

NUTRITION ASSESSMENT

GUIDELINES FOR SOMALIA

NUTRITION WORKING GROUP



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ACRONYMS AND ABBREVIATIONS

FAO		Food and Agriculture Organization of the United Nations
FSAU	-	Food Security Analysis Unit (managed by FAO)
HH	-	Household
IDP	-	Internally Displaced Persons
MCH	-	Maternal and Child Health
MSF	-	Medecins San Frontiers
MUAC	-	Mid Upper Arm Circumference
NCHS	-	National Centre for Health Statistics
SMART	-	Standardized Methodology for Assessment in Relief and Transition
UN ACC/SCN	-	United Nations /Sub Committee on Nutrition
UNICEF	-	United Nations Children Fund
WFH/L	-	Weight for Height/Length
WHO	-	World Health Organization

FOREWORD

This document (original version) has been prepared by the Nutrition Working Group of the Somalia Aid Coordination Body in 1997 followed by a first revision in 1999 after field testing.

Since 2000, the guidelines have been used extensively throughout Somalia and all published nutrition assessments have adhered to the standard recommended methodology. Between 2001 and 2004, the methodology and the guidelines have developed further with the addition of new components and the introduction of a more structured multi-sectoral analysis. These revisions are now incorporated in the latest revision of the guidelines presented in this document.

The latest revision has been initiated by the Nutrition Surveillance Project of the Food Security Analysis Unit (FSAU)¹ and significant new components include the collection of data on mortality, and the inclusion of a more detailed section on diet. This has been undertaken with the active input of all partners involved in undertaking nutrition assessments in Somalia in recent years. Valuable comments have been received from the members of the Nutrition Working Group and have been incorporated.

These guidelines place a strong emphasis on (a) accurate assessment of anthropometry during nutrition assessments (b) collection of information that allows an understanding of the situation to be developed, and (c) analysis and interpretation of the anthropometric and related information.

Collection of anthropometric data in isolation presents great challenges in interpreting the meaning of that information and limits the use of the information for good decision making. The inclusion of component on diet on to the existing health, water and sanitation represent a shift of emphasis from anthropometry alone to the collection of information that leads to a greater understanding of the context. It is hoped that this more comprehensive approach and the resulting analysis that is seen in the assessments undertaken in recent years will provide decision makers with the information required for the design of more innovative approaches to address the serious problem of malnutrition in Somalia.

In Somalia, nutrition assessments form part of an overall food security and nutrition information system. For more details on the other components of this system related to nutrition, a number of other publications are available at FSAU. These include 'NUTRITION', a guide to data collection, analysis, interpretation and use' and the Somali language version of this publication 'NAFAAQO' which will be available from FSAU in early 2005. A set of materials on micronutrients is also being developed by FSAU.

¹ FSAU is managed by FAO and the nutrition project, including the publication of this document has been funded by USAID/OFDA.

1. INTRODUCTION

Since the introduction of standard methodology for nutrition assessments in Somalia in 1997, the quality and usefulness of information produced by such assessments has increased significantly. In recent years, a number of interesting developments have taken place including a commitment to quality control ensured through peer review of assessments. In addition to this, analysis and interpretation of information collected during assessments has been enhanced through a general practice of ensuring that assessments are undertaken with the involvement of all relevant partners in an area and with representation from all relevant sectors.

The current revision has been undertaken to include a number of other developments including (i) the collection of under-five and crude mortality data in assessments using revised tools, (ii) the collection of data on adult malnutrition, (iii) a greater emphasis on quality control, especially in situations where access for supervision is difficult, (iv) the inclusion of a more detailed section on food security (vi) developing an understanding of and (v) an emphasis on a broader analysis which will ultimately guide recommendations and the implementation of appropriate interventions. Issues on dietary diversity have also been incorporated in recent nutrition assessments, to provide information for broader analysis of the nutritional situation. Tools to monitor and assess dietary intake during assessments and other surveillance methods are currently being developed and tested.

Since the last revision of this document, guidelines for mortality assessment have been developed and tested. This was prompted by increasing international recognition of the importance of that indicator. Death rates are some of the most specific indicators of the health and welfare status of a population in which there is a lack of civic records of any type (no registration of births or deaths), a low level of contact with formal health institutions, lack of basic data on demography or reliable census of the population, lack of effective mortality surveillance system in addition to a strong reluctance to mention or discuss death in the population. Currently, mortality assessment is conducted concurrently with nutrition assessment.

The purpose of this document is to provide recommendations of standard methodology for planning and administering nutrition assessments in conflict prone areas and dispersed populations in Somalia.

In the context of this paper nutrition assessment refers to a system of obtaining and analysing primary data using scientifically sound methodology for purposes of improved understanding of the nutritional wellbeing of a population. In addition to this, collection of contextual data is recommended. Both quantitative and qualitative nutrition related data is collected using standard questionnaire and exhaustive checklist of questions in a relatively homogenous population. The entire process of a nutrition assessment involves planning, identifying the sampling methodologies and training of assessment team, actual assessment implementation, data analysis and interpretation and finally report write up and sharing of results with partners (including the communities).

Rationale for nutrition assessment

Nutrition status and mortality rates are considered the most vital and basic public health indicators of the wellbeing of the population in the context of emergencies and humanitarian crisis. These indicators are useful to assess the severity of a crisis, identify needs and prioritize resources. It is however noteworthy that to planners and programme implementers, nutrition status and mortality rates are late indicators of the population wellbeing.

A nutrition (and mortality) assessment is conducted when there is need for concrete nutrition information and the findings are analyzed within a particular context. This may include when there is a need: i) to establish a baseline, ii) to measure the impact of a significant change in the circumstances or situation in which people live, for example, impending or actual food insecurity iii) to measure progress or projects with a nutritional component and iv) regular monitoring of the nutrition wellbeing in a normal situation.

Through the assessment process and the overall assessment, an understanding on the general issues that influence nutritional status is achieved. These issues include food insecurity, health, water and sanitation, care and feeding practices.

A number of frameworks are in use, each assisting in the development of a better understanding of the possible causes of malnutrition. The most popular of these are the FIVIMS Framework and the UNICEF Framework (annex 8). Both frameworks point at the importance of addressing the problem of malnutrition using broad multi-sectoral approaches. It is in this context that while investigating nutrition problems a multi -sectoral approach is adopted within which a wide range of factors are considered when deciding on the assessment objectives, the data to be collected as well as during analysis.

The following are some of the general objectives in undertaking nutrition assessments in Somalia:

1. To determine the prevalence of malnutrition (wasting, stunting and underweight) among children aged 6-59 months (and measuring 65-110 cm) or/and adults
2. To determine the coverage of health interventions (e.g. measles vaccinations, vitamin A supplementation and oral polio vaccine) among children aged 6-59 months
3. To determine the levels of retrospective crude and under five mortality rates in the previous 1-3 months.
4. To determine the incidence of common diseases (diarrhoea, measles and ARI) among the assessment population, two weeks prior to the assessment
5. To determine the possible causes of malnutrition in assessment population
6. To identify possible interventions that addresses the causal factors of malnutrition.

2. PLANNING

Site selection

The assessment area selection is based on vulnerability and initial assessment reports which could indicate the need for further investigation of the situation. These could be new areas and populations of concern or those experiencing recurrent nutritional problems. The need for a baseline can also influence the assessment site selection.

Partnership

Agencies that are to be involved are identified and the different roles and responsibilities allocated. Consensus by the partners on the different issues should be arrived at. These issues include:

- Identifying the lead agency
- The area to be assessed and dates
- Assessment objectives,
- Information needed,
- Methodology,
- Resource requirement: Personnel, financial, logistics,
- Data collection tools and procedures
- Report writing and dissemination
- Plan a detailed schedule of activity (annex 1)

Background information for the area

Literature review and the secondary data is collated to establish the past and the prevailing condition of the area. Clear documentation on the following issues is done:

- Existing information on nutrition and mortality mainly from health facilities data base, past assessments, nutrition related interventions and local authorities reports.
- Existing information on the health situation from agencies like the SACB Health Sector Committee and related working groups, (I)NGOs, Ministries of Health and local authorities
- Existing information on food security, demography, infrastructure, socio-economic and political situation from agencies like the SACB Food security and rural livelihoods sector, related working groups, Ministries of Agriculture and fisheries, and the local authorities.

Resource Requirements (annex 2)

Basic requirements for conducting assessment include:

- Anthropometric equipment
- Stationery: including assessment questionnaires (adapted to the standard questionnaires - annex 3)
- Skilled personnel for each phase of the assessment
- Financial: to support the logistics and facilitation
- Security considerations and communication equipment
- Documentation equipment like camera, computers

3. SAMPLING METHODOLOGY

When dealing with large population groups it is not possible to assess the entire population due to cost and time constraints. For this reason, a representative portion of the population is selected. This proportion of the whole population is called a **sample**. The process of selecting a representative sample from the total population is called **sampling**. The appropriate assessment sampling methodology is determined at the planning level of the assessment process. The following are some of the most commonly used sampling methodology feasible in Somalia.

Cluster sampling methodology (recommended methodology for Somalia)

This method is recommended in Somalia due to lack of accurate up to date population figures in vast geographic areas. It is currently recommended in nutrition assessment where rough population estimates are used in the generation of a sampling frame. Population estimates in each settlement sites are considered and used to generate the total population estimate for the assessment area. This forms the sampling frame.

With cluster sampling, groups of people (clusters) are selected rather than individuals. This reduces the accuracy of the methodology, and for this reason, the total number of individuals included in the assessment is double (900) the sample used in simple random sampling (450).

Two-stage cluster sampling procedure

Using the population estimates which mainly come from the WHO NID polio program, or any other reliable source, a sampling frame is generated. A list of villages or settlements and town sections with their respective populations is used to construct cumulative population figures for the district or the study area. (Annex 4).

- By dividing the total population with the target 30 sampling sites or clusters the sampling interval is obtained. Clusters, or sampling sites, within the total population are randomly selected. Clusters maybe natural grouping such as villages or in a camp, blocks of a few houses. Where natural groupings do not exist, artificial clusters are defined by imposing a grid onto a map; thus sub-dividing the large village or town into sections of roughly equal population sizes.
- Using random number tables a random number is chosen within the cluster interval to determine the first cluster. A random number can also be chosen using Nutrisurvey software.
- The subsequent clusters are determined systematically by adding the cluster intervals to the first randomly selected number until all the 30 clusters are selected. The number of clusters selected from each village or town is proportionate to the population estimate of that geographic area.
- In each of the clusters at least 30 randomly selected children are assessed, thus making a total of 900 children/households (described below)².

Within each selected cluster, an appropriate number of individuals or households are randomly selected as follows:

1. The assessment team, with the help of a guide (with whom the assessment community is familiar) moves to the central point of the village
2. Spins a pen to select a random direction.
3. The team takes this direction to the periphery of the village, where they spin a pen a second time until it points into the village. The team then walks along this direction as they count each close household until the end of the cluster³.

² SMART recommendations

³ However dispersed the population of a certain village/cluster could be, efforts are made to include all households considered to be part of the village/cluster in the random selection of the first household and subsequent survey processes.

4. On reaching the end of the village, a random number is selected either from a table of random numbers, or through random selection of a number less or equal to the total number of houses counted.
5. The selected household number becomes the first assessment household and all eligible members (children aged 6-59 months, measuring 65-109.9 cm) are assessed, based on a standard questionnaire, and following appropriate interview techniques. If the first randomly selected household does not have an eligible child the assessment team should move to the next household until they get into a household with an eligible child.
6. The team moves to the next house in a clockwise direction and administers the questionnaires to all eligible members.
7. This process continues until the desired number per cluster, is assessed.
8. If the targeted members of the household are temporarily absent, the team should book an appointment and return to the house later and conduct the assessment. In case the child is in a therapeutic feeding centre (TFC), the assessment team should visit the TFC and measure the randomly selected child only for inclusion in the assessment.
9. In a case where a cluster has been exhausted before reaching the required 30 children a neighbouring cluster with similar characteristics should be randomly selected. The team should continue until the required number of children is reached.

Sampling of clusters and households for mortality assessment

The same sampling frame as described above is used for the identification of clusters for mortality data collection. In each of the 30 clusters, mortality questionnaires are exercised to 30 randomly selected households. This makes 900 households assessed irrespective of whether with under-five or not.

- The mortality questionnaire is administered to a responsible member of that household. The first household is determined using the same method as for the nutrition assessment described above.
- If the first randomly selected household has no eligible children for the nutrition assessment, only the mortality questionnaire should be administered.
- Bearing in mind the sensitivity attached to the mention of death the questions should be tactfully asked to avoid inaccurate information or rejection of the interview. A questioning guide is presented in this document that avoids direct and sensitive questions (annex 3).
- The recall period should not be too long for easy memory possibly relating it to an incidence in the recent past. Three months recall period is ideal.
- In a case where a cluster has been exhausted before reaching the required 30 children or the 30 households for mortality, a neighbouring cluster with similar characteristics should be selected. The team should continue until the required number of children and households is reached.

Inaccessible areas and mobile populations

If access is impossible in some areas, a choice may be made to draw the sample from the secure and accessible areas⁴. This means excluding the population estimate figures of the insecure areas when selecting the sample. Excluded areas should be indicated in the report, with description of their characteristics as compared to the population that is sampled, pointing out the differences, thus providing some base to consider the possible bias of the results.

Alternatively, insecure areas should be included and if a cluster is selected that can not be accessed, then the nearest similar (in characteristics) is chosen. In both cases the process should be decided during the planning stage and documented accurately.

In situations of highly mobile populations, efforts are made to follow up the randomly selected populations. Up to date information on the populations' locality at the time of the assessment is used

⁴ Inaccessibility can be as a result of insecurity, terrain, long distance and other natural phenomenon like floods

in the creation of the sampling frame. If the population moves between the time of the sampling and the time of the actual data collection, the population is trailed to where they have moved to and assessed. In case the randomly selected population (forming a cluster) has crossed the border (to a different region/ country) the nearest populations (similar in characteristics) is chosen.

Other sampling methodologies

Total population assessment

Total population assessment is the most accurate methodology which involves assessing all the study units in an area without omission. This can be used where the assessment population is small; e.g. small camps for internally displaced populations.

Simple Random Sampling

This is one of the most accurate and representative sampling methodology. It involves using an exhaustive list of households and individuals, their ages and current locality. The list should be up to date with regard to new births and deaths in order to trace all individuals during the assessment. Households and/or individuals are randomly drawn from the list using a random number table thus giving every sampling unit an equal chance of being selected. In practice, reliable population lists are rarely available.

If no complete list is available, it is sometimes practical to:

- Go to the area and make a list of all households included in the area of interest.
- Ensure getting a complete list of households.
- Assign an identification number to each household on the list.
- Select the desired number of households using a random number table. The households selected become the sample for the assessment.
- Visit all of the randomly selected samples without substituting them for others.
- All children within the criteria (6-59 months of age or 65-110 cm for length/height) found in the randomly selected household are assessed.

Systematic Sampling Methodology

Systematic sampling eliminates the need for complete, up-to-date registers, but requires:

- A reasonably accurate plan (map) showing all households
- An orderly layout, or site plan, which makes it possible to go systematically through the whole site.

This technique has been used in well-organised camps, planned towns, refugee camps or semi permanent settlements where households are arranged in blocks and lines within a geographical area. A minimum sample size of 450 (sampling unit) is recommended for the assessment. The total population is divided by the required sample size for purposes of deriving the sampling interval number. For example; supposing an IDP camp has a total of 3000 households, the sampling interval is $3000/450$ is 6. The first household is randomly selected among the first 6 households. If the first household is 3, then the sampling interval (6) is added to get the next household 9th, the next is $9+6=15$, and so on. In each of the randomly selected households, all children found in the household should be assessed.

Stratified Sampling Methodology

Stratified sampling methodology is used in combination with any of the above highlighted techniques. In stratified sampling the population is stratified by certain characteristics thought to influence nutritional status: age, sex, social or ethnic group, environment, wealth group, livelihood group etc. Each stratum is treated as an independent population from which samples may be drawn by one of the above-listed methods.

4. DATA COLLECTION

Assessment team composition and responsibilities

An *assessment team* should consist of the following:

- Assessment coordinator
- Nutrition professional (in most cases the assessment coordinator)
- 12 Enumerators
- 6 Supervisors
- Food security specialist
- Public health professional

The enumerators and the supervisors are divided into six data collection teams comprising of one supervisor and two enumerators per team. Six teams have been found to work well each covering five clusters (one cluster per day) during the assessment. The enumerators are normally health workers but the supervisors need not be health professionals. Specific responsibilities of each of the team member are explained below.

Assessment Coordinator/ Nutrition Professional

- Provide guidance in selection of competent assessment team
- Train the assessment team
- Put mechanisms in place to ensure good quality data is collected
- Ensure availability of equipment and other logistics
- Visit the assessment team in the field to ensure that the team is undertaking the assessment properly
- Ensure that appropriate assessment methodology is followed

Supervisors

- To explain to the village/ location leaders the purpose of the assessment and the methods to be used
- Facilitate the second stage of sampling household at each selected cluster
- Ensure that both the household and mortality questionnaires are administered accurately
- Ensure that all household and mortality questionnaires are completed before leaving the household.
- Ensure the safety and good working atmosphere of the her/his team
- Verify all oedema cases and any cases of mortality before leaving the household
- Ensure that all anthropometric measurements(weight, height, MUAC for both children < 5 years and adults) are taken accurately
- Ensure that the his/her team has all the relevant resources

Enumerators

- Introduce the assessment mission to each new household and obtain the necessary consent
- Administer the household questionnaire
- Administer the mortality questionnaire
- Assist in undertake anthropometric measurements
- Ensure that all questions have been asked and answers recorded correctly

Food security specialist

- Give support in undertaking assessment ground work
- Help identify the livelihood zone for the various clusters.
- Provide food security information for the assessment areas (past and the current).
- Provide support during training of enumerators on food security related.
- Support in undertaking focus group discussions and key informant interviews.
- Contribute in data analysis, interpretation and development of appropriate recommendations
- Review the draft report and develop recommendations.

Public health professional

- Provide background information on health related issues
- Provide support during training on health related issues
- Undertake focus group discussions with the food security specialist to explore public health issues
- Contribute to data analysis, interpretation and development of appropriate recommendations

Training of assessment teams

Training is an important pre-assessment activity. Each of the assessment team members (enumerators, supervisors) should undergo the same training no matter how much assessment experience he /she has.

The training should take between 2-3 days and should include:

- Clear explanation of the assessment purpose and objective
- Assessment design and information to be collected.
- Sampling methodology stressing the need for representative methodology
- Practical sessions on how to ask questions and recording for both the nutrition and mortality questionnaire (asking questions clearly, probing, careful listening, rephrasing of questions, introducing each section of the questionnaires and maintenance of objectivity in question presentation and response recording). A role play on interviewing is useful.
- How to conduct focus group discussions and key informant interviews
- Return demonstration on how to take height/length, weight, MUAC and how to identify oedema. A visit to the local MCH would be useful.
- Standardisation of measurements
- Interviewing techniques keeping in mind different stages of the interview process: introductions, asking permission once you have explained the purpose of the assessment, reassuring the respondents that the information collected will remain confidential and how the information collected will be used.
- Roles and responsibilities of the assessment teams (enumerators and supervisors)
- Quality control measures (ensuring that questionnaires are completed before leaving the household, oedema checking and mortality verification by the supervisor before leaving the household).

Data collection procedures

In nutrition assessments, both quantitative and qualitative data is collected. The methods used are described below:

Quantitative data

This is collected using a household questionnaire as well as mortality questionnaire (annex 3)

Once a household has been selected with an eligible child (6-59 months or 65.0 cm-109.9cm), the household nutrition questionnaire is administered to the mother of the child or to a responsible care giver in her absence.

The following steps are followed:

1. Introduce yourself and explain the purpose of the nutrition assessment at every household
2. Obtain permission to continue with the interview
3. Ask questions in a systematic way and probe if the response given is not clear.
4. Ensure that all questions are asked and answers recorded while still in the household.
5. Once you complete collecting data, thank the respondent and give her a chance to ask questions.

NB: If a severely malnourished child is identified, provide appropriate advice e.g. refer to the nearest health facility, advice on treatment and feeding.

How to collect anthropometric measurements

The anthropometric data is collected using the procedure stipulated by the WHO (1995) for taking anthropometric measurements

Weight: A 25kgs hanging spring scale, graduated by 0.1 kg, is used. The scale is adjusted before weighing every child by setting it to zero. The children should be lightly dressed before having the weight taken. Two readings should be taken for each child and the average recorded on the questionnaire. The scale should be read at eye-level and re-adjusted after each measurement.

Height: For height, a vertical or horizontal measuring board reading a maximum of 175cm and capable of measuring to 0.1cm is used to take the height or length of a child. The child stands 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 is then pushed gently, crushing the hair and making contact with the top of the head. Height/length is then read to the nearest 0.1cm. Two readings are recorded and the computed average used in the analysis.

Length: For children aged 6 to 24 months or between 65.0 cm to 84.9cm length instead of height is taken. The child is made to lie flat on the length board. The sliding piece is placed at the edge of the bare feet as the head (with crushing of the hair) touches the other end of the measuring device. Then two readings are taken and the average computed.

NB: The weight and height/length measurement of the children should be taken irrespective of the child's oedema status.

Child age determination: A local calendar of events (Annex 5) can be used to establish the birth period. The mother is asked whether the child was born before or after certain major events until a fairly accurate age is pinpointed.

< 75 cm	⇒	< 1 year old
75 cm - 95 cm	⇒	< 1 - 3 years old
96 cm - <110 cm	⇒	< 4- 5 years old

Mid Upper Arm circumference (MUAC) for children aged 12- 59 months

MUAC is mainly used in rapid assessments and is good indicator for mortality. However, intensive training is needed to achieve accurate measurements. MUAC is measured on the left arm, at the mid-point between elbow and the shoulder. The arm should be relaxed and hanging down the side of the body. A special measuring tape is placed around the arm. The measurement is read from the window of the tape without pinching the arm or leaving the tape loose.

MUAC for adults

The assessment of adult nutritional status contributes to information on the nutritional status of the population. The MUAC is taken of mothers or care giver (if the mother is not present) of the selected children. The care giver should be female aged 15- 49 years. It should be taken on the left hand side to the nearest 0.1cm.

NB: Ask very politely if the mother is breastfeeding or pregnant and mark yes or no in the questionnaire.⁵

Oedema

Children with oedema are severely malnourished even though their weight for height may not fall below - 2 Z-Scores. Therefore oedema must be checked for and noted on the data sheet.

In order to determine the presence of oedema, normal thumb pressure is applied to the **two feet** for three seconds. If a shallow print or pint remains on **both feet** when the thumb is lifted, then the child has oedema. The oedema confirmation must be made by all members of the assessment team.

Nutritional oedema must be found on both feet.

The nutrition working group recommends special attention during training, particularly when checking oedema on young children. It is further advised for at least two persons to confirm the presence of oedema. This is a good advice!

Morbidity data

Diarrhea: Diarrhea is 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 is 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 three signs asked for are cough, rapid breathing and fever.

Suspected malaria/acute febrile illness: The three signs to be looked for are periodic chills/shivering, fever, sweating and sometimes a coma.

Vitamin A deficiency (VAD) is assessed by determining if any members of a household suffered from night blindness.

Dietary diversity data

Data on dietary intake is collected using a 24 hour dietary recall as shown in the household questionnaire. The respondent is asked to remember in detail the different food groups consumed in the household by members and the frequency in the past 24 hours. Asking respondents about their activities during the day can assist in recalling what was eaten. Inquiries about previous evening activities will for instance stimulate respondent's memory and help remember a snack, or food eaten. This information is used to further explain the nutrition situation of a particular livelihood group.

A total of 12 food groups as per FAO classification are usually considered. The food groups are Cereals & cereal products; Roots & tubers; Vegetables; Fruits; Meat and meat products, Eggs; Fish; Legumes; Milk & milk products; Fats & oil; Sugar & honey and Miscellaneous (e.g. condiments, beverages etc).

⁵ Annex 10 highlights limitations and steps of MUAC assessments

Programme coverage data

During a nutrition assessment the coverage of a feeding programme can also be established by including a question on whether each child measured is or ever been enrolled in the feeding programme.

Mortality data

As mentioned elsewhere in this document, mortality data has to be collected in all households including those without eligible children (6-59 months or 65.0 cm-85 cm). The mortality questionnaire should be administered to a responsible adult member of the household bearing in mind the sensitivity attached to the mention of death. The questions have to be tactfully asked to avoid inaccurate information. *Three months recall period is ideal.* A questioning guide is presented in this document that avoids direct and sensitive questions (annex 3)

To determine the mortality rates data collected includes:

- The total number of household members three months ago (over five and under five years)
- The total number of persons in the household now(over five and under five)
- The total number of persons who have arrived during the recall period
- The total number of persons who have left during the recall period and the reasons for leaving
- Births during recall period
- Ages of household members
- Deaths during recall period and the presumed cause of death

Qualitative data

Through triangulation, an in-depth investigation of the different issues influencing nutrition is done.

The methods of qualitative data collection used include:

- Focus group discussions
- In-depth interviews
- Case studies
- Observational studies

Focus group discussions (FGD)

This is an informal way of guiding a discussion to obtain information about a certain topic. Participants in focus group discussions should have similar characteristics in terms of age, gender, educational status, ethnicity, etc. It involves in-depth interviews with a small group of participants ranging from 6-12 persons. The ideal number of the FGD participants should be an odd number (7, 9 and 11). A focus group discussion is extremely useful way of obtaining a lot of information without having to ask every household. In nutrition assessments, it helps in understanding issues e.g. caring practices that may not be clear from the quantitative data.

In nutrition assessments, the facilitator has a checklist focusing on key areas like nutrition, food security, health, care aspects; security issues etc for purposes of getting a deeper understanding of the situation (A sample checklist in annex 6).

In a focus group discussion, the interviewer acts as a moderator/facilitator of the group discussion process, his/her role involves introducing the topics, probing questions, eliciting responses from the respondents and guiding the participants not to go outside the main issue of discussion. The moderator's role should be passive and should not dominate the discussion.

It is important to seek out for people who may be more vulnerable to malnutrition e.g. female headed households, destitute or the poor. About 12-15 focus group discussions should be held in an assessment from representative sites/ clusters. A criteria should be developed that will help to identify the participants for the FGDs. For example one may want to hold a focus group discussion with women or men from the various wealth groups of a particular livelihood group.

Direct Observation

It involves watching people and events to see how something happens rather than how it is perceived. It facilitates confirmation of some of the qualitative information given through focus group discussion or confirmation of some quantitative data like presence of sanitary facilities, water points etc. In nutrition assessments the following can be observed.

- Food availability and access: Direct observations are made through market visits and observation of commodities available, livestock and pasture condition, checking granaries, visiting food distribution sites, observing food prices (price tags), beggars, cleared pastures.
- Health and sanitation: Direct observations are made during visits to water catchments areas and noting both the time taken for a return trip, flow and quality of water, storage facilities of the water and the sanitation system. The general health condition for example in terms of skin diseases, eye problems and runny nose/ARI are observed.
- Nutrition: A clinical observation of the nutritional condition of children is made and cases of wasting, bilateral oedema and micro-nutrient deficiencies noted.
- Population movement: Existence of displaced people, beggars and destitute.
- Interventions: Existence of intervening agencies and their field operations.

Direct observation can be used to confirm information that respondents may provide on the same matter. Observations are useful for overcoming contradictions provided in interviews by respondents.

Case study

In situations where information to confirm some qualitative data is needed, at least one case study should be conducted. The case study concentrates on the history and the ‘story’ of a specific individual or situation. Factors that contribute to malnutrition of an individual child in IDPs, refugee camps or in given livelihood would constitute a case study. The case study must be understood in its own context. However, by undertaking a number of such studies, some trends might be identified or further investigation might be prompted.

Key informant interviews

A key informant is a person who is likely to have an in-depth insight, knowledge and experience about the issue of interest in order to fill the gaps other qualitative information; e.g. Interviews with mothers or traditional birth attendants in order to understand care practices (Annex 6).

A key informant interview is a qualitative, in-depth interview of selected people for their first-hand knowledge about a topic of interest. The interviewer probes for feelings, opinions and views of the key informant. It requires the interviewer to be skilled in the questioning technique so as to elicit the required response. The interviews are semi structured, relying on a list of issues to be discussed, allowing for a free flow of ideas and information. Key informants in nutrition assessments include staff from organisations implementing programmes on:

- Nutrition
- Food security
- Water and sanitation
- Health

WFP and other agency staff, Ministry of agriculture/Livestock staff where appropriate and selected women for a gender perspective are usually interviewed. With regard to health issues the representative of the health facility in the assessment area or health officer are interviewed coupled with a review of the health records. Other key informants are community, women and religious leaders

Quality control measures in assessments

- a. **Rigorous training of enumerators and supervisors** should be done in order to ensure all assessment team members are able to administer the questionnaires properly, read and record measurements accurately; exclusion and inclusion criteria.
- b. **Standardisation of measurements:** This exercise is carried out to minimise interpersonal and intrapersonal errors among the assessment team (trainees). Each test is conducted with a group of about 10 children whose ages are 6-59. This can be done in the local MCH. The trainer should take the measurement of each of the children independently and carefully document the results. At the beginning of the exercise each pair of trainees is positioned with a child. The exercise should be undertaken as follows:

- The trainees carefully conduct the measurements and clearly record the results on anthropometric standardisation form next to child's identification number (Annex 7)
- The pair should remain with the child until the trainer instructs them to move to the next child.
- When all the trainees have taken their measurements, the trainer should instruct them to move to the next child following a numerical order and wait for instructions to begin.
- This process is repeated until all children are measured and weighed by all teams.
- Use the same equipment to measure each child's weight and height.
- Only one team should be with a child at any one time.

During the exercise the trainer/s should observe each trainees performance and make any corrections promptly. Observations should include checking positioning of equipment and adjusting scale to zero, positioning of child, child's clothing and an angle at which the reading is taken. The trainers should make notes and discuss with the teams later.

Once all children have been measured by all teams, results should be analysed and discussed.

- The standard measures taken by the trainer are read out. The trainees should record these results on their respective forms, under the standard measure column.
 - The pairs should calculate the difference between my measure and the standard measure for each measurement and child, and record the result on the same form under the difference column using the corresponding+ or – sign to see if the trainee's measurements is larger or smaller than the trainer's measurement.
 - The trainees then interpret the standardisation exercise results with the trainer's help.
 - This exercise should be repeated as many times as necessary until none of the trainees have the tendency to obtain large or smaller values than those of the trainer disappears.
- c. **Pre-test the assessment tools** and ensure that all enumerators can administer them effectively
 - d. **Close monitoring of fieldwork** by qualified persons- ensure accuracy of the data-checking for outliers.
 - e. **Daily review** of the enumerators and supervisors experience and difficulties in the field
 - f. **Cross-checking** of the field questionnaires for anomaly on daily basis
 - g. **Integrity of equipment** – Ensure calibration of scales with known weights and firmness of height boards.
 - h. **Checking** if questionnaires are completed while still in the household,
 - i. **Cross- checking field questionnaires** on a daily basis
 - j. **Progress review** per plan and by checklist

- k. **Data management level:** regular data cleaning at data entry level, processing frequencies etc.
- l. **Involving experienced and responsible supervisors** and enumerators in data collection
- m. **Verification of oedema and mortality** by more than one person in the team at the household level. Ideally all assessment team members must be in consensus on the oedema and death cases.
- n. **Accounting of all household members** to establish their whereabouts at household level:- absentees; children in the TFC
- o. **Adequate logistical** arrangements

5. DATA ENTRY AND DATA CLEANING

Data entry

Data should be entered on an appropriate version of Epi Info (currently Epi 6.04d). The Epi Info data entry questionnaire should be “checked”. Through the “checking process”, options for data entered for each question are confined to a limited number of digits. For example, where sex is entered: males (coded as 1) or females (coded as 2), the response data entry field in Epi Info 6.04d is programmed to reject other digits (e.g. 3). This minimizes the number of errors in data entry.

Data cleaning

Before starting the analysis, the data needs to be prepared and cleaned. Issues to look out for include:-

- Missing data – if important piece of data (sex, weight, height, age, and oedema) is missing on any of the children, then this data cannot be incorporated in the analysis.
- Data that is out of the required range. Most nutrition assessments measure children aged 6 to 59 months or who are 65 to 110 cm tall. Children outside these ranges should not be included in the analysis.
- Extreme (biologically unlikely) weight for height data – outliers e.g. it is very unusual to find a child with WHZ <-4 or >6. If these are found, the data entered should be re-confirmed and corrected. If the child’s information was wrongly filled in at the household level, then the data will need to be excluded from the analysis or the measurements reconfirmed.

6. QUANTITATIVE DATA ANALYSIS

If the data is collected using the two-stage cluster sampling methodology, the analysis should be done onto one set of data without disaggregating it. The results from all clusters are combined to give an estimate for the whole population from which the sample was taken. The results from each cluster should not be used as an estimate of the prevalence of malnutrition in those individual locations because the sample size in each location is too small. EPI-Info 6 should be used in the analysis of the data or any other appropriate statistical analytical software.

Description of the sample

Describe the study population by producing tables showing the distribution of important variables e.g. total number of households assessed, household size, proportion of females and males, average number of children per household.

Distribution of variables

Distribution of age and sex will show how representative the sample is to the population and the level of bias against/for a particular response in a variable. For example equal distribution of both age and sex shows that no selection bias has occurred.

Anthropometric data

The following are internationally used indices for determining the nutritional status of children:

- Weight for height
- Weight for age
- Height for age

The results of the nutritional status are expressed as Z score or percentage of the median or percentiles and are generated by the EPINUT programme of EPI-Info 6. The estimates of global and acute severe malnutrition should be analysed for 6-59 months age group. The nutritional status should be analysed according to age group and sex. For chronic malnutrition (stunting) height for age indicator is used while under weight (both chronic and acute malnutrition) is used.

Nutritional status should be cross tabulated with other important variable like morbidity, immunisation status, food accessibility and sanitation and hygiene to see if there is a relationship. All nutritional status results should include both prevalence and confidence intervals except for exhaustive assessments.

NOTE: Proportions of marasmic-kwashi, marasmus and oedema need to be presented distinctively. Overall levels of severe and global acute malnutrition rates also need to be presented. Another anthropometric analysis tool is Mid Upper Arm Circumference (MUAC) for both children and adults. The results are expressed as a proportion.

Mortality data analysis

Mortality data is calculated as follows:

$$\text{CMR} = \frac{\text{Total number of deaths over a specified time period} * 10,000}{\text{Total estimated population (current)} * \text{specified time period in days}}$$

The overall mortality is calculated by taking the total number of deaths multiplied by a factor (10,000). This is divided by the population of the assessed households using the formulae below:

$$\text{MR} = \left(\frac{n}{[n+N+N]/2} \right) / p * 10,000$$

Where n =total number of persons reported dead in the households assessed
 N =total number of people living in those households at the time of the assessment

Example 1

Step 1. Estimate the mid point population i.e. the average of how many people were alive at the beginning of the recall period and at the end of the recall period as follows;

For instance, a total of 5927 people were interviewed and 46 people had died in the previous three months.

Then n = total number of persons reported dead in the households assessed that is 46

N = Total number of people living in those households at the time of the assessment
 The estimated mid point would be

$$\frac{46+5927(\text{beginning of the recall period}) + 5927(\text{end of the recall period})}{2} = 5950$$

The crude mortality rate would therefore be:

$$\frac{46 \times 10,000}{5950 \text{ people} \times 90 \text{ days}} = 0.85$$

$$\text{CMR} = 0.85 \text{ deaths}/10,000 \text{ persons}/\text{day}$$

For U5MR the calculation is the same except the under five population is used.

Example 2

If in the same assessment there were 1439 under five children and 38 deaths then the calculation will be:

The estimated midpoint population will be;

$$\frac{38+1439(\text{beginning of the recall period}) + 1439 (\text{ end of the recall period})}{2} = 1458$$

$$\frac{38 \times 10,000}{1458 \text{ people} \times 90 \text{ days}} = 2.89$$

U5MR is therefore 2.89 deaths/10,000 persons/day

Use of Nutrisurvey software to calculate mortality rates

The crude and under-five mortality rates can be calculated using Nutrisurvey software. Once the raw mortality data is entered in Nutrisurvey, the rates can be automatically generated by the software as deaths per 10,000 persons per day.

Analysis of other variables

Other variables to be analysed include food security variables e.g. food source, income source, dietary intake; disease prevalence, coverage of some interventions like immunization and feeding practices for under-five children.

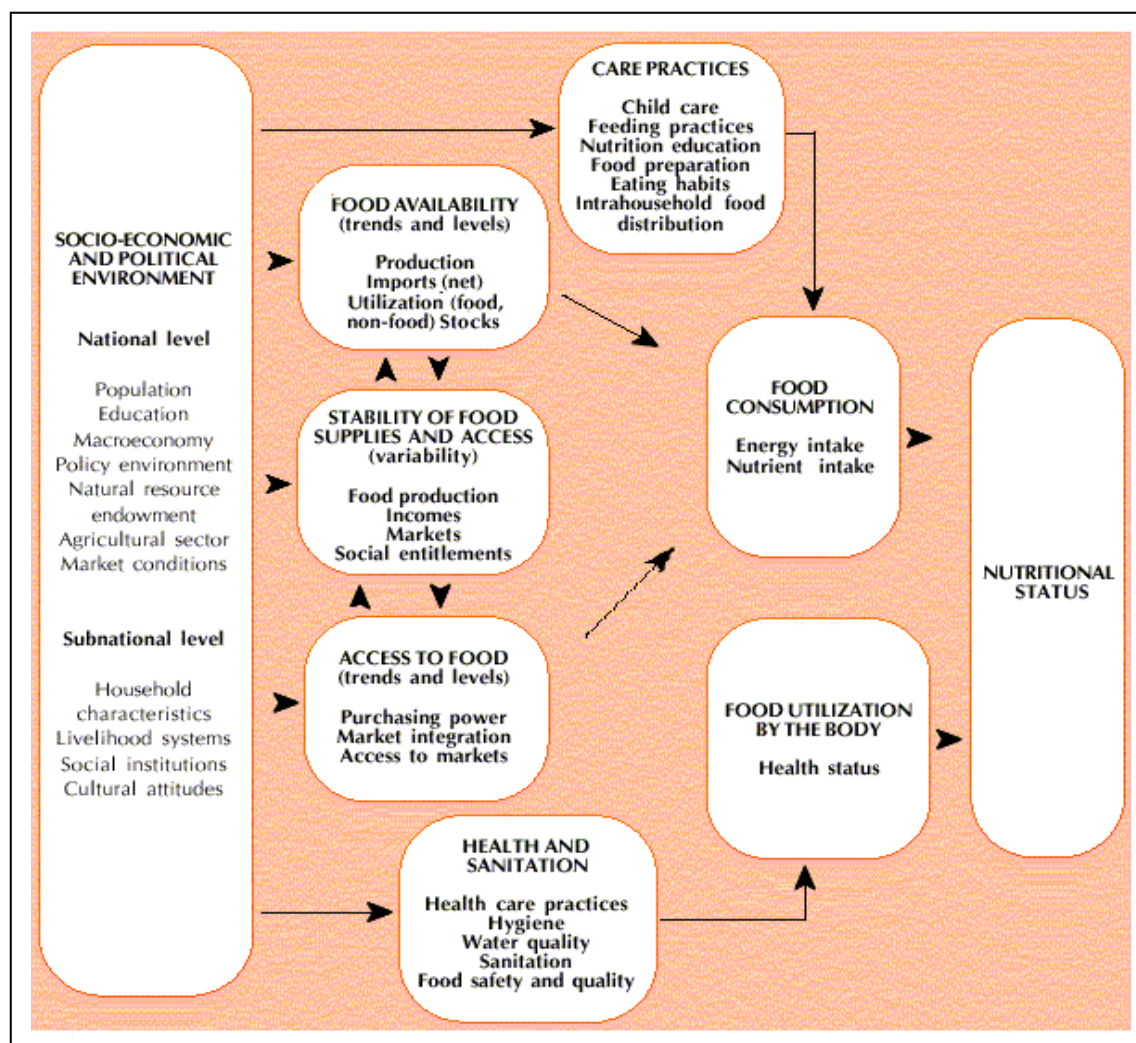
Qualitative data analysis

When analysing qualitative data the members should sit in a group to discuss the findings and compare information from different sources. They should try to find out if the various people got the same impression and if there were differences between, for example men and women and the reasons why.

Using the data collection checklist, a summary of the key findings of investigation is made. Complementarities of data are explored in the filling of the gap in knowledge (issues of investigation). Triangulate the qualitative and quantitative data to give it a deeper meaning.

7. DATA INTERPRETATION

A conceptual framework can be used to develop an understanding of locally specific causes of malnutrition. For example, factors contributing to malnutrition in an urban set up may be different from those of pastoral livelihood. The conceptual framework also differentiates between causes which function at different levels starting with the individual, household, community, district, and national levels. The understanding of all these levels is helpful as it supports identifying how specific problems can be addressed at each of these levels. No single variable should be interpreted alone.



The most commonly used frameworks are the FIVIMS framework (refer to the figure above) and UNICEF framework (refer to annex 8). Both frameworks highlight the relationships between causes of malnutrition at various levels and in various sectors. Identifying factors influencing nutrition will ultimately support the planning of appropriate interventions.

Interpretation of data assists in the understanding of key questions such as:

- What is the population's nutritional status?
- Is the current nutritional status acceptable or not?
- Is the situation improving or deteriorating?
- What are the key factors influencing the current nutritional status?
- What are the existing interventions now?
- Which interventions are most appropriate in the prevailing circumstances?
- How is the nutritional status expected to evolve over the coming months?

Categorisation of nutritional status (Mode of expression to be used)

The nutritional status (wasting, stunting and underweight) are expressed in Z scores. The weight for height (wasting) is a measure for acute malnutrition normally monitored during emergency. The use of Z scores is recommended by WHO and also the Nutrition Working Group of the Somalia Aid Coordination Body (SACB) due to its statistical property of being normally distributed as well as statistical superiority over identifying all the malnourished children. This allows calculation of meaningful average value and standard deviation for a population. Whereas WFH % of the median does not take into account the distribution of reference population around the median (and thus its interpretation is not consistent with the values at different levels of the reference population, levels of wasting are also expressed as percentage of the median, for purpose of comparing past, current and previous assessments. Also intervention agencies use WFH % of median in estimating the programme targets.

Height for age, a measure of chronic malnutrition (stunting) and weight for age, a measure of both acute and chronic malnutrition (underweight) are also analyzed for the purpose of comparing baseline with previous data.

Cut off points for indicators of acute malnutrition (Wasting)

Description of Nutritional Status	Weight for Height Index		Oedema	MUAC
	W/H % of the Median	Z Score (SD)		
Severe Acute Malnutrition	<70%	<-3 Z scores (less than minus 3)	Present	<11 cm
Moderate Acute Malnutrition	≥70% and <80%	Less than - 2 Z-scores BUT greater than or equal to -3 Z-score		<12.5 cm ≥ 11 cm
Global / Total Acute malnutrition (moderate plus severe)	<80%	<-2 Z score	Present	<12.5 cm
Normal	≥ 80%	≥-2 Z-scores (Greater than or equal to - 2Z-scores)		≥ 13.5 cm
At risk				<13.5 cm ≥ 12.5 cm
≤ means 'less than or equal to'; < means 'less than'; ≥ means 'greater than or equal to'				

**The presence of oedema always implies severe malnutrition.*

Cut off points for chronic malnutrition (Stunting)

Description of Nutritional Status	Height for Age Z scores (SD)	Height for age % of median
Severe chronic malnutrition/Severely stunted	<-3 Z scores (less than minus 3)	<80%
Moderate chronic malnutrition	Less than - 2 Z-scores BUT greater than or equal to -3 Z-score	≥ 80% and <90%
Total chronic malnutrition/Total stunted (moderate plus severe)	<-2 Z score	<90%
Normal/Not Stunted	≥-2 Z-scores (Greater than or equal to -2Z-scores)	≥ 90%

Cut off points for Underweight

Description of Nutritional Status	Weight for Age Index Z scores (SD)	Weight for Age % of median
Severe Underweight	<-3 Z scores (less than minus 3)	<70%
Moderately Underweight	Less than - 2 Z-scores BUT greater than or equal to -3 Z-score	≥ 70% and <80%
Total Underweight (moderate plus severe)	<-2 Z score	<80%
Normal	≥-2 Z-scores (Greater than or equal to -2Z-scores)	≥ 80%

The following classifications for malnutrition have been established by WHO as levels for interpreting weight for height, height for age and weight for age Z score.

Index	Normal/ Low	Poor/ Medium	Serious/ High	Critical/ Very high
Wasting	<5%	5-9.9%	10-14.9%	>15%
Stunting	<20%	20-29.9%	30-39.9%	>40%
Underweight	<10%	10-19.9%	20-29.9%	>30%

Mortality data interpretation

High mortality rates mark the highest level of deterioration in people's livelihood. A low malnutrition rate while the under five mortality rate is high does not essentially mean that the nutritional status of the population is good. It is possible that some of the severely malnourished children died prior to the assessment hence the low malnutrition rates.

Findings on the retrospective mortality can be interpreted vis-à-vis the following WHO guidelines and Sphere

<p>Crude Mortality rate (CMR) = total deaths/10,000 people per day Under-five mortality rate (U5MR) = deaths in children under-five /10,000 children under-five per day</p>
--

Cut offs and classification of mortality data

Indicator	Definition	Interpretation
Crude Mortality Rate (CMR)	An estimate of the rate at which members of the population die during a specified period. This is the number of deaths from all causes per 10,000 people per day.	<1/10,000/day indicates acceptable rates ≥1 and <2/10,000/day indicates a situation of alert ≥2/10,000/day indicates an emergency
$\text{CMR} = \frac{\text{Total number of deaths over a specified time period} * 10,000}{\text{Total estimated population (current)} * \text{specified time period in days}}$		
Under Five Mortality Rate (U5MR)	The number of deaths among children between birth and their fifth birthday expressed per 10,000 live births This is the number of deaths from all causes per 10,000 of under five year old children per day.	<2/10,000/day indicates acceptable rates ≥2 and <4/10,000/day indication a situation of alert ≥4/10,000/day is an emergency
$\text{U5MR} = \frac{\text{Total number of under 5 deaths over a specified time period} * 10,000}{\text{Total estimated under 5 population (mid/current)} * \text{specified time period in days}}$		

Cut off points for MUAC which mainly measures the risk for mortality

- MUAC for 12-59 months age group(risk for mortality)- *according to The sphere project*
 - Global acute malnutrition : % of children with MUAC < 125 mm
 - Severe acute malnutrition : % of children with MUAC < 110 mm
- Adults
 - Global acute malnutrition : % of adults with MUAC ≤ 185 mm
 - Severe acute malnutrition : % of adults with MUAC < 160 mm and,
 - Severe acute malnutrition : % of adults with MUAC < 185 mm manifesting bilateral oedema
- Pregnant (risk for mortality)- *according to The sphere project*
 - Total at risk: % of adults with MUAC ≤ 230 mm
 - Severe risk: % of adults with MUAC ≤ 207 mm

Results should be interpreted with other contextual information.

Vitamin A Deficiency cut offs

Indicators of public health significance in children 6-71 months according to the sphere project

Indicator	Minimum prevalence
Night blindness (present 24-71 months)	> 1%
Bitot spots	>0.5%
Corneal xerosis/ulcerations/keratomalacia	>0.01%
Corneal scars	>0.05%

WHO recommends that where it is not possible to obtain two biological indicators, one such indicator should be supported by a composite of at least four of the indirect demographic, ecological and

socioeconomic risk factors (Annex 9). Further reference can be obtained from WHO/UNICEF/ IYCF Strategy.

Figures obtained through a single cross-sectional nutrition assessment only reflect the nutritional status of the population **at the time of the assessment**, in a certain area. Taken alone, these figures do not give any indication of the trend, whether the nutritional status is improving or deteriorating. Additional information, collected at the preparatory phase, will allow the interpretation of the results in context.

The proportion of malnutrition observed in the sample can be compared to malnutrition rates observed in a previous assessment, taking into account (a) the sampling in each assessment and (b) seasonality or any impact of emergency. One can only conclude that there was a statistically significant difference between two assessments if confidence intervals do not overlap.

Further links between qualitative data and the resulting nutritional status can also be established guided by the conceptual framework. Such data with support from quantitative data is used to give an indication of whether certain factors contribute to malnutrition or not.

Socio-economic and political environment – It is important to clearly define the socio-economic and political environment in relation to the study population.

Food security information – Understand what the food security situation of the population is like in terms of:

- Previous and current ability of household to access food
- Type and quality of food available. Define the quantities of food that family members are eating and if these are sufficient to meet their daily food requirements.
- Recent population movement

Food consumption – Both quantity and quality of food consumed are important in determining the well being of an individual. Define what proportion of the population is seen to meet their daily food requirements

- Coping strategies in times of stress also contribute to food access in Somalia. As such, the normal means of accessing food for a given population may be constrained at a given time but since they have viable coping strategies their access to food is not limited hence the need to clearly define these.

Health and sanitation

What is the incidence of important (those that are known to have strong associations with nutritional status e.g. measles; diarrhoea; ARI and malaria) child illnesses prior to or around the study. Are the incidences significantly high?

- Immunization status/coverage – define what proportion of the children is immunized for the immunisable childhood diseases e.g. measles and poliomyelitis. What factors have contributed to the identified coverage?
- Supplementation of certain micronutrients is usually undertaken among certain population especially when deficiency of these micronutrients is suspected and more so when foods rich in these are not readily available. In Somalia vitamin A supplementation is usually undertaken on a regular basis. Vitamin A has positive contributions to the overall wellbeing of an individual. Determine the level of vitamin A supplementation coverage in the population.
- Define if the sanitation status is good or poor. Poor sanitation practices will predispose populations to certain illnesses e.g. diarrhoea and malaria which will in turn contribute to malnutrition. Determine what proportion of the population has access to clean sanitary facilities?
- Do all members of the study population have access to clean drinking water? What is the main source of drinking water and does this sustain them throughout the year?

Care practices – Establish childcare practices and their influence on the nutrition status and the situation of women in relation to providing care to children in terms of

- Economic resources and their own health e.g. in stressed mothers milk flow may be affected
- Time spend with child by mother/care giver
- Hygiene in food preparation and storage

Breast feeding and complimentary feeding

A major cause of malnutrition among children lies in improper breast feeding and complementary feeding practices. The interpretation should be done in relation to:

- Exclusive breast feeding (< 6 exclusively breast fed)
- Timely, receiving complementary food in addition to breast milk by age (The recommendation of 1 year olds is to feed 3-5 times in addition to breast milk)
- Frequency of feeds by age
- Continued breast feeding until 24 months

In the case of children, it is important to define the frequency of meals per day. Ideally, a total of more than three well balanced meals per day are expected to meet the daily food requirements of the child.

Establish links/associations of the various variables defined above and the calculated nutritional status of the children. The causes of malnutrition vary from one population to another hence the need to define the specific factors contributing to nutritional status in each population. Statistical analysis of nutrition assessment data can be used to determine the links/associations.

8. REPORT

A. Presentation of assessment results

The results are presented in form of a report. A report is both a descriptive and narrative account of the nutrition situation. It states problem, significance of the study, objectives, methodologies, results and recommendations

The following elements should be part of the report.

Summary

- Objectives of the assessment
- Methodology used
- Main results
- Conclusion and recommendations

1. Introduction

- Context in which the assessment was carried out
- Population assessed: population figures (total and < 5 years)
- Date of the assessment
- Description of the geographic area
- Map of the assessed area

1.1 Assessment Justification

1.2 Objectives of the assessment

- To determine the nutritional status of children aged 6-59 months or 65-110 cm height/length using weight for height.
- To determine immunization coverage of measles and polio vaccination and vitamin A supplementation among the study population
- To establish factors influencing child nutrition in relation to care practices, food security, health and water situation in
- To estimate under 5 mortality and crude mortality rates in the last 3 months prior to the assessment
- To provide recommendations for future interventions based on the findings.

2.0 General Overview

- General information (geographic character of the area, socio-economic activities)
- Food security overview
- Health overview
- Nutrition overview
- Programmes/ interventions in the area

3.0 Methodology

Sampling methodology

- Sampling methodology used
- Population figures and source
- Calculation of the sampling interval
- Did you alter the standard method in any way e.g. due to insecurity?
- Selection of household and children
- Sampling size and parameters used (error risk, expected prevalence and expected precision)
- Variables measured and recording information (type of measuring instruments)
- Composition of the teams

- Training of the data collectors
- How data was nutrition related and mortality collected
- How was data analysed.

4.0 Analysis and Results

4.1 Household characteristics

- Total households assessed,
- Average household size
- Average number of under fives per household
- Proportion of female and male headed households.

4.2 Food and income sources

Table 1: Distribution of households by their income and food sources and by coping strategies applied

Variable	N	%
Food sources		
Income sources		
Coping strategies		

4.3 Water and sanitation

Table 2: Distribution of households by their water sources and sanitation facilities

	N	(%)
Main source of drinking water		
Sanitation facility		

4.4 Characteristics of study children

Table 3: Distribution of children assessed by the age groups and sex

Age category in months	Boys		Girls		Total	
	No	%	No	%	No	%
6-11						
12-23						
24-35						
36-47						
48-59						
Total						

4.5 Nutritional status of assessment children using anthropometry

Table 4: Acute nutrition status using W/H z-scores or presence of oedema according to age groups

Age groups	Severe (<-3 Z score or Oedema)	Moderate (<-2 - ≥-3 Z score)	Total malnourished (<-2 Z score or Oedema)	Normal (≥-2 Z score)
6-11 months				
12-23 months				
24-35 months				
36-47 months				
48-59 months				
Total				

Table 5: Summary of Global Acute malnutrition and Severe Acute Malnutrition using Weight for Height Z score

Malnutrition Rates	No	Proportion.
Global Acute Malnutrition (<-2 Z score or oedema)		CI
Severe Acute Malnutrition +(<-3 Z score or oedema)		CI
Oedema		CI

Table 6: Distribution of acute malnutrition (using weight for height z-score) by sex

	Severe (<-3 Z score or oedema)	Moderate (<-2 - ≥3 Z score)	Global acute malnutrition	Normal (>-2 Z score)
Males				
Females				
Total				

Table 7: Prevalence of acute malnutrition rate using W/H percentage of median categories

Percentage of median						
Nutrition status categories	Males		Females		Total	
	Proportion	No.	Proportion	No.	Proportion	No.
Total malnutrition (W/H<80% and/or oedema)						
Severe malnutrition (W/H<70% of the median and or oedema)						
Oedema						

4.6 Disease prevalence and intervention coverage

Table 8: Disease prevalence and coverage of health interventions in among the assessment population

	Number	%
Incidence of major child illnesses (n=)		
Diarrhoea within two weeks prior to assessment		
Suspected malaria/Febrile illnesses within two weeks prior to assessment		
Suspected measles within one month prior to the assessment		
Measles immunisation		
Children receiving measles vaccination (9 - 11 months) (N=)		
Children receiving measles vaccination (12– 23 months) (N=)		
Children receiving measles vaccination (9 – 59 months) (N=)		
Verification for those vaccinated By card		
Vitamin A supplementation (n=)		
Children receiving Vitamin A supplementation in past 6 months		
Children who have ever received Polio dose (N=)		

4.7 Feeding practices

Table 9: Distribution of children by feeding practices

	N	(%)
Are you breastfeeding child (age 6-24months) (n): Yes No		
Age when child stopped breastfeeding (n=): 0 - 5 months 6 - 11 months 12 months or more		
Feeding frequency (n=): <i>6-11 months</i> Once 2 times 3 times 4 or mores times <i>12-23 months</i> Once 2 times 3 times 4 or mores times <i>Over 24 months</i> Once 2 times 3 times 4 or mores times		

4.8 Risk factors prevailing in relation to malnutrition

Table 10: Summary of relationship between malnutrition and other influencing factors

Exposure variable	N	p-value
Child sex: Male Female		
Diarrhoea Yes No		
ARI, malaria, measles, malaria		

4.9 Mortality rates and cut offs

Crude and under five mortality rates expressed as no of deaths/10,000/per day
Possible causes of mortality

4.10 Qualitative information

- Qualitative information generated from focus group discussions.
- The feeding and care practices
- Food security and health related issues

5.0 Interpretation of the results, discussion and recommendations

- Based on the Conceptual Framework (s) explain the current nutrition and mortality situation and factors influencing it
- How severe are the problem
- How are people coping?
- Compare with previous assessments, if applicable
- Make predictions
- What are the priority needs
- Provide recommendations based on results
- Provide short and long term recommendations based on results for programmatic considerations

B. Dissemination of Assessment Results

1. After data analysis the preliminary results should be shared with partners at the community level:
 - representatives of community members
 - Relevant government partners
 - NGOs

In this forum explain clearly the nutrition situation in the area and get their comments and views on what they think should be done but make no promises.

This discussion will provide an opening for more comprehensive and longer term community based analysis of issues that can be addressed more efficiently and effectively by the community themselves.

2. Discuss results with partners and develop recommendations and conclusions
3. Ensure adequate peer review of the assessment report through the nutrition working group or implementing partners.
4. Once the report is ready make oral briefing to partners and donors at various forums e.g. workshop or meetings. This should be brief and clearly outlining the summary of the report. Allow enough time for discussion.
5. Disseminate final report to partners, donors, academic and research institutions.

CORE ISSUES IN NUTRITION ASSESSMENTS

The nutrition assessment guidelines are recommended for all assessments in Somalia. However, during the planning of each assessment, the questionnaires should be reviewed to determine the relevance of each question. The following are proposed as minimum best practice that must be undertaken to provide the basic anthropometric data.

1. Adherence to the recommended assessment methodology of 30 by 30 and data management system, for credibility of findings.
2. Collection of child details necessary for computing the anthropometric indices of a child (sex, age, oedema status, weight, height, MUAC) (Questions 22-27 in annex 3a or as summarized in annex 3c). Weight for height z scores is used in the analysis of the prevalence rates for acute malnutrition.
3. Collection of retrospective mortality data (standard mortality questionnaire in annex 3b) to determine crude and the under five mortality rates and the associated causes for death. Whereas a three month (about 90 days) recall period is recommended in the standard nutrition assessment, the recall period would need to be adapted to the context, e.g. to 30 days. Note that the shorter the recall period the larger the sample size recommended.
4. Collection of **qualitative** data on:
 - a. The underlying causes of acute malnutrition
 - b. The underlying causes of retrospective crude and the under five mortality
 - c. Recommended interventions to address these causes.

A more comprehensive study of the situation is always preferable to ensure that the anthropometric data is analysed in context.

Annex 6, represents a standard questionnaire or checklist for qualitative data collection, also proposed for a nutrition assessment.

Annex 3c is a proposed questionnaire on the minimum quantitative information required in a nutrition assessment.

GUIDE ON QUESTIONNAIRES

1. Household questionnaire

Team Number: number of team as assigned by assessment coordinator

Cluster Number: number of cluster as assigned following clusters identification

Name of Supervisor: name of person heading the team

Name of Enumerator [*optional*]: name of person collecting data

Name of Village/Town: main village or town within which a cluster is located, if applicable

Name of section [*optional*]:

Household Number: record the number of household that the team has visited

Name of the Respondent: name of person being interviewed _____

Q1-14 Characteristics of Household

Q1 Household size: a household refers to a person or group of people who live together and eat from the same pot

Q2 Number of < 5 years: these are children aged 6 - 59 months or of height/length 65 - 109.9cm in a given household

Q3 Household residence status: definitions of different households' residential status:

- ◆ Resident: person who dwells in a particular place permanently or for an extended period
- ◆ Internally Displaced Persons: a person or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights, or natural or human-made disasters, and who have not crossed an internationally recognized State Border" source, guiding principles on internal displacement
- ◆ Returnees: refugees who have returned to their country (Somalia) or community of origin, Somalia, either spontaneously or through organized repatriation [UNHCR definition]
- ◆ Internal migrants: a person who moves (more or less permanently) to a different administrative territory due to a wide range of reasons (e.g. job related, security, pasture, food)

Q4 Place of origin (categorize during questionnaire design):

Q5 Duration of stay:

Q6 Reason for movement: _____

Q7 What is the livelihood systems used by this household?: definition of the different livelihood systems

- ◆ Pastoral
- ◆ Agro- pastoral:
- ◆ Urban
- ◆ Fisheries

Q8 What is the total size of the land cultivated (ha):

Q9 How many cattle/camel does household own (heads):

Q10 How many sheep and goats does the household own (number):

Q11 How many berkads does the household own?:

Q12 Source of income?:

Q13 Wealth group:

Q14 Type of shelter?:

Q15-21 Feeding and immunization status of children aged 6 – 59 months (or 65 – 110cm) in the household.

Q15 Vitamin A provided in the last 6 months: (*show all possible sample- 100,000 IU and 200,000 IU*)

Q16 Are you breastfeeding the child?: refers to if the child has received breast milk directly from the breast i.e. the mothers or wet nurse⁶. For any meaningful breastfeeding, the feed should have occurred within at least the past 12 hours.

Q19 At what age was child given water/ foods other than breast milk?:

⁶ Source: What is the definition breastfeeding? Miriam Labbok, MD, MPH, IBCLC from Breastfeeding Abstracts, February 2000, Volume 19, Number3, pp 19-21. The definition has been revised to suit the Somali context, where breastmilk is not usually expressed to feed a child in case the mother is away.

Q20 How many times do you feed the child in a day?:

Q21 How many times has the child ever been given polio vaccine orally?:

Q22-33 Anthropometry and morbidity for children aged 6 – 59 months or (65 – 110.9cm) in the household

Children less than five years anthropometry: involves measuring the physical dimensions of a child's body

Q22 Child Sex:

Q23 Age in months: use available records to obtain age of child. If none available estimate the age with the child's mother by use of the local calendar of events.

Q24 Oedema - is assessed by gently pressing the feet to check if a depression is left after at least three seconds of pressing and should be confirmed by an FSAU staff member or person leading the data collection process.

Q25 Weight – take measurement as per standard guidelines

Q26 Height/length – take measurements as per standard guidelines

Q27 MUAC - take measurements as per standard guidelines

Q28 Diarrhoea⁷ in last two weeks: defined for a child having three or more loose or watery stools per day

Q29 Serious ARI in the last two weeks: asked as ooof wareen or wareento. The three signs asked for are cough, rapid breathing and fever

Q30 Febrile illness/ suspected Malaria in the last two weeks: the three signs to be looked for are periodic chills/shivering, fever, sweating and sometimes a coma

Q31 (≥9 month) Suspected Measles in last one month: a child with more than three of these signs– fever and, skin rash, runny nose or red eyes, and/or mouth infection, or chest infection

Q32 (≥9 month) Vaccinated against measles:

Q33 Where did you seek healthcare assistance when (Name of child) was sick?: [Applicable for a child who suffered any of the diseases in Q25 – 27]: definition of different sources of medical assistance.

- ◆ No assistance sought
- ◆ Own medication
- ◆ Traditional healer
- ◆ Private clinic/ Pharmacy
- ◆ Public health facility

Q34 Anthropometry (MUAC) for adult women of childbearing age (15-49 years) present at the household

- ◆ MUAC: The measurement is taken following similar steps as when taking MUAC of children as follows:
 1. Remove any clothing that covers the left arm
 2. Calculate the midpoint of the left upper arm:
 - First locate the tip of the shoulder with your fingertips.
 - Bend the elbow to make a right angle.
 - Place a measuring tape at zero on the tip of the shoulder and pull it straight down past the tip of the elbow joint; read the number at the tip of the elbow to the nearest 1 mm. Divide this number by two to find the midpoint, which you and your assistant should mark on the arm with a pen
 3. Straighten the arm and wrap the measuring tape around the arm at the midpoint (ensuring that the numbers are right side up). Make sure the tape is flat against the skin
 4. Check that the tape around the arm is neither too tight nor too loose. Correct if necessary.
 5. When the tape is correctly positioned and under the correct tension, read the measurement to the nearest 1 mm and call it out to your assistant who then correctly, records this reading
 6. Remove the tape from the arm.

Physiological status: adult women could be non pregnant, pregnant or lactating.

- Pregnant – ask the woman if she is pregnant or not. Observations could also be made.
- Lactating – refers to women who have given breast milk to a child either directly from their breast or expressed and fed it to the child in at least the past 12 hours.

Illness in last 14 days? If yes, what?:

Q35: Does any member of the household have difficult seeing at night or in the evening while other people do not?

Q36-40 Access to water (quality and quantity)

Q36 Main source of drinking water

- 1= piped
- 2= public tap
- 3= Tube well/borehole
- 4= Protected well or spring
- 5= Rain water
- 6= Open spring and well
- 7= River
- 8= Water catchment

Q37 Average household water use per day per person for drinking, cooking and personal hygiene:

Q38 Average time taken to and from the nearest water point: *(including waiting and collecting time)*:

Q39 Number of clean water collecting and storage containers of 10-20 litres:

Q40 What is the method of water storage in the household?:

- 1=Covered containers
- 2=Open containers
- 3=Constricted neck/end (Ashuun)

Q41-45 Sanitation and Hygiene (access and quality)

Q41 Type of toilet used by most members of the household:

- 1=Improved pit latrine
- 2=Traditional pit latrine
- 3=Open pit
- 4= Designated area
- 5=Bush

Q42 Number of people who use the same toilet:

Q43 Distance between toilet and water source:

Q44 What washing agents do you use in your household?

- 1=soap
- 2=shampoo
- 3=ash
- 4=plant extracts
- 5=None

Q45 How do you store prepared food?

- 1= Covered containers
- 2=Uncovered containers

Q 46 Food Consumption Diversity

The respondents are asked to recall all the food groups consumed in the household by members in the past twenty four-hours. The interviewers should establish whether the previous day and night was usual or normal for the households. If unusual- feasts, funerals or most members absent, then another day should be selected.

- ◆ Food groups consumed – consideration is made on any food group that was consumed in the household over the past twenty four hours. According to FAO classification, foods consumed fall within twelve main food groups namely: 1) Cereals and cereal products, 2) Meat, poultry, Offal 3) Eggs 4) Roots and tubers, 5) Vegetables, 6) Fruits, 7) Pulses/Legumes, 8) Milk and milk products, 9) Fats and oil, 10) Sugars and honey, 11) Fish and sea foods, 12) Miscellaneous e.g. spices.
- ◆ Main source of food group – take into account the main food type in a given food group, for example rice, sphaghetti and maize are all in the food group - cereals, if rice happens to be the main cereal usually eaten in the household, then the main source of rice in the past twenty four hours will be considered.
- ◆ Total number of food groups consumed: count and record the number of food groups that were eaten in the household.

Q47 Which of these informal support did you receive in last three months:

- 1=Zakat from better-off households
- 2=Remittances from Abroad
- 3=Remittances from within Somalia

- 4=Gifts
- 5=loans
- 6=None

Q48 Which of this formal international or national aid support did you receive in last three months?:

- 1= Free cash
- 2=free food
- 3=cash for work
- 4=food for work
- 5=supplementary food
- 6=Water subsidy
- 7=Transportation of animals subsidy
- 8=Veterinary care
- 9=None

APPENDICES

ANNEX 1 SCHEDULE OF ACTIVITIES FOR NUTRITION ASSESSMENT

Activity	Person responsible	Deadline
Contacting with partners		
Meeting with partners to discuss assessment and share responsibilities		
Contacting with local authority		
Get required equipment and materials		
Ensure participation of partners		
Assessment budget request		
Prepare equipments/Materials/Stationary		
Preparation of tools(questionnaires FGD guide), methodology, review of secondary data,		
Ensure the assessment data collection tool will bring out the uniqueness the FEZ		
Photocopy questionnaires/Guidelines		
Ensure computer has working EPI-INFO		
Identification of enumerators/supervisors		
Identify training venue		
Training of enumerators & Supervisors		
Data Collection		
Data entry and analysis		
Preliminary Results Discussion		
Assessment report draft		
Finalising report		
Circulation of report		

ANNEX 2

EQUIPMENT NEEDED

- Height board or Length board > 115 cm
- Salter scale, 25 kg x 100 g
- Wooden sticks with marks at 65 cm, 85 cm and 110 cm.
- Weighing pants (2)
- Standard weight (10 kg)
- MUAC tapes
- Questionnaires, data sheets
- Random number table
- Field guide
- Pencils, erasers, sharpeners
- Clipboards, staplers, sticky staple, rubber bands, note books
- Tables, pocket calculators

Weighing scales and length/height boards are available from UNICEF and FSAU.

EPINUT and EPIINFO software can be downloaded from the internet.

Nutrisurvey software can be downloaded from the internet (www.smartindicators.org OR the latest website)

ANNEX 3a: STANDARD NUTRITION ASSESSMENT QUESTIONNAIRE

Date _____ Team Number _____ Cluster Number _____ Name of Supervisor _____ Name of enumerator [*optional*] _____

Name of Village/Town _____ Name of section [*optional*] _____ Household Number _____ Name of the Respondent _____

Q1-14 Characteristics of Household

Q1 Household size⁸ _____

Q2 Number of < 5 years _____

Q3 Household residence status: 1= Resident⁹ 2=Internally displaced¹⁰ 3=Returnees¹¹ 4=Internal immigrant¹² 5=Other (specify) _____

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

Q4 Place of origin (categorize during questionnaire design) _____

Q5 Duration of stay _____

Q6 Reason for movement: 1= Insecurity 2=Lack of jobs 3= Food shortage 4=Water shortage 5=Others; specify _____

Q7 What is the livelihood systems used by this household? 1= Pastoral 2=Agro- pastoral 3=Urban 4=Fisheries [**Modify livelihood systems as appropriate**]

Q8 What is the total size of the land cultivated (ha) _____ [*optional*]

Q9 How many cattle/camel does household own (heads) _____ [*optional, include only if necessary*]

Q10 How many sheep and goats does the household own (number) _____ [*optional and describe planned analysis in advance*]

Q11 How many berkads does the household own? _____ [*optional*]

Q12 Source of income? [*optional*]

Q13 Wealth group: [*optional*]

Q14 Type of shelter? [*optional -- categorize the types before hand*]

⁸ Number of persons who live together and eat from the same pot at the time of assessment

⁹ A person who dwells in a particular place permanently or for an extended period

¹⁰ A person or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights, or natural or human-made disasters, and who have not crossed an internationally recognized State Border" source, guiding principles on internal displacement

¹¹ Refugees who have returned to their country (Somalia) or community of origin, Somalia, either spontaneously or through organized repatriation [UNHCR definition]

¹² A person who moves (more or less permanently) to a different administrative territory due to a wide range of reasons (e.g. job related, security)

Q15-21 Feeding and immunization status of children aged 6 – 59 months (or 65 – 109.9cm) in the household.

Sno	Name	Q15 Vitamin A provided in the last 6 months (show sample) 1=Yes 2=No	Q16 Are you breastfeeding ¹³ the child? (if yes, skip to Q27) 1=Yes 2=No	Q17 If breast feeding, how many times/day? 1=<3 times 2=3-6 3=On demand	Q18 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	Q19 At what age was child given water/ foods other than breast milk 1=0-3 months 2=4-5 months 3=6 months or more.	Q20 How many times do you feed the child in a day? 1= Once 2= Twice 3= 3-4 times 4= 5 or more times	Q21 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								
4								

Q22-33 Anthropometry and morbidity for children aged 6 – 59 months or (65 – 109.9cm) in the household

Sno As for table on page 1	Name	Q22 Child Sex 1=Male 2=Female	Q23 Age in months	Q24 Oedema 1=yes 2=no	Q25 Height (cm)	Q26 Weight (kg)	Q27 MUAC (cm)	Q28 Diarrhoea ¹⁴ in last two weeks 1= Yes 2= No	Q29 Serious ARI ¹⁵ in the last two weeks 1=Yes 2=No	Q30 Febrile illness/ suspected Malaria ¹⁶ in the last two weeks 1=Yes 2=No	Q31 (≥9 month) Suspected Measles ¹⁷ in last one month 1=Yes 2=No	Q32 (≥9 month) Vaccinated against measles (by recall) 1=In past six months 2=Before six months 3= None	Q33 [Applicable for a child who suffered any of the diseases in Q25 – 27 Where did you seek healthcare assistance when (Name of child) was sick? 1=No assistance sought 2=Own medication 2=Traditional healer 3=Private clinic/ Pharmacy 4= Public health facility
1													
2													
3													
4													

¹³Child having received breast milk either directly from the mothers or wet nurse breast within the last 12 hours

¹⁴ Diarrhoea is defined for a child having three or more loose or watery stools per day

¹⁵ ARI asked as ooof wareen or wareento. The three signs asked for are cough, rapid breathing and fever

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

Sno	Name	Age (years)	MUAC	Physiological status 1=Pregnant 2=Non pregnant	Illness in last 14 days? If yes, what? (guide/code on the major illnesses)
1	<i>Mother:</i>				
2					
3					
4					

Q35a: Does any member of the household have difficult seeing at night or in the evening while other people do not? 1=Yes 2=No

Q35b: If yes in **Q30a**, specify the member: 1= <5 years 2= ≥ 5 years

Q36-40 Access to water (quality and quantity) – [adapt to local situation]

Q36 Main source of drinking water 1 = piped 2 = public tap 3= Tube well/borehole 4= Protected well or spring (*explain protected means*)
5 = Rain water 6= open spring and well 7= river 8= water catchment 9=other _____

Q37 Average household water use per day per person for drinking, cooking and personal hygiene is [optional - adapt to local situation]

Q38 Average time taken to and from the nearest water point (*including waiting and collecting time*) _____

Q39 Number of clean water collecting and storage containers of 10-20 litres 1=1-2 containers 2= 3-4 containers 3=4-5 containers

4= more than 5 containers [optional - adapt to local situation]

Q40 What is the method of water storage in the household? 1=Covered containers 2=Open containers 3=Constricted neck/end (*Ashuun*) – [Optional]

Q41-45 Sanitation and Hygiene (access and quality)

Q41 Type of toilet used by most members of the household (*define each option and translate*): 1=Improved pit latrine 2=Traditional pit latrine 3=Open pit
4= designated area 5=Bush 7=Others (specify) _____

Q42 Number of people who use the same toilet [optional] 1=1-5 people 2=6-10 people 3=11-15 4= 16 – 20 people 5=More than 20 people

Q43 Distance between toilet and water source [adapt to local situation] 1=0 – 5 metres 2= 6 – 10 metres 3= 11- 20 metres
4= 21 - 29 metres 5=30 metres or more

Q44 What washing agents do you use in your household? 1=soap 2=shampoo 3=ash 4=plant extracts 5=None

Q45 How do you store prepared food? 1= Covered containers 2=Uncovered containers

¹⁶ Suspected malaria/acute febrile illness: - the three signs to be looked for are periodic chills/shivering, fever, sweating and sometimes a coma

¹⁷ Measles (*Jadeeco*): a child with more than three of these signs– fever and, skin rash, runny nose or red eyes, and/or mouth infection, or chest infection

Q 46 Food Consumption Diversity

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

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

Total number of food groups consumed: _____

Q47 - 48 Informal and formal Support or Assistance in last three months (circle all options that apply)

Q47 Which of these informal support did you receive in last three months [*optional/tailored to region*]
 1=Zakat from better-off households 2=Remittances from Abroad 3=Remittances from within Somalia
 4=Gifts 5=loans 6=None 7=Other (specify) _____

Q48 Which of this formal international or national aid support did you receive in last three months?
 1= Free cash 2=free food 3=cash for work 4=food for work 5=supplementary food
 6=water subsidy 7 transportation of animals subsidy 8=veterinary care 9=None 10=Other (specify) _____

Annex 3b: STANDARD NUTRITION ASSESSMENT QUESTIONNAIRE - Somali Version

WEYDIIMAHA SAHANKA NAFAQADA

Tariikh ___ Lanbarka Kooxda ___ Lanbarka goobta ___ Magaca Kormeraha ___ Magaca xog-qadaha ___

Magaca Tulada/magalada ___ Magaca xaafadda ___ Lanbarka aguriga ___ Magaca kormeeraha ___

S1-8 Dabeecadaha/Habdhaqanka Qoyska

S1-Immisa qof ayaa ku nool Gurrigan (Tirada dadka qoyska) ? _____

S2 Immisa carruur shan sano ka yar ayaa joogta (Tirada ilmaha < 5 sano)? _____

S3 Maxay tahay xaaladda deganaanshaha qoysku hadda? 1=Deegaan 2=Barakac 3= Qaxooti soo noqday 4= Guuritaan ku yimi (internal migrant) 5=Wax kale Caddee: _____
(Haddii Jawaabtu tahay 1 u gudub su'aasha 7 aad

S4 : Degaankee ka timi? _____

S5 Muddo Intee le'eg ayaad halkan joogtey? _____

S6 Sababta geeddiga?: 1=Amnidarro 2=Shaqo la'aan 3=Cunto yaraan 4 Biyo yaraan 5 Wax kale; Caddee _____

S7= Hab Nololeed-kee bay ka tirsan yihiin qoyskani? 1=Xoolo-dhaqato 2=Beer-iyoo-Xoololey 3= Reer magaal 4=Beeraley 5=wax kale caddee _____

S.8 Maxay tahay Isha ugu muhiimsan ee dakhliga/dhaqaalaha qoysku ka helo 1=Xoolaha iyo waxyaabaha xoolaha lage helo 2=Dalaga beeraha 3=Ganacsi yar yar 4=Shaqooyin yar yar 5=shaqo mushahaar leh 6=Xawilaad 7=Wax kale caddie: _____

Xaaladda Quudinta iyo Talaalka Carruurta da'doodu u dhexayso 6 – 59 bilood (ama dherer 65- 109.9cm) ee Qoyska

Tirsi	Magaca koowaad	Q9 (Ilmaha 6 – 24 bilood da'diisu tahay) Hadda Ilmaha ma nuujisa (Hadday maya tahay u gudub S11) 1=Yes 2=No	Q10 Haday tahay haa, intee jeer la nuujisaa maalintii? 1=<3 jeer 2=3-6 jeer 3=Markii u baahdo/to	Q11 Hadduusan hadda nuugin intee jir ayuu ahaa markii laga jaray naaska 1=<6 Bilood 2=6-11 Bilood 3=12 – 18 Bilood 4>=18 Bilood 5= Maba la nuujin	Q12 Immisa jir ayuu ahaa cunugu markii u horaysey ee la siiyey cunto iyo Biyo aan naaska hooyada ahayn? 1=0-3 Bilood 2=4-5 bilood 3=6 bilood ama ka badan.	Q13 Immisa jeer maalintii quudisaa cunuga? (Marka laga reebo caanaha naaska)? 1= Hal mar 2= laba jeer 3= 3-4 jeer 4= 5 ama ka badan	Q 14 Ma la siiyey Vitamin A ilmaha 6dii bilood ee la soo dhaafay (Tus namuunad) 1=Haa 2=Maya	Q15 (Hadduu Ilmuhu ka weyn yahay 9 bilood) Malaga talaalay Jadeecada? 1=6dii bilood ee la soo dhaafay 2=6 bilood ka hor 3=Midna	Q16 Immisa jeer ayaa laga talaalay Cudurka dabaysha 1=1-2 jeer 2=3 iyo ka badan 3=Marna
1									
2									
3									
4									

S30– 33 U sahlanaanta/Helista biyaha (Tayo iyo Tiro ahaan) Xaaladda degaanka ayaa ku hagaysa

S30-Halkee dadku intabadan ka helaa biyaha la cabbo? 1= Tuubo/Qasabad 2= Ceel af banaan 3= biyo qabad/Haro/Balli 4=Ceel xafidan sida ceel riig ah 5=webi 9=wax kale: _____

S31 Celcelis ahaan wakhti intee le'eg ayey qaadata muddada biyaha laga soo dhaaminayo isha ugu dhaw ee biyaha sii socod iyo soo socod (marka lagu daro xilliga biyaha la dhaaminayo?) 1= <30 Daqiiqo
2=30 – 60 Daqiiqo 3= 1-2 Saacadood 4= Ka badan 2 saacadood

S32 Tirada Weelka biyaha lagu soo dhaansado, laguna kaydsado 10- 20 litir ee qoyska 1=1-2 shay 2=3-4 shay 3=4-5 shay 4=kabandan 5 shay

S33 Waa side Habka kaydsiga biyaha qoysku : 1= Weel dabool leh 2=weel af banana 3=Aashuun

S34-37 Faya dhawrka iyo Nadaafadda (Helitaanka iyo Tayada)

S34 Nooca Suuliga inta badan Xubnaha qoysku isticmaalaan: 1= Musqul Saxan leh 2= Musqul caadi ah oo god dheer leh 3= God furan 4=Meel loo cayimay 5=Duurka

S35 Masaafada u dhexaysa suuliga iyo isha biyaha: 1=0-30 mitir 2=30 mitir ama ka badan

S36 Muxuu qoysku ka isticmaalaa waxyaabaha wax lagu nadiifiyo 1= Saabuun 2= Shaambo 3 =Danbas 4= Buruqda Dhirta sida GASANGAS-TA 5= Waxba

S37 Sidee u kaydisaan cuntada diyaarsan? 1= Meel kore lagu xiro/laga soo laalaadiyo 2=La dhigo dabka coonkiisa isagoo ku jira dheriga 3= Weel daboolan 4=Maba kaydino 5= Wax kale caddee _____

S 38 Cunto cunista Qoyska

Dib u xusuusashada Cuntaddii Qoysku cunay 24-kii saac ee tagtay: Waraystuhu waa inuu xaqiijiya in 24-kii saac ee tegey reerka caadi u ahaayeen iyo in kale.

Haddii ay jireen Sab, Duug ama inta badan xubnuhu maqnayeen, xulo maalin kale ama qoys kale.

		<i>Fure:</i>
		1= Iskood ula soo baxeen 6=Soo daymasho 2=Soo gadasho 7= laga helay duurka (sida ugaar) 3=Deeq laga helay Saaxiib/qoysas 8=Wax kale caddee _____ 4=Cunto gar gaar ah 5=Wax isku bedelasho
Nooca Cuntada	1=Haa 2=Maya	Maxay ahayd Isha ugu muhiimsan ee laga helay cuntada la cunay Istimaal Furaha sare (codes)
1. Firileyda iyo wixii laga sameeyo (e.g Gelley, Basto,Canjero Rooti iwm)?		
2. Hilib, Hilib digaag, Uur-kujir (e.g Ari/Geel/ Lo' /'Digaag?		
3.Ukun?		
4. Xididaley/Buruqley (Baradho,Bataato)?		
5. Qudaar: (Caleemaha qudaarta, Yaanyo,Dabacaseye, Basal)?		
6. Miro (Qare, Canbe, Bambeelmo)?		
7. Digiraha/Qolofley/lababogley (sida:Digir, Misir, Salbuko, Fajoolli)		
8. Caanaha iyo wixii ka soo baxa (e.g Ari,Geel, Lo', Caano boore)?		
9. Saliidda/Duxda (Dux, Burcad, Subag, Shegeri)?		
10. Sonkor iyo malab?		
11. Kalluun iyo Cunto badeed (Shiilan,Karsan,Duban,Qasacadaysan,Aargoosto		
12. Waxyaabo kale (sida Geed adari xawaash/hayl)?		
Q39 Caadi ahaan maxay tahay isha ugu muhiimsan ee qoysku cuntada ka helo? _____		

Q40 Inta nooc ee cunto qoysku cunay (Xog qaadaha ayaa buuxinaya): _____

Q41 - 42 Kaalmo toos ah iyo mid dadban La helay saddexdii bilood ee la soo dhaafay (Goobo geli dhamaan meelaha ay jirto/ku haboon)

Q41 Maxaad ka heshay kaalmooyinkan dadban saddexdii bilood ee la soo dhaafay

1=Zeko ay baxsheen qoysaska ladan

2=Xawilaad laga soo diray dibedda

3=Xawilaad laga soo diray Somaliya gudaheeda

4=Deeq

5=Amaah/dayn

6=Midna

7=Wax kale (caddee) _____

Q42 Maxaad ka Heshan kaalmooyinkan tooska ah Heer Caalami iyo heer wadani saddexdii bilood ee tegey?

1=Kaalmo lacageed bilaash ah

2=Kaalmo cunto bilaash ah

3=Lacag shaqo ku bedelasho

4=Raashin shaqo ku bedelasho

5=Cunto

dheeraad ah/kabid

6=Kabid biyood

7= Kabid rarid xoolaad

8=Daaweyn xoolaad

9=Midna

10=Wax kale (caddee) _____

ANNEX 3c
QUESTIONNAIRES FOR THE BASIC NUTRITION ASSESSMENT ANTHROPOMETRIC
AND MORTALITY DATA

i) Anthropometric measurements questionnaire

No.	Sex M=1 F=2	Age (Months)	Length/ Height (cm)	Weight (kg)	Oedema (bilateral) Yes=1 No =2	MUAC (cm)
1						
2						
3						

ii) Mortality assessment questionnaire

No.	Total members in HH xx days ago	Total members in the HH today (specify date)	Total deaths in the HH in the last 30 days	Cause of death	Total <5s in HH 30 days ago	Total <5s in the HH today (specify date)	Total <5 deaths in the last 30 days	Cause of death
1								
2								
3								

ANNEX 4

SAMPLING FRAME

Choosing clusters through probability proportional to size

A list of all town sections or villages with their respective population is used to construct cumulative population figures for the district. They can be listed in any order as shown in the example below

Population Estimates from WHO NIDS, Sept 2001 used in Belet Hawa assessment

Settlement/Village	Population Estimates	Cumulative Population	No of clusters	Clusters
Belet Hawa Town	20,000	20,000	10	1-10
Banaaney/Bananey Biddo	1550	21550	1	11
Kamoro Adon	250	21800	0	
Badweyne	150	21950	0	
Wargadud/Ciidweyne/ Warcaddey	800	22750	0	
Beled Amin IDP	3000	25750	2	12-13
Beled Amin Village	2650	28400	1	14
Malkaaray	1720	30120	1	15
Gawido	1750	31870	1	16
Oda	1450	33320	1	17
Lo'lays/ Ceel Dheere	3575	36895	1	18
Malmalley/Boco	1200	38095	1	19
Lanabeer	780	38875	0	
Jiracle	1100	39975	1	20
Odan	450	40425	0	
Qansaxley	600	41025	0	
Kanshiirrey/Labilule	2340	43365	1	21
Sallawe/ Lanameer	200	43565	1	22
Burjaabo	1625	45190	0	
Gubadhiyaa	2975	48165	2	23-24
Cara Case	2230	50395	1	25
Khadija Haaji	3850	54245	2	26-27
Hareeri Hoosle/Quradere	2005	56250	1	28
Gaddoon Dhowe	3045	59295	1	29
Baqtile	1625	60920	1	30
Irridda	1000	61920		
	61920			
Random Number = 50				
Cluster sampling interval= 2064				

ANNEX 5

CALENDAR OF EVENTS

Calendar samples traditional calendar for Northeast Zone of Somalia (Source UNICEF)

Month	Events	1992	1993	1994	1995	1996	1997
Jan.			49	37 Cholera outbreak in Bossaso	25	13 Ramad. ***	1 Ramad ***
Feb.	End of Dira		48	36 Ramad ***	24 Ramad ***	12 Cholera outbreak in Bossaso	
Mar.	Beginning Of Gu'	59 Ramad ***	47 Ramad ***	35	23	11	
Apr.		58	46	34	22	10 IID Al-AD ***	IDD Al-AD ***
May	End Of Gu'	57 Fundamentalist conflict	45	33 IID AL-AD ***	21 IID AL-AD ***	9	
Jun.	Beginning Of Haga	56 IID Al-AD ***	44 IID AL-AD ***	32	20	8	
Jul.		55	43	31	19	7 Mawlid ***	Mawlid ***
Aug.	End of Haga	54	42	30 Mawlid ***	18 Mawlid ***	6	
Sep.	Beginning Of Deyr	53 Mawlid ***	41 Mawlid ***	29	17	5	
Oct.		52	40	28	16	4	
Nov.	End of Deyr	51	39	27	15	3	
Dec.	Beginning Of Dira	50	38	26 Bossaso flood	14	2	

Full Rainy Season

Beginning or end of rainy season

IID AL-AD: Two months after Ramadan.

Mawlid: Prophet's day, 5 months after the end of Ramadan

Insert latest Calendar of events which is complete with all months properly named- see Wajiid IDP and Wajiid district survey report- Jan06;

ANNEX 6
QUALITATIVE DATA COLLECTION CHECKLIST
(FOCUS GROUP DISCUSSIONS, KEY INFORMANTS, OBSERVATION)

Population and Demography (Key informants, direct observation and literature review)

- Total population _____
- Total number of households _____
- Proportion (%) of the under fives _____
- Proportion (%) of women: _____
- Proportion (%) of men: _____
- Proportion (%) of old people: _____

Feeding and care practices

1. After delivery when do mothers introduce the following foods and why?
 - a) Water
 - b) Cows/camel/goat milk
 - c) Semi solid foods(porridge and others)
 - d) Solid foods (Anjela, rice, spaghetti),
2. What are the common foods normally given to children below 3 years in this community? How many times per day? (Specify ingredients)
3. At the moment, what meals are given to children 0-3 years and how many times per day? (Specify ingredients)
4. Has there been any change in food consumption in the last three months? Give reasons for change.
5. What constraints do women normally face in providing adequate care for their children?
 In terms of:
 - effective breast feeding
 - other foods in terms of quantity, quality and frequency
 - adequate time with the child
6. Are any food withheld when a child is suffering from infectious such as:
 - Diarrhea
 - Malaria
 - Measles
 - ARI
 - Any other illness
7. Are there foods withheld for pregnant mothers?
8. How has the current drought affected women and children in terms of:
 - a) Access to food
 - b) Women’s workload

Health Issues

1. What are the most common diseases in this area in the last 3 months? Who has been affected most? (Age group, sex, socio-economic group, origin)?
2. What health facilities exist in this area? (MCHs, health posts, private clinics, pharmacies)
3. Do the local residents utilize services from the health facilities?
4. If yes, how far from the majority of the residents travel to access the services from health facilities
5. Are there people who do not utilize services from the health facilities?
6. If so, why don’t people utilize services from the health facilities?
7. At what point do mothers seek medical assistance when a child is sick? (Establish if it is timely or not timely and why)

a). Food security: (Key informants, Focus group discussions)

	Current Period	A similar time of a typical year	In the next 3-6 months if the situation improves	In the next 3-6 months if the situation deteriorates

Sources of food				
Is food available in the market?				
Prices of essential food commodities				
Sources of income				
Risk/Shock that is faced				
Coping strategies A) People e.g. o movements o feeding frequency o meal composition				
B) Livestock (e.g. movements)				
C) Child care o breastfeeding habits o child feeding o Time spent with child e.g playing this is an important aspect and needs to be emphasised in the analysis!				
D) Other (specify)				
What are the risks associated with the coping strategies on: a. health b. livelihood c. Other (specify)				
Recommended action				

For Key informants only at Health facility

- Have the number of malnourished children increased in the last the past three months?
- What are the figures before and after the increase?
- What are the main factors associated with the nutrition problems in this areas?
- Are there reports of increased diseases cases reported in this healthy facility?(ARI, diarrhoea, malaria for the last two years?)
- Has there been any disease outbreak? If yes which ones?

Water and Sanitation (key informants, observation, visits to water points, focus group discussions)

- o Average amount of water accessed per household: _____ litres
- o Cost of water: _____
- o Distance to the water points: _____ km
- o Time spent on a return trip to the water point (include time spent on the queue): _____ hours/minutes
- o Number of trips made to the water point in a day: _____
- o Type/s of water source used e.g. shallow wells, boreholes, berkard etc: _____
- o Quantity of water at the water points is likely to be adequate for the next _ days/months
- o Quality of the water (to be confirmed, if possible by a water specialist):
- o Water source is protected from contamination
- o Condition of water storage containers at household level: ___ litres
- o Where is faecal matter disposed of? (latrines, bush, other – specify)
- o Any other comments:

Shelter: (Observation and key informant interviews)

- o Comment on the suitability of the shelter of the community, within the context of the surrounding communities. (Are they living under trees? Are they overcrowded? Do the other surrounding communities live in a similar set-up?)

Mortality

- Has there been any change from the usual number of human deaths reported in this locality in the past month? Indicate whether the change is an increase or decrease.
- What are the reasons attributed to this change?

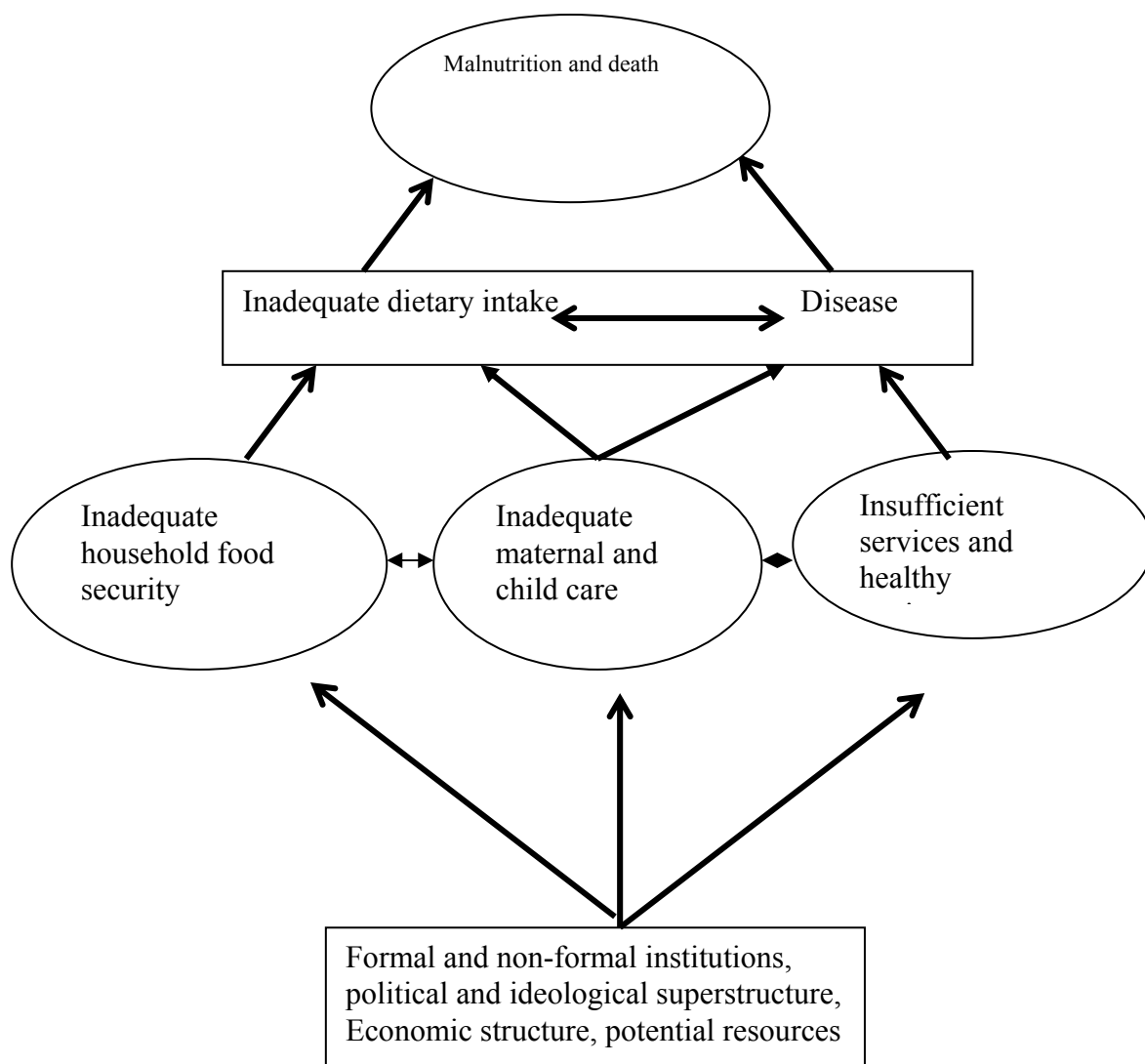
ANNEX 7
FORM FOR ANTHROPOMETRIC STANDARDIZATION OF WEIGHT AND HEIGHT

Name of measurer _____

Date: ____ / ____ / ____

No.	Child name	Age(months)	Height(cms)			Weight (kg)		
			1 st reading	2 nd reading	Average	1 st reading	2 nd reading	Average
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

ANNEX 8 Conceptual Framework Showing the Causes of malnutrition (Adapted from UNICEF's)



ANNEX 9

Table 1: Ecological Indicators of Areas and Populations at Risk of VAD
Nutrition and Diet -Related Indicators

Indicator	Suggested prevalence
Breast feeding pattern < 6 months of age ≥ 6-18 months of age	> 50% not receiving breast milk < 75% receiving vitamin A-containing foods in addition to breast milk, 3 times/week
Nutritional Status (<-2 Z score from WHO/NCHS reference) Stunting (<3 years of age) Wasting(<5 years of age)	> =30% >=8%
Low birth weight(<2500g)	>=15%
Food availability Market Household	DGLVs Unavailable ≥6months/yr<75% Households consume vitamin A-rich foods 3 times/week
Dietary patterns 6-71 months;children, pregnant/lactating women semi-quantitative/qualitative food frequency	75% consume vitamin A-rich foods at least 3 times/week Food of high vitamin A content eaten<3 times/week
NOTE: The suggested prevalence cut off levels is arbitrary. The group of indicators, however, should be given greater weight in identifying high-risk population than is given to other ecological indicators.	

Table 2 Illness-related Indicators in Children 6-71 Months of Age

Indicator	Suggested Prevalence
Immunization coverage at 12 months of age	<50% fully immunized
Measles case fatality	>=1%
Diarrhoea Disease rate (2 –week point prevalence)	>=20%
Fever rates (2-week point prevalence)	>=20%
Helminthic infection rates, particularly <i>ascaris</i>	>=50%
NOTE: The suggested prevalence rates are arbitrary and are suggested only to assist in the relative ranking of vulnerability of populations. They are best used in association with a biological indicator and more than one of the nutrition and diet related indicators.	

Table 3 Socioeconomic indicators.

INDICATOR. Levels of maternal education and literacy. Income/employment. Water supply and level of sanitation. Access to health and social services. Access to land. Access to agricultural services/inputs.
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ANNEX 10

MUAC Measurements

Mid upper arm circumference varies by age and sex among children aged 1-5 years and during this period MUAC increases normally by up to 2mm. Well-nourished children aged 4 years have higher MUAC than well-nourished children aged 1 year. There are also considerable sex differences in MUAC among children aged <24 months (de Onis et al, 1997).

Steps in measuring MUAC

If the parent or carer or other untrained person is acting as the assistant, the measurer should carry out and record the measurement.

1. Record on the form, details of the person being measured (child or an adult)
2. Remove any clothing that covers the left arm
3. Calculate the midpoint of the left upper arm:
 - First locate the tip of the shoulder with your fingertips.
 - Bend the elbow to make a right angle.
 - Place a measuring tape at zero on the tip of the shoulder and pull it straight down past the tip of the elbow joint; read the number at the tip of the elbow to the nearest 1 mm. Divide this number by two to find the midpoint, which you and your assistant should mark on the arm with a pen
4. Straighten the arm and wrap the measuring tape around the arm at the midpoint (ensuring that the numbers are right side up). Make sure the tape is flat against the skin
5. Check that the tape around the arm is neither too tight nor too loose. Correct if necessary.
6. When the tape is correctly positioned and under the correct tension, read the measurement to the nearest 1 mm and call it out to your assistant who then correctly, records this reading
7. Remove the tape from the arm.

REFERENCES

1. Action Against Hunger (2002). Training Manual on Nutrition Surveillance
2. Emergency Nutrition Coordination Unit (2001) Training Manual on Emergency Nutrition Assessment in Ethiopia
3. Food and Agriculture Organization of the United Nations (1990): Conducting Small Scale Nutrition Assessments.
4. Institute of medicine (1998): Prevention of Micronutrient Deficiencies: Tools for policymakers and public health workers. Edited by Christopher P. Howson, Eileen T. Kennedy, and Abraham Horwitz, National Academic Press, Washington D.C
5. MSF (1995) - Nutrition guidelines
6. Nutrition: A guide to data collection, analysis, interpretation and use, FSAU 2003
7. Nutrition Working Group (1999). Nutrition Assessment: Recommendations for Somalia. February 1999,
8. Sphere Handbook, 2004 Edition
9. SMART Assessment Manual Draft 1.0, August 2004
10. WHO (1995): Regional Office for the Eastern Mediterranean; Field guide on rapid nutritional assessment in emergencies