (100%)

Chi-square 20.15 Degrees of Freedom=8 and p-value =0.0097

The proportion of malnourished children between the ages 12 to 23 months was significantly higher than other age categories (p-value <0.05).

Table 9. Nutrition status (W/H z-scores) according to movement status of families

Residential status	Malnourished (<-2 z-score or oedema)		Normal(>-2 z-score & no oedema)		Total 906	
	Proportion	No.	Proportion	No.	Proportion	No.
Normal residence	9.6%	85	90.4%	747	100%	882
Migrants & returnees.	29.7%	22	70.3%	52	100%	74
Total	11.8%	107	88.2%	799	100%	906

As indicated in the table 9, significantly higher proportions (29.7%) of children from households that had changed residential status (migrants and returnees) were malnourished when compared to children whose households had not moved (9.6%). The results were significant at p-value<0.05.

4.6 Health, feeding practices and immunisation coverage

Table 10 Disease prevalence, immunisation and childcare in Sahil Region

Characteristics	Proportion	Number
Disease prevalence & immunisation		
Children with acute respiratory infection in past two weeks	27.5	249
Children with diarrhoea in past two weeks	15.7	142
Malaria in the past two weeks	6.0	54
Vitamin A supplementation in past 6 months	82.8	750
Measles immunisation	75.3	677
OPV coverage in April 2002	85.1	769
Received at least three doses of OPV in last one year	70.0	634
Received at least one of the OPV doses in the last one year	90.1	881
Child feeding		
Frequency of feeding in a day		
➤ Once	1.0	9
➤ Twice	9.7	88
➤ 3-4 times	47.7	432
➤ Five and above	41.6	377
Age of stopping breastfeeding (N726)		
Less than 6 months	15.4	112
6-11 months	35.1	255
12-18 months	35.0	254
Above 18 months	14.5	105
Age introduced foods other than breastmilk		
Less than 3 months	63.8	578
Less than 6 months (inclusive of less than 3 months)	93.5	847

- ❑ About 38% of the children from outside villages were not immunized against measles in comparison with 24% from Berbera and Sahil towns. There was a statistically significant difference (chi-square at 9.1 and p-value=0.009).
- ❑ While the proportion of children who had not received Vitamin A supplementation from the villages outside the major urban centres in the region was about 36%, only about 17% of children from major urban places had not received the vitamin A supplement.
- ❑ High coverage of Vitamin A supplement was linked to the recent polio vaccination campaigns (NIDS). coverage by polio vaccination campaigns was high at around 90%, with proportions receiving the at least three doses of the vaccine also high at around 70%. On the other hand the relatively low coverage of measles (62%) reported in the villages of Sahil was attributed to inadequate health service coverage within the expansive region.
- ❑ About 11% of the children fed once or twice a day while about 48% receive food three times in a day. A significant majority of the children (93.5%) interviewed were not exclusively breastfed in their first six months and more than 60% received weaning foods in their first 3 months of life.
- ❑ The qualitative findings reveal that most children are weaned on tea, rice, wheat porridge and milk. The poor urban dwellers report using mainly rice and tea. A variety of fresh fruits² and vegetables³ are grown in the mountainous areas and are available for purchase in the main towns and villages.
- ❑ Children with diarrhoea during the two weeks prior to the survey were about three times more likely to be malnourished than children who did not suffer from diarrhoea. This was statistically significant at P-value=0.0005. Children who had malaria were reported to be 1.6 times more likely to be malnourished than those who did not have malaria, though not statistically significant (P=0.09), while children with Acute Respiratory Infection were almost as likely to be malnourished as those without ARI with a risk ratio of 1.09 and again not statistically significant (Mantel-Haenszel=0.7).

² Oranges, guavas, pawpaw, watermelon and mangoes.

³ Spinach and other green leafy vegetables

Table 11. Diarrhoeal episodes for the young and old children

Age category	Diarrhoea YES		Diarrhoea NO		Total 906	
	<i>Proportion</i>	<i>No.</i>	<i>Proportion</i>	<i>No.</i>	<i>Proportion</i>	<i>No.</i>
6 to 36 months old	20.3%	104	79.4%	408	100%	512
36 to 59 months old	9.6%	38	90.4%	356	100%	394
Total	15.7%	142	84.3%	799	100%	906

The children below age 36 months were about twice as likely to have an episode of diarrhoea in the two weeks preceding the survey than children aged 36 months and above. This is statistically significant at p-value=0.0006.

Table 12. Acute Respiratory infections episodes for the young and old children

Age category	ARI YES		ARI NO		Total 906	
	<i>Proportion</i>	<i>No.</i>	<i>Proportion</i>	<i>No.</i>	<i>Proportion</i>	<i>No.</i>
6 to 36 months old	30.3%	155	69.7%	357	100%	512
36 to 59 months old	23.8%	94	76.2%	300	100%	394
Total	27.5%	249	72.5%	657	100%	906

The children below 36 months of age were about 1.4 times more likely to contract acute respiratory infection within the two weeks preceding the survey than children aged 36 months and above. This is also statistically significant at p-value=0.03.

There was no difference between the younger and older children in relation to *malarial episodes* two weeks prior to the survey.

5 DISCUSSION

5.1 Food sources, income and coping mechanisms

The survey reported purchases (79%) as the main source of food for households. Again the main sources of income were small businesses and casual work followed by livestock and livestock product sales, the latter being common especially amongst households in the villages of Sahil. The findings are not surprising considering that a significant proportion of the Sahil population live in the two urban centres of Berbera and Sheikh. An equally sizeable proportion of the Sahil population live in villages close to the main road that transverses the Region and connects Somaliland with other parts of Somaliland as well as other parts of the world in general. These villages are therefore engaged in small businesses including operating restaurants that mainly target passengers along the main road as well operating shops selling the daily household needs. Although these villages may be in the pastoral FEG, they do report purchases and businesses as sources of food and income respectively. Livestock are therefore assets, which are only exchanged when there is great need. Consequently, households also reported exchange of purchases that mainly included sale of assets for survival at times of difficulties. There was also a significant proportion of households that had not experienced serious food insecurity and could therefore only speculate at the coping mechanisms which might be used.

Reliance on livestock sales as an important source of livelihood had also been considerably reduced due to limited market available for livestock following the imposition of livestock ban by the Gulf States as well poor marketability of some animals owing to their weakened condition in 2001. This particularly affected the pastoral communities in the coastal belt.

It is also worth noting that Sahil is centrally placed for business activities not only due to the existence of Berbera port but also due to its accessibility to other parts of Somaliland via the main Somaliland road.

5.2 Health

Ministry of Health and Labour supports a number of health facilities in the region and are complemented by the private health services. Survey respondents were almost equally divided between those choosing public and those choosing private health services when a member of the household is sick. The relatively high level of measles immunisation coverage at over 75% was a positive indication of good access to health services. The team observed exceptional cases of very low coverage in a few rural villages in the less accessible areas of Sahil. Although a question on measles was included in the survey, the reported results could not be verified and so the results were disregarded. Surveillance for measles cases continues through the health facilities.

Both vitamin A supplementation and Polio vaccinations were also high at above 80%. The high coverage was partly explained by the fact that most of the Sahil population is concentrated in a few urban centres, which are adequately covered with health facilities. It is very likely that this high immunisation and vitamin A supplementation cover has a very positive impact on the general health and nutritional status of the children as well as on pregnant women. The high Vitamin A supplementation is also closely related to massive campaigns accompanying the NIDS.

The relationship between the incidence of diarrhoea and nutritional status was statistically significant with children having diarrhoea being about three times more likely to be malnourished than children without diarrhoea. This indicates the need for interventions in both the health and water sectors as well as addressing childcare in the home. The relatively high prevalence of ARI (27%) poses an enormous risk to malnourished individuals and is of course itself a cause of malnutrition. The increased vulnerability of younger children to diarrhoea and ARI and the associated higher prevalence of malnutrition especially in the 12 to 23 month age group indicate the importance of improving childcare practices as well as the detection and management of communicable diseases.

5.3 Water and Sanitation

Although access to reliable water supply appears *relatively* good at 64% over all, it is notable that good access is better among the households living in the main urban areas. However, access to reliable sources of clean water was relatively low in rural areas and villages, which were dependant on unprotected wells and *berkads*. The pastoralists in Eastern Berbera had also reported acute water shortage and poor pasture condition in the recent below normal rains in 2001 that continued into the *jilaal* of 2002. Thus, water remains an issue in rural areas that can greatly compromise the health and even livelihood of the population.

In the rural villages of Sahil, a significant proportion of the population reported utilising bushes as places for defecation, a scenario that can have adverse effects especially during the rainy seasons. Thus, with exception of the urban centres, standards of sanitation remain poor. Further, findings revealed high proportions of unclean toilets used in urban settlements and the bigger towns. Qualitative findings revealed that in some parts of towns where toilets are shared, nobody takes the responsibility of monitoring the cleanliness of these facilities.

5.4 Child care practices

Previous assessments of childcare practices by the Ministry of Health and Labour in Berbera⁴ had revealed sub-optimal childcare practices. The survey results also reveal deplorably low levels (about 6%) of exclusive breastfeeding for the first six months a child's life. Although a significant majority (about 90%) of the households reported feeding their children at least three times a day, the quality and quantity of such foods needs a scrutiny before deductions can be made. The qualitative findings reveal that most children are weaned on tea, rice, wheat porridge and milk. The poorer urban dwellers report using mainly rice and tea. Depending on the proportions of these foods actually used, the composition of the porridges and the conditions under which they are prepared, wide variations are likely in the quality of the diet. The availability of fresh fruit and its use for infant feeding is likely to be a positive influence on the nutritional status of young children. The use of tea as a main drink for very young children is very common in Somali culture. The hygienic conditions under which some of these foods are prepared are questionable as revealed by qualitative data. The MOHL officials also cite lack of knowledge on better feeding and other childcare practices as a major influence on the nutrition situation of the children. Exclusive breastfeeding for the first six months of a child's life was reported at a mere 6.5% and all evidence suggests that this continues to be one of the most significant factors in maintaining high levels of malnutrition in the Somali population.

5.5 Nutritional status

As indicated in the results above, the malnutrition figures here are consistent with a population, which has had relatively stable food security situation over a period. It is therefore significant to see a global acute malnutrition rate of 11.8%. The level of stunting, indicative of chronic malnutrition was relatively low at 13.2% (CI 11.1-15.7%). As also noted from the Sheikh MCH data, numbers of malnourished children presenting at the MCH have been extremely low in this productive mountainous area. As depicted in the figure 1 of the results section, the nutritional status of the population had only slightly shifted to the left and the graphs is normally distributed with the mean and the median equal and close to the reference figures.

Almost 30% of children from immigrant and returnee households were malnourished compared to only about 10% of malnourished children from households that have lived in their permanent residential areas. The 'recently moved' population accounted for fewer than 9% of the surveyed population. *What appears most significant therefore is the indication that important differences exist between different groups, with populations in the mountainous settlements appearing very healthy and coastal populations, urban poor and those who have moved place of residence recently being in far poorer condition.* In recent months, these groups were also highly vulnerable to food insecurity and experienced reduced access to foods of adequate quantity, quality and variety in comparison to residents of Berbera and the more productive mountainous towns and settlements. It is likely that households that have moved have been vulnerable both prior to and after their movement in terms of access to food, far lower access to health services, including immunisation cover and poorer access to clean and reliable water.

The survey results note a significant difference in nutritional status across the age groups with the children aged 12 to 23 months having a significantly higher level of malnutrition. As previously notes, the incidence of communicable diseases was also significantly higher in this age group. The fact that the total number of children in this age group was lower than would be expected given the number in the 6-11 month group and older groups also raises questions. Given the high level of severe malnutrition in the age group, mortality cannot be completely ruled out although the survey was not designed to examine this issue.

Children in the 12 to 23 month age group can typically be exposed to a number of factors that can lead to malnutrition with issues related to breastfeeding practices, weaning, feeding and general child-care of utmost importance. Quality and variety in the diet are particularly crucial at this age.

⁴ Childcare Practices in Berbera. MOHL Somaliland. 2001.

5.6 Outlook for Sahil Region

Months of January to April are traditionally described as the 'hunger season' associated with the dry *Jilaa* period. The pastoralists and agro-pastoralists normally prepare for this period by holding stocks as well as migrating with their animals for pasture and water mainly to the mountainous strips of the region. The hunger season of 2002 was particularly bad for the pastoral communities mainly due to the cumulative effect of livestock ban and the accompanying inflation. The harsh weather condition was also aggravated in some areas of eastern Berbera due to the cumulative effect of localized rainfall and crop failures.

Although the urban population in Berbera is not usually as badly affected by the "traditional hunger" as their pastoral and agro-pastoral communities (mainly associated with their dependence on purchases and incomes from employment and/or business), the recent negative developments (livestock ban, pockets of rain failures etc) do invariably influence the population. The businesses normally flourish if livestock sales are high. There is equally a high level of inter-dependence between the urban residents and the rural residents (social support, supply of commodities etc). Accordingly, the poor inhabitants of Berbera town have been affected.

On the other hand, the months of May to September are normally the most difficult times with heightened degree of unbearable heat especially for the coastal residents. This affects both the pastoralists and urban residents equally. Consequently, the population normally moves to the cool mountainous strips while those from Berbera tend to move towards Burao and Hargeisa. Thus, May to September is usually characterised by a lot of population movement.

If the continuing livestock ban and reduced economic opportunities, the residents of Sahil may eventually find it difficult to cope. The recent poor crop prospects reported in most parts of the country will definitely heighten food insecurity. The pastoral households, especially those in the coastal belt (eastern Berbera others highlighted here) and the very poor in the other food economy groups will endure the most of the difficulties.

6 CONCLUSION AND RECOMMENDATIONS

- ❖ Water prone hardship areas of Eastern Berbera and others should be considered for support with reliable water supplies especially for construction of wells and boreholes.
- ❖ Both the government of Somaliland, UN organisations and concerned INGOs are encouraged to keep livestock ban on the agenda for discussion and action.
- ❖ Most vulnerable groups identified in the survey are the residents of the coastal areas who have migrated inland in search of food and employment, returnees from refugee camps and the poorer households in urban areas. These households need to be targeted for both immediate and longer term strategies that will improve their access to food, clean water and health services.
- ❖ Ensure the adequate management of communicable diseases in young children.
- ❖ Explore the possibility of establishing health services in the coastal rural areas of the region
- ❖ Introduce nutrition education promotion in both urban and rural areas to sensitise communities to proper feeding practices and use of locally available nutritious foods.
- ❖ To intensify health and nutrition education activities at the household level to address care concerns, targeting mothers, fathers and other caregivers. The main areas of focus should include promoting exclusive breastfeeding, appropriate young child feeding, diet diversification, and improvements in household hygiene and health care practices.
- ❖ Address the issue of water availability to the rural pastoralists who are forced to make frequent movements in search of water and pasture. The quality for human consumption and design of water systems for livestock should be considered appropriately
- ❖ Support longer-term intervention strategies in the region such as addressing livestock health, livestock market and prices.

Appendix 1

Population Estimates from MOHL/UNICEF April 2002 for Sahil Region
(The population estimates here are specific to this survey)

Settlement/Village	Population Estimates	Cumulative Population	No of clusters	Clusters
Bulahar	300	300		
Abdi Geedi	300	600		
Ceel Sheiko	400	1000	1	1
Almis	100	1100		
Eel Lahday	200	1,300		
Saley	100	1400		
Geeri	100	1500		
Gargaaka	050	1550		
Adhu Adeys	050	1600		
Farruura	050	1650		
Sama fara	200	1850		
Abdaal	1200	3050	1	2
Mandeera	500	3550		
Lafaruuq	400	3950	1	3
Dallow	300	4250		
Xamaas	200	4450		
Laas Dacawo	700	5,150	1	4
Doox Guban	200	5350		
Kalaqoray	050	5400		
Makhaayada Inanta	200	5600		
Darigoles	300	5900		
Bixin	150	6050		
Bureeqa	100	6150	14	5-18
Dhaymoole	100	6250		
Berbera town	20000	26250		
Maqado	050	26,300		
Biyogune	020	26,320		
Xagal	150	26,470		
Beeyo	050	27,520	1	19
Laas Ceidleh	300	27,820		
Biyooley	200	28,020		
Buro Kibir	050	28,070		
Ceel Baxay	200	28,270		
Qaraadth	100	28,370	1	20
Hayete	050	28,420		
Dhuxun	030	28,450		
Raari buul	1,000	29,450		
Sheikh	7,000	36,450		
Dubaer	050	36,550	5	21-25
Caaryaale	050	36,600		
Galooley	200	36,800		
Karasharka	100	36,900		
Ximan	400	37,300	1	27
Cagaarey	050	37,350		
Gidheys	300	37,650		
Gugux	300	37,950		
Suuqsade	1,000	38,950		
Wadhan	100	39,050		
Xaqayo Malaas	100	39,150		
Golda Yar	200	39,350		
Golda Weyn	900	40,250	1	28
Dacan Libah	100	40,350		
Bookh	200	40,550		
Iskudar	100	40,650		
Cahaacule	200	40,850		
Girni	100	40,950		

Hudisa	700	41,650	1	29
Hulqaboobe	200	41,850		
Laaleys	500	42,350		
Geel Lookor	200	42,550		
Dhibiito	300	42,850	1	30
Dacar Budhuq	800	43,650		
TOTAL		43,650		
Random Number = 700				
Cluster interval= 1,455				

Appendix 2

SAHIL REGION: NUTRITION SURVEY

Date _____ Team _____ Number _____ Cluster _____ Number _____ Name _____ of _____

Village/Town/Section _____

Household Number _____ Name of the household head _____

Q1 What is the sex of the household head? 1=Male 2=Female**Q2** How many people live in this household (HH size) _____**Q3** How many children are below five years in this household (Number of < 5 years) _____**Q4.** Present household residence status: 1= Residents 2= Internally displaced 3=Returnees 4=Others- specify)_If answer to the above is **1**, then move to Question **8**. If the answer is **2 or 3** continue with question **5****Q5** Place of origin: _____**Q6** Duration of stay in months: _____**Q7** Reason for movement: 1= Insecurity 2=Lack of jobs 3= Food shortage 4=Water shortage
5=others; specify _____

Q8-13 Household background information

Q8 Households main food source 1=Animal products from own production 2=Household crop production 3=Purchases 4=Remittances/Gifts 5=Begging 6=Wild foods collection 7= Others Specify _____	Q9 Households main income source 1=Small business 2=Casual work 3=Salaried employment 4= Sale of crops 5=Sales of animals and animal products 6=Remittances/Gifts 7=Others specify _____	Q10 How does this household survive during food shortages (coping strategies)? 1=Remittances/Gifts 2=Sale of more livestock 3=Splitting of the family 4=Begging 5=Borrowing 6=Food aid 7=Purchases 8=Wild food collection 8=Others specify _____	Q11 Source of drinking water 1=Borehole 2=Open wells 3=Protected wells 4=Berkads 5=Catchments/pond 6=Stream/river 7=Tap/piped water 8=Tanker/truck vendor 9=Others specify _____	Q12. What type of toilet does your family use 1= Pit latrines 2=Flash toilets 3=Bush/Open ground Observation Q12b Condition of the facility if 1 above 1=Used and clean 2=Unused 3=Used and dirty 4=Others (specify, -----
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Q14-18 Anthropometrics for all children aged 6 – 59 months (or 65 – 110cm) in the household.

Serial No	Name	Q14 Sex 1= M 2= F	Q15 Age in months	Q16 Oedema 1= Yes 2= No	Q17 Height (cm)	Q18 Weight (kg)
1						
2						
3						

Q20-29 Morbidity, feeding and immunization status of children aged 6 – 59 months (or 65 – 110cm) in the household.

Sno	Name	Q20 Diarrhoea in last two weeks? 1= Yes 2= No	Q21 ARI in the last two weeks? 1= Yes 2= No	Q22 Malaria in the last two weeks? 1= Yes 2= No	Q23 Measles in last one month? 1= Yes 2= No	Q24 Vaccinated against measles? 1=In past six months (Card) 2= In past six months (Recall) 3=Before six months 4= Before six months (Recall) 5= Not vaccinated	Q25 Vitamin A provided in the last 6 months? 1= Yes 2= No	Q26 Are you breast Feeding the child? 1= Yes 2= No	Q27 If not breast Feeding, how old was the child when you stopped breast-feeding? 1= Less than 6 months 2= 6 – 11 months 3=12 – 18 months

									months 4=18 months or more
1									
2									
3									

Q30-32 POLIO IMMUNISATION CAMPAIGNS

Sno	Name	Q30:How many times did this child receive OPV in last 12 months	Q31 Did the child receive OPV in April 2002?1=Yes 2=NO	Q32 If the child missed OPV any of the reason for missing? 1=Teams at home 3=Caretaker refused 4=considered unsafe 6=OPV not impo
1				
2				
3				

Q33: If child has been immunized against any of the immunisable diseases, what was the means of verification? 1=Cards 2=Recall 3=Others-specify-----

	Name	Means of verification
1		
2		
3		

Q34: when your child is sick, do you seek any medical assistance? 1=Yes 2=No

Q35: If yes, where? 1=Traditional Healer 2=Private clinic/pharmacy 3=Public health facility 4=Others-specify_____

Q36: If no, why?_____

Appendix 3

The calendar for Sahil Region Nutrition Survey

Month	Events	1997	1998	1999	2000	2001	2002
Jan.	Beginning of Jiilal		53 Soonfur	41 Soonfur	29 Soonfur	17 Soonfur	4 Soonfur
Feb.	Mid of Jiilal		52 Siditaal	40 Siditaal	28 Siditaal	16 Siditaal	3 Sidital
Mar.	End of Jiilal		51 Arafo/Dul-Xaj	39 Arafo/Dul-Xaj	27 Arafo/Dul-Xaj	15 Arafo/Dul-Xaj	2 Arafo/Dul-Xaj
Apr.	Beginning of Gu'		50 Sako	38 Sako	26 Sako	14 Sako	1 Sako
May	Mid of Gu'		49 Safar	37 Safar	25 Safar	13 Safar	
Jun.	End of Gu'		48 Mawliid	36 Mawliid	24 Mawliid	12 Mawliid	
Jul.	Beginning of Xagaa	59 Malmadoone	47 Malmadoone	35 Malmadoone	23 Malmadoone	10 Malmadone	
Aug.	Mid of Xagaa	58 Jamadul-Awal	46 Jamadul-Awal	34 Jamadul-Awal	22 Jamadul-Awal	9 Jamadul-Awal	
Sep.	End of Xagaa	57 Jamadul-Akhir	45 Jamadul-Akhir	33 Jamadul-Akhir	21 Jamadul-Akhir	8 Jamadul-Akhir	
Oct.	Beginning of Deyr	56 Rajab	44 Rajab	32 Rajab	20 Rajab	7 Rajab	
Nov.	Mid of Deyr	55 Shacbaan	43 Shacbaan	31 Shacbaan	19 Shacbaan	6 Shacbaan	
Dec.	End of Deyr	54 Ramadan	42 Ramadan	30 Ramadan	18 Ramadan	5 Ramadhan	

Jiilal
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