



# NUTRITION SURVEYS IN SOMALIA

## 1980 - 1996

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## INTRODUCTION

The main purpose of this work is to try to design a baseline on malnutrition rates in Somalia on different periods and by areas.

Before the war, little background information existed on health and nutritional status among representative populations in Somalia. Studies tend to focus on distressed populations, so baseline data are difficult to locate. It appears that a lot of health records and libraries had been destroyed during the fighting making it difficult to trace studies. Some nutrition surveys had been conducted before 1987, but most of the nutrition surveys have been carried out in 1987 in drought affected areas.

Several years of drought coupled with extended civil unrest, the collapse of government and the destruction of the country's infrastructure created a situation in 1992 where thousands of people were reported as malnourished and dying. Relief workers were experiencing extreme difficulties in providing aid because of the insecure conditions. Between mid 1991 and early 1993, a number of epidemiological studies were undertaken to assess the situation. Geographically, most of the studies were conducted in the Central and Southern parts of the country.

Since late 1993 up to 1996 several nutrition surveys were conducted in order to establish reference of malnutrition rates in some areas. In fact the objectives of the surveys were sometimes not well defined. The methodologies followed are still very different from one agency to the other, and it is difficult to define baseline on malnutrition rate from these information.

## ***Methods***

Reports of surveys and compiled survey reports have been reviewed. Various methods and reporting formats for evaluation of the nutrition status were used. Only the studies measuring nutrition status of children under five years old utilising and reporting weight for height (WFH) values have been retained for this report.

Weight for height is the most common index used in nutritional assessments. Although measuring MUAC (middle upper arm circumference) is quicker, results are not as accurate as WFH. MUAC tends to give a larger estimate of the percent of the malnourished population than WFH. Only studies reporting nutrition status of children under five years and based on a WFH index are reported here.

Data are presented in Z-Scores and/or in percentage of the median. Results presented as percent of children less than 80% of the reference median are the most common. Usually, the

prevalence of malnutrition is given in confidence intervals. Most of the time, confidence intervals (C.I.) are not given in the reports. We did not report the C.I. of the malnutrition rates on the tables.

## ***Indicators***

ACC/SCN gives some definitions used in their report on nutrition of African refugee and displaced populations :

- Wasting is defined as less than -2 Z-Scores or 80% WFH by NCHS standards, in children 6 - 59 months.

- Severe wasting is defined as below -3 Z-Scores or 70%. Any significant prevalence of severe wasting is unusual and indicates heightened risk.

- Oedema is the key clinical sign of Kwashiorkor, a severe form of protein-energy malnutrition, carrying a very high mortality risk in young children. Few studies -except those conducted recently - included children with oedema in their calculations of malnutrition rates.

In the tables below, oedema prevalence - when the study recorded children with oedema - are included in the global and severe malnutrition rates which are defined as follows :

Nutritional status	WFH Z-Score	WFH % of MEDIAN
Severe acute malnutrition	<-3 or oedema	< 70 % or oedema
Global acute malnutrition	<-2 or oedema	< 80 % or oedema

For guidance and interpretation, prevalence of around 5 - 10% are usual in African populations in non - drought periods. For the WHO Expert Committee, a prevalence of wasting between 5 and 9% is considered poor, between 10 and 14% is serious and higher than 15% is critical. ACC/SCN has taken more than 20% prevalence of wasting as undoubtedly high and indicating a serious situation; more than 40% is a severe crisis.

## **RESULTS**

### ***Nutrition Surveys By Area***

#### **MOGADISHU**

- High malnutrition rates were reported before the war (07/85) and in November 1992. The following nutrition surveys, conducted in 1993 and 1994, showed low malnutrition rates in residents as in displaced population (global acute malnutrition expressed in % of the median less than 10%). It is curious to observe that the two surveys carried out in 1995 reported equivalent or higher malnutrition rates in both resident and displaced groups as in pre-war or in 1992 famine periods.

- In the comments of the survey carried out in November 1992, it has been mentioned that despite a proportion of severe cases who still needed intensive nutritional supports, the survey data showed that the nutrition emergency had been overcome in Mogadishu, where international aid had been delivered fairly regularly.

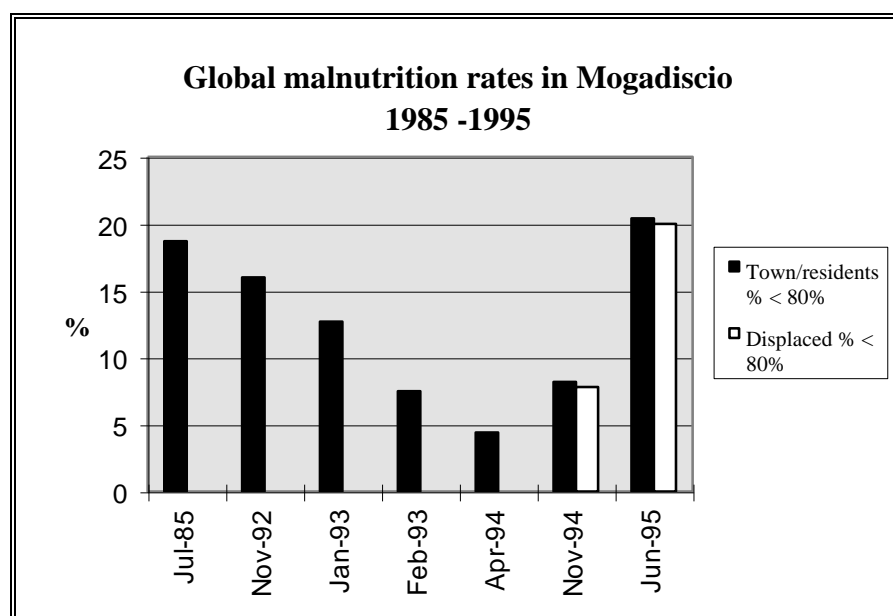
- The nutrition survey carried out in Mogadishu in April 1994 by AICF did not show differences in the nutritional status of children between North Mogadishu - where relatively few displaced persons were living, and South Mogadishu - where most displaced people were living. Food availability of families visited was sufficient with a good access to proteins.

The nutrition surveys carried out in November 1994 by AICF showed low malnutrition rates in Mogadishu and no difference between residents and displaced people. This was explained by the fact that displaced population living in Mogadishu for more than two years had the same access to food than residents. Furthermore, the food input improved because harvest of the *Gu* season was bountiful and food prices decreased. The food availability of families visited was correct with a good access to proteins.

- In June 1996, AICF carried out two nutrition surveys in Mogadishu comparing resident and displaced populations. No difference was observed between displaced children and resident children. Malnutrition rates found were very high when compared with previous surveys. This rate was found only 10 years before, in 1985.

Nutrition surveys in Mogadishu - 1985 - 1995.

Date	Agency	Population surveyed or area	< 80%	< 70%	< -2Z-S.	< -3Z-S.
07/85	UNICEF	Mogadishu	18.7	-	-	-
11/92	CISP	Mogadishu north	16.0	-	-	-
01/93	CPHS	Mogadishu north	11.0	3.0	-	-
01/93	CPHS/CDC	Mogadishu town (resident+displaced)	12.7	5.6	-	-
02/93	MOH/SCF	Mogadishu- resident	7.5	1.7	-	-
04/94	AICF	Mogadishu north	4.0	0.9	8.1	1.3
04/94	AICF	Mogadishu south	4.8	0.6	8.9	2.1
11/94	AICF	Mogadishu displaced	7.8	1.5	11.1	2.1
11/94	AICF	Mogadishu Residents	8.2	2.0	12.5	2.0
06/95	AICF	Mogadishu Residents	20.4	4.9	25.1	6.4
06/95	AICF	Mogadishu displaced	20.0	3.9	26.3	5.4
?	AICF	Mogadishu displaced	8.7	3.6	10.8	4.6



## MIDDLE AND LOWER SHABELLE

- Few nutrition surveys have been carried out in this area. Before the war, the global malnutrition rates found in 1987 during drought period were higher than those reported in 1989. No information was found for the 1992 famine period. The nutrition surveys conducted in 1993 and 1994 reported low malnutrition rates. The last evaluation of the nutritional status conducted in that area took place on 02/94. The low rate reflected the good nutritional status of the population surveyed.

### Nutrition surveys in Lower and Middle Shabelle - 1987 - 1994.

Date	Agency	Population surveyed or area	< 80 %	< 70%	<-2Z-S.	<-3Z-S.
05/87	WHO	Lower Shabelle	12.4	-	-	-
06/87	MOH/PHC	Middle Shabelle	16.3	-	-	-
03/89		Adenyabal (Middle S.)	7.8	-	-	-
03/89		Adale (Middle S.)	3.8	-	-	-
02/93	CPHNSS	Jowhar (Middle S.)	6.9	2.3	7.8	-
08/93	AICF	Awedegle (Lower S.; Afoi district)	1.8	0.6	1.8	0.6
02/94	AICF	Genale (Lower S; Marka district)	2.1	1.1	2.8	1.1

## GEDO REGION

- For the pre-war period, an evaluation of the nutritional status done in May 1987 by CDC in Gedo region found a malnutrition rate of 15%. Further nutrition surveys done in several districts of Gedo region in 1987 and 1988, reported malnutrition rates fluctuating between 6 and 16%. It seems that the nutritional situation improved during the year 1988.

- In 1993, a very high malnutrition rate was reported in Bardera.

- AICF carried out a nutrition survey in Bardera in November 1995. The malnutrition rate found was quite high. It was mentioned that both the displaced and returnees populations were worried of their status (loss of capital and livestock, low access to the field, e.t.c.) and the agricultural situation (harvest insufficient and low availability). Their presence also put pressure on the resident families in terms of food and money by their number and their food situation. Furthermore, the prices on the local market increased (the road between Baidoa and Bardera was closed since the capture of Baidoa town by Gen. Aideed in mid-September 1995).

- The most recent nutrition survey conducted in Gedo was done by TROCAIRE, AMREF and MEMISA in July 1996. It was carried out in Bulla Hawa town and villages 5 km radius around. The very high malnutrition rates found were alarming, but some comments have been done about the methodology used and about the constraints and limitations of the survey (e.g., MSF-Spain was implementing a nutrition programme in Mandera; Bulla Hawa community asking for "food for survey" and clauses like as "if the situation was found to be critical, a nutrition programme would be initiated...(report p. 9, 3rd paragraph)" that could largely modify the results. This survey was one among numerous surveys where confidence intervals of the results were not reported.

### Nutrition surveys in Gedo region - 1980 - 1996.

Date	Agency	Population surveyed or areas	< 80 %	<70 %	< -2Z-S.	< -3Z-S.
/80	CDC, MOH	Luuq	7.0	0.0	-	-
05/87	CDC	Gedo region	15.0	-	-	-
11/87	UNICEF,SRCS	Luuq, Garba Hara	6.7	0.2	-	-
01/88	UNICEF,SRCS	Luuq, Garba Hara, B. Hawa, Bardera	15.6	3.0	-	-
04/88	UNICEF,SRCS, OXFAM	Ceel-Waak, Bardera, Garbaharey, Bulla Hawa	10.4	0.9	-	-
07/88	UNICEF,SRCS	Ceel-Waak, Garba Hara, Bulla Hawa, Bardera, Luuq	8.3	0.7	-	-
01/93	CPHS, CDC, UNICEF	Bardera	38.0	-	-	-
10/94	UNICEF	Garba Hara	6.0	-	-	-
11/95	AICF	Bardera town, rural area & surrounding displaced camps	17.0	5.1	22.1	6.4
07/96	Trocaire, Amref, Memisa	Bulla Hawa	37.0	10.0	-	-

### MIDDLE AND LOWER JUBA

- No information was found on the nutritional status before the war.
- In June and July 1996, two nutrition surveys were conducted by World Vision Somalia in both Sakow and Buaale respectively. The malnutrition rates were high - signs of an alarming situation. However, percentage of children having oedema was 4.4% in both surveys, which seemed too high.

#### Nutrition surveys in Middle and Lower Juba -1996.

Date	Agency	Population surveyed or areas	< 80 %	<70 %	< -2Z-S.	< -3Z-S.
06/96	World Vision	Sakoow	19.8	6.7	23.9	7.3
07/96	World Vision	Buaale	23.4	5.3	25.9	7.5

### KISMAYO

- No pre-war information on the nutritional status could be found.
- High malnutrition rates were reported in late 1992 and early 1993, during the famine period.
- Since June 1993 the nutritional status surveys in Kismayo have reported rates of malnutrition (<80% WFH) ranging from 10 - 15% with the exception of one survey conducted in Sept./Oct. 1993 which was reported to have been incorrectly done.

- Nutritional survey report from Kismayo town in October 1993 indicated a deteriorating situation with 24% prevalence of wasting as defined by below 80% WFH. Data from villages in the Juba Valley showed very high levels of wasting (> 50%) using MUAC measurements (not reported in the table). However, there have been serious reservations expressed about the quality of some of these data. Nevertheless, the overall sense is that there was a low nutritional status among inhabitants in Lower and Middle Juba regions.

- Surveys done in July 1995 indicated that malnutrition in the displaced camps is 7.6% and in the town 14.1%. In the town there has been no significant change in the nutritional status since the last survey conducted in Kismayo town by UNICEF in September 1994 in which 14.3 < 80%. The higher rates of malnutrition in the town as compared to the camp population appear to reflect the length of time that people have been in Kismayo. A greater proportion of the town population arrived in Kismayo in the recent past - 6 to 12 months before the survey- whereas most people in the camps have been in Kismayo for 5 years. (24% of the new arrivals moved into the town compared to 6% who moved into the camps for the period January/February to July 1995).

Nutrition surveys in Kismayo - 1992 - 1995.

Date	Agency	Population surveyed or area	< 80 %	< 70%	<-2Z-S	<-3Z-S
10/92	SCRS	Displaced	32.1	13.0	-	-
02/93	MSF-B	Displaced	30.8	6.9	-	-
06/93	W/C	Kismayo	10.5	-	-	-
10/93	UNICEF, MSF-B	Kismayo town displaced	24.1*	-	-	-
12/93	MSF-B	Kismayo resid.	8.8	1.8	-	-
12/93	MSF-B	Kismayo displa.	11.9	2.7	-	-
09/94	UNICEF	Kismayo resid. and displaced	14.3	-	-	-
07/95	MSF-B, Muslim Aid, UNICEF, World Concern	Kismayo town	14.1	-	17.8	2.7
07/95	MSF-B, Muslim Aid, UNICEF, World Concern	Displaced	7.6	-	11.6	-

### BAY REGION

- For the pre-war period, a nutrition survey carried out in Bay region during the drought period reported a global malnutrition rate of 23.5%.

- During the famine period in 1992, the malnutrition rates found were very high (70.0 and 55%).

- Late 1993, early 1994, it has been reported that in Bay and South Bakool, approximately 160,000 people were in danger of food insecurity due to poor harvest (WFP January 1994).

- Nevertheless, since April 1993, the nutritional situation improved in that region according to the subsequent surveys that showed global malnutrition rates as being below 10% (expressed in % of the median) with the exception of the UNICEF survey in May 1994 and the AICF nutrition survey conducted in Baidoa rural area on May 1995.

- A cholera epidemic occurred in Bay region in April 1994 but had been brought under control by May 1994.

- In May 1995, AICF and UNICEF simultaneously carried out two nutrition surveys, one in Baidoa town and the other in Baidoa rural area. There was a significant difference concerning the global acute malnutrition between the urban and the rural area of Baidoa. On the other hand, no significant difference was found concerning the severe malnutrition rates. The high rate of malnutrition found in rural areas was surprising. The harvest of the last two seasons were good and the food reserves seemed to be in order. But, if the food reserves were satisfying for quantity it did not mean the same for quality of foodstuffs available. The family survey showed that all the families were entirely living on the reserves of sorghum from the last cultivated season. It did not seem that this abundant harvest could allow the families to sell enough to have access to other food sources. Furthermore, it was mentioned in the report that the number of cattle was very low and did not allow to diversify the diet of the children. An other joint reason for the bad nutritional state of the children was the high morbidity among the children (e.g., high prevalence of diarrhoea, malaria).

- Recently (July - August 1996), WHO and IMC conducted nutrition surveys in Baidoa, Qansaxdhere, Dinsor and Berdale. The global acute malnutrition rates found are between 12 and 14 % (< -2 Z-Scores) with the exception of 4.6% in Berdale only.

Nutrition surveys in Bay region - 1987 - 1996.

Date	Agency	Population surveyed or area	< 80%	< 70%	< -2Z-S.	< -3Z-S.
05/87	CDC	Bay	23.5	-	-	-
11/87	UNICEF/SRCS	Bur Hakaba, Qansaxdhere	4.9	0.3	-	-
07/92		Bardera, Baidoa, Huddur	70.0	-	-	-
09/92		Bur Hakaba	55.0	-	-	-
04/93	AICF	Bur Hakaba	6.8	0.4	11.8	0.4
07/93	World Vision	Bur Hakaba	7.8	-	10.6	-
01/94	AICF	Bur Hakaba	3.9	1.5	4.5	2.4
05/94	UNICEF	Dinsor	12.5	-	-	-
02/95	UNICEF	Bur Hakaba	6.7	-	-	-
05/95	UNICEF	Baidoa town	10.0	-	14.9	4.8
05/95	AICF	Baidoa rural area	16.6	3.3	19.6	4.1
08/96	WHO/IMC	Baidoa rural	-	-	13.1	2.1
08/96	WHO/IMC	Qansaxdhere	-	-	14.0	1.6
08/96	WHO/IMC	Dinsor	-	-	11.8	2.3
08/96	WHO/IMC	Berdale	-	-	4.6	0.3

### BAKOOL

- In Bakool region, the malnutrition rates evaluated during the pre-war period and especially during the 1987 drought period were relatively low compared to other areas.

- In February 1993 and June 1994, high malnutrition rates were reported in this region.

- In late 1994 and early 1995 the nutritional situation reported in different districts of Bakool region was good.

*Nutrition surveys in Bakool region - 1987 - 1995.*

Date	Agency	Population surveyed or area	< 80 %	<70%	<-2Z-S.	<-3Z-S.
05/87	CDC	Bakool	11.5	-	-	-
09/87	UNICEF,SRCS	Wajid, Xudur	6.5	0.2	-	-
01/88	UNICEF,SRCS	Wajid, Xudur	7.5	0.6	-	-
/88	?	Bakool region	6.1	-	-	-
02/93	CPHNSS	Bakool	-	-	22.0	-
06/94	UNICEF	Rabdurre	21.3	-	-	-
06/94	UNICEF	El - Berde	33.0	-	-	-
10/94	UNICEF	Xudur	5.0	-	-	-
03/95	UNICEF	Tieglow	5.5	-	-	-
03/95	UNICEF	Wajid	4.6	-	-	-

## HIRAN

- During the pre-war period, a survey done during the wet season in December 1985 reported a global acute malnutrition of 4.4%. Another nutrition survey done in the same area during the dry season in May 1987 reported a global acute malnutrition of 12.7%.

- During the years 1992 and 1993, two sets of nutrition surveys were carried out by SCF-UK; the nutritional status of the displaced population was reported to be very bad in both surveys when compared to the resident nutritional status.

- IMC/UNICEF carried out a nutrition survey in Belet-Weyne district between mid-July and mid August 1996. The nutritional status of the community had not been measured since 1993 (SCF-UK survey), and that was only in Belet Weyne town and the immediate surrounding villages. In this 1996 survey, outside villages have been included. The malnutrition rates found did not indicate an alarming situation.

*Nutrition surveys in Hiran region - 1985 - 1996.*

Date	Agency	Population surveyed or area	< 80 %	< 70%	<-2 Z-S.	<-3Z-S.
12/85	IMT	Hiran	4.0	-	-	-
05/87	CDC	Hiran	12.7	-	-	-
09/92	SCF - UK	Belet - Weyne - displaced	43.8	12.4	-	-
09/92	SCF - UK	Belet - Weyne - residents	9.1	1.7	-	-
02/93	SCF - UK	Belet - Weyne displaced	22.9	4.3	-	-
02/93	SCF - UK	Belet - Weyne - residents	6.3	0.5	-	-
08/96	IMC, UNICEF	Belet - Weyne	-	-	13.4	1.9
12/96	IMC	Belet - Weyne	-	-	22.4	3.8



## NUGAAL, MUDUG, GALGADUUD AND BARI REGIONS

- For the pre-war period, the malnutrition rates reported for Nugaal, Mudug and Galgaduud regions, were very different during the same period (March/April 1987) from one area to the other .
- Only one survey for Bari region was found for the pre-war period. This survey was carried out on September 1988 and the global malnutrition rate found was low (8.4%).
- The nutrition survey conducted in November 1992 in two displaced camps in Bosaso reported a global malnutrition rate slightly higher than on other periods but the rates found were not alarming when compared to other areas of the country. Reports from one MCH centre suggested that much of the malnutrition was due to infectious diseases notably diarrhoea diseases.
- In April 1993, EPICENTRE conducted nutrition surveys in Bur Tindle (Mudug region), Gardho and four small towns of Bari regions (Iskushuban, Ufeyn, Meleden, Kobdhaxaad). The proportion of displaced persons was high. They were mainly coming from Mogadishu, Galgayo, Er Gavo and Kismayo.  
The malnutrition rates reported were relatively low even in Bur Tindle despite the fact that 75% of the population corresponded to displaced persons. It must be noted that a retrospective mortality survey was carried out at the same time. The under five mortality rate found was remarkably high (14.5/10,000/day) in Bur Tindle, above normal in Iskushuban, Ufeyn, Meleden and Kobdhaxaad (4.4/10,000/day) and low in Gardho town (1.2/10,000/day).
- Two more post-surveys were conducted in Bur Tindle. In September 1993 the nutrition survey revealed the malnutrition rate to have declined to 3.8%. The nutritional status of children under 5 was considered satisfactory. However, the under 5 mortality rate remained high (13.3/10,000/day). One year later, UNICEF carried out yet another survey in the same area. The malnutrition rates continued to decline favourably mainly due to the decrease in the number of displaced persons, food availability and prices that remained stable throughout the year.
- AICF carried out a nutrition survey in Gardo district villages and found low malnutrition rates. The previous survey carried out in Gardo district was done by EPICENTRE in Gardo town in May 1993. The methodologies of these two surveys were different (random two stages cluster sampling for AICF and systematic sampling for EPICENTRE). Therefore the results of these two nutrition surveys are not directly comparable.

Nutrition surveys in Nugaal, Mudug and Galgaduud regions - 1987 - 1993.

Date	Agency	Population surveyed or areas	< 80 %	<70%	<-2Z-S.	<-3Z-S.
03/87	OXFAM, LORCCS	Cadaado (Galgaduud)	17.0	-	-	-
03/87	OXFAM, LORCCS	Dusamareb (Galgaduud)	5.2	0.0	-	-
03/87	OXFAM, LORCCS	Caabudwaaq (Galgaduud)	16.6	1.5	-	-
04/87	OXFAM, LORCCS	Dusamareb, Cadaado, Caabudwaaq (Galgaduud)	12.1	2.5	-	-
08/87	SCF-UK, UNICEF	Galkayo, Beyra (Mudug)	8.2	0.2	-	-
/88		Nugal region	6.7	-	-	-
04/93	EPICENTRE	Bur Tindle (Mudug)	7.0	0.6	-	-
09/93		Bur Tindle (Mudug)	3.8	0.5	-	-
09/94	UNICEF	Bur Tindle (Mudug)	2.8	0.3		

Nutrition surveys in Bari region - 1988 - 1996

Date	Agency	Population surveyed or area	< 80 %	< 70 %	< -2Z-S.	< -3Z-S.
09/88	UNICEF, SRCS	Beyla, Iskushuban, Qandala, Gardo, Bosaso (Bari)	8.4	0.5	-	-
11/92	UNICEF	Bossaso, displaced	11.8	1.9	-	-
04/93	EPICENTRE	Gardo town	2.7	0.4	-	-
04/93	EPICENTRE	Iskushuban, Ufeyn, Meleden, Kobdhaxaad	9.4	0.5	-	-
08/95	AICF	Gardo rural area	4.3	0.5	7.7	1.0
10/96	UNICEF	Galkaio	6.0	-	-	-

**NORTH WEST**

- The nutrition surveys conducted during the pre-war period reported very low global malnutrition rates.

- The nutrition surveys conducted in North West Somalia in September/October 1991 corresponded to inter agency/MOH surveys of the main towns in North West Somalia and in the returnee camp of Sibakhti. The global malnutrition rates reported were low with one exception: 45.2% of global malnutrition rate found in Sibakhti camp (Awdal district). Results from the towns themselves indicated rates of malnutrition which ranged between 5.2% and 11.2% less than 80% of the median. Boroma and Ceerigaabo were found to have rates of malnutrition slightly higher - 10.4% and 11.2% respectively - than what is generally considered to be satisfactory.

The camp of Sibakhti was established in June 1991 when the political changes in Ethiopia resulted in the disruption of the Aware camps and in particular of Daror. The level of malnutrition was found to

be critically high. These families evidently constituted a highly impoverished group of people and it was not clear why. Most had arrived from Daror where the rate of malnutrition was at 15.4% less than 80% of the median. About 40% of the families were previously pastoralist, but they had lost their livestock either through drought or the war. 46% of the families were getting their income through manual labour, office jobs or through business.

Taking the sample as a whole, the report noticed that none of the following vulnerable groups were found to have a significantly lower nutritional status than the rest of the population: new arrivals within the past month, displaced or female headed households. The only group which had a significantly lower nutritional status than others was the displaced pastoralists. Reports in Burco, Las Caanood and Ceerigaabo of rain failure for the third year in succession suggested that while this group constituted a relatively small proportion of the urban population (between 2 - 8%), their relatively poor nutritional status reflected a wider, unknown, and more inaccessible nutritional problem in the eastern rural areas.

- No information on the nutritional status of the population was found between 1991 and 1996. The more recent surveys were conducted in February 1996 by UNICEF. According to the results of this UNICEF survey, it could be cautiously said that there is no malnutrition in the Northwestern part of the country, however these results are not highly reliable because of the small number of children seen by area.

Nutrition surveys in North - West region - 1980 - 1996.

Date	Agency	Population surveyed or areas	< 80%	<70%	< -2Z-S.	< -3Z-S.
/80	CDC, MOH	Hargeisa (West Galbeed)	3.6	-	-	-
12/85	BOCD	Sool	4.0	-	-	-
07/83	SCF - UK	Borama (Awdal)	3.0	-	-	-
/86		Erigavo (Sanaag)	3.4	-	-	-
/87		Borama (Awdal)	2.3	-	-	-
12/88	UNICEF,SRCS, MOH	Saylac, Lughaya (Awdal)	5.2	1.9	-	-
10/91	SCF - UK, MOH	Hargeisa (West Galbeed)	5.2	0.0	-	-
		Burco town (Todgheer)	8.3	0.6	-	-
		Sibakhti (Awdal)	45.2	7.4	-	-
		Borama (Awdal)	10.4	0.8	-	-
		Las Anod (Sool)	6.2	0.2	-	-
		Berbera (West Galbeed)	9.4	1.2	-	-
		Ceerigabo (Sanaag)	11.2	1.2	-	-
02/96	UNICEF	Sanaag	-	-	6.0	Nil
02/96	UNICEF	Sool	-	-	10.0	2.0
02/96	UNICEF	Togdheer	-	-	8.0	2.0
02/96	UNICEF	Galbeed	-	-	9.0	2.0
02/96	UNICEF	Awdal	-	-	7.0	2.0

### ***Somali Refugee Nutrition Surveys***

A study on the nutritional status of Somali refugee children under 5 years of age who entered remote areas of eastern Ethiopia showed that the prevalence of wasting (WFH < 80% of standard) ranged from 13.5% to 29.5%, while those with severe wasting (WFH <70%) ranged from 1.8% to 4.9% (WHO, 1990).

## **OTHER RELATED NUTRITION SURVEYS**

### ***Low Birth Weight***

Two sets of data collected in the only maternity hospital in Mogadishu in 1986 and 1987 indicated a prevalence of low birth weight between 8.6% - 14%. There is no information on prevalence of low birth weight among non hospital deliveries which represent the majority of deliveries in Somalia.

### ***Mortality***

- For the period 1991 - 1993, studies with the most comparable methodology were all completed between November 1992 and January 1993. Crude mortality rates for the total population, representing an average daily rate of the 30 days preceding data collection, ranged from 7.3 to 23.4 per 10,000 per day. The comparable age-specific mortality rates for children younger than 5 years was 16.4 to 81.0 per 10,000 per day. In the studies reporting information on specific causes of death among children, the two most common causes were diarrhoea and measles.
- MSF/EPICENTRE survey in Marka and Qorioley (November 1992) found that malnutrition and war-related trauma were the main causes of death, but preventable infection diseases were the main causes of death in the CPHNSS/UNICEF/CDC studies in Afgoi and Baidoa.
- In the retrospective mortality survey carried out in January 1994 by AICF, the main causes of death were diarrhoea and malaria.
- Three mortality surveys were carried out in Bur Tindle in April 1993, September 1993 and September 1994. The results showed a decrease on the under five mortality rates from April 1993 to September 1994. However, the mortality within the children group remained very high in the last survey conducted. The malnutrition rates found in the nutrition surveys carried out during the same period showed low malnutrition rates. No clear explanations for these two contradictory results were found.

Mortality rates in different areas - 1992 - 1993.

Location	Date	Agency	Mortality rate <5 years deaths/10,000/day	Crude mortality rate deaths/10,000/day
Lower Shabelle (Marka & Qorioley) Residents	04/92	MSF/ EPICENTRE	-	3.3
Lower Shabelle (Marka & Qorioley) Displaced	04/92	MSF/ EPICENTRE	-	12.2
Bay (Baidoa) Displaced	11/92	CPHNSS/CDC UNICEF	69.4	23.4
Lower Shabelle (Afgoi) displaced	11/92	CPHNSS/CDC UNICEF	23.8	6.3
Lower Shabelle (Afgoi) Residents.	11/92	CPHNSS/CDC UNICEF	8.2	3.7
Lower Shabelle (Marka & Qorioley)	12/92	MSF/ EPICENTRE	16.4	7.3
Gedo (Bardera) Residents	12/92	CDC/UNICEF	49.0	17.3
Gedo (Bardera) Displaced	12/92	CDC/UNICEF	81.0	21.9
Mogadishu North Hoddur	01/93	CPHNSS/CDC MSF/ EPICENTRE	2.5 46.0	1.4 15.8
Benaadir district	01/93	CPHNSS	9.3	4.1
Middle Shabelle (Jowhar)	02/93	CPHNSS	3.8	1.9
Mogadishu (Resident)	02/93	MOH/SCF	3.2	-
Jowhar	02/93	CPHNSS	7.0	2.0
Bay (Baidoa)	02/93	MSF	54.6	15.0
Iskushuban, Ufeyn, Meleden, Kobdhaxaad	04/93	EPICENTRE	4.4	2.4
Gardho town (Bari region)	04/93	EPICENTRE	1.2	1.4
Bur Tindle (Mudug region)	04/93	EPICENTRE	14.5	6.4
Bur Tindle (Mudug region)	09/93	?	13.3	4.0
Bur Hakaba	01/94	AICF	1.3	0.7
Bur Tindle (Mudug region)	09/94	UNICEF	8.3	2.3

**Morbidity Surveys**

Information on morbidity is of limited value because of no specific case definitions used and reported.

## DIARRHOEA

During the period - mid 1992 and early 1993, the biweekly incidence rates of 32% to 56% reported are considerably higher than the median biweekly diarrhoea incidence rate of 10% reported among children less than 5 years old in developing countries (WHO ref.). These findings complement the findings of high diarrhoea specific mortality.

## ANAEMIA

Anaemia prevalence among the Somali population was generally reported before the war as to be around 40 per thousand.

In 1980 - 82, according to a national morbidity survey conducted by WHO, the prevalence of anaemia (Hb < 10 g/dl) was found to be 48.3 per 1000 women of child-bearing age. A more recent survey conducted in 1988 in the North west region of Somalia revealed that 4.6 % of all women and 12.3% of children are affected by severe anaemia (Hb < 7 g/dl).

In the south, it was believed that the prevalence of anaemia was more likely to be associated with malaria and parasitic infestations, while in the north of the country, dietary iron deficiency was more likely the cause.

## IODINE DEFICIENCY

Goitre is uncommon in Somalia, and is rarely observed even among groups living in the mountainous areas in the North of the country. In 1982, WHO national survey reported a prevalence rate of 1.4 per thousand population, three times higher for males than for females. Most cases were observed in the region of Middle Juba, Togdheer and Benadiir.

## VITAMIN C DEFICIENCY

Under normal conditions fruits and vegetables provide a sufficient intake of Vitamin C in the diet. With an abundance of these commodities available in Somali towns and villages, the likelihood of scurvy among the settled population is low. The nomadic population derive high levels from the consumption of camel's milk, a rich source of vitamin C. As camel's milk forms a major part of the nomadic family diet it can be assumed that this sector of the population has a high intake. This is not the same for the cattle pastoralists of the South, and indeed scurvy has been reported in this population during the 1987 drought. In addition, during the same period there were various reports of widespread scurvy in refugee camps. As Vitamin C metabolism is linked with the utilisation of iron in the body, the outbreak of scurvy in the camps was also associated with a high level of anaemia among the female population.

## VITAMIN A DEFICIENCY

This condition is closely associated with various degrees of deterioration in the eyes. Vitamin A has a major influence on child mortality and morbidity. In southern Somalia xerophthalmia was found to be widespread among both city and rural populations, while in the Northwest of the country eye teams scarcely saw neither this condition nor related night blindness. Examination of the Somali diet suggests that milk and its products, particularly *ghee*, would be the main source of Vitamin A (UNICEF 1987).

WHO national survey carried out in 1980 - 1982, reported a prevalence rate for night blindness of 0.2 per thousand population.

## DISCUSSION AND CONCLUSION

Before the war, the estimates for the proportion of children under five years of age suffering from malnutrition were sometimes very high. The National Health Plan 1980 - 1985, for example quoted an overall figure of 26% in Somalia; however, subsequent surveys have suggested that in general malnutrition levels are much lower.

The nutritional data base for this period in the country is admittedly very poor. Most surveys have been small-scale and usually carried out at times of hardship as part of the assessment of drought conditions. In non - drought years, results have shown extremely low levels of malnutrition in rural areas (around 4 % of global malnutrition in % of median). However it is different in urban areas - particularly in Mogadishu - where high levels of malnutrition are chronically present (18.7% in % of median in July 1985). (see tables below).

### Surveys in non drought conditions - pre-war period -

Year	Season	Area	No <5 years examined	% children malnourished WFH < 80%	Source
1980	May - Sept.	Several regions	7 200	3.9	CDC, MMR
1983	July	Borama	122	3.0	SCF - UK
1985	December	Hiran	641	4.0	IMT
1985	-	Sool	-	4.0	BOCD
1985	July	Mogadishu	1 144	18.7	UNICEF

### Surveys in drought affected regions in Somalia 1987

Month	Region	No < 5 years examined	% children malnourished WFH < 80%	Source
March	Galgudud	590	14.0	OXFAM
May	Bakool	210	11.5	CDC
May	Bay	302	23.5	CDC
May	Gedo	253	15.0	CDC
May	Hiran	299	12.7	CDC
May	Lower Shabelle	298	12.4	WHO
June	Middle Shabelle	299	16.3	MOH/PHC
August	Lower Juba	430	7.6	UNICEF
August	Mudug	6028	8.0	SCF-UK/UNICEF

Anthropometric data collected in Somalia mostly involves small scale surveys carried out in extreme conditions of drought and in limited geographical settings. Most of the data are not easily comparable because of differences in methodologies, cut-off points, indicators and time of the year. Seasonal changes could explain much of the inter-regional variation, since the surveys were conducted at different times of the year.

Target populations and sampling strategies greatly varied, and even when the two-stage, random cluster sampling method was used, different studies included different populations within the sample. Various definitions of malnutrition were also used.

Looking at the surveys conducted between mid 1991 and early 1993, if one were to ignore the methodological differences and only look at the relationships between measures of each study, clear patterns appear. Across all studies that report data on specific sub-populations, reports consistently demonstrate that displaced persons have higher malnutrition rates than residents, and displaced persons who live in camps have higher rates than those living in residential areas.

For the period 1993 - 1996, it could be said that the global nutritional situation of the country improved. Low malnutrition rates have been found with some exceptions :

- The AICF nutrition survey carried out in Mogadishu in 1995
- Two surveys carried out in Gedo region : in Bardera town in November 1995 and in Bulla Hawa in July 1996.
- Two surveys conducted in Middle Juba Valley in June and July 1996.
- The AICF survey carried out in Baidoa in May 1995
- Two surveys conducted by UNICEF in Bakool region in June 1994
- The IMC survey conducted in December 1996 in Belet Weyne district.

Most of these surveys were carried out over the last two years. The malnutrition rates found were between 17% and 37% (expressed in % of children < 80% of the median).

### ***Mortality***

As a result of famine and prolonged civil war, mortality rates have been high for the Somali people, particularly those displaced from their homes.

- During 1992 and 1993, the Somali surveys documented crude and age specific mortality rates that were 15 to 50 times higher than rates in stable, non-displaced African populations. These data clearly indicated the seriousness of the emergency in Somalia at that time.



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