



Emergency Food Security Assessments (EFSAs) Technical guidance sheet n°. 14

Strengthening rapid food and nutrition security assessment

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Strengthening rapid food and nutrition security assessment

SUMMARY

Summary of main points

- 1- Household food security and the nutrition status of individuals are intrinsically linked: the nutrition status indicates recent and past food intake and health status; food security informs on how the nutrition status may be affected in future.
- 2- Nutrition security is achieved only when food security and adequate health and care are ensured. Food security is compromised when disease and a poor health environment compromise the body's utilization of food.
- 3- In emergency situations, where time and resources are very limited, assessments often address only some aspects of food and nutrition security. Emergency food security assessments (EFSAs) rarely include measurement of the nutrition status, and emergency nutrition surveys (ENS) do not include sufficient analysis of the food availability and access dimensions of household food security. Although it is not always necessary to take anthropometric measurements or collect in-depth information on food security, both EFSAs and ENS should include core information on the severity of the food and nutrition security situation and appropriate responses to this.
- 4- Integrated rapid food and nutrition security assessments collect data at the individual, household and community levels. Household questionnaires and semi-structured interviews with key informants are the most common tools.
- 5- ENS apply standard sampling and measurement procedures to collect anthropometric data that indicate the nutrition status of the population. EFSAs are more flexible about the type of sampling used to analyze the food security situation. Adequate integration of food and nutrition security in both ENS and EFSAs requires a careful choice of sampling procedures, target populations and indicators appropriate to the objectives of the assessment.
- 6- The analysis of food and nutrition security data focuses on identifying the primary causes of malnutrition in terms of food insecurity – including food availability, access and consumption – poor health and health environment, and inadequate care practices. There are several options for responding to the immediate and underlying causes of malnutrition and preventing future degradation of the nutrition situation.

1. Purpose and scope of the guidance sheet

The purpose of this Guidance Note is to clarify the objectives of rapid integrated food and nutrition security assessments, and to provide options and advice for carrying them out. Most of this guidance is in line with the Sphere guidelines on food security and nutrition assessments.¹ The Guidance Note is **not** intended to be prescriptive, or to provide detailed step-by-step guidelines on implementation and data analysis. Rather, it offers guidance on:

- the common objectives of food security rapid assessments and surveys that measure the population's nutrition status directly, particularly through anthropometric measurements;
- the minimum information required to meet these objectives, the sources of that information and data collection tools;
- when anthropometric measurements are useful, particularly in rapid food security assessments;
- sampling approaches that provide reliable results on the food security and nutrition situations;
- analyzing the data to ensure that household food security and individual nutrition status data are adequately integrated;
- using the results to inform and improve responses.

The guidance focuses on assessments undertaken in situations of limited time and resources (staff, logistics, budget), rather than on in-depth or baseline surveys, for which the breadth of information that can be collected and the depth of the analysis are less constrained. In rapid assessments, the choice of which information on food security, health, care and the nutrition status to collect and analyze is restricted by what resources are available.

2. Introduction

2.1 – Definitions

Nutrition and food security each have several definitions:

- **Nutrition** (in this Guidance Note) encompasses the whole process by which people: (1) obtain the types and amounts of food they require to meet their nutrition needs for body maintenance, growth and activity; (2) process the food; (3) consume it; and (4) assimilate it via biological utilization. It also includes (5) the resulting effects of this food on people's nutrition status.
- **Food security** is generally defined as existing when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.²

These two definitions clearly show that nutrition is an integral part of food security, and vice versa. An integrated approach that identifies the particular features of food security and nutrition status enhances the understanding of their interrelation.

The goal of WFP and other agencies involved in emergencies is to save lives, including by providing food and non-food assistance to prevent increased malnutrition. Food-based interventions influence food availability, access and consumption, thereby affecting household food security and the nutrition status of individuals. However, food alone may not be sufficient. Clarifying the linkages between food security and nutrition, and determining the primary causes of malnutrition – food insecurity, poor health environment, inadequate care practices – are essential to the design and implementation of interventions that achieve the intended goal of saving lives.

¹ See *Humanitarian Charter and Minimum Standards in Disaster Response*, The Sphere Project, 2004.

² World Food Summit Plan of Action, 1996.

2.2 – Relationships between food security, health, care and nutrition status

The intrinsic relationships between the three food security pillars – food availability, access and utilization – health, care and nutrition status are illustrated in the United Nations Children’s Fund (UNICEF) Causal Framework of Malnutrition (see adaptation in **Annex 1**). Key issues are outlined in the following subsections. See **Annex 2** for more details on the interrelationships between food availability, access and utilization, health, care and malnutrition.

1) A household’s food security status is an essential determinant of the nutrition status of its members:

- *directly*, through the amount and diversity of food consumed – the dietary intake;
- *indirectly*, through the allocation of resources – cash, time and assets – for food compared with other essential needs, including health, shelter, water and education, which are the other determinants of the nutrition status.

The assessment of food availability, access and utilization therefore provides indispensable information on the factors that are likely to influence nutrition status outcomes, and is essential in supporting short- and longer-term recommendations for tackling malnutrition.

2) Malnutrition affects household food security:

- *directly*, through the negative effects of low weight for height, stunting, and vitamin and mineral/micronutrient deficiencies on individuals’ physical and learning capacities;
- *indirectly*, through the increased risk of sickness and premature death of malnourished individuals, which affects the human and economic assets of households, and the economic potential of communities.

Measurement of the nutrition status – including not only weight loss (wasting) and retarded growth (stunting), but also micronutrient deficiencies, particularly of iron, vitamin A and iodine – is therefore an integral component of a food security assessment, as both an outcome indicator and a factor contributing to food insecurity.

3) Health situation and care practices are integral components of food security and nutrition assessments:

- *Diseases* influence both nutrition status, through loss or malabsorption of nutrients, and food security, through the need for cash and human resources to care for sick individuals.
- *Care practices* reflect the extent to which individuals with specific needs, including infants, young children, pregnant and lactating women, the sick, the disabled and the elderly, receive the food and health care they require.

Assessments of the food security situation and nutrition status are incomplete without information on the health status, health-related factors, and practices that influence both health and food consumption.

2.3 - Strengthening the linkages between nutrition, food security, health and care in rapid assessments

The **temporal relations** between food security, health risks and nutrition status are important, as reflected in the vicious circle that links food insecurity to disease and malnutrition. These linkages are not always evident in cross-sectional and snapshot surveys. Longitudinal surveys or repeat assessments are required for this purpose.

Rapid assessments of the food security situation and direct measurement of the nutrition status are often carried out separately and are insufficiently linked. This dissociation has

several causes, ranging from technical issues, such as the size of the sample required to obtain reliable household food security information compared with that needed for precise estimates of malnutrition rates, to timing issues and agencies' mandates and expertise. However, there is scope for addressing these constraints and strengthening the linkages between the two exercises.

There are several methods and tools for collecting data on food security and nutrition status (see Section V). The most appropriate sampling approach, mix of indicators and target population – individual, household, community – depend on the objectives of the assessment and the context, including the type of crisis and the available resources.

3. What common objectives do rapid food and nutrition security assessments share?

Rapid assessments whose main focus is on food security, are not expected to examine nutrition status in depth, and many do not take anthropometric measurements. Similarly, assessments whose main focus is on measuring nutrition status are not expected to examine the food security situation in depth.

However, given the linkages between food security and nutrition, both types of assessment share a set of common objectives.

These objectives complement, and do not substitute, the more detailed and additional objectives that individual rapid food security assessments and surveys of the nutrition status may have. For example, in an assessment that needs to answer specific questions to inform programming, direct measurement of the nutrition status can help evaluate the outcomes of interventions.

3.1 - Shared objectives of food and nutrition security assessments

Objectives shared by both food and nutrition security assessments include:

- analyzing the extent to which food insecurity contributes to acute or chronic malnutrition and micronutrient deficiencies;
- analyzing the roles of health status, household health environment and care practices in contributing to acute or chronic malnutrition and micronutrient deficiencies;
- identifying which factor(s) contribute(s) the most to malnutrition – acute or chronic, and micronutrient deficiencies – and which contribute less, to prioritize responses for immediate and short- to medium-term interventions;
- forecasting changes in the nutrition situation and in the factors contributing to malnutrition for the coming months, to plan responses accordingly.

Specific objectives of the food or nutrition security assessment, such as assessing the coverage of food aid distributions or measuring a supplementary feeding programme's effects on the prevalence of underweight, should be added to these.

3.2 – Adjusting the objectives according to the type of crisis and type of assessment

- The level of detail of these objectives depend on the **type of crisis**, sudden-onset, slow-onset or protracted:
 - In *sudden-onset crises*, the priority is to understand the immediate effects of the shock on household food security, health and care of vulnerable individuals. Although food insecurity and malnutrition may pre-exist the disaster, assessments generally focus on

the short-term risks to lives and livelihoods resulting from the event, and the needs for rapid responses.

- In *slow-onset or protracted crises*, more attention is given to the underlying causes of food insecurity and malnutrition, and to medium-term requirements.
- Fine-tuning of the objectives is also required according to the **timing of the assessment** – whether it is carried out a few days after a shock, or as a follow-up or in-depth survey later on – and the available resources, such as time, staff, logistics and analytical capacity:
 - *Initial assessments* are often multi-sectoral, and focus on describing the current situation and forecasting the evolution of the humanitarian situation in the next one to three months; the immediate factors affecting food security and nutrition are identified to enable decision-making for rapid action if required.
 - *Rapid assessments* – which are the main focus of this document – follow up on initial investigations, check changes in the situation, or inform/adjust ongoing interventions, as repeat assessments; although inter-sectoral coordination is highly desirable, these assessments generally focus on one sectoral area. Food security and nutrition, including health and care issues, should not be dissociated, but complementary rapid health or agriculture assessments may be conducted separately to gather more specific information on these sectors.
 - *In-depth assessments* respond to specific information needs, either to fill information gaps, or because important programme changes are forecast, such as launches, closures or adjustments; they are sectoral, but available information from sectors directly related to food security and nutrition, particularly health and agriculture, should be incorporated.

Table 1 illustrates how the common objectives can be adjusted according to the type of crisis and type of assessment.

Table 1. Common objectives of food and nutrition security assessments, by type of assessment and type of crisis

Fine-tuned common objectives of food and nutrition security assessments	Type of assessment	Type of crisis
<p><i>On food security and nutrition (other sectors are not mentioned here):</i></p> <p>1) To analyze the immediate effects of a shock on:</p> <ul style="list-style-type: none"> • food security, including: food availability (households' stocks, markets' supplies) and access (income sources, market prices), and current household and individuals' food consumption • risks to health (e.g. infectious diseases) and damage to health services (infrastructure, staff, supplies) • family cohesion (e.g. sudden displacement) and the capacity to care for dependent and vulnerable individuals, including children, the elderly, the chronically sick and the handicapped <p>2) To identify and forecast the main risk factor(s) of acute malnutrition in the next 1–3 months</p>	<p>Initial assessment: "light" and often inter-sectoral</p> <p><i>Typically:</i></p> <ul style="list-style-type: none"> • within 1 week after an event • 1–3 days for collecting field data • 1–2 days for reporting 	<ul style="list-style-type: none"> • Sudden-onset crisis: <i>earthquake, flood, upsurge of conflict, etc.</i> • Worsening of a slow-onset crisis: <i>drought, economic crisis, etc.</i> • Recent development or opening of access to new area in a protracted crisis

Fine-tuned common objectives of food and nutrition security assessments	Type of assessment	Type of crisis
(including food availability and access, health and care) that require immediate action ³ 3) To recommend follow-up assessments required		
<p>1) To analyze the effects of the crisis on:</p> <ul style="list-style-type: none"> • current and future food security, including food availability – next harvest, market supplies; food access – income sources, market prices, coping strategies for obtaining food and income; and household and individuals' food consumption • current and future health status of the population, and economic access to and use of health services • households' resource allocation requirements – food, health, and other essential expenditures <p>2) To identify and forecast the main risk factors of malnutrition (acute, chronic and micronutrient deficiencies) in the next 3, 6, 12 months, including food, health and care</p> <p>3) To identify other factors of malnutrition, including chronic, requiring short- and medium-term interventions</p>	<p>Rapid assessment: more comprehensive and sectoral – often a follow-up to the initial assessment, or a reassessment</p> <p><i>Typically:</i></p> <ul style="list-style-type: none"> • 2–4 weeks after an event, or when a reassessment is required • 2–3 weeks for collecting field data; • 1 week for data analysis • 1 week for reporting 	<p>Follow-up in a sudden-onset crisis</p> <p>Ongoing slow-onset crisis</p>
<p><i>Similar objectives as above, but with broader and deeper information on food security and the nutrition status, including:</i></p> <ul style="list-style-type: none"> • To describe livelihood strategies for food and income • To examine the interrelationship between food security, health and care (allocation of resources, feedback loops) • To estimate directly the nutrition status directly through anthropometric measurements and other measures of acute and chronic malnutrition and micronutrient deficiencies, particularly anaemia and vitamin A deficiency • To identify and forecast the main risk factors of malnutrition in the next 6–12 months 	<p>In-depth assessment: more comprehensive and sectoral – generally repeated at intervals of several years</p> <p><i>Typically:</i></p> <ul style="list-style-type: none"> • launched to fill information gaps • 2–4 weeks for collecting field data • 2 weeks for data analysis • 2 weeks for reporting 	<p>Ongoing protracted conflict</p>

4. What minimum set of information should be collected in rapid food and nutrition security assessments?

As noted, rapid assessments focusing on household food security, and assessments focusing on anthropometric or other measurements of nutrition status do not generally include the whole range of data needed for an in-depth analysis of food security and nutrition. However,

³ Although the confidence for elaborating scenarios beyond three or six months may be low in initial assessments and some rapid EFSA's, projections of needs and recommendations for responses are often needed for longer periods – 12 months – to suit specific operational procedures, such as to prepare and submit a WFP emergency operation (EMOP). In such cases, provisions should be made for a reassessment and budget revision three or six months after the EMOP starts, to adjust numbers and interventions.

all food security and nutrition assessments should include a set of essential information for meeting the objectives listed in Table 1.

This information aims to identify the unmet needs of the population, and should not be influenced by which interventions are available to the stakeholders involved (agencies' remits). Inter-agency coordination is essential, to make the best possible use of each agency's specific competencies in food security and nutrition assessments and response, and to ensure that appropriate and useful information on several sectors is collected.

4.1 - Essential information for integrated rapid food and nutrition security assessments

Most of the following information is included in rapid food and nutrition security assessments. **Table 2**, starting on page 7, provides a summary of the objectives, information and possible indicators:

- Food security and nutrition data are generally analyzed by population subgroup, such as livelihood group, and by age and sex, for example, of the head of household, for nutrition status etc. Information on the population profile – livelihoods, ages, sex, etc. – should therefore also be included.
- The data should also support at least general forecasts of the situation for a given period, the length of which depends on the type of assessment.
- A combined analysis of malnutrition, household food security, health and care is necessary for identifying the most important cause(s) of malnutrition and prioritizing household food insecurity, disease, poor health environment or inadequate care practices (see Section VII).

Table 2. Objectives, necessary information and possible indicators for integrated rapid food and nutrition security assessments

Objectives (combined)	Minimum information required	Possible indicators
1. To analyze the food security situation and its contribution to acute or chronic malnutrition and micronutrient deficiencies	Food consumption patterns, including both staple and micronutrient-rich foods at the household level and among vulnerable individuals	<ul style="list-style-type: none"> • Households' dietary diversity:⁴ proxy for food availability and access • Children's dietary diversity: proxy for nutrient adequacy • Infant and young child feeding (IYCF) indicator for children 6–24 months⁵ • Coping strategy index (CSI): focused on food consumption changes
	Households' economic access to both staple and micronutrient-rich foods from own production and purchase on local markets	<ul style="list-style-type: none"> • Main sources of food and income⁶ • Proportion and level of food expenditures: e.g. compared with the cost of a minimum food basket, after accounting for self-consumption; • Degree of self-sufficiency in staple foods: e.g. duration of stocks • Degree of consumption of own animal production • Cultivation of a home garden: access to micronutrient-rich foods
	Availability and prices (trends) of both staple and micronutrient-rich foods on local markets, and local wages	<ul style="list-style-type: none"> • Volumes of staple foods, animal foods and vegetables for sale at local markets, compared with households' potential demand (considering the size of the population served by the market) • Traders' and consumers' perceptions of shortages, and their timing and duration • Terms of trade of minimum local unskilled labour wage against staple foods • Terms of trade of staple foods against livestock or other commodities
	Households' degree of dependence on relief food rations, and the rations' adequacy in terms of energy (grain, pulses) and micronutrients (taking into account access to complementary food items)	<ul style="list-style-type: none"> • Proportions of staple and micronutrient-rich foods in households' diets that come from food aid • Proportions of staple and micronutrient-rich foods from other sources • Composition of the food ration and comparison with household-level energy and micronutrient requirements, particularly for iron, vitamin A and iodine
2. To analyze the health status, households'	Prevalence of infectious diseases in children, particularly measles,	<ul style="list-style-type: none"> • Time of occurrence and duration of relevant infectious disease episodes: e.g. cholera, measles or other epidemics

⁴ See *Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide (v.2)*, A. Swindale and P. Bilinsky, Food and Nutrition Technical Assistance Project (FANTA), Academy for Educational Development, Washington DC, September 2006; *Guidelines for Measuring Household and Individual Dietary Diversity*, FAO Nutrition and Consumer Protection Division, Rome, March 2007.

⁵ For more information, see Demographic and Health Survey, *Indicators for Assessing Infant and Young Child Feeding Practices 2007* or KPC Module 2 June 2006.

⁶ The household food insecurity access scale (HFIAS) may be an appropriate indicator of economic access, which is rapid to collect and analyze. See *Household Food Insecurity Access Scale Guide version 2*, FANTA.

Objectives (combined)	Minimum information required	Possible indicators
(cont) health environment and care practices, and their contribution to acute or chronic malnutrition and to micronutrient deficiencies	diarrhoea/cholera, malaria and fever; and prevalence of chronic diseases, particularly HIV/AIDS and tuberculosis	<ul style="list-style-type: none"> • Time of occurrence and duration of malaria season • Proportions of children under 5 and mothers with diarrhoea in the previous 2 weeks • Proportion of children under 5 with fever in the previous 2 weeks • Number and ages of household members who are chronically sick (require continuous attention and/or health treatment)
	Health care seeking behaviour in case of sickness	<ul style="list-style-type: none"> • Type of health service, including traditional, family or external, used in case of illness
	Households' physical and economic access to health services	<ul style="list-style-type: none"> • Time required to walk to nearest health centre • Difficulties with paying for health services and drugs mentioned as a reason for not using health services • Coverage of immunization and vitamin A supplementation programmes
	Main source of drinking-water and limitations in quantities for domestic use	<ul style="list-style-type: none"> • Main source of water for drinking: safe/unsafe • Time required to walk to nearest source of water • Amounts available per person for domestic purposes
	Human and other waste disposal devices used	<ul style="list-style-type: none"> • Main type of human waste disposal device: adequate/inadequate • Number of households sharing a latrine
	Feeding practices for young children: food consumption patterns, number of meals and snacks offered, and feeding behaviour for sick children	<ul style="list-style-type: none"> • Children's dietary diversity (food consumption score) relative to recommended diet for children: separated according to age category, such as below 6 months, 6–24 months, 24–59 months • Profile of the primary child carer: age, education level, engagement in productive and reproductive activities, etc. • Number of daily meals and snacks given to children 6–59 months • IYCF indicator for children 6–24 months • Child carer's feeding behaviour for sick children: encouragement to eat, withdrawal of specific foods, use of oral rehydration therapy, etc.
	Food processing and cooking practices (considering risks of food-borne diseases).	<ul style="list-style-type: none"> • Main source of cooking fuel • Time required for, and constraints (e.g. security) to. collecting fuelwood, if it is the main cooking fuel • Availability of stove and cooking utensils
3. To identify the primary factor(s) contributing to	Same information as for objectives 1 and 2, but focus on changes	For the indicators above, collect data on the situation before the shock/crisis, and identify changes in malnutrition rates

Objectives (combined)	Minimum information required	Possible indicators
(cont) acute or chronic malnutrition and micronutrient deficiencies in the current situation	compared with before the shock, or with usual situations	
4. To forecast changes in the food security, health, care and nutrition status, to inform short- and medium-term responses	Forecast changes in the household- and market-level availability of staple and micronutrient-rich foods for household food consumption	<ul style="list-style-type: none"> • Timing of next harvests, by type of crop, and forecast in case of drought, flood or other calamity • Local markets' physical accessibility for traders and consumers (roads, bridges) in future months • Potential losses to household and traders' food stocks due to insecurity, floods, etc.
	Forecast changes in local market prices for staple and micronutrient-rich foods	<ul style="list-style-type: none"> • Market food price changes that can be expected from future events: e.g. population movements (arrival of internally displaced people [IDPs], refugees etc.), forthcoming harvest, insecurity, change in transportation costs
	Forecast changes in households' purchasing power, affecting food and health expenditures	<ul style="list-style-type: none"> • Variations in minimum wages for unskilled labour that can be expected from population movements: e.g. arrival of IDPs • Variations in terms of trade that can be expected from deteriorating animal health: e.g. due to lack of water and pastures • Variations in terms of trade that can be expected from changes in international food prices for cash crops: e.g. tobacco, sugar, coffee
	Forecast changes in the incidence of infectious diseases	<ul style="list-style-type: none"> • Timing of next malaria season • Timing of next rainy season: increased risks of malaria, diarrhoea and acute respiratory infections
	Forecast changes in physical access to health services	<ul style="list-style-type: none"> • Likelihood of population displacement • Risk of destruction of health infrastructure and loss/departure of health agents • Risk of interruption in the supply of drugs: e.g. due to insecurity, suspension of financing
	Forecast changes in time allocations for primary carers	<ul style="list-style-type: none"> • Involvement of carers in food and income-generating activities • Changes of primary child caretaker: e.g. age, education level
	Forecast changes in family and community cohesiveness	<ul style="list-style-type: none"> • Number of children separated from their parents; number of orphans • Number of whole families displaced

4.2 - When are anthropometric measurements most valuable in integrated rapid food and nutrition security assessments?

Most assessments focusing on food security rather than the direct measurement of nutrition status do not take anthropometric measurements. However, measurements of weight, height and/or mid-upper arm circumference (MUAC) provide reliable quantitative information on the prevalence of malnutrition and are recommended for informing quick decisions about how to tackle a severe nutrition problem and for mobilizing the necessary resources. The measurements needed vary, depending on the type of emergency.

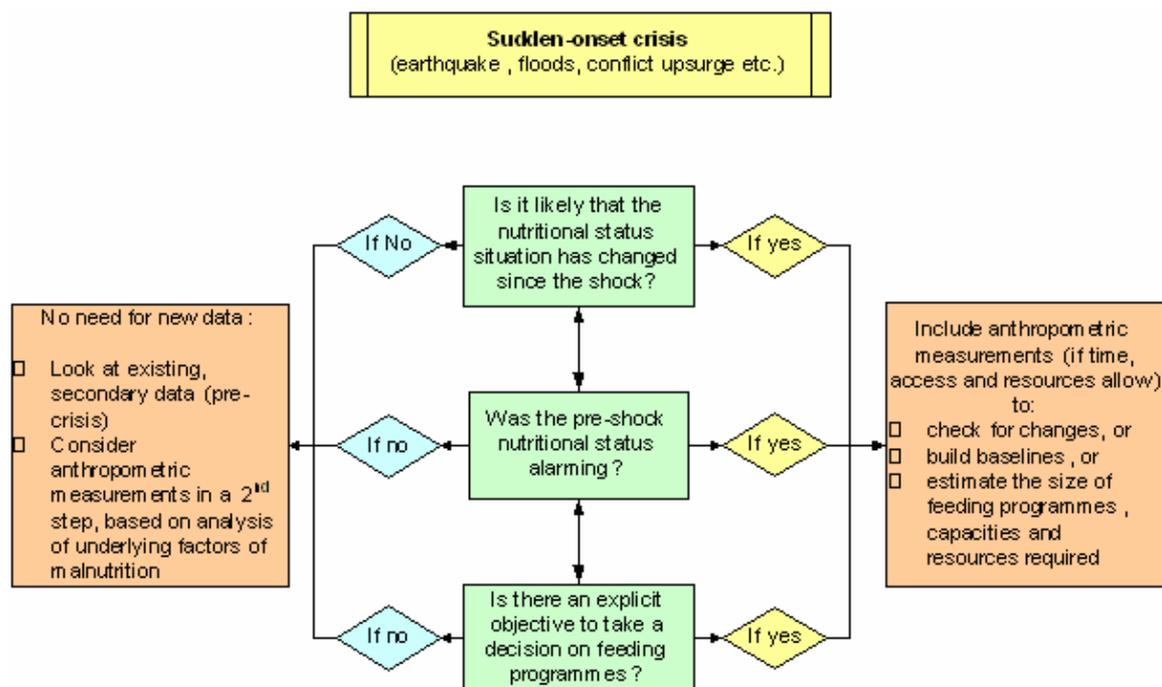
a) Sudden-onset crisis: earthquake, flood, upsurge of conflict, etc.

Three questions guide the decision as to whether direct measurement of the nutrition status is useful:

- 1) Is it likely that the nutrition situation has changed since the shock?⁷
- 2) Was the pre-shock nutrition situation alarming?
- 3) Is a decision about feeding programmes a specific objective of the assessment?

In situations where resources are limited or where it is important to highlight priority areas, anthropometric measurements can also be useful by providing objective and comparable data on the nutrition status.

The following flow-chart illustrates the decision-making process.



b) Slow-onset crisis: drought, economic collapse, protracted conflict, etc.

⁷ If no pre-crisis data are available, and resources allow, anthropometric measurements may be taken from which to build a baseline.

Even when the assessment focuses more on food security than on nutrition status, anthropometric measurements can be useful, because the nutrition situation may have changed.

5. Where to find and how to collect the minimum set of information for integrated rapid food and nutrition security assessments

5.1 - Guiding principles for collecting the essential food and nutrition security information

The following principles for collecting information take into consideration the limited time, human, financial and technical resources available to many assessments. Note that principles (1) and (2) are not specific to food and nutrition security assessments.

1) Multiply the sources of information to:

- triangulate and cross-check;
- widen the breadth of information collected.

2) Multiply the data collection tools, such as formal interviews with questionnaires, checklists for guided discussions, focus group discussions and visual observations, to:

- triangulate and cross-check;
- increase the depth of information collected.

Using different data collection tools helps fill information gaps. For example, questionnaires with closed answers do not allow discussion of specific topics or explanations of responses and behaviours. Focus group discussions allow greater depth in certain topics. Semi-guided discussions with key informants provide opportunities for combining the collection of quantitative data with more in-depth information on certain issues.

3) Aim at convergence of evidence, rather than precise quantifications: Particularly in initial investigations, but also in rapid/follow-up assessments, producing precise figures and advanced statistical analyses is less important than: (1) understanding the food security and nutrition situation; (2) identifying the main groups affected, and broadly estimating their numbers; and (3) correctly identifying the most important factors for tackling and improving malnutrition.

The use of several data sources and collection tools allows the collection of a wide range of information, and supports conclusions, even without statistical analysis.

4) When collecting quantitative data, use the most representative sampling methods available, if results will be extrapolated and generalized to larger population groups or areas (see Section VI). When purposive sampling is used, its limitations should be clearly acknowledged and caution taken when extrapolating the results.

5) Prioritize the main factor(s) contributing to the food security and nutrition situation:

In most cases, the three primary causes of malnutrition – food insecurity, poor health and health environment, and inadequate care practices – coexist, and it is difficult to identify: (1) which is the main factor; and (2) how they interact.

Advanced statistical analyses (regressions) and cross-tabulations are helpful (see Section VII), but qualitative information, including visual observations, key informants' inputs and cross-checks, can be sufficient to rank each factor according to its immediate and less immediate effects on the nutrition status.

When anthropometric data are collected, the examination of all three main indicators – wasting, stunting and underweight – instead of only wasting for example, can help identify possible underlying causes.

Table 3, starting on page 13, suggests information sources and data collection tools that can be combined to collect the information and indicators presented in Table 2. The choice of data collection tools depends on how rapid the assessment is – the time and resources available – and the type of crisis, in terms of physical access to the affected population, etc.

Table 3. Information sources and data collection tools, for rapid integrated food and nutrition security assessments

Minimum information	Possible indicators	Sources of information	Data collection tools <i>(combination recommended)</i>
Food consumption patterns	<ul style="list-style-type: none"> Households' dietary diversity⁸ Children's dietary diversity IYCF for children 6–24 months⁹ 	<ul style="list-style-type: none"> Households 	<ul style="list-style-type: none"> Household survey/questionnaire Focus group discussions Visual observation
	<ul style="list-style-type: none"> Coping strategy index 	<ul style="list-style-type: none"> Community key informants 	<ul style="list-style-type: none"> Key informant interviews/checklist
Households' economic access to both staple and micronutrient-rich foods	<ul style="list-style-type: none"> Main sources of food and income¹⁰ Proportion and level of food expenditures: purchasing power for staple and micronutrient-rich foods Degree of self-sufficiency in staple foods Proportion of animal food consumption from own production Cultivation of a home garden 	<ul style="list-style-type: none"> Households 	<ul style="list-style-type: none"> Household survey/questionnaire Focus group discussions
Availability and prices (trends) of both staple and micronutrient-rich foods on local markets, and local wages	<ul style="list-style-type: none"> Volumes of staple foods, animal foods and vegetables for sale on local markets, compared with households' potential demand Traders' and consumers' perceptions of shortages, and their timing and duration Terms of trade for staple food against minimum local unskilled labour wage Terms of trade for staple food against livestock or other commodities (cash crops) 	<ul style="list-style-type: none"> Local traders Community key informants 	<ul style="list-style-type: none"> Trader interviews/checklist Key informant interviews/checklist Visual observation

⁸ See *Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide (v.2)*, A. Swindale and P. Bilinsky, FANTA, Academy for Educational Development, Washington DC, September 2006; *Guidelines for Measuring Household and Individual Dietary Diversity*, FAO Nutrition and Consumer Protection Division, Rome, March 2007.

⁹ For more information, see *Demographic and Health Survey, Indicators for Assessing Infant and Young Child Feeding Practices 2007* or KPC Module 2 June 2006.

¹⁰ The household food insecurity access scale (HFIAS) may be an appropriate indicator of economic access, which is rapid to collect and analyze. See *Household Food Insecurity Access Scale Guide version 2*, FANTA.

Degree of households' dependence on relief food rations, and rations' adequacy in terms of energy (grain, pulses) and micronutrients	<ul style="list-style-type: none"> • Proportions of staple and micronutrient-rich foods in households' diet that come from food aid • Proportions of staple and micronutrient-rich foods that come from other sources 	<ul style="list-style-type: none"> • Households 	<ul style="list-style-type: none"> • Household survey/questionnaire • Focus group discussions
	<ul style="list-style-type: none"> • Composition of the food ration and comparison with household-level energy and micronutrient requirements 	<ul style="list-style-type: none"> • Food aid providers 	<ul style="list-style-type: none"> • Food aid provider interviews
Prevalence of infectious diseases in children, and prevalence of chronic diseases	<ul style="list-style-type: none"> • Proportions of children under 5 and mothers with diarrhoea in the previous 2 weeks • Proportion of children under 5 with fever in the previous 2 weeks • Number and ages of household members who are chronically sick (require continuous attention and/or health treatment) 	<ul style="list-style-type: none"> • Households 	<ul style="list-style-type: none"> • Household survey/questionnaire
	<ul style="list-style-type: none"> • Time of occurrence and duration of malaria season • Time of occurrence and duration of significant episodes of infectious disease(s) 	<ul style="list-style-type: none"> • Health agents 	<ul style="list-style-type: none"> • Health agent interviews/checklist
Health care seeking behaviour in case of sickness	<ul style="list-style-type: none"> • Type of health service, including traditional, family or external, used in case of illness 	<ul style="list-style-type: none"> • Households • Community key informants • Health agents 	<ul style="list-style-type: none"> • Household survey/questionnaire • Health agent interviews/checklist • Key informant interviews/checklist • Focus group discussions
Households' physical and economic access to health services	<ul style="list-style-type: none"> • Time required to walk to nearest health centre • Difficulties with paying for health services and drugs mentioned as a reason for not using health services • Coverage of immunization and vitamin A supplementation programmes 	<ul style="list-style-type: none"> • Households • Health agents • Community key informants 	<ul style="list-style-type: none"> • Household survey/questionnaire • Health agent interviews/checklist • Key informant interviews/checklist • Focus group discussions
Main source of drinking-water and limitations of quantities for domestic use	<ul style="list-style-type: none"> • Main source of water for drinking: safe/unsafe • Time required to walk to nearest source of water • Amounts available per person for domestic purposes 	<ul style="list-style-type: none"> • Households • Community key informants 	<ul style="list-style-type: none"> • Household survey/questionnaire • Key informant interviews/checklist • Visual observation
Human and other waste disposal devices	<ul style="list-style-type: none"> • Main type of human waste disposal device; adequate/inadequate • Number of households sharing a latrine 	<ul style="list-style-type: none"> • Households • Community key informants 	<ul style="list-style-type: none"> • Household survey/questionnaire • Key informant interviews/checklist • Visual observation
Feeding practices for young children	<ul style="list-style-type: none"> • Children's dietary diversity (food consumption score) relative to recommended diet for children: separated according to age category, such as under 6 months, 6–24 months, 24–59 months 	<ul style="list-style-type: none"> • Households 	<ul style="list-style-type: none"> • Household survey/questionnaire • Focus Group discussions • Visual observations

	<ul style="list-style-type: none"> • Profile of the primary child carer: age, education level, engagement in productive and reproductive activities, etc. • Number of daily meals and snacks given to children 6–59 months: disaggregated 6–8, 9–11, 12–23 and 24–59 months • Child carer’s feeding behaviour for sick children: encouragement to eat, withdrawal of specific foods 		
Food processing and cooking practices	<ul style="list-style-type: none"> • Main source of cooking fuel • Time required for, and constraints (e.g. security) to, collecting fuelwood, if it is the main cooking fuel • Availability of stove and cooking utensils 	<ul style="list-style-type: none"> • Households • Community key informants 	<ul style="list-style-type: none"> • Household survey/questionnaire • Key informant interviews/checklist • Visual observation
Changes compared with before the shock or with the usual situation	For the indicators above: data on the situation before the shock/crisis	See above	See above
Forecast changes in the availability of staple and micronutrient-rich foods for household food consumption	<ul style="list-style-type: none"> • Timing of future harvests, by type of crop, and forecast in case of drought, flood or other calamity • Local markets’ physical accessibility for traders and consumers (roads, bridges) in future months • Potential losses to household and traders’ food stocks due to insecurity, floods, etc. 	<ul style="list-style-type: none"> • Community key informants • Agriculture extension agents • Local traders • Households 	<ul style="list-style-type: none"> • Key informant interviews/checklist • Agriculture agent interviews /checklist • Local trader interviews/checklist • Household survey/questionnaire • Focus group discussions
Forecast changes in local market prices of staple and micronutrient-rich foods	b) Market food price changes that can be expected from future events	<ul style="list-style-type: none"> • Local traders • Community key informants • Households 	<ul style="list-style-type: none"> • Local trader interviews/checklist • Key informant interviews/checklist • Focus group discussions • Reports from previous crises
Forecast changes in households’ purchasing power (cont)	<ul style="list-style-type: none"> • Variations in minimum unskilled labour wages that can be expected from population movements • Variations in terms of trade that can be expected from deteriorating animal health • Variations in terms of trade that can be expected from changes in international food prices for cash crops 	<ul style="list-style-type: none"> • Community key informants • Agriculture/ veterinary agents • Local traders 	<ul style="list-style-type: none"> • Key informant interviews/checklist • Agriculture agent interviews/ checklist • Local trader interviews/checklist • Reports from previous crises
Forecast changes in the incidence of infectious diseases	<ul style="list-style-type: none"> • Timing of next malaria season • Timing of next rainy season: increased risks of malaria, diarrhoea and acute respiratory infections 	<ul style="list-style-type: none"> • Community key informants • Health agents 	<ul style="list-style-type: none"> • Key informant interviews/checklist • Health agent interviews/checklist

Forecast changes in physical access to health services	<ul style="list-style-type: none"> • Likelihood of population displacement • Risk of destruction of health infrastructure and loss/departure of health agents • Risk of interruption in the supply of drugs 	<ul style="list-style-type: none"> • Community key informants • Health agents • Households 	<ul style="list-style-type: none"> • Key informant interviews/checklist • Health agent interviews/checklist • Focus group discussions • Reports from previous crises
Forecast changes in time allocations for primary carers	<ul style="list-style-type: none"> • Carers' Involvement in food and income-generating activities • Change of primary child carer: e.g. age, education level 	<ul style="list-style-type: none"> • Households 	<ul style="list-style-type: none"> • Household survey/questionnaire • Focus group discussions • Visual observation
Forecast changes in family and community cohesiveness	<ul style="list-style-type: none"> • Number of children separated from their parents; number of orphans • Number of whole families displaced 	<ul style="list-style-type: none"> • Households • Community key informants 	<ul style="list-style-type: none"> • Household survey/questionnaire • Key informant interviews/checklist • Focus group discussions

5.2 - Collection of anthropometric data

As noted in Section 4.2, in rapid assessments, it is not always necessary to collect primary anthropometric data to assess the nutrition situation. Measuring MUAC is quicker than collecting weight and height data, and may be considered, particularly for women and children. However, standard thresholds indicative of malnutrition in adult women are still being debated, and the relationship between MUAC and malnutrition in children is also less clearly established than that between wasting (weight for height) and malnutrition.

The following considerations apply to anthropometric data:

- 1) **A full anthropometric survey involving representative sampling of a large number of children is rarely possible in rapid assessments:** These surveys are more feasible in *in-depth* assessments, which include the classic 30 x 30 cluster survey with measurement of the weight, height and age of children under 5.
- 2) **Approaches to consider for initial investigations and rapid assessments** include more qualitative, key informant-based information on nutrition status, particularly for *initial* investigations.

Anthropometric measurements in adults

Anthropometric measurements are generally taken on children under 5 years of age, as they are usually the most vulnerable group in the society and their status is taken as an indicator of the nutrition situation of the population as a whole. However, the measurement of women's nutrition status can be a useful complement or alternative to that of children's in a number of circumstances:

- Children's food intake is sometimes protected in times of crises or hardship: older household members decrease their own food consumption in favour of children, and therefore lose weight.
- If whole households – both adults and children – are malnourished, the cause may be widespread food consumption (food security) difficulties and not to be misinterpreted as specific health problems identified through measuring only children's nutrition status (assuming that children are more vulnerable to infectious diseases than adults).
- Women's malnutrition is a strong predictor of future child malnutrition, given its impact on the foetus and on women's physical capacity to participate in food and income-generating activities.
- It is easier to measure the weight and height of adults, who are often more compliant than children.¹¹

The decision to collect anthropometric data on adults – usually non-pregnant women – depends on:

- a need to check hypotheses about the main factors causing malnutrition: for example, is child malnutrition primarily a food, a health or a care problem?
- the available time, staff capacities and other resources, such as equipment.

¹¹ However, the measuring equipment for adults may be heavier and more cumbersome. See *Measuring Mortality, Nutritional Status and Food Security in Crisis Situations: SMART Methodology*, Version 1, April 2006.

6. Which sampling approaches can be adopted in integrated rapid food and nutrition security assessments?

When anthropometric measurements are taken, sampling is an important issue for the following reasons:

1) A minimum sample size is needed for drawing conclusions about the population's nutrition status that can be extrapolated to the larger population with a reasonable level of confidence. For example, to estimate the prevalence of wasting, up to 900 children under 5 are required, using a 30 x 30 cluster survey and a design effect of two, depending on the assumed prevalence of wasting before the survey. This sample size enables wasting rates to be estimated by age and sex category, typically with a confidence level of 95 percent and a precision of 5 percent.¹² Manuals provide guidance on the random sampling of households and children under 5 for malnutrition assessments.¹³

2) Large samples are usually needed to obtain precise estimates of malnutrition rates based on anthropometric measurements, while assessment of food availability and access, and information on the food security situation require smaller household samples.

Alternative sampling approaches can provide a reasonably solid idea of the severity of malnutrition, while collecting information on the food security situation. Convergence of evidence (see Section 5.1) usually matters more than the numbers of households visited and individuals measured.

The following are some alternative sampling approaches for *large-scale* random sampling.

1) Lot quality assurance sampling (LQAS)¹⁴

As in cluster sampling, the 33 x 6 and the 67 x 3 LQAS designs sample areas – generally selected by probability proportional to population size – according to a predefined sample size per cluster. In the 33 x 6 design, 33 clusters are sampled, and data are collected on six observations in each cluster. In the 67 x 3 design, 67 clusters are sampled, and data collected on three observations in each.

Use of LQAS in sequential design

- The sequential design is appropriate in surveys that assess directly the prevalence of acute malnutrition in children. However, the design does not allow any other indicators to be collected.
- The sequential design is used solely to ascertain whether a threshold level, such as a certain prevalence of wasting, has been reached, using a hypothesis test.

The design allows the rapid collection of statistically representative data, and is appropriate in situations where it is necessary to know merely whether the prevalence is above/below a given threshold, without requiring a precise estimate.

Annex 3 provides additional information on the LQAS approach.

¹² The level of precision for different age categories depends on the extent to which data are disaggregated by age, i.e. how narrow the age groups are. This should be specified in situations where the precision allowed by the sample needs to be defined.

¹³ See for example: *A Manual: Measuring and Interpreting Malnutrition and Mortality*, CDC and WFP November 2005; and *Emergency Nutrition Assessment*, Save the Children UK, 2004.

¹⁴ See *A field test of three LQAS designs to assess the prevalence of acute malnutrition*, M. Deitchler et al. *International Journal of Epidemiology*, May 2007. and *Precision, time and cost: a comparison of three sampling designs in an emergency setting* M. Deitchler et al. *Emerging Themes in Epidemiology*, May 2008. See also *Assessing Community Health Programs: A Trainer's Guide Using LQAS for Baseline Surveys and Regular Monitoring* J. Valadez et al. *Teaching –aids At Low Cost (TALC)* January 2003

2) Purposive sampling (not representative)

- In purposive sampling, areas, and key informants and households to interview are chosen using predefined criteria, such as the extent to which they are affected by the shock, their displacement status, and their physical location (e.g. camps).
- When anthropometric measurements are taken, individuals are often selected randomly within the purposively selected areas and households; there is no standard guidance on the sample size, but use of a census may be feasible if there are not too many sites to assess.

Purposive sampling entails a risk of bias. Cautious and qualified use of results for wider areas is possible, but must be backed by as much evidence as possible (triangulation).

3) Convenience sampling (not representative)

- Convenience sampling involves visiting the areas, key informants and households that are most easily reached.
- When anthropometric measurements are taken, all the individuals available at the time of the assessment may be included in the sample, but no efforts should be made to find those absent.

Convenience sampling entails a very high risk of bias and should generally be avoided.

These sampling approaches can be combined. For example, random sampling of communities can be carried out as a first stage, followed by purposive or convenience sampling of key informants and households in a community. However, as soon as purposive or convenience sampling is integrated with another sampling method meant to provide statistically representative data, the data obtained become prone to bias and are no longer representative.

Table 4 summarizes each sampling approach's strengths and limitations in assessing a population's nutrition status.

Table 4. Main strengths and limitations of sampling approaches for assessing the food security and nutrition situation of a population

Sampling approach	Strengths	Limitations
Random sampling: simple, systematic or cluster	<ul style="list-style-type: none"> • Results can be extrapolated to wider areas with statistical confidence intervals • Statistical tests can be performed to compare among areas and population groups 	<ul style="list-style-type: none"> • Requires knowledge of population numbers and location: all the population for direct and systematic sampling, cluster populations for cluster sampling • Significant human, financial and logistic resources are required for large-scale surveys
Lot quality assurance sampling	<ul style="list-style-type: none"> • Provides reliable point estimates with reasonable confidence intervals for 33 x 6 and 67 x 3 LQAS designs • Allows a situation to be characterized with smaller samples • Needs less time than classical cluster sampling (in contexts where it has been tested) • Appropriate in rapid assessments for prioritizing areas or making decisions 	<ul style="list-style-type: none"> • Requires knowledge of population numbers and location, to the same extent as cluster sampling • Confidence intervals for 33 x 6 and 67 x 3 designs are slightly wider than in 30 x 30 cluster random sampling for anthropometric indicators¹⁵ • Sequential design does not provide a point estimate of prevalence of the indicator being measured • Not appropriate for estimating mortality rates
Purposive sampling	<ul style="list-style-type: none"> • Focuses on priority areas and population groups • Requires a lower volume of data to be processed when it is adopted to avoid large-scale random sampling • Saves travel time, which can be used for more in-depth investigations 	<ul style="list-style-type: none"> • Does not allow extrapolation of results • Risk of bias • Does not allow statistical confidence intervals for estimates to be derived because it is not based on statistical sampling principles
Convenience sampling	<ul style="list-style-type: none"> • Takes advantage of available sources of information on the ground • May be sufficient for urgent decisions, especially if the nutrition situation is clearly alarming 	<ul style="list-style-type: none"> • Does not allow extrapolation of results • High risk of bias • Does not allow statistical confidence intervals for estimates to be derived because it is not based on statistical sampling principles

¹⁵ However, confidence intervals for other indicators, such as diarrhoea and vaccination coverage, can sometimes be narrower than 30 x 30 – especially in the 67 x 3 design.

7. How to analyze the information collected in integrated rapid food and nutrition security assessments

Analysis of primary and secondary data should produce at least four sets of information that support decision-making on the need for, and type of, intervention(s) to protect or improve the population's nutrition status and food security situation:

- 1- level of acute malnutrition: prevalence of wasting;
- 2- the main factor(s) contributing to malnutrition;
- 3- other factors contributing to malnutrition;
- 4- forecast changes in the nutrition status and contributing factors, including food security.

The Conceptual Framework in **Annex 1** is the guiding reference for linking the various pieces of information gathered on household food security, health and care. However, several factors likely to contribute to malnutrition – including wasting, stunting and micronutrient deficiencies – often coexist and it is difficult to identify which is the primary determinant of malnutrition. Feedback loops, in which deterioration of one factor aggravates the problems of another, further complicate the matter.

7.1 - Identification of the main factors contributing to malnutrition

Depending on the type of data collected and the statistical capacities available, three main methods – or combinations of them – can identify the most immediate and primary cause(s) of malnutrition in a given situation.

1) Comparison of trends

- Changes in the prevalence of malnutrition – gathered from primary data collection or secondary data – can be compared with changes in possible contributing factors, to examine whether they go in the same direction and are consistent in terms of timing.
- This analysis must take into consideration the time-lag between changes in the situation – such as deterioration of household food security, a cholera episode, a sudden population displacement and family breakdown – and visible signs of malnutrition. For example, wasting may reflect a measles epidemic that occurred in the previous month, while the current priority problem may be the lack of food for consumption. Conversely, lack of food now will not be reflected in visible weight loss or clinical manifestations of micronutrient deficiencies for several weeks.

Trend comparison identifies correlations between different units of analysis, such as child malnutrition in relation to a poor harvest or a loss of income-generating activities at the household level.

2) Simple statistical analysis of quantitative data: cross-tabulation

- With quantitative data, simple cross-tabulations between malnutrition indicators and each of the various contributing factors/indicators can be used to examine associations.
- This procedure does not distinguish the associations between factors/indicators from the effects of confounding factors. Additional cross-tabulations and complementary sources of information – such as qualitative information from health agents, agriculture officials and community key informants – help to identify the most important factor influencing malnutrition at the time of the assessment.

Examples of cross-tabulations are provided in **Annex 4**.

3) Advanced statistical analysis of quantitative data: regressions

- If quantitative data have been collected on food security and nutrition factors, a regression analysis can be performed using a malnutrition indicator as the dependent variable – for example the prevalence of wasting or the mean Z-score – and the various contributing factors as independent variables.
- Advanced statistical analyses by an experienced analyst indicate which factors influence malnutrition independently, and help to identify the primary determinants. These analyses also indicate which factors are correlated.

7.2 - Identification of other factors contributing to malnutrition

Identification of the other factors contributing to malnutrition is important for tackling the underlying causes of malnutrition and bringing longer-term improvement of nutrition status.

The analyses described in the previous section can be applied. As noted, regression analyses enable the various factors to be ranked, and can be useful in identifying the priorities. Cross-tabulations, trend analysis and complementary qualitative information should be combined to establish the various factors involved and the relative importance of each in contributing to malnutrition.

8. How to use food and nutrition security assessment results to identify responses to malnutrition

As mentioned in Section III, food and nutrition security assessments aim to identify the unmet needs of the population, and should not be driven by agencies' remits and the interventions available to them. This section presents responses to malnutrition. Responses to food insecurity can be found in other guidance.¹⁶

The results of the analysis inform about the need for and type of intervention(s) to protect or improve the nutrition status of the population:

- 1- urgent, life-saving responses to address high levels of acute malnutrition, such as high prevalence of wasting;
- 2- immediate responses to prevent further degradation of and improve the nutrition status: based on the main factor(s) contributing to malnutrition
- 3- short- and medium-term responses to achieve longer-lasting improvements to the nutrition status: based on the other factors contributing to malnutrition;
- 4- preventive responses to protect the nutrition status: according to forecast changes in the nutrition status and in the contributing factors.

8.1 - Responses to acute malnutrition: wasting

The prevalence of acute malnutrition indicates the severity of the situation in terms of risks to lives, which require immediate action to prevent excess mortality and morbidity.¹⁷

Standard thresholds indicating the severity of the situation at the population level help the interpretation of the results¹⁸ and decision-making. Typical responses to serious and critical situations include the launch of therapeutic and supplementary feeding programmes,

¹⁶ See for example the revised *EFSA Handbook*, Part IV Section 5, Conducting a response analysis, Food Security Analysis Service, WFP, 2009.

¹⁷ See *WFP Food and Nutrition Handbook* for recommendations on supplementary and therapeutic feeding programmes.

¹⁸ For example, according to the World Health Organization (WHO), prevalence of global acute malnutrition (GAM) (below -2 Z-scores of weight for height in children under 5) below 5 percent = acceptable situation; between 5 and 9 percent = poor; between 10 and 14 percent = serious; and above 15 percent = critical. Some agencies combine GAM rates with the coexistence of aggravating factors, such as epidemics, to indicate the severity of the situation.

preferably complemented by interventions to address the main and other factors contributing to malnutrition (see Sections 8.2 and 8.3).

8.2 - Responses to address the primary determinant(s) of malnutrition

Identification of the main factor(s) contributing to malnutrition – acute, chronic or vitamin and mineral deficiencies, depending on the objectives of the assessment and the data collected – helps to identify responses required immediately to stop the degradation of or to improve the nutrition status of the affected population.

Responses can address:

- an immediate need to restore or increase dietary intake: food aid, including food rations that fill the priority nutrient gaps; institutional feeding; and urgent cash transfers, if markets are functional and accessible;
- an immediate need to cure or prevent diseases: treatment, restoration of health services, exemption of health fees, improvement of water quality and quantity, construction of latrines, dissemination of hygiene information, etc.

However, these responses may address only the symptoms and have short-term impacts.¹⁹

8.3 - Responses to address the underlying factors of malnutrition

The other factors contributing to malnutrition may not require priority attention in the immediate after-shock period, but need to be tackled to achieve longer-term effects.

The choice of responses to address food security, health and/or care problems should be guided by:

- the priorities expressed by households and communities themselves;
- the time required for the interventions to affect the nutrition status;
- implementation capacities, including funding, equipment and staff;
- opportunities for multi-sectoral interventions – synergies.

8.4 - Responses to prevent future degradation of the nutrition and food security situation

Preventive action, based on expected changes in the factors likely to contribute to malnutrition, is more effective than curative interventions.

Responses should be based on forecasts of how the nutrition situation and contributing factors will evolve. As well as programmes involving material inputs, responses may include advocacy efforts and the setting up or strengthening of food security and nutrition surveillance systems to provide early warning indications of deteriorating situations.

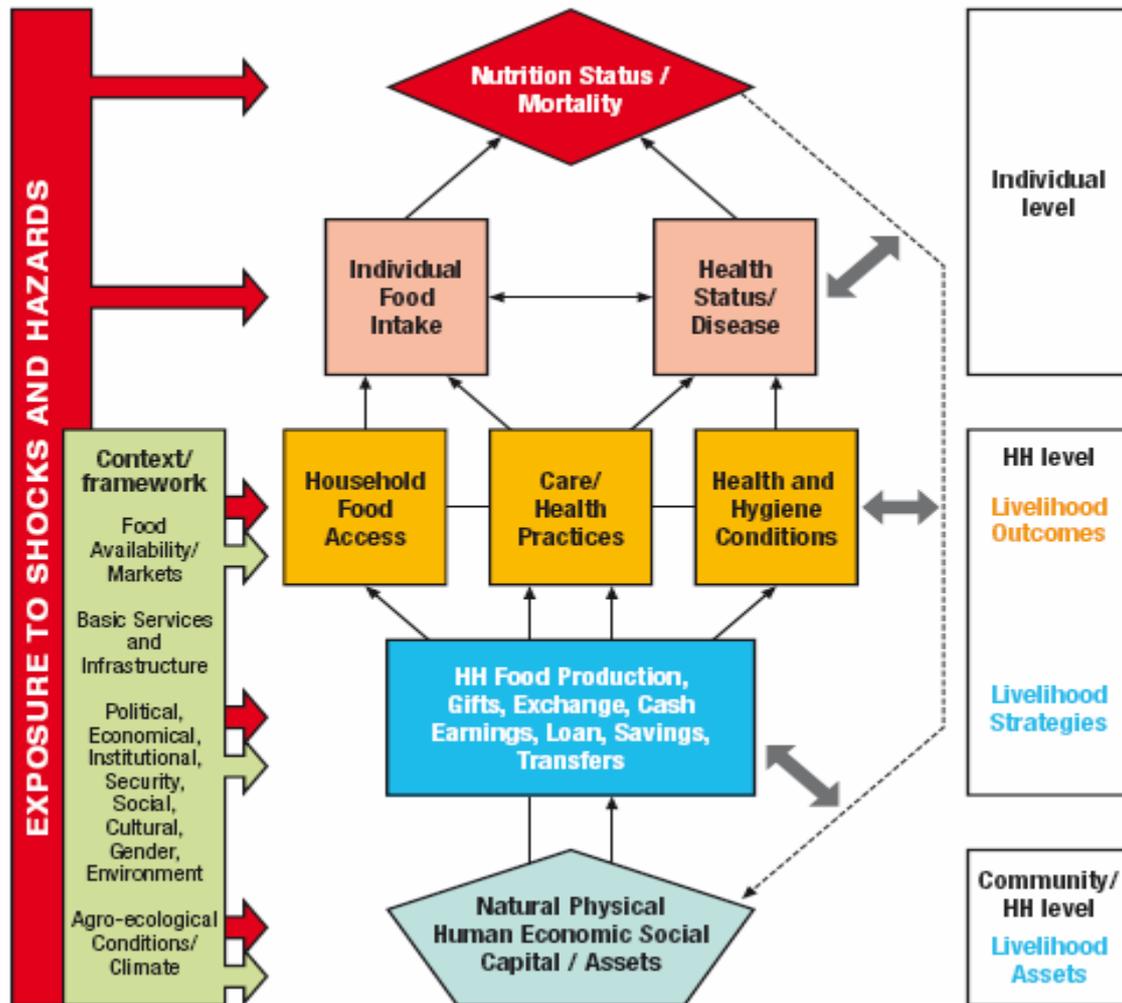
¹⁹ For example:

- If unsafe water is found to be the main contributing factor of wasting (through a high prevalence of diarrhea), the repair of pumps and water tanking may be appropriate immediate responses. However, if funds are lacking to maintain the pumps, or if water tanking is suspended, the same nutrition problems will recur.
- Similarly, if loss of weight is due to an acute food shortage, the urgent provision of food rations, including special therapeutic food for children, may mitigate the severity of the nutrition situation, but wasting will resume if distributions are interrupted.

ANNEX 1

CAUSAL FRAMEWORK OF MALNUTRITION

Note: There are feedback loops between the various elements of the framework. Additional arrows have not been included to avoid obscuring the diagram and to keep it simple.



ANNEX 2

INTERRELATIONS BETWEEN FOOD SECURITY AND NUTRITION

1) Household food security is an essential determinant of the nutrition situation

→ **Food availability** at the national, sub-national and local levels translates into food supplies at local markets and food stocks at the household level for those that produce food directly. This contributes to food consumption through the amount and diversity of food that people can:

- obtain from their own production, hunting, fishing, gathering; and
- find on local markets.

→ **Food access** influences not only food consumption, but also the non-food factors likely to affect nutrition status. It indicates:

- the quantity and diversity of food that people can purchase at the market, or receive against their labour and services or as gifts and transfer;
- the amount of cash dedicated to food purchase – food expenditures – compared with other essential expenditures, including for health care, shelter, water and education;
- the efforts household members need to make to generate income to buy food or to receive it as in-kind payment; these, in turn, affect their capacity (time, efforts) to care for dependent individuals.

→ **Food utilization** indicates the extent to which the food consumed is effectively absorbed and assimilated by individuals, and thus contributes to maintaining or improving the nutrition status. It includes:

- the way food is handled, cooked and stored in the household, which can lead to food-borne diseases, or loss or malabsorption of some nutrients;
- hygiene practices, sources of water and use of sanitation devices, which can contribute to infectious diseases and thereby poor assimilation or body losses of nutrients.

2) Malnutrition affects household food security

→ **Malnutrition** affects food availability and access through decreased ability to work, including in agricultural labour and other physically demanding activities, and reduced opportunities to obtain well-paid jobs that require skills and a certain level of education.

→ **Wasting and micronutrient deficiencies** decrease resistance to disease which, in turn:

- increases health expenditures, and therefore decreases the resources available for food and other essential expenditures, such as education, water and housing;
- requires that time be allocated to the care of sick individuals instead of to productive activities.

→ **Malnutrition** has intergenerational effects, whereby under-weight, stunted, anaemic or iodine-deficient women are likely to give birth to malnourished and micronutrient-deficient children, who grow into malnourished adults.

3) The health situation and care practices are an integral part of food security and nutrition assessments

→ **Diseases** are determined by the public health environment, including access to safe water, use of adequate waste disposal facilities, adequate housing, and access to and use of health services. Sick individuals:

- are more likely to become malnourished as a result of loss or malabsorption of nutrients;
- incur health expenditures for their households, which reduce the cash resources that can be used for food and other essential requirements;
- cannot contribute to food production and income-generating activities;

- require care, which prevents other household members from participating fully in productive activities or attending school.

→ **Care practices** influence the dietary intake of individuals and the attention they receive in case of sickness. They include:

- the appropriateness of the food provided to young children, particularly through breastfeeding and complementary feeding of children 0 to 24 months;
- seeking health care and providing food to sick individuals, particularly young children;
- intra-household distribution of food according to the needs of individual household members, particularly children, pregnant and lactating women, the elderly, and the chronically sick (HIV/AIDS, tuberculosis).

ANNEX 3

LOT QUALITY ASSURANCE SAMPLING (LQAS)

The 33 x 6 and 67 x 3 LQAS designs consist of sampling areas, which are generally selected by probability proportional to population size, according to a predefined sample size per cluster. For the 33 x 6 design, 33 clusters are sampled and data are collected on six observations in each cluster. For the 67 x 3 design, 67 clusters are sampled and data collected on three observations in each.

- The 33 x 6 and 67 x 3 LQAS designs are appropriate for some surveys that include anthropometric measurements to assess directly the nutrition status, and data on health and food security. However, experience is still limited, and more trials are needed before LQAS can be recommended for all food and nutrition security surveys. The designs allow the point estimate to be tabulated and 95 percent confidence intervals for child and household-level indicators.
- The 33 x 6 and 67 x 3 LQAS designs also identify whether a threshold level, such as a certain prevalence of wasting, has been reached, using a hypothesis test.

Use of LQAS in sequential design

- The sequential design is appropriate in surveys that assess directly the prevalence of acute malnutrition in children. However, the design does not allow any other indicators to be collected.
- The sequential design is used solely to ascertain whether a threshold level, such as a certain prevalence of wasting, has been reached, using a hypothesis test.

The design allows the rapid collection of statistically representative data, and is appropriate in situations where it is necessary to know merely whether the prevalence is above/below a given threshold, without requiring a precise estimate.

The sequential LQAS design consists of sampling areas, which are generally selected by probability proportional to size, according to a predefined sample size of three per cluster. Data are collected until a threshold number of cases – for example, either a very high number or a very low number of wasted children – have been identified in the sample. Once a threshold number of cases have been identified relative to the sample size collected, the assessment area is classified as having a malnutrition prevalence either above or below the threshold prevalence level. Sampling stops when either the maximum sample size is reached ($n = 201$), or the number of cases found in the sample reaches the threshold number.

ANNEX 4

CROSS-TABULATIONS BETWEEN MALNUTRITION GROUPS AND FOOD SECURITY VARIABLES

Table A1 shows the types of exploratory analyses that can be undertaken depending on the combination of food security and nutrition status data collected in the assessment.

Table A1. Exploratory analyses of food security and nutrition status according to the type of food security and nutrition assessment

Assessment modality	Possible exploratory analyses
<p>Anthropometric data collected <i>simultaneously</i> with food security, health and care information: <i>Same households</i> <i>Same geographical area</i> <i>Same time</i></p>	<p>Direct cross-tabulation/comparison of malnutrition with: Household food security groups, <i>if sampling allows</i> Relevant food availability, access and consumption variables, as identified from the exploratory analysis of household food security Health and public health environment Care information</p>
<p>Anthropometric data collected <i>in parallel</i> to food security, health and care information: <i>Different households</i> <i>Same geographical area</i> <i>Same time of the year</i></p>	<p>Comparison/matching (e.g. overlapping maps) of the geographical concentration of malnutrition with geographical information on: Household food security Health and public health environment Care information</p>
<p>Only household food security and health (and sometimes care) information available:</p> <ul style="list-style-type: none"> • Anthropometric data <i>not collected</i> and <i>not available</i> from other surveys 	<p>Only hypotheses can be made on the nutrition situation, based on: Household food security situation Food consumption patterns, preferably at the individual level Public health environment Care information, when collected</p>

Table A2 shows multiple cross-tabulations or comparisons that can be made between *groups identified by their nutrition status*, such as acutely malnourished and not acutely malnourished, and *variables at the household, community and national/international levels*, to identify factors associated with malnutrition. The variables and indicators are consistent with those in Table 3 in Section IV.

Table A2. Cross-tabulations/comparisons of malnutrition groups with other variables

	Cross-tabulations/comparison of malnutrition groups (e.g. based on wasting, stunting, underweight) with:		
	Individual variables	Household variables <i>(feasibility of cross-tabulations/comparisons depends on sample size and assessment design)</i>	Community, national, international variables
Livelihoods		Livelihood groups, based on the main productive activity	
Socio-demographic characteristics	Sex Age	Gender, sex of head of household Household size and composition Mother's age Education level of head of household Education level of mother and of child carer Displacement/IDPs/refugees	
Health status	Prevalence of disease		Mortality rates Roads and transportation means
Public health environment		Physical access to health services: distance, time Source of water: type, distance, amount Sanitation facilities	Security: e.g. for water collection
Food security		Household food security Food consumption groups <i>Selected factors of food availability, access and consumption → those associated with household food security (from Table A3 results)</i>	See Table A3
Feeding practices	Individual dietary diversity and food consumption frequency Number of meals	Feeding behaviour for sick children Child carer's engagement in income-generating activities, water and fuelwood collection	

Table A3 shows multiple cross-tabulations or comparisons that can be made between *household groups identified by their food security status*, such as severely food-insecure, moderately food-insecure and food-secure) and *variables at the household, community and national/international levels*, to characterize the factors associated with household food insecurity. The variables and indicators are consistent with those included in Table 3 in Section IV.

Table A3. Cross-tabulations/comparisons of household food security groups with food security variables

	Cross-tabulations/comparison of household food security groups with:	
	Household variables	Community, national, international variables
Livelihoods	Livelihood groups	
Socio-demographic characteristics	Gender, sex of head of household Household size and composition Education level of head of household Displacement /IDPs/refugees	
Health status	Prevalence of diseases (sick members)	Mortality rates Roads and transportation means Security: e.g. for water collection

(cont)	Cross-tabulations/comparison of household food security groups with:	
	Household variables	Community, national, international variables
Public health environment	Health expenditures Intra-household control over health expenditures Physical access to health services: distance, time Source of water: type, distance, amount Sanitation facilities	
Food use	Ownership of stove and cooking utensils Source of cooking fuel: distance, time	Security: e.g. for fuelwood collection
Food consumption	Number of meals: household, adults, children Dietary diversity and food consumption frequency score, and food consumption groups Household food insecurity access scale Sources of food	Security: e.g. for food production, income-generating activities, remittances
Food availability	<ul style="list-style-type: none"> • Ownership of/access to land Cultivation of a home garden Ownership of animals: for draught power, food consumption, finance Type of crop production Crop yields: forecast Duration of food stocks for own consumption 	Agriculture sector policies: land tenure, subsidies Climate Soil fertility Seasonal calendar of harvests Exposure to natural hazards Roads, transportation means Security: e.g. for cultivation, animal raising
Food access	Income and cash sources Level and frequency of remittances Food and non-food expenditures Dependency on markets for food: months of self-sufficiency, % food consumed purchased Terms of exchange against labour Terms of exchange against livestock	Market prices, integration, competition, credit Roads, bridges, transportation means Seasonal calendar of labour opportunities Timing and targeting of food aid distributions Security: e.g. for income-generating activities

These Technical Guidance Sheets, the EFSA Handbook and other related resources are available at:

www.wfp.org/food-security