

DINSOR DISTRICT NUTRITION SURVEY

Conducted on
September 18th – 23rd, 2003

By
IMC/UNICEF/FSAU/DINSOR COMMUNITY

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Much gratitude also goes to the mothers and caregivers whose co-operation and support helped the survey team achieve its objective.

Comments by FSAU in finalisation of the draft report made this report complete and bear the quality it holds.

Executive Summary

Dinsor District is located in Bay Region in the Southern part of Somalia. The district borders Burhakaba District and Baidoa Districts to the South East, Middle Juba to the South West, Gedo to the West and Qansax Dheere to the North and has an estimated 70,000 population.

Like many other parts of Somalia, civil war and political instability in the past decade greatly contributed to the destruction of infrastructure in the district. Boreholes, government structures and personal properties were destroyed. The political instability and widespread population displacement resulted in rampant malnutrition and disease. Past nutrition surveys recorded 11.8% and 14.6% GAM rates in August 1996 and December 2000 respectively, rates which exceed the acceptable malnutrition levels in a population (<5%). The district also encountered food security challenges in 2001 which led to commencement of integrated supplementary feeding programme (SFP), intensive health activities and family ration distribution through the Dinsor MCH in November 2001.

Using a two stage cluster sampling methodology, a nutrition survey aiming at determining the nutritional status of children aged 6-59 months or 65-110 cm in height/length was conducted between 15th and 24th Sept. 2003. It also aimed at determining factors influencing nutritional status as well as SFP, measles, polio vaccine and Vitamin A supplementation coverage. The survey was conducted jointly by FSAU, IMC, UNICEF and the Dinsor Community

The survey results indicate poor nutrition status with global acute malnutrition rates of 13.3% (W/H<-2 z-score or oedema) and severe acute malnutrition of 1.8% (W/H<-3 z-score or oedema). About 0.2 % (n=2) of the children had oedema. The prevalence of diarrhea, ARI, malaria and measles were 25%, 47%, 11% and 2% respectively. The vitamin A supplementation coverage was 70% while measles and polio immunization coverage were 36% and 77% respectively. Mothers or caretakers of 37% of the children were not aware of the existence of a supplementary feeding programme in Dinsor while only 4% of the surveyed children had ever been admitted into the SFP. About 22% of the children not breastfeeding stopped before they were one year old. Regarding feeding, 13.5% of the children were fed once or twice in a day. The under-five mortality rate was 3.6/10,000/day and crude mortality rate was 1.2/10,000/day. Both these are way above the acceptable sphere project standards of 2/10000/day and 1/10000/day respectively, and indicate a very serious situation.

Further results indicate that crop production (87%) and purchases (12%) were the main food sources while the sale of crop produce (71%) and casual labour (14%) were the main income sources for the Dinsor population. During food shortage, food purchasing (52%) and sale of more livestock (22%) are the common coping strategies employed by the population. About 56% and 33% of the households depend on water catchments and unprotected wells for water respectively. All the children surveyed (100%) had been introduced to foods other than breastmilk in their first three months of life. There was statistically significant association between malnutrition and frequency of feeding, age of stopping breastfeeding, diarrhea and the coping strategies employed. Children from households depending on remittances and wild foods collection as coping strategies were more likely to be malnourished than those selling livestock, purchasing food or seeking casual labour during the stress period/ food shortage. During dry season, consumption is usually limited to cereal based foods with little diversity. Milk availability and accessibility reduced as the prices increased (6-8,000 Ssh/litre compared to normal prices of 2-4,000 Ssh/litre) with resultant decline in consumption of quality foods particularly among the poor.

It was notable that, Dinsor District received good harvests in Gu 2002 and 2002/3 Deyr and much of the food stocks currently available was from the 2002 harvests. The food security indicators are rapidly deteriorating particularly with the failure of the Gu 2003 season in most parts of the district. Pastures and water for livestock has declined, thus triggering livestock movement Doy, Sakow and Burhakaba sides. Regarding prices, the imported goods prices remain relatively high due to persistent levy extortion at the checkpoints along the roads. A combination of factors like coping strategies employed, childcare and diseases undermines the nutrition status of children.

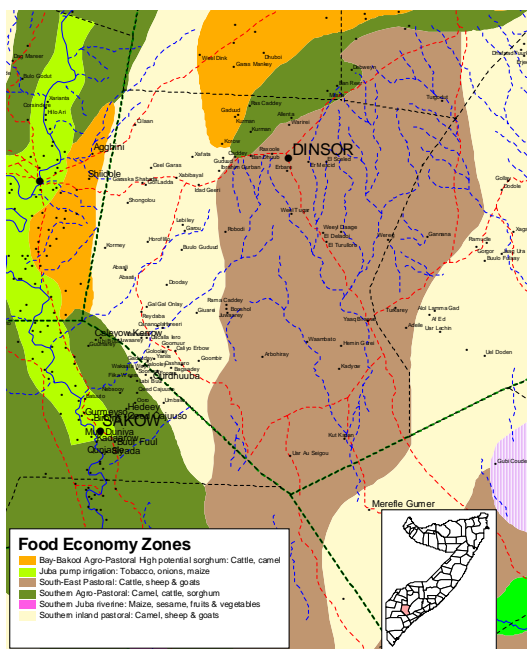
The current cereal stock utilization and the performance of the forthcoming Deyr season are key considerations in the prediction of the food security situation for the district in the near future. In that regard, closer monitoring of food security situation is necessary. Other recommendations proposed by the community and partners include continuation of the ongoing SFP through the MCH, improvement and expansion of health services by supporting health posts and mobile EPI activities, water catchments and boreholes rehabilitation and coordination of recently initiated activities by INGOs particularly those focusing on livestock and health.

SUMMARY OF FINDINGS

Indicator	Number	Percentage
Children under five years screened during the survey	907	100
Number of boys in the sample	487	53.7
Number of girls in the sample	420	46.3
Global acute malnutrition (Weight for Height <-2 Z-score or presence of oedema)	121	13.3
Severe acute malnutrition (Weight For Height <-3 Z-score or presence of oedema)	16	1.8
Global acute malnutrition (Weight For Height <80% of median or presence of oedema)	72	7.9
Severe acute malnutrition (Weight For Height <70% of median or presence of oedema)	5	0.6
Proportion of children with diarrhoea two weeks prior to the survey.	230	25.4
Proportion of children immunised against Measles (N=839)	298	35.5
Under-five mortality rate (per 10,000/day)	35	3.6/10000/day
Crude mortality rate (per 10,000/day)	49	1.2/10000/day

1 INTRODUCTION

Dinsor District is located in Bay Region in the Southern part of Somalia. The district borders Burhakaba District and Baidoa Districts to the South East, Middle Juba to the South West, Gedo to the West and Qansax Dheere to the North. Bay Region covers the vast, fertile farmlands and has been referred to as the “breadbasket” for Somalia due to its high production of cereals.



Like many other parts of Somalia, the civil war and political instability in the past decade greatly contributed to the destruction of infrastructure in the district. Boreholes, government structures and personal properties were destroyed. In 1995, Dinsor town, along with other parts and towns (like Baidoa) of the region, came under the control of Hussein Aideed's Somali National Alliance (SNA). The ensuing instability and widespread population displacement resulted in rampant malnutrition, disease and disorientation of the population. In June 1999, the local militia regained control of the region and established relative stability in most parts of the region, and Dinsor District in particular.

The security situation in Dinsor District used to be uncertain thus hindering easy access even to the humanitarian organizations. However, the situation in Dinsor town and some parts of the district has improved lately. In addition, with the deterioration of security in Baidoa District, over the past one year, Dinsor District has become the only possible alternative for humanitarian

assistance to be channeled to Bay population and Dinsor in particular. Dinsor town has also lately become a major transit town linking part of Bay Region and Gedo with Mogadishu.

1.1 Survey Justification

Due to uncertainty of security situation in Dinsor District, only few organisations have managed to offer humanitarian assistance to the population in a long time. International Medical Corps (IMC) has offered primary health care services since 1992. Other NGOs are in the process of establishing programmes in the district. Despite the efforts, baseline information on health and nutrition as well as other determining factors is lacking. IMC current phase of programmes has ended and baseline information for the proposed future programmes are necessary. Also intended was to establish the health service coverage by organisations operating the area, especially IMC and WHO.

The need for an update on the nutrition information was long overdue with the last survey having been conducted in December 2000. A global acute malnutrition of 14.6%¹ was recorded. The district experienced food security challenges in 2001 when targeted intervention activities were initiated. The interventions commenced without quality baseline information on the nutrition situation. Though biased, only the screening data from the Dinsor MCH was available for reference.

There was also need for investigation on other factors undermining health and nutrition status of Dinsor population for purposes of developing an all inclusive proposal for future programme.

1 - Global acute malnutrition: W/H<-2 z score and/or presence of oedema

1.2 Survey Objectives

- To determine the prevalence of acute malnutrition in Dinsor District through the anthropometric measurement and identification of oedema in children aged 6-59 months or measuring 65-110cm.
- To determine the coverage of measles vaccination and Vitamin A supplementation in Dinsor.
- To determine the incidence of some common disease two weeks prior to the survey.
- To make proposal for appropriate intervention to the district
- To determine the coverage of targeted feeding programmes in Dinsor District
- To determine the crude and under-five mortality rate in Dinsor District.

2 BACKGROUND INFORMATION

2.1 General background

Dinsor District has high potential for crop and livestock production. In this regard, the level of land utilisation and the serenity in the district determines the general welfare of the estimated 70,000 population (reviewed WHO population estimates, Aug. 2003). The insecurity has negatively affected the exploitation of the land potential in Dinsor and the neighbouring areas. In times when the district resources have been well utilised and high crop produce and livestock production realised (mainly during wet seasons), insecurity in other areas and poor transport systems within the district still hampers the benefits accrued by the district. The levy extortion as goods are transported across or outside the district finally translates to increased commodity prices. For instance, the prices for imported commodities (sugar, rice) fluctuate with the transport costs and variation in the exchange rates for dollars against the Somali shilling among other factors. This highlights the importance of security in the district.

Security situation has also influenced the programme establishment by NGOs in the district. With the relative calmness in the district INGOs have shown interest in Dinsor. Before April 2002, only a few organisations operated in the district. These included IMC/UNICEF (PHC programme), WHO (polio campaigns) and FSAU (food security and nutrition information analysis) and WFP (food for work). MSF-Switzerland has however established a health centre in mid 2002 while COOPI, GTZ and PACE are in the process of starting some programmes in the district.

2.2 Food security context

Dinsor District which is predominantly agro-pastoral (80%) by food economy has had alternating years of good and poor seasons in the past three years. The district was food secure in the year 2000 following good harvests during both *Gu* 2000 and *Deyr* 2000/1. Conversely, poor rains in terms of amount and distribution were received in 2001 causing poor *Gu* harvest for 2001. This plunged the district's population into food security challenges.

Food economy	%
South agro-pastoral Bay/Bakool	50
Bay/Bakool High Potential sorghum, cattle, camel	30
Pastoral (camels and shoats)	7
Pastoral (cattle and shoats)	13

As detailed below, in the year 2002, the food security situation was generally good despite the influx of people from the neighbouring Baidoa District following the inter-clan fighting. The good *Gu* and *Deyr* rains received led to improved crop performance (and good harvest finally) as well as pasture condition. Insecurity posed a threat to food security situation though the rains and the resultant crop performance was good. Imported goods' prices slightly increased due to levy extortion and high transport costs.

Table 2: Main events affecting food security in Dinsor District

Period	Event
July/Aug 2003	Little <i>Gu</i> harvest was received in some areas while in some few places no harvest was received. However, households have cereal stock mostly from last <i>deyr</i> (2002/3) and previous <i>Gu</i> 2002. Pasture shortage and water shortage for both domestic and livestock use is being experienced, thus triggering livestock movement both within and outside the district.
June 2003	Below normal <i>Gu</i> rains received paving way to reduced water and pasture availability for livestock and generally poor performance of the crop in <i>Gu</i> season. Insect and pests infestation on the crop further affected the crop situation. Reduced sale of the cereals by better off farmers led to an increase in prices in the local markets (26% for sorghum and 40% for maize). Milk availability declined leading to increase in prices (6-8000 Ssh/ litre from 3-4,000 Ssh/litre of a normal year). Milk prices were low only in Doy area where livestock had concentrated. MUAC assessment in Dinsor town records 26% of malnutrition (MUAC< 12.5cm).
April 2003	Detonation of mines on Baidoa – Dinsor road causing tension and revenge attacks as well as reduced flow of imported goods. Prices of imported goods and foodstuffs remain high.
Jan/Feb 2003	Good <i>deyr</i> harvest. Low cereal prices (from 800 Ssh before the harvest to 400 Ssh/ kg of sorghum). Adequate pastures and water were available. High prices of imported goods mainly due to few trucks reaching Dinsor market from Mogadishu and high levy extortion at the checkpoints established along the roads.
Aug 2002	Due to increased demand of the cereals in Gedo, Bakool, Hiran, Banadir and Ethiopia the cereal prices slightly increased from 500 to 1000 Ssh/kg, thus boosting income for the crop producers.
July 2002	Good <i>Gu</i> crop performance (and harvest) and significantly improved pasture. Decline in cereal prices due to good crop prospects, however, the imported commodities prices were gradually increasing due to levy extortion (insecurity prevailed), high transport costs due to wet roads and inflation. Job opportunities (weeding and quelea quelea birds scaring to control crop attacks) for the poor households available. Insecurity in Baidoa heightens, leading to influx of people into Dinsor town and other main villages. Insecurity interrupted delivery of family ration supplies to Dinsor for the ongoing SFP/family ration programme for July 2002.
May 2002	Dinsor hosts livestock originally from Northern Gedo. This influenced the milk prices downward. Pasture and water catchments were under pressure with the heavy presence of livestock.
February 2002	Fodder and water available in most parts of Dinsor thus attracting many livestock from Middle Juba Food for work projects were hindered by insecurity thus reducing the flow of cereals usually distributed through those projects
November 2001	Following poor <i>Gu</i> harvest and increased vulnerability to malnutrition, provision of family ration to households with malnourished children commenced through the IMC/UNICEF sponsored Dinsor MCH. The monthly ration consisted of 10kg of unimix for the child, 4.6kg oil, 10kg pulses and 100kg maize for the family (provided by WFP).
September 2001	FSAU estimated about 53,000 people in Dinsor District be in need of food aid between July 2001 and June 2002 if the food security situation never improved. About 15000 were projected to experience food gap between July and December 2001. The food gaps were projected following poor crop performance in <i>Gu</i> 2001.
July 2001	Deterioration in livestock body condition following reduction in pasture Coping strategies like charcoal selling, water collection and petty trading on the increase Slight increase in imported goods prices due to inflation
May/June 2001	Poor rains, drying water points, poor crop establishment and cricket infestation on the crop characterized the expected cropping season of the <i>Gu</i> 2001 Reduced job opportunities in the farms affected income for poor wealth groups. Local farmers reduced sale of their stock with resultant increase in prices of staple cereal (foods) by 30%.
December 2000	Nutrition survey conducted by IMC revealed 14.6% GAM and 3.2% SAM ²

2- GAM: W/H <-2 Z score or oedema, and SAM: W/H <-3 z-score or oedema.

August 2000	Good <i>gu</i> harvest and adequate pastures and water available.
June 1999	Dinsor District taken over by Rehawein Resistance Army. Improvement of security
Oct 97- Feb 98	Elnino rains leading to destruction of underground stores, houses and outbreak of livestock disease particularly camels
August 1996	Nutrition survey conducted by WHO/IMC reported 11.8% GAM and 2.3% SAM ²

Current food security situation

The year 2003 has so far been characterized by deterioration in most food security indicators. These mainly include inadequate *Gu* rainfall which has led to drying up of water catchments, reduced pastures, poor crop performance and increased prices of imported goods due to levy extortion during transportation. Due to scarcity, the prices of milk increased from Ssh 4,000 to Ssh 6,000 while maize and sorghum prices increased by about 40% and 30% respectively in June. The milk prices increase to 6,000 Ssh and above is attributed to livestock movement within and outside the district (especially towards Doy, Sakow/Jilib and Burhakaba) in search of water and pasture. In addition, many households seem to cover longer distance in search of water as water catchments dry up or use salty water for domestic purposes.

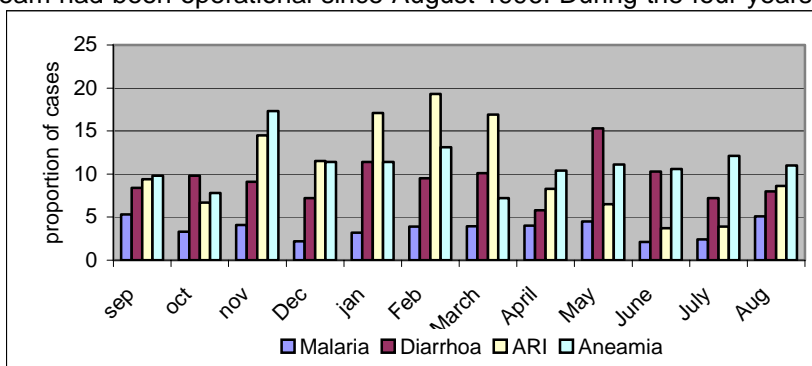
The prevailing dry weather condition has not only affected pastures but has also negatively affected *kable* (wild vegetables) that could otherwise be available and accessible to the poor households.

The declined agricultural activities, experienced even during the last *Gu* season, led to a reduction in job opportunities and finally to income and expenditures among the poor. Among the poor households, sources of income include firewood collection, water selling, tea shops, milk vending and charcoal burning.

Though most households have food (cereal) stocks, much of which is from the 2002/3 *Deyr* and *Gu* 2002 harvests, the current stock utilization and the performance of *Deyr* 2003/4 rains will determine the food security situation of Dinsor in the future. Otherwise most of the food security indicators will continue to deteriorate.

2.3 Humanitarian Assistance to Dinsor population

IMC: IMC has provided vital health services in Bay region, and Dinsor District in particular, since 1992 and currently supports an MCH clinic and 17 village health posts within Dinsor District. Until July 2003 IMC also supported a mobile EPI team in the district, responsible for outreach immunization activities to under fives. The Dinsor mobile EPI team had been operational since August 1996. During the four years of SNA occupation, program activities, including active monitoring of programs, were severely hampered due to inaccessibility and insecurity. Monitoring of the EPI activities also took place. The outreach EPI activities halted following change of policy by UNICEF where focus is mainly given only to the district town.



IMC has also trained TBA who are located in the various village health posts established to provide health care to communities.

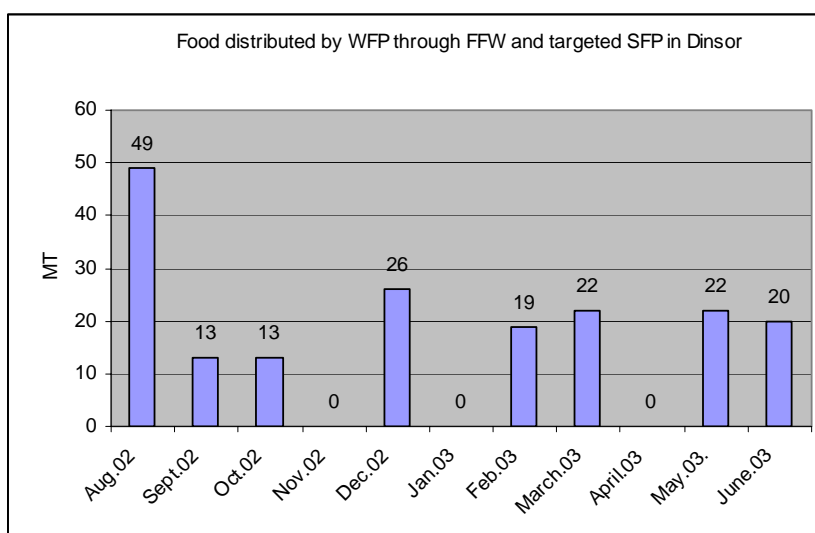
Despite the effort malaria, diarrhoea, acute respiratory infection and anemia continue to be reported as common diseases affecting the Dinsor population. As reflected in the graph (covering Sept 2002 and Aug 2003), about 10% of the patient attended at the MCH suffered from diarrhoea, 10% from anaemia, over 10% from acute respiratory infection and about 4% from malaria. In 2003, IMC recorded an increased episode of acute respiratory infection between January and March while a sharp rise was also noted

between April and May in the proportion of children with diarrhoea. The rise in diarrhoea cases was mainly associated with poor sanitation in a rather wet season (onset of *Gu* rains). The proportion of children with anaemia ranged between 8% and 16% in the past twelve months.

UNICEF: UNICEF sponsors the health activities implemented by IMC. These include EPI, providing essential drugs, supporting outreach activities when they existed and health posts.

IMC/UNICEF/WFP interventions: Beside the routine primary health care activities which are supported by UNICEF, IMC is also involved in the implementation of the targeted supplementary feeding programme (SFP) through the Dinsor MCH. The programme was commenced following deterioration in food security situation in 2001 by IMC, UNICEF and WFP jointly in Dinsor as mitigation efforts against malnutrition. About 10kgs of blended foods (unimix) is given to every malnourished child identified as well as those being followed up in the programme. In addition about 4.6kg of oil, 10kg of pulses and about 100kg of maize are given to the household with a malnourished child every month.

WFP: In addition to the family ration provided through the targeted SFP, WFP sponsors food for work (FFW) programmes. The FFW activities contribute to such development programmes as rehabilitation of water catchments, roads, wells as well as food to the households participating in the programmes.



GTZ: GTZ implements programmes promoting agriculture particularly livestock and crop production and livestock pest control and forestry. These are recently started programmes aiming at improvement of produce to the Dinsor population. Plans are also underway to started programmes on conflict resolution and micro enterprise.

MSF-Switzerland: MSF Switzerland offers both inpatient and outpatient health services through their health centre. MSF-S intends to improve the quality of health services through training of their staffs and expansion of the structures rather than opening other treatment sites.

COOPI: COOPI offers veterinary service programme, integration of modern vet services with the pastoral lifestyle through training of community based livestock health workers, water programmes particularly well rehabilitation and livestock market data collection.

PACE: PACE has established an office in Dinsor for its livestock programmes in Dinsor, other parts of Bay Region and Lower Juba.

2.4 Water and environmental sanitation

The main water source for Dinsor District is water catchments following the breaking down of about 14 boreholes. Only one functioning borehole exists and it is situated in Misra. Sanitation is usually poor, particularly in urban areas, where it is densely populated. Use of toilets is uncommon particularly in rural areas.

2.5 Previous surveys in Dinsor

The current survey results indicate a consistency in high levels of malnutrition within Dinsor District. Global acute malnutrition rates of more than 10% are recorded with aggravating factors also accompanying the poor nutritional condition.

Table 3: Past surveys conducted in Dinsor District

Date	GAM ³ (Z-score)	SAM ⁴ (Z-score)	Agency responsible
Aug 1996	11.8%	2.3%	IMC/WHO
Dec 2000	14.6%	3.2%	IMC
Sept 2003	13.3%	1.8%	IMC/UNICEF/FSAU/ Dinsor Community

3 METHODOLOGY

3.1: Survey Design

The descriptive data collected in this survey was obtained using standard questionnaires (attached in the appendix). Two types of questionnaires were used, one with household details, food security questions and child's anthropometric and health details; and two, mortality questionnaire. Additional qualitative data were collected through focus group sessions and key informant interviews as well as visits to the villages and markets. Data collection took place between 18th and 23rd September 2003.

3.2: The sampling procedure

A two-stage cluster sampling methodology was applied whereby 30 clusters were randomly selected from the entire Dinsor District. Initially a sampling frame was constructed, using revised WHO NIDs population figures, from which a representative sample was drawn. A list of villages, and town sections in the case of Dinsor town, with their respective populations was used to construct cumulative population figures for the district. The population figures were received from the WHO population estimates and the verification/ review conducted jointly by IMC and UNICEF field teams and the community representatives. An estimated population of 65,884 (WHO, Aug, 2003) was used from which a cluster interval of 2,196 was calculated. Using random number tables a random number of 1,134 was chosen within the cluster interval to determine the first cluster. The subsequent clusters were determined systematically by adding the cluster interval (2,196) to the first randomly selected number (see appendix) until all the 30 clusters was selected. A total of 907 children between the heights/length of 65 and 110cm and 6-59 months old were surveyed from the 30 randomly selected clusters. Out of the total, 5 clusters were from Dinsor town and its satellite villages.

In each of the clusters, mortality questionnaires were exercised to 30 households. Same sampling frame was used in cluster selection hence the same clusters selected for the nutrition data were also used for the mortality data. In total, mortality data was collected from 900 households irrespective of whether with an under-five or not (details of household selection, below).

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 for the clusters

3-Global acute malnutrition: W/H<-2 Z-score and/or presence of oedema

4-Severe acute malnutrition: W/H<-3 Z-score and/or presence of oedema

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 of the first household with a child of the required age or height. 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 (clockwise direction) was followed until details of 30 children were collected from that cluster. If a cluster was exhausted of children before the required 30 children had been reached, a neighbouring area village randomly selected. All eligible children in the household were measured and if a child or primary caregiver was absent, an appointment was booked for a later visit in the course of survey.

With reference to mortality, the data was collected retrospectively with the first questionnaire being exercised on the first randomly selected household irrespective of presence of an under-five child or not. (The entire population was included in the mortality rates determination.) Same direction (which has been randomly picked by spinning a pen) as indicated above was followed. But unlike the survey for children where only households with children were visited for interview, the mortality questionnaire was exercised in every household in the identified direction. The survey team turned to the right side on reaching the cluster edge, until 30 households were surveyed from the cluster.

3.3: Data collection

3.3.1: Anthropometric measurements

The anthropometric data were 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:

Weight: Salter scale with calibrations of 100g-unit was used. This was adjusted before weighing every child by setting it to zero when the weighing pan was on. The female children would be 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. The measurements were taken to the nearest 0.1kg.

Height: For height, a vertical measuring board reading a maximum of 132cm and capable of measuring to 0.1cm was used to take the height or length of a child. The child would stand on the measuring board barefooted; have hands hanging loosely with feet parallel to the body, and heels, buttocks, shoulders and back of the head touching the board. The head would be held comfortably erect with the lower border of the orbit of the eye being in the same horizontal plane as the external canal of the ear. The headpiece of the measuring board was then pushed gently, crushing the hair and making contact with the top of the head. Height was then read to the nearest 0.1cm. Two readings were recorded and the computed average used in the analysis.

Length: For children aged 6 to 24 months or between 65cm to 84.9cm length instead of height was taken using a horizontal measuring board. The child was made to lie flat on the length board. The sliding piece was placed at the edge of the bare feet as the head (with crushing of the hair) touched the other end of the measuring device. Then two readings were taken and the average computed. The measurements were taken to the nearest 0.1cm

Oedema: Defined as bilateral oedema on the lower limbs detected by gently pressing the feet to check if a depression is left after at least three seconds of pressing. All children were checked for oedema first before being taken their height or weight.

Children identified to be in critical condition (2 oedema cases) were advised to visit the MSF Switzerland health centre or IMC Dinsor MCH where supplementary feeding programme is being implemented.

3.3.2: 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. Dinsor District calendar of events (see in the appendix) was also used as a proxy to accurate age determination. Though not entirely accurate, ages were still regarded as important indicators though not used for

anthropometric analysis and were approximate/average pointers. The nutrition indicator employed was weight for height as interest was in the wasting status (acute malnutrition).

3.3.3: Morbidity terminologies

Diarrhoea: Diarrhoea was defined for a child having three or more loose or watery stools per day.

Measles: A child with more than three signs of the following was considered having measles: fever, and skin rash, runny nose or red eyes, and/or mouth infection, or chest infection

Acute Respiratory Infection (ARI): Asked as *oof wareen or wareento*. The signs asked included cough, rapid breathing, pneumonia, bronchitis and fever or any other respiratory illness.

Suspected malaria: The signs to be looked for are periodic chills, fever, sweating and sometimes a coma.

3.4: Description of survey activities

Table 4: Chronology of activities for the Dinsor nutrition survey

Major Activity	Period
Preparation of tools, methodology & review of secondary data (Nairobi)	September 10 th -12 th
Survey planning meeting and confirmation of the equipment and staff	September 14 th
Training of enumerators and pre-testing of questionnaire	September 15 th – 17 th
Cluster Identification	September 17 th
Collection of data and entry	September 18 th – 23 rd
Data cleaning and presentation of preliminary analysis to community	September 24 th
Presentation of draft report	November 27 th
Circulation of report	December 10 st

Five teams consisting of two enumerators and one supervisor conducted the survey with each team handling one cluster in a day. An elder from a particular village/cluster assisted the teams in identification of the cluster boundaries and its centre. Supervisors were seconded from the participating organisations; namely; UNICEF, IMC while the enumerators came from the local community, IMC health team and persons recommended by UNICEF for their wide experience in nutrition surveys. The survey team consisted of qualified enumerators who were selected on the basis of their experience with previous nutrition surveys. Overall support, supervision and co-ordination were done by FSAU nutritionist and UNICEF official with support from IMC field management team.

3.5: Quality control procedures

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

Rigorous standardisation of measurement and pre-testing of the equipment was carried out in Dinsor MCH where repeated measurements by different teams and the possible errors were addressed. This involved taking repeated measurement of 6 children by all the teams and comparing with some reference. The survey teams were also taken to the field to familiarise with village/cluster entry; administering 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 necessary changes were made.

Quality of data was also ensured through (i) close monitoring of fieldwork by FSAU nutritionist, (ii) crosschecking of filled questionnaires on daily basis and (iii) daily review undertaken with the enumerators to address any difficulties encountered, (iv) progress evaluation was carried out according to the time schedule and progress reports shared with partners on regular basis, (v) continuous data cleaning after entry in the field that made it easy to detect any mistakes and to replace or repeat households depending on magnitude of error and (vi) monitoring accuracy of equipment (weighing scales) by regularly measuring objects of known weights.

3.6: Data analysis

3.6.1: Entry, cleaning, processing and analysis

Data was entered and analysed using EPIINFO 6.04 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).

3.6.2: 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.

3.6.3: Creation of nutritional status indices

The anthropometric measurement of weight and height were used to compute the nutritional status indicators of the studied 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. WFH measures acute malnutrition or wasting. Using EPINUT, Z-scores were generated and the anthropometric indicator, WFH, was used to classify children into categories of nutritional status as follows:

- < -3 Z-Scores or oedema = Severe acute malnutrition
- 3 Z-Scores \leq WFH < -2 Z-Scores = Moderate acute malnutrition
- < -2 Z-score or oedema = Global/total acute malnutrition
- \geq -2Z-Scores = Normal

Also analysed was the nutrition status of children based on the percentage of the median categories for W/H indicator. The categories of nutrition status for children were as follows:

- < 70 % of median or oedema = Severe acute malnutrition
- 70% \leq W/H < 80% of median = Moderate acute malnutrition
- < 80% of median or oedema = Global acute malnutrition
- \geq 80% of median = Normal

3.7: Mortality data collection and analysis

The mortality data was collected retrospectively from 900 households through a questionnaire using the methodology described above. Each household surveyed was asked the composition of their members in two parts: (i) those members less than 5 years and (ii) the total number of household members. The number of deaths three months prior to the survey and the cause for death was also investigated and documented.

3.6.1 Mortality data analysis

Using the formula for calculating mortality (below), the under-five mortality rates were calculated.

Formula (steps):

- Total the deaths for a given number of days (n)
- Divide the total deaths (n) by the mid period population size $[(n + N_1 + N_2)/2]$
- Divide the outcome with recall period (p)
- Multiply by 10,000 for a daily under-five mortality rate

The formula summary: Under-five mortality rate = $\{[n/(n + N_1 + N_2)/2]/p\} * 10,000$

Same formula was applied in the calculation for crude mortality rate.

4 SURVEY RESULTS

4.1 Characteristics of the study population

Out of the 907 children surveyed from the 518 households, 487 (53.7%) were males and 420 children (46.3%) were females with the ratio of males to females being 1:1.1. About 89% of the children came from male headed households while the rest 11% were from female headed households. The mean household size in Dinsor is 6 (SD= 2).

Table 5: Distribution of the sample population by sex and age groups

Age categories	Males	Females	Total	Ratio
6-11	67 (55.4%)	54 (44.6%)	121 (13.3%)	1.2
12-23	129 (52.0%)	119 (49.0%)	248 (27.3%)	1.1
24-35	98 (53.6%)	85 (46.4%)	183 (20.3%)	1.1
36-47	87 (54.7%)	72 (45.3%)	159 (17.5%)	1.2
48-59	106 (54.1%)	90 (45.9%)	196 (21.6%)	1.1
Total	487 (53.7%)	420 (46.3%)	907 (100%)	1.1

Most of the surveyed children were from 12-23 age category (27.3% of the total). Most of the children (94.5%) were from households currently staying in their indigenous residential area while 5.5% were from internally displaced households. Insecurity (68%) followed by food shortage (22%) were the main pushing factors that triggered movement of household into Dinsor or within Dinsor District.

Table 6: Reason for movement to current residential village

Reason	Proportion	Number (N=50)
Insecurity	68.0%	34
Food shortage	22.0%	11
Lack of jobs	6.0%	3
Water shortage	4.0%	2

Within the district movement of IDPs was common. The main areas people moved from were Raasade (8%), Hubey (40%) and Kurman (8%) all in Dinsor District while places of origin outside Dinsor were Baidoa (6%), Qansax Dheere (14%) and Burhakaba (24%).

4.2 Food sources, income sources and coping strategies

Table 7: Current socio-economic status of the study population

Most children came from households depending on crop production (87%) as their main food source. Food purchasing (12.1%) was the second important source of food for the Dinsor population. Others sources of food were remittances and wild food collection.

Sale of crops and casual work, particularly the farm labour are important income sources to Dinsor District residents. About 70.5% of the children came from households normally depending on sale of crops as the main income source. Another 13.9% came from households normally depending on the casual labour while 8.2% of the children came from households relying on the small scale businesses. Other sources of income include sale of animals, dependence on relatives and friends for gifts and salaried employment.

Purchasing of food (51.5%), increased sale of livestock (21.8%), casual labour (13.2%), collection of wild foods (8.4 %) and splitting of family (3.2%) are the main alternative means of survival during stress and food shortage in the district.

4.3: Water and Sanitation

As indicated in Table 7, the main water source for the Dinsor community is water catchments followed by open unprotected wells. Only 8.5% of the children came from households accessing water from a borehole (These were Misra residents, the only village with a functioning borehole in Dinsor and with adequate water for both domestic and livestock use).

		Numbers	%
Main food source			
	House hold crop production	789	87.0
	Purchases	110	12.1
	Remittance	6	0.7
	Wild food collections	2	0.2
Main income	Sale of crops	639	70.5
	Casual Labour	126	13.9
	Small Business	74	8.2
	Sale of animals	45	5.0
	Remittance and gifts	20	2.2
	Salaried employment	3	0.3
Coping strategies	Purchases of food	467	51.5
	Sale of more livestock	198	21.8
	Search for casual labour	120	13.2
	Wild food collection	76	8.4
	Remittance and gifts	17	1.9
	Splitting of family	29	3.2
Water source-	Water catchment	504	55.6
	Unprotected wells	295	32.5
	Bore holes	77	8.5
	Protected wells	24	2.6
	Berkads	7	0.8
Toilet	With access to toilet	209	23
Medical assistance	Seeking medical help	907	100
Source of help	Public health facilities	333	36.7
	Traditional healers	319	35.2
	Private clinic	239	26.4
	Prayers/reading of Quran	16	1.8

Only 23% of the children came from households with toilets, an indication of relatively poor sanitary conditions in the district, especially during the wet season.

4.4 Health services

All the parents and/ or caretakers of the surveyed children (100%) seek medical assistance when the children are sick. However the source of help varied widely. About 36.7% of the children are taken to the public health facilities which consists of the IMC managed MCH and the health posts. About 35.2% of the children were taken to traditional healers while 26.4% were taken to private clinics 26.4% for assistance (Table 7). About 1.8% of the children were prayed for using the Quran. The distance between the villages and the public health facilities is a limiting factor to accessing health services. The private clinics are situated mainly in the main villages/ town which are also not easily accessible to some of the district residents.

4.5 Nutritional status

Table 8 : Prevalence of acute malnutrition based on W/H Z-score and/or oedema

	Males		Females		Total	
	%	No	%	No	%	No
Global acute malnutrition (W/H<-2 z score + oedema)	14.4 (95% CI:11.3-17.7)	70	12.1 (95% CI: 9.0-15.5)	51	13.3 (95% CI: 11.2-15.8)	121
Severe acute malnutrition (W/H<-3 z score + oedema)	2.1 (95% CI: 0.9-3.6)	10	1.4 (95% CI: 0.4-2.9)	6	1.8 (95% C.I: 1.0-2.9)	16
Oedema	0.1	1	0.1	1	0.2	2

The prevalence of global acute malnutrition defined as W/H<-2 Z score or oedema was 13.3% (95% C.I. 11.2-15.8) while the prevalence of severe acute malnutrition, defined as W/H<-3 Z score or oedema, was 1.8% (95% CI. 1.0- 2.9).

Table 9 : Prevalence of acute malnutrition based on W/H % of median and/or oedema

	Males		Females		Total	
	%	No	%	No	%	No
Global acute malnutrition (W/H<80% of med/ oedema)	8.7 (95% CI:6.4-11.6)	43	6.8 (95% CI: 4.6 -9.6)	29	7.9 (95% CI: 6.3-9.9)	72
Severe acute malnutrition (W/H<70% of med/ oedema)	0.5 (95% CI: 0.1-0.9)	3	0.3 (95% CI: 0.0-1.0)	2	0.6 (95% C.I: 0.2-1.4)	5
Oedema	0.1	1	0.1	1	0.2	2

The prevalence of global acute malnutrition defined as W/H<80% or oedema was 7.9% (95% C.I. 6.3-9.9) while the prevalence of severe acute malnutrition, defined as W/H<70% or oedema, was 0.6% (95% CI. 0.2- 1.4).

Table 10: Global acute malnutrition prevalence (based on Z-score or oedema) by sex

	Severe (W/H<-3 z-scores+ oed)	Moderate (-3 Z-Sc. ≤WFH< -2 Z-Sc.)	GAM (W/H<-2 z-sc. + oed.)	Normal (W/H≥ -2Z-Sc.)
Males	10 (2.1%)	60 (12.3%)	70 (14.4%)	417 (85.6%)
Females	6 (1.4%)	45 (10.7%)	51 (12.1%)	369 (87.9%)
Total	16 (1.8%)	105 (11.6%)	121 (13.3%)	786(86.7%)

The difference in malnutrition between sexes was not statistically significant.

Comparison of the Dinsor population's nutrition status and the reference population

On comparison with the reference population, the Dinsor population's nutrition status was relatively poorer than that of the reference population. The population had an aggregate mean z-score of -0.81 and a median of -0.97. These measures of the central tendency reflect a general shift to the left of the population nutrition status. The mean and median z-score values for the reference population equals to zero.

Table 11: Prevalence of acute malnutrition by specific age categories, based on W/H z-score and/or oedema

	Severe (W/H<-3 z-scores+ oed)	Moderate (-3 Z-Sc. ≤WFH< -2 Z-Sc.)	GAM (W/H<-2 z-scores+ oed)	Normal (W/H>=-2 z-scores)
6-11 months	0	14 (11.6%)	14 (11.6%)	107 (88.4%)
12-23 months	5 (2.0%)	34 (13.7%)	39 (15.7%)	206 (84.3%)
24-35 months	0	21 (11.5%)	21 (11.5%)	162 (88.5%)
36-47 months	7 (4.4%)	12 (7.5%)	19 (11.9%)	140 (88.1%)
48-59 months	4 (2.0%)	24 (12.3%)	28 (14.3%)	168 (85.7%)

The relationship between malnutrition and age categories was not statistically significant. However, the 12-23 months age category had highest proportion of the children malnourished, followed by the 48-59 age category.

4.6: Health, feeding practices and immunisation coverage

Table 12: Disease prevalence, immunisation and childcare in Dinsor District

Characteristics	Proportion	Number
Disease prevalence & immunisation		
Children with acute respiratory infection in past two weeks	47.3	429
Children with diarrhoea in past two weeks	25.4	230
Malaria in the past two weeks	11.0	100
Measles cases in the past two weeks	2.1	19
Vitamin A supplementation in past 6 months		
Measles immunisation (n=839)	35.5	298
Children who have ever received polio vaccine in life	76.8	696
Child feeding		
Frequency of feeding in a day		
➤ Once	0.9	8
➤ Twice	12.6	114
➤ 3-4 times	53.7	487
➤ Five and above	32.8	298
Age of stopping breastfeeding (N=643)		
Less than 6 months	7.8	50
6-11 months	14.6	94
12-18 months	42.8	275
Above 18 months	32.3	208
Never Breastfed	2.5	16
Children ever admitted in the SFP	4.3	39
Children whose mothers are unaware of SFP existence	36.5	331

A relatively high prevalence of diseases was revealed in the study group. About 47% of the surveyed children had a respiratory infection⁵, 25% with diarrhea, 11% with suspected malaria and 1.2% with measles. About 70% of the surveyed children had received Vitamin A supplementation, 35.5% of immunisable age had been vaccinated against measles while about 77% had received at least one dose of polio vaccine during the polio campaign.

About 21.1% (n=264) of the surveyed children were breastfeeding at the time of the survey. *On the other hand, all surveyed children were introduced to other foods other than breastmilk within their first three months of life, an indication of unpopularity of exclusive breastfeeding.* About 22.4% of the children not breastfeeding stopped breastfeeding in their first year of life while 13.5% of the children were fed once or twice in a day.

Relationship between malnutrition and other factors

- There was statistically significant association between nutrition status and the frequency of feeding ($X^2= 25.05$, $p=0.000015$). Children fed less times were more likely to be malnourished than children fed more frequently.
- The association between malnutrition and age of stopping breastfeeding was statistically significant with those children who stopped breastfeeding in their between 0 and 11 months being more likely to be malnourished than those who stopped after 12 months of age ($X^2 =22.69$,

⁵ -Respiratory infection includes coughs, rapid breathing, pneumonia, bronchitis or any other respiratory illness

p=0.00014).

- There was a statistically significant association between malnutrition and diarrhoea with children who had experienced diarrhoea two weeks prior to the survey being about 1.8 times more likely to be malnourished than children who had not experienced diarrhoea (OR: 1.77, CI: 1.15-2.71, Corrected Yates $X^2 = 7.04$, $p=0.008$).
- There was a statistically significant association between malnutrition and coping strategies employed by households during stress period. Children from households relying on remittances and wild foods collection during food shortage were at higher risk of malnutrition than those employing other strategies like sale of livestock, purchases search for casual labour ($X^2 = 22.48$, $p=0.00042$).
- About 50.5% of the malnourished children were taken to traditional healers for medical assistance when sick. Children taken to traditional healers were twice likely to be malnourished than those taken to private clinics and public health facilities (RR=1.87, 1.35 – 2.6)
- There was no significant relationship between malnutrition and acute respiratory infection, measles, age of introduction of weaning foods, measles vaccination, residential status, access to toilet facilities and source of drinking water.

4.7: Qualitative data summary

The qualitative information reveals a change in consumption habits with the persistence of drought. In normal seasons, wild vegetables, *kables*, are usually common during the *gu* season and during the *hagar* season. However, due to the reduced rains the *kables* is not available. The pastures and water reduction also led to the livestock movement away from the household members, particularly to Doy, Sakow/Jilib and Burhakaba, resulting to reduced milk availability. The reduced milk availability has led to increase in prices from 3-4,000 (normal period) to 6-8,000 Ssh/ litre. It was reported that this has contributed to reduced consumption particularly among the poor households. The shift from the preferred foods combination of milk, meat and cereals to cereals alone had been witnessed between April and September 2003. The imported goods' prices remain high with the continued extortion of levies along the way. For example, the sugar prices was 20% higher than normal prices in September 2003.

Search for drinking water was reported to be an activity consuming significant amount of mothers/ caretakers time. With the drying up of many water catchments, the water prices have also increased from 5-6,000 Ssh to 8-10,000 Ssh per 20 litres. Only one of the fifteen boreholes functions in the district. The functioning borehole is located in Misra.

Exclusive breast feeding is unpopular despite the mothers' knowledge of its importance to children's growth. Majority of mothers breastfeed for a period between 12 and 18 months. However, it was notable that an abrupt cessation of breastfeeding takes place immediately the mother realises another pregnancy. With reference to feeding frequency, it varied with food availability.

Diarrhoea, ARI, malaria and intestinal parasites were reported as the common diseases the Dinsor population suffers from. Men usually make the decision on where and when the medical assistance should be obtained. Because of distance, there is limited utilisation of the public health facilities managed by the NGOs (IMC and MSF-Switzerland). The vaccination activities earlier on given by the IMC through outreach EPI activities no longer existed thus lack on immunisation activities for children in the rural areas.

4.8. Mortality data results

A total of 900 households were assessed for mortality, with the following results:

i. Under five mortality rate (U5MR)

Total population of under 5s in surveyed households on June 15th, 2003 (N₁) = 1025
Total population of under 5s in surveyed households on Sept. 15th, 2003 (N₂) = 1038
Total number of deaths in surveyed households from June 15th till Sept 15th (n) = 35

Survey period in days = 92

$$\begin{aligned}\text{Under-five mortality rate} &= \{[n/(n+N_1+N_2)/2]/p\} * 10,000 \\ &= \{35/[(35+1025+1038)/2] / 92 \text{ days}\} * 10,000 \\ &= \{35 / 1049 / 92 \text{ days}\} * 10,000 \\ &= \{0.38 / 1049\} * 10,000 \\ &= 3.6 / 10,000/\text{day}\end{aligned}$$

Under five deaths were attributed to the following:

- o Diarrhoea (10 cases) = 29%
- o Fever (9 cases) = 26%
- o Pneumonia (7 cases) = 20 %
- o Malaria (2 cases) = 6 %
- o Tuberculosis (2 cases) = 6 %
- o Tetanus (2 cases) = 6 %
- o Kalazar (1 case) = 3 %
- o Tonsillitis (1 case) = 3 %
- o Not known (1 case) = 3 %%

ii. Crude mortality rate (CMR)

Total population in surveyed households on June 15th, 2003 (N₁) = 4401
Total population in surveyed households on Sept. 15th, 2003 (N₂) = 4559
Total number of deaths in surveyed households from June 15th till Sept 15th (n) = 49
Survey period in days = 92

$$\begin{aligned}\text{Crude mortality rate} &= \{[n/(n+N_1+N_2)/2]/p\} * 10,000 \\ &= \{49 / [(49+4401+4559)/2] / 92 \text{ days}\} * 10,000 \\ &= \{49 / 4504.5 / 92 \text{ days}\} * 10,000 \\ &= \{0.53 / 4504.5 / \text{day}\} * 10,000 \\ &= 1.2 / 10000 / \text{day}\end{aligned}$$

Total deaths within the population were attributed to the following:

- o Fever (17 cases) = 35%
- o Diarrhoea (10 cases) = 20 %
- o Pneumonia (9 cases) = 18 %
- o Kalazar (3 cases) = 6 %
- o Malaria (2 cases) = 4 %
- o Tuberculosis (2 cases) = 4 %
- o Tetanus (2 cases) = 4 %
- o Tuberculosis (2 cases) = 4 %
- o Tonsillitis (1 case) = 2 %
- o Not known (1 case) = 1 %

5: DISCUSSION AND CONCLUSION

The Dinsor population's nutrition status is below normal with malnutrition prevalence rates of above 10% being reported in the past three surveys⁶ carried out. This is despite the district's potential to adequately provide food for its population and the markets in the neighbouring districts and regions. The factors associated with malnutrition cut across food security and the coping strategies, childcare and the prevailing diseases. Mortality rates for the under fives and the whole population, are elevated, denoting a 'very serious situation'⁷

Food sources, income and coping mechanisms

Though Dinsor district has the potential to be stable in food security, the recent deterioration in food security indicators particularly water, pastures and reduced food stocks raises concern to the population already recording poor nutritional status. It was notable that the district received good harvests in *Gu* 2002 and 2002/3 *Deyr* and much of the food stocks currently available is from the 2002 harvests. The food security indicators are rapidly deteriorating particularly with the failure of the *Gu* 2003 cropping season in most parts of the district. Pastures and water for livestock has declined, thus triggering livestock movement to far places from the household members towards Burhakaba, Doy and Sakow/Jilib. The milk prices have increased by over 30% on comparison with the normal year prices (4,000 Ssh/ litre)

The rain received determines the crop performance in Dinsor since the dominant food economy is rain-fed agro-pastoralists. The crop production is the main food source (87.0%) followed by the purchasing of food (12.1%) while sale of crops (70.5%) and the casual labour (13.9%) are the main sources of income. Income earned through sale of crops, casual labour particularly in the farms, small business and sale of animals is used in the purchasing of food. Purchasing of food (51.5%), sale of more livestock (21.8%) and casual labour (13.2%) rank highly as some of the main coping strategies employed in Dinsor District. With the reduction in sale of cereals in June 2003, cereals prices increased by 26% for sorghum and 40% for maize. The imported foods prices remained high (for example rice and sugar high by about 20% compared to normal prices) due to persistent levy extortion at the checkpoints along the roads. The increase in prices negatively affects the food access to the Dinsor population which depends on the market for food, especially the poor. The Dinsor agro-pastoral population values their livestock as an important asset with only a few selling them to earn income (5%) or as a coping strategy (21.8%). The statistically significant relationship between the nutrition status and the coping strategies employed by households is a strong indication that food security situation is important determinant of nutrition status in Dinsor. Children from households depending on remittances and wild foods collection as coping strategies were more likely to be malnourished than those selling livestock, purchasing food or seeking casual labour during the stress period labour ($X^2 = 22.48$, $p = 0.00042$).

The consumption of *kables* has reduced with its reduction in availability during the unusual dry period of *Gu* 2003 season. The increased consumption of cereal based diets with limited addition of the milk and meat implies reduced quality of the diet thus predisposing the population to higher risk of malnutrition. The food stocks are rapidly decreasing at the household level thus exposing the population to deeper food security challenges. In principle the current cereal stock utilization and the performance of the forthcoming *Deyr* season are key determinants of the food security situation for the district in the near future.

The mitigation efforts undertaken through the food for work programmes as well as family ration distribution to households with malnourished children by WFP assists vulnerable households like the poor in meeting part of the basic food requirements. However, since June 2002, three monthly food distributions never took place in the district. The estimated 20MT was not distributed in November 2002, January and April 2003. The irregular food distribution may lag the recovery rate of the children in incidences of supplementary food sharing.

6 - GAM rates (W/H<-2 z-score/ oedema): 11.8% in Aug 1996, 14.6% in Dec 2000 and 13.3% in Sept 2003.

7 Annex 4: Method for Estimating Mortality Rates in Humanitarian Emergencies Using Previous Birth History (Mark Myatt & Anna Taylor, June 2002)

With reference to water, the main water source (water catchments and unprotected wells) are exposed to possible contamination particularly with the drying up of some water points and concentration livestock in some water points in search of water. Salty water which is sometimes of poor quality is utilised in some households thus possibility of undermining the health and nutrition status of the population. Out of the existing 15 boreholes in Dinsor District, only one functioning boreholes is found in Misra. Coordinated efforts of the INGOs implementing water programmes in the district are necessary to improve water situation.

Health

With support from UNICEF, IMC operates a primary health care programme through an MCH and 17 health posts in the main villages (about 20 health posts were closed in the year 2002). In addition, before July 2002, outreach EPI activities were also conducted by IMC in the district. MSF Switzerland operates an OPD and IPD in Dinsor town since mid 2002. Treatment of disease is also conducted during the monthly supplementary food distribution to all children presented for screening. It is notable that distance limits the use of public health facilities managed by IMC and MSF-S. The MCH and the health centre are situated in Dinsor town with catchments population mainly being the urban population and the immediate peripheral villages. The closure of health posts further hindered access as distance covered by health service seekers got longer. About 37% of the surveyed children were taken to the public health facility when sick while 35% and 26% were taken to traditional healers and private clinics respectively.

Despite the NGOs efforts, malaria, diarrhoea, acute respiratory diseases and anemia are commonly reported at the MCH. High prevalence of diarrhea (25%), acute respiratory infection (47%) and malaria (11%) were recorded during the survey. Diarrhoea episodes are associated with the deterioration of the water condition in the district, particularly where the open unprotected wells also serve livestock for water provision. The sanitation could even be worse during the wet season in view of low utilization of toilets. The relatively high disease prevalence further undermines the nutrition status of the children in Dinsor. There was statistically significant association between malnutrition and diarrhea. Other health promotion measures like immunization and supplementation have covered only part of the population. The vitamin A supplementation coverage was 70% while measles and polio immunization coverage were 36% and 77% respectively. The low immunization coverage for measles could be associated with the new strategy by UNICEF on EPI that focuses on major towns only. Vitamin A supplementation has been conducted in the district through the WHO sponsored NIDs and the ongoing integrated supplementary feeding programme. However the coverage for the two programmes is relatively low with only 77% of the surveyed children having been vaccinated against polio and about 37% of the mothers/caretakers not knowing of the existence of the SFP in Dinsor. About 7.3% (n=67) of the surveyed children qualified to be in the supplementary feeding programme while only 4.3% (n=39) of the surveyed children had ever been admitted into the programme.

Child care practices

Though about 78% of the children were breastfed for a year and above, all the surveyed children were introduced to other food other than breastmilk in their first three months of life. About 87% of the surveyed children were fed three or more times and the food ranged from breast milk to the family diet. However, with the reduction in milk availability and the shift to cereal based diets, the quality of food consumed even by the children has declined.

The statistically significant relationship between malnutrition and frequency of feeding and age of stopping breastfeeding clearly indicates the influence of child care on the nutrition status of children. With the drying up of water catchments, the caretakers and mothers spent much more time on the on fetching water at the expense of childcare.

Nutritional status and Mortality Rates

A combination of factors like coping strategies employed (apparently some seem not to be reliable), childcare and diseases undermines the nutrition status of children in Dinsor District. The food security situation is on the decline following the poor Gu 2003 rains and the persistent lack of rains and outward movement of livestock. In this regard, the prevailing aggravating factors have the potential to worsen the nutrition status of the Dinsor population. A global acute malnutrition of 13.3% and a severe acute malnutrition of 1.8% already present a poor nutrition situation calling for interventions. Crude and under five mortality rates of 1.2/10,000/day and 3.6/10,000/day respectively are elevated and denote a very serious situation.

Though statistically not significant, the malnutrition rates recorded in the current survey were lower than the December 2000 survey in Dinsor (GAM 14.6%). However, the rates were higher than the August 1996 where 11.8% was reported. A general picture therefore of below normal nutrition status is presented from those surveys. The survey results confirm the June 2003 assessment results using Mid Upper Arm Circumference whereby 22% of the children screening in Dinsor town had MUAC measurements of less than 12.5cm. In view of the prevailing aggravating factors, the nutrition condition may worsen. However, the current presence of INGOs which are establishing intervention programmes may give hope to improvement of some aspects of the situation. There is need for both health and food security improvement programmes to avert further deterioration. The targeted supplementary feeding programme through the MCH needs to continue to cater for the vulnerable malnourished children and their families.

In conclusion, in a situation where food security indicators are further deteriorating, relatively high disease incidences reported and some poor child care practices being used, the Dinsor population may continue facing risks of malnutrition. The poor health and nutrition situation as revealed in the disease incidences, malnutrition rates and mortality rates and their associated causes calls for comprehensive health and nutrition programmes benefiting both rural and urban population.

Closer monitoring of household food stock is essential in view of the high dependency on the 2002 food stocks. In addition, for the sake of the malnourished children particularly those from the poor households, the need for targeted supplementary and the family ration through the MCH remains.

6 RECOMMENDATIONS

The current situation in Dinsor District warrants intervention and it is recommended for action to be taken for mitigation purposes. Some of the recommendations include:

- The ongoing SFP should continue to assist the vulnerable and malnourished children meet their basic food requirements
- Consulted efforts to render comprehensive health services by supporting outreach health activities (revive the halted activities in the closed health posts and suspended mobile EPI) in all the main villages in the district need to be considered.
- Emphasize on health and nutrition education component at the MCH level.
- Co-ordination of activities by NGO's in the livestock sector for high district coverage at no duplication.
- Water catchments and borehole rehabilitation programmes are necessary and urgent to minimize livestock movement triggered by water shortage and reduce the long distance covered by caretakers and mothers for domestic use.
- There is need for intensified nutrition and disease surveillance in the district.
- Security in the district is paramount to reduce effects of the levy extortion on the imported foods prices (increases).
- Closer monitoring of food security situation is necessary.

7 APPENDICES

Appendix 1: Sampling frame used in the cluster selection for Dinsor District

REVIEWED POLIO NID's ROUND I AUG 2003 IN DINSOR DISTRICT						
	Fixed Settlements	MAIN VILLAGE	Est. Pop	Target Pop.	Cumm Pop	
1	Misra/bulodhato	YES	2652	530	2652	1
2	Nurka	N0	800	160	3452	2
3	Garasfur	N0	500	100	3952	
4	Durey	N0	988	198	4940	
5	Goymarey	N0	728	146	5668	3
6	Dhujigaroon/toosiley	N0	572	114	6240	
7	Safarnoleys	N0	780	156	7020	
8	Derbaal	N0	650	130	7670	
10	Mayweydiyasi	N0	858	172	8528	4
11	Tugarhosle	N0	754	151	9282	
12	Galgalbaeed/dugsiiow	N0	754	151	10036	5
13	Hoobey	N0	905	181	10941	
14	Buulobakal	N0	754	151	11695	
15	Bakaley/Buulohadama	N0	728	146	12423	6
16	Waryaroy	N0	910	182	13333	
17	Lamiwarood	NO	832	166	14165	
18	Yaqdhub/buulohubeey	N0	702	140	14867	7
19	Dinsor/Ka'an	N0	3000	600	17867	8
20	Dinsor/Hilaa/oktoobar	N0	3000	600	20867	9
21	Dinsor/Ahm./gurey/h/tako	N0	1560	312	22427	10
22	Dinsor/Jamea/abd/hassan	N0	3000	600	25427	11
23	Billille/ganugway/rahole+Dinsor	N0	500	100	25927	12
24	Deg gomor	N0	759	152	26686	
25	Taftaag	N0	754	151	27440	
26	Buloibdow/Bantubaako	N0	800	160	28240	13
27	Kurman	N0	759	152	28999	
28	Raas edde	N0	744	149	29743	14
29	Idadkoble	N0	754	151	30497	
30	Buuloaddey	N0	780	156	31277	
31	Mukhtar	N0	650	130	31927	15
32	Hareerisiin	N0	728	146	32655	
33	Korowdheere	N0	650	130	33305	
34	Harinka	N0	744	149	34048	
35	Gurban	N0	2500	500	36548	16,17
36	Warkurii	N0	749	150	37297	
37	Eelgoof	N0	790	158	38088	

38	Lamiqasaaley	N0	660	132	38748	18
39	Riikoy	N0	936	187	39684	
40	Waraddey	N0	780	156	40464	
41	Afgoye	N0	796	159	41260	19
42	Bandhuub	N0	702	140	41962	
43	Aliyow qaadi	N0	400	80	42362	
44	Buloqarare	N0	754	151	43116	20
45	Abaqtag	N0	712	142	43828	
46	Buulogaduud/Hafato	N0	650	130	44478	
47	Idad Geeri	N0	728	146	45206	21
48	Bakaey/Bakarole	N0	780	156	45986	
49	Gorgorey	N0	780	156	46766	
50	Degwarer/Degmerer	N0	780	156	47546	22
51	Garasshabo	N0	780	156	48326	
52	Habibayal	N0	1248	250	49574	23
53	Leheley	N0	500	100	50074	
54	Deggaloole	N0	500	100	50574	
55	Jameo	N0	780	156	51354	
56	Bulogadud/Rahole	N0	770	154	52124	24
57	Bulomaqar	N0	78	16	52202	
58	Sharab	N0	385	77	52586	
59	Korow	N0	728	146	53314	
60	Shidkus	N0	1430	286	54744	25
61	Buulobaardheere	N0	780	156	55524	
62	Haranka	N0	764	153	56289	26
63	Habalsomali	N0	780	156	57069	
64	Rebay	N0	775	155	57844	
65	Gorgorrey	N0	785	157	58629	27
66	Buuloqoqan+Degyarow	N0	707	141	59336	
67	Buloomane	N0	770	154	60106	
68	Yaqbarawe	N0	780	156	60886	28
69	Qananah	N0	728	146	61614	
70	Awraamo	N0	754	151	62368	
71	Anoy	N0	759	152	63127	29
72	Berariba	N0	749	150	63876	
73	Hirmowamo	N0	780	156	64656	
74	Buulo Gadudud/Kananey	N0	500	100	65156	30
75	Burmadobe	N0	728	146	65884	
	TOTAL		65884	13177		

Random number

1134

Interval range

2196.12 2196

Appendix 2: Traditional Calendar for Dinsor District Nutrition Survey

Month	Events	1998	1999	2000	2001	2002	2003
Jan.	Beginning of Jiilal		56 Soonfur	44 Soonfur	32 Soonfur	20 Soonfur	8 Soonfur
Feb.	Mid of Jiilaal		55 Siditaal	43 Siditaal	31 Siditaal	19 Siditaal 1 st Baidoa fight	7 Siditaal
Mar.	End of Jiilaal		54 Arafo/Dul-Xaj	42 Arafo/Dul-Xaj	30 Arafo/Dul-Xaj	18 Arafo/Dul-Xaj	6 Arafo/Dul-Xaj
Apr.	Beginning of Gu'		53 Sako	41 Sako	29 Sako	17 Sako	5 Sako
May	Mid of Gu'		52 Safar	40 Safar	28 Safar	16 Safar	4 Safar
Jun.	End of Gu'		51 Mawliid Baidoa captured by RRA	39 Mawliid	27 Mawliid	15 Mawliid	3 Mawliid
July	Beginning of Xagaa		50 Malmadoone	38 Malmadoone	26 Malmadoone	14 Malmadoone 2 nd Baidoa fight	2 Malmadoone
Aug.	Mid of Xagaa		49 Jamadul-Awal	37 Jamadul-Awal - Carta meeting/election in Djibouti	25 Jamadul-Awal	13 Jamadul-Awal	1 Jamadul-Awal
Sep.	End of Xagaa		48 Jamadul-Akhir Dinsor visited by RRA	36 Jamadul-Akhir	24 Jamadul-Akhir	12 Jamadul-Akhir	
Oct.	Beginning of Deyr	59 Rajab	47 Rajab	35 Rajab	23 Rajab	11 Rajab Start of Edoret reconciliation meeting, Kenya	
Nov.	Mid of Deyr	58 Shacbaan	46 Shacbaan	34 Shacbaan	22 Shacbaan	10 Shacbaan	
Dec.	End of Deyr	57 Ramadan	45 Ramadan	33 Ramadan	21 Ramadan	9 Ramadan	

Jiilaal

GU'

Xagaa

Deyr

* Carta meeting – The Djibouti meeting which culminated to the election of TNG
- Baidoa fights caused influx of people into Dinsor

Appendix 3: Mortality Questionnaire

Taariikhda _____ Lambarka Kooxda _____ Lambarka Goobta _____ Magaca wareystaha _____ Magaca
 tuulada/Magaalada _____ Magaca Xaafadda _____ Lambarka Qosyka _____
 Magaca Madaxa Qoyska _____ - _____

Caruurta: <i>(Waxaa haboon in laga buuxiyo foomkani haweenka qoyska ka tirsan).</i>	
1. Waligaa ma dhashay? <i>(Dhalasho- Cunug neefsadey, ooyay, ama muujiyey calaamad nolol daqiiqadaba ha ahaatee.</i>	Haa..... Maya.....
2. Guriga ma kula noolyahay cunug aadan dhalin?	Haa Maya.....
3. Haddii S1 & S2 ay tahay Haa, waa imisaa? Haddii S1 & S2 ay tahay Maya, ugudub S11	Tirada ka yar 5 sano Tirada ka weyn 5 sano
4. Majiraan caruur aad nolol ku dhashey laga soo bilaabol 15th June 2003 ilaa iyo Hadda?	Haa..... Maya..... Haddii ay Haa tahay, waa imisaa?.....
5. Majiraa caruur ka yar 5 sano oo aadan dhalin oo ka tirsan qoyskiina laga soo bilaabo 15 ^{ki} June 2003.	Haa..... Maya..... Haddii ay Haa tahay, waa imisaa?.....
6. Imisaa carruur oo 5 sano ka yar ayaa ku nooleyd qoyskiina laga soo bilaabo 15 ^{ki} June 2003?	Tirada ku nool guriga.....
7. Imisaa caruur oo k v yar 5 sano ayaa kula nool?	Tirada Wiilasha la nool Tirada Gabdhaha la nool
8. Majiraan Caruur 5 sano ka yar oo aad nolol ku dhashey oo aan kula nooleyn hadda?	HaaMaya..... Haddii ay Haa tahay, waa imisaa?..... Tirada wiilashaTirada Gabdhaha
9. Majiraan caruur 5 sano ka yar oo kaa dhimatay laga soo bilaabo 15 ^{ki} June 2003?	HaaMaya.....Haddii ay haa tahay, waa imisaa Tirada wiilasha dhimatey..... Tirada Gabdhaha dhimatey.....
10. Haddii ay caruur 5 sano ka yar qosyka ka dhinteen, maxay ahaayeen calaamadahii ama sababihii dhimashada?	Canuga 1..... Cunuga 2..... Cunuga 3..... Cunuga 4
INTA 5 SANO KA WEYN EE QOYSKA KA TIRSAN	
11. Imisaa 5 sano ka weyn ayaa ku nooleyd qoyskani laga soo bilaabo 15 ^{ki} June 2003?	Tirada 5 sano ka weyn.....
12. Majiraan dad 5 sano ka weyn oo qosykan ku soo biiray laga soo bilaabo 15 ^{ki} June 2003.	Haa Maya..... Haddii ay haa tahay, waa imisaa
13. Majiraan qof 5 sano ka weyn oo ka tagey qoyskan laga soo bilaabo 15 ^{ki} June 2003.	Haa Maya..... Haddii ay haa tahay, waa imisaa
14. Imisaa ka weyn 5 sano oo ku nool qosykan hadda?	Tirada ka weyn 5 sano.....
15. Majiraa qof 5 sano ka weyn oo qosykan ka tirsan oo dhintay laga soo bilaabo 15 ^{ki} June 2003?	Haa Maya..... Haddii ay haa tahay, waa imisaa
10. Haddii ay qof 5 sano ka weyn ay qosyka ka dhinteen, maxay ahaayeen calaamadahii ama sababihii dhimashada?	Qofka 1..... Qofka 2..... Qofka 3..... Qofka 4

Appendix 4: Mortality Questionnaire

Date _____ Team Number ____ Cluster Number _____ Name of Interviewer _____ Name of Village/Town _____
 Name of section _____ Household Number _____ Name of the household head _____

CHILD: <i>(This questionnaire should be preferably administered to all women in the household)</i>	
1. Have you ever given birth? <i>(Birth- a child who ever breathed or cried or showed signs of live even if he/she lived only a few minutes or hours)</i>	Yes..... No.....
2. Have you any other child in this household who is not your biological child?	Yes..... No.....
3. If yes to Q1 and/or Q2, then how many? If No to both Q1 & 2, then go to Q11	No. below 5 years No. above 5 years
4. Have you any live birth between the first day of June and now?	Yes..... No..... If yes, how many?.....
5. Have you any under five child other than your own in your household coming in since the 15th June,2003 .	Yes..... No..... If yes, how many?.....
6. How many Under 5yrs children were living in this household as on the 15th June,2003 ?	Number.....
7. How many Under 5yrs children live with you now?	Sons at home.....Daughters at home
8. Have you any Under 5yrs children born alive but do not live with you now?	Yes.....No..... If yes then, how many? No. of sons No. of daughters
9. Do you have any Under 5yrs child who has died since 15th June,2003?	Yes.....No.....If yes, then Sons dead Daughters dead.....
10. If there has been death of an Under 5yrs child in this household, then what were the signs and symptoms of death?/suspected cause of death?	Child1..... Child2..... Child3..... Child4
ABOVE FIVE YEARS OLD IN THE HOUSEHOLD	
11. How many above five years old were living in this household as on 15 th June, 2003?	Number >5yrs.....
12. Has there been any above 5yrs old who has come to the household since the 15th June,2003 ?	Yes..... No..... If yes, then how many.....
13. Has there been any above 5yrs old who has left the household since the 15th June,2003 ?	Yes..... No..... If yes, then how many.....
14. How many above 5 yrs live in this household now?	Number.....
15. Do you have any over 5 years old person in this household who has died since the 15th June,2003?	Yes.... No..... If yes, no. >5yrs.....
16. If there has been death of >5yrs person in this household, then what were the signs and symptoms of death?	Person1..... Person2..... Person3..... Person4

Appendix 5: DINSOR NUTRITION SURVEY QUESTIONNAIRE

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

Name of Village/Town _____ Name of section _____

Household Number _____ Name of the household head _____

Q1 Sex of the household head? 1=M, 2=F

Q2 Household size _____

Q3 Number of < 5 years _____

Q4. Household residence status: 1= Residents 2= Internally displaced 3=Returnees 4=Other (specify) _____

If answer to the above is 1, then move to Question 8.

Q5 Place of origin _____

Q6 Duration of stay _____

Q7 Reason for movement: 1= Insecurity 2=Lack of jobs 3= Food shortage 4=Water shortage 5=Others; specify _____

Q8-12 Household background information

<p>Q8 Households main food source?</p> <p>1=Animal products from own production</p> <p>2=Household crop production</p> <p>3=Purchases</p> <p>4=Remittances/Gifts</p> <p>5=Begging</p> <p>6=Wild foods collection</p> <p>7= Others Specify _____</p>	<p>Q9 Households main income source</p> <p>1=Small business</p> <p>2=Casual work</p> <p>3=Salaried employment</p> <p>4= Sale of crops</p> <p>5=Sales of animals and animal products</p> <p>6=Remittances/Gifts</p> <p>7=Others specify _____</p>	<p>Q10 How does this household survive during food shortages (coping strategies)?</p> <p>1=Remittances/Gifts</p> <p>2=Sale of more livestock</p> <p>3=Splitting of the family</p> <p>4=Begging</p> <p>5=Borrowing</p> <p>6=Food aid</p> <p>7=Purchases</p> <p>8=Wild food collection</p> <p>9=Others specify _____</p>	<p>Q11 Source of drinking water</p> <p>1=Borehole</p> <p>2=Open wells</p> <p>3=Protected wells</p> <p>4=Berkads</p> <p>5=Catchments/pond</p> <p>6=Stream/river</p> <p>7=Muscid</p> <p>8=Tap/piped water</p> <p>9=Tanker/truck vendor</p> <p>10=Others specify _____</p>	<p>Q12. Sanitation Facility</p> <p>1= Pit latrines</p> <p>2=Flash toilets</p> <p>3=Bush/Open ground</p> <p><u>Observation</u></p> <p>Q12b Condition of the facility if 1 above.</p> <p>1=Used and clean</p> <p>2=Unused</p> <p>3=Used and dirty</p> <p>4=Others-----</p>	<p>Q13. When your child is sick, do you seek assistance?</p> <p>1= Yes 2= No</p> <p>If yes; Where?</p> <p>1.Traditional healer</p> <p>2.Private clinic/pharmacy</p> <p>3.Public health facility</p> <p>4.Others;Specify</p> <p>If no why?</p> <p>_____</p>
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Q14-21 Anthropometry for children aged 6 – 59 months (or 65 – 110cm) in the household.

Serial No	Name	Q14 Sex (F/M)	Q15 Age in months	Q16 Oedema (Yes/No)	Q17 Height (cm)	Q18 Weight (kg)	Q19. Ever admitted in SFP in last 6 months 1.Card 2.History 3.No	Q20. If No, Why? 1.Child does not need. 2.Too far 3.Disqualified 4. DK about SF	Q21. If yes, How long in the SFP? 1. Less than 3 months. 2. 3 months 3.More than 3 months
1									
2									
3									

Q22-32 Morbidity, feeding and immunization status of children aged 6 – 59 months (or 65 – 110cm) in the household.

Sno	Name	Q22 Diarrhoea in last two weeks 1= Yes 2= No	Q23 ARI in the last two weeks 1=Yes 2=No	Q24 Malaria in the last two weeks 1=Yes 2=No	Q25 Measles in last one month 1=Yes 2=No	Q26 Vaccinated against measles 1=In past six months (by card) 2=In past six months (Recall) 3=Before six months (by card) 4=Before six months (Recall) 5= None	Q27 Vitamin A provided in the last 6 months 1=Yes 2=No	Q28. Are you breast feeding the child? 1=Yes 2=No	Q29. 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 4=18 months or more 5= Never breastfed	Q30. At what age was child given water/ foods other than breast milk 1=0-3 months 2=4-6 months 3=7 months or more.	Q31. How many times do you feed the child in a day? 1= Once 2= Twice 3= 3-4 times 4= 5 or more times	Q32. How many times has the child ever been given polio vaccine orally 1=1-2 times 2=3 and above 3=Never
1												
2												
3												

FOOMKA SAHANKA NAFAQADA

Taariikh _____ Nambarka kooxda _____ Nambarka goobta _____ Magaca Kormeeraha _____

Magaca tuulada/magaalada _____ Magaca xaafadda _____

Nambarka qoyska _____ Magaca madaxa qoyska _____

S1 Jinsiga madaxa qoyska 1= Lab 2= Dhedig

S2 Tirada Qoyska _____

S3 Tirada caruurta ka yar shan sano _____

S4 Xaalada deegaan ee qoyska (Goobo geli Jawaab keliya) 1= Deegaan 2 = Soo Barakacay 3 =Dib u soo noqday 4 = Jawaab kale _____

Haddii Jawaabta su'aasha 4aad ay noqoto (1), u gudub su'aasha 8aad.

S5 Meesha uu markii hore ka yimid _____

S6 Mudada uu halkan Joogay (Bil ahaan u qor) _____

S7 Sababta uu u soo guuray 1= Nabadgelyo xumo 2 = Shaqo la'aan 3 = Cunto yaraan 4 = Biyo yaraan 5 = Jawaab kale _____

S8 – 13 Xogta taariikh nololeedka qoyska (Fadlan, goob geli Jawaabta ugu muhiimsan)

<p>S8 Halkee buu qoyskiinu inta badan ka helaa cuntada?</p> <p>1 = Nacfiga xoolaha ka soo baxa 2 = Dalaga beeraha ee qoyska 3 = Iibsasho 4 = Xawilaad/sadaqo 5 = Tuugsi 6 = Qaraabsi/Ugaarsi 7 = Jawaab kale (Caddee)</p> <p>_____</p>	<p>S9 Halkee buu qoyskiinu inta badan ka helaa dhaqaalaha?</p> <p>1 = Ganacsi yaryar 2 = Joornaati 3 = Mushaar 4 = Iibka dalagga 5 = Iibka xoolaha iyo nacfiga ka soo baxa 6 = Xawilaad/Sadaqo 7 = Jawaab kale (Caddee)</p> <p>_____</p>	<p>S10 Sidee qoyskan nololaha ku maareeyaa Xilliga cunto yaraanta jirto?</p> <p>1 = Xawilaad/Sadaqo 2 = Iibinta xoolaha qoyska 3 = Qoyska oo is kala qeybiyo 4 = Tuugsi (Shaxaad) 5 = Deyn qaadasho 6 = Cunto gargaar ah 7 = Soo iibsasho 8 = Qaraabsi 9 = Jawaab kale (Caddee)</p> <p>_____</p>	<p>S11 Halkee buu qoyskiinu inta badan ka helaa biyaha la cabo?</p> <p>1 = Ceel Riig ah 2 = Ceel Af furan leh 3 = Ceel daboolan 4 = Berkad 5 = War 6 = Webi/ Durdur 7 = Mugsid 8 = Tuubo 9 = Booyad 10 = Jawaab kale (Caddee)</p> <p>_____</p>	<p>S12a Musqul nooc ee ah ayaa qoysku isticmaalaa</p> <p>1 = Musqulo godka leh 2 = Musqulaha saxaka lagu fariisto leh 3 = Duurka/ Banaanka <u>Indho indheyn</u> S12b Xaalada musqusha Haddii jawaabta sare tahay 1 1=La isticmaalay oo nadiif ah 2=Aan la isticmaalin 3=La isticmaalay wasakh ah 4 = Jawaab kale (Caddee)</p> <p>_____</p>	<p>S13 Haddii ilmaha kaa xanuunsadaan, ma raadsataa gargaar?</p> <p>1= Haa 2= Maya Haddii ay Haa tahay Xagee baad ka raadsataa?</p> <p>1= Dhakhtar dhaqameed 2 = Xarun caafimaad oo go' loo leeyahay (clinic/farmashiye) 3 = Xarun caafimaad oo daadweyne 4 = Jawaab kale ; (Caddee)</p> <p>Haddii ay Maya tahay Wax maxay sababtu?</p> <p>_____</p>
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NAMBARKA QOYSKA _____ NAMBARKA GOOBTA: _____ (KA GUURI BOGGA 1aad)

S14 – 21 Miisaamidda iyo dhererinta ilmaha da’dooda u dhexeyso 6 – 59 bilood (ama 65 – 110cm) ee qoyska iyo kuwa laga diiwaan geliyey barnaamijka quudinta.

Nam.	Magaca	S14 Jinsiga 1=L 2= DH	S15 Da’da ilmaha oo bilo ah	S16 Barar 1= Haa 2= Maya	S17 Dhererka (cm)	S18 Culeyska (Kg)	S19 Malag diiwan geliyey Barnamijka quudinta 6dii bilood la soo dhafey? 1.Kaar 2.Xusuus 3.Maya	S20 Haddii Maya, Sabadtu waa maxay? 1.Uma baahna 2.Aad u fog 3.Uma qalmo 4.Ma aqaan goobta	S21addii Haa, Muudo intee la e 1. Ka yar 3 bilood 2. 3 Bilood. 3.Ka badan 3 bilood
1									
2									
3									

S22 – 32 Xaaladda cudurada, quudinta iyo Tallaalka ee caruurta 6 – 59 bilood (ama 65 – 110cm)

NR	Magaca	S22 Shuban labadii sitimaan ee la soo dhaafay 1= Haa 2= Maya	S23 ARI labadii sitimaan ee la soo dhaafay 1= Haa 2= Maya	S24 Malaria labadii sitimaan ee la soo dhaafay 1=Haa 2=Maya	S25 Jadeeco Bishii la soo dhaafay 1= Haa 2= Maya	S26Laga tallaalay jadeecada 1=lixdii bilood ee la soo dhaafay gudahood (Kaar) 2=lixdii bilood ee la soo dhaafay gudahood (Xusuus) 3=Lix bilood ka hor (Kaar) 4=Lix bilood ka hor (Xusuus) 5=Lama tallaalin	S27. La siiyay Vitamin A Lixdii bilood ee la soo dhaafay gudahood 1= Haa 2= Maya	S28. Cunuga ma nuujineysaa hadda 1= Haa 2= Maya	S29. Haddii hadda aadan naaska nuujin, imisa jir buu ahaa marka aad ka joojisay 1=lix bilood ka yar 2= 6 – 11 bilood 3= 12 – 18 bilood 4= 18 bilood ama ka badan 5= Lama naasnuujin	S30Imisa jir buu ahaa cunuga markii la siiyay biyo/cuntadii ugu horeysay ee aan aheyn caanaha naaska 1= 0-3 bil 2= 4-6 bil 3= 7 bil ama ka badan	S31Imisa jeer baad quudisaa cunuga maalintii 1= hal jeer 2 = laba jeer 3 = 3 – 4 jeer 4 = 5 jeer ama in ka badan	S32. Imisa jeer ayaa afka laga siiyey Talalka dabeysha weligiis 1= 1-2 jer 2 = 3& ka bada 3 = Lama siin weligiis.
1												
2												
3												