Part II
Data, indicators and sources of information

Contents of Part II

chapter 1

Introduction

The first step in planning an EFSA is to define the objectives, as explained in **Part I**. The next step is to determine what information is required and what will have to be collected to achieve the objectives. This is covered in **Part II**.

An effective EFSA depends on defining information requirements early in the process. This ensures that data collection is focused and that only necessary information is collected and analysed. It minimizes the collection of redundant information that will not be used.

Part II covers:

- the **analysis plan**, explaining its purpose and components;
- **information needs**, using the Food and Nutrition Security Conceptual Framework to define broad information needs;
- the **contextual information** that is required to understand the background and causes of the crisis;
- **indicators and data**, introducing key concepts and presenting the indicators used in an EFSA to estimate food insecurity and risks to lives and livelihoods;
- **data sources**, both primary and secondary;
- **choice of data and indicators**, providing detailed guidance on how to choose indicators for a particular assessment.

chapter 2

The analysis plan

The analysis plan guides many of the decisions made during an EFSA. It is based on key hypotheses to be tested, and provides guidance on what data to collect, how to collect them, and what types of analyses will be required to interpret them. It may also guide which data need to be collected from primary and which from secondary sources. The analysis plan is best developed at the beginning of an assessment, *prior* to designing questionnaires, checklists and other data collection tools; there are three main reasons for this:

- **Efficiency**: It ensures that only *useful* information is collected. Time is not wasted in collection of information that will not help achieve the assessment objectives and will not be used.
- **Thoroughness**: It ensures that *all* the necessary information is collected.
- **Feasibility**: When all the information needs and available resources have been considered, it is possible to decide whether or not the EFSA can be undertaken as planned.

Box 2.1 provides further information about feasibility.

Box 2.1: Feasibility

While the analysis plan is being developed, it may become clear that the assessment cannot be carried out as *originally intended*, for reasons that include the following:

- There is insufficient time to collect all the information required.
- Access constraints affect the intended sampling approach.
- Too few personnel are available, or personnel do not have the requisite skills.
- Logistics or budgetary constraints restrict the scope of the assessment.

If analysis of the constraints shows that the original scope of the assessment is unrealistic, the approach will need to be modified. Depending on the context, the following are two of the main ways of doing this:

- The assessment objectives can be changed to reflect practical realities.
- The methodological approach can be modified. For example, random sampling might be replaced by purposive sampling; in extreme cases it may be necessary to rely on secondary sources only.

When designing the analysis plan, each of the EFSA objectives (see **Part I**) is considered with regard to the following questions:

- What information is needed to meet the objective?
- How can this information be collected?
- From what source(s) can the information be collected?

Table 2.1 shows a format that can be used to develop the analysis plan.

Table 2.1: Format for an analysis plan

Information needs	Contextual information	Indicator(s)	Data required	Data source(s)	Analysis type
Objective 1:					
		Indicator 1.1			
		Indicator 1.2			
		etc.			
Objective 2:					
		Indicator 2.1			
		Indicator 2.2			
		etc.			
Objective 3:					
		Indicator 3.1			
		Indicator 3.2			
		etc.			

The components of the analysis plan are defined in Box 2.2, and described in more detail in the following sections.

Box 2.2: Definition of terms used to develop an EFSA analysis plan

Objectives: The outputs expected from the assessment (see Part I), for example, an estimate of the impact of a conflict on food access.

Information needs: The range of information that is needed to answer the questions posed by the objectives. For the objective stated above, the following information requirements might be identified:

- Details of the conflict: What are the causes? Who are the protagonists? Who are the victims, direct and indirect?
- Details of the population: What are the main livelihoods in the area? How do people normally obtain access to food and income?
- Effect of the conflict: What is the likely impact of the conflict on the food access strategies identified?

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Contextual information: Details of the processes that led to the current emergency and the reasons why they did so. Factors that help explain the emergency and identify potential responses.

Indicator: A specific variable or combination of variables that gives insight into an aspect of the objectives. For example, if a livelihood group is expected to obtain access to food through cash crop sales and market purchases, the following indicators might be defined:
- the area currently planted with selected cash crops, compared with that under normal circumstances;
- the ratios of selling prices of selected cash crops to the costs of staple foods, now and under normal circumstances.

Data required: The information that must be collected to satisfy the broad information needs and the indicators. Examples include:
- qualitative information about a conflict, its causes and effects;
- qualitative information about livelihoods, social structure and politics;
- quantitative information about areas of land planted, average yields and market prices of items bought and sold.

Data sources: Potential sources of information; others can be added as the assessment progresses. Examples include:
- sources of qualitative data: key informants, such as political analysts, the staff of local non-governmental organizations (NGOs), etc.; focus groups within communities; and household interviews;
- sources of quantitative data: household surveys; key informants, such as agricultural extension workers, farmers and market traders; and focus groups within communities.

Analysis type: The type of parametric or non-parametric analyses that can be used to explore and interpret the data, for example:
- non-parametric analyses of primarily qualitative data;
- parametric tests for testing statistical hypotheses, such as analysis of variance and regression.

Data and indicators must be selected carefully for each EFSA. If too much information is collected, time is wasted during the data collection and analysis stages. If too little information is collected, it may be impossible to answer the assessment's key questions.

chapter 3

Information needs

Information needs are defined as **the data from primary and secondary sources that must be collected and processed in order to satisfy the assessment objectives**. As explained in **Part I**, the overall objectives of an EFSA are to measure the impact of a shock and the potential change this may have on households' food security situation.

Primary information needs are identified at the start of the assessment based on what secondary information is available. It is important to gather and review as much *relevant* secondary information as possible. This enhances understanding of the emergency and its consequences, and provides the basis for selecting data to be collected directly during the assessment.

Analysis of secondary information influences the choice of what primary information to collect in the following ways:

- When secondary information is recent, accurate and relevant, there may be less need to collect primary information. For example, if a well designed anthropometric survey has recently been undertaken, it is probably not necessary to repeat the exercise during the EFSA.[10]
- Secondary information provides a reference point. For example, if particular food access indicators were used in the past, it may be worthwhile to use the same indicators, so that the status of food security *now* can be compared with that in *the past*.
- There may be inconsistencies or gaps in the secondary information; one of the objectives of the EFSA may be to clarify the situation.

It is also necessary to decide how information may need to be *stratified*, i.e. collected in layers or classes. Stratification, or stratified sampling, involves dividing the population of interest into sub-groups – strata – that share something in common based on criteria related to the assessment objectives. Typical strata include geographical boundaries. Stratification is used when separate food security

10. The use of secondary data usually requires the assessment team to judge the quality of the data, its relevance to the geographic areas and populations covered in the assessment, and its relevance to addressing the information needs of the EFSA.

estimates are desired for each of the sub-groups, at a predefined, minimum level of precision. Stratification can also allow more precise estimates of overall food security for the population of interest. For example, female-headed households may use different coping strategies from male-headed households; gender-based analysis is therefore important.

When pre-crisis data are not available, it is crucial that the EFSA collect information on the food security situation prior to the shock. Table 2.2 gives an example of how this can be done. Similar pre-crisis information can be collected through focus group discussions.

Table 2.2: Template for collecting pre-shock livelihood information

Activities	What were your household's main activities before the shock? (rank up to 3 income activities)	What percentage contribution did each activity make to total household income?	What activities are you able to carry out now, after the shock?	What percentage contribution does each activity make to total household income now?
Main		%		%
Secondary		%		%
Tertiary		%		%
Total		100%		100%

Once the basic parameters of the crisis are understood, the factors that are likely to cause malnutrition and food insecurity are examined in more detail, to fine-tune the data collection requirements. The nature of the emergency and its possible impacts are considered. Tables 2.3 and 2.4 give examples of emergencies and their possible impacts.

Table 2.3: Sudden-onset crises and their impacts on nutrition status and food security

Type of crisis	Impact
Earthquake, flood, tsunami	• Destruction of infrastructure and equipment; consequent disruption of food production, markets and transportation systems • Mass mortality and injury, leading to reduced participation in food production and distribution • Destruction of medical, water and sanitation systems and injury/death of staff; increased incidence of disease • Destruction of food stocks and other assets • Destruction of housing, leading to population displacement; poor sanitation and shelter, leading to disease and death • Loss of economic infrastructure: workplaces, roads, other infrastructure
Conflict: initiation or sudden escalation	• All of the issues cited above • Targeted attacks on food production facilities – farms – and distribution systems: aid convoys and commercial trucking operations • Hoarding of food, leading to increased prices • Forced displacement to insecure and unsanitary locations, leading to disease and starvation

Table 2.4: Slow-onset crises and their impacts on nutrition status and food security

Type of crisis	Impact
Drought	• Reduced food availability because of poor harvest • Decline in assets such as livestock • Decreased food access
Environmental degradation	• Reduced soil fertility, loss of topsoil and lowering of water table, leading to poor harvests and reduced food availability
Economic decline	• Reduced food access because of unemployment and declining terms of trade • Deterioration in the nutrition status of poor people because of deterioration in diet
Long-term conflict	• Increased mortality • Decline in food availability because agricultural land becomes unworkable and human assets are diverted towards the war • Decline in food access because of rising prices and unemployment • Deterioration of nutrition status because of poor food access, lack of health care, destruction of water/sanitation systems and absence of carers

As mentioned in **Part I**, knowledge of the context and probable effects of the emergency should enable adaptation of the Food and Nutrition Security Conceptual Framework and allow the EFSA to identify each of the factors directly influencing food security at the individual and household levels, and the linkages among these factors.

Starting at the top of the Conceptual Framework (see **Part I, Section 3.4**), each of the boxes is considered in turn, as explained in Box 2.3.

Box 2.3: Identification of priority information requirements using the Food and Nutrition Security Conceptual Framework

The Conceptual Framework is used to identify the main factors that are likely to affect nutrition status and food security. It helps to prioritize the information to be collected in a given context, and to analyse linkages among factors.

The factors are considered from the top of the diagram, starting with the outcomes. If secondary data review indicates problems at the outcome level – e.g. mortality or malnutrition – these must be addressed immediately. If the crisis has not reached the status of mass mortality and/or malnutrition, attention should be given to the next level down: immediate causes.

Starting at the top of the diagram, the process proceeds as follows.

Outcomes

- **Mortality and nutrition status**; Is there evidence or suspicion of mass mortality and/or widespread malnutrition? If so, urgent action is required. Information needs focus on the most immediate questions: What are the causes? How many people are affected? Are particular age or sub-groups affected? Where are they?

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Immediate causes

- **Individual dietary intake and disease**: These are considered from two perspectives: (i) secondary data – recent health and nutrition surveys, etc.; and (ii) knowledge of the context – is this type of emergency in this particular context likely to result in poor dietary intake and/or disease or a further erosion of the current food security status? If it seems likely that dietary intake problems and/or disease exist, appropriate indicators should be chosen.
- **Food utilization**: It is important to look for information on feeding patterns, care and health practices, sanitation and access to clean water before the crisis, and then estimate the impact of the crisis on these.

Underlying causes: food security

An understanding of food consumption, access and utilization within the specific context forms the basis for analysing risks to lives and livelihoods (see **Part IV**).

- **Household-level food consumption**: The basic indicator in most EFSAs is the food consumption score (FCS). Other context-specific indicators can be used. For example, variation from the usual diet might be explored and explained.
- **How households ensure access to food**: This is context-specific and requires a thorough understanding of the local economy. For example, in an urban area where people buy most of their food, indicators may focus on the terms of trade between commodities and wages; the availability of jobs, disaggregated according to job type and population group; and how efficiently the market functions. In a rural or agricultural area, indicators would cover both market/employment issues and agricultural production: quantity of own production consumed and food stocks; quantity sold; and market prices. Coping strategies and their sustainability should also be considered. A common indicator is the coping strategy index (CSI), but this is not always appropriate and other indicators can be used (see **Section 7**).
- **Livelihood assets and strategies**: These provide important insights into people's access to and use of food. For example, details of household food production and cash earnings give an indication of food access; and the quality and availability of education and health services affect the support and advice available for preventing and treating disease.

Basic causes

These are issues that are outside the control of individuals and households and that fundamentally influence food access, consumption and utilization. The nature of the emergency and the context must be carefully considered when defining indicators at this level. For example:

- when exploring food availability there is no point in developing long lists of agricultural indicators if agriculture does not play a significant role in the food economy of the area;
- the quality and availability of education services will not have an immediate impact on nutrition and food security after a sudden-onset crisis such as a flood, but should be considered in follow-up assessments and when analysing chronic problems, because education services play a crucial role in recovery from crisis;
- health services are of primary significance during rapid-onset acute nutrition crises, when indicators related to health service provision become essential, such as ratio of qualified medics to population size, and quality and quantity of drugs and medical equipment;
- the political system at the local and national levels affects livelihood strategies and access to assets, so it is important to identify political structures and the ways in which they influence different groups within the society.

Linkages
At each level, linkages among the factors are suggested. For example, in an urban area household food access – at the underlying causes level – might be affected by the following factors:
- underlying causes: gifts/transfers, cash earnings/loans, and education level;
- basic causes: markets, education services, and health services.

These linkages are helpful when identifying information requirements. In this example, information about the following issues would be required:
- the market for labour and goods;
- health and education services;
- access to credit.

The process described in Box 2.3 is most effective when implemented with partners such as the staff of humanitarian organizations and government counterparts. This enables knowledge and experience to be shared, and key stakeholders to agree on the initial hypotheses and priorities for data collection (see **Part III**).

Information needs are specified at two levels:
- **Contextual information**: This provides the background to and helps build understanding of the effects of the emergency on nutrition and food security. It is crucial when analysing the causes of food insecurity and malnutrition and developing response options (see **Part IV**).
- **Data and indicators**: These provide the basis for analysing the nutrition and food security status now and in the future (see **Part IV**).

chapter 4

Contextual information

Contextual information is a crucial component of the primary data collected in an EFSA. As shown in **Part IV**, contextual information is essential to the interpretation of mortality, nutrition and food security data and the development of response options.

Ways of collecting contextual information include:
- observation;
- questionnaire-based household surveys and household interviews;
- key informant interviews;
- focus group discussions;
- secondary information review, at the outset and throughout the assessment.

It is best to use as many of these as possible.

Table 2.5 gives examples of contextual information that might be useful. The key issues should be selected with care, as not all will be relevant to every assessment. Additional issues should also be considered, as Table 2.5 does not cover every eventuality.

Table 2.5: Examples of contextual information

Type of analysis	Key issues
Current crisis	• Is there a crisis? If so, what are its causes, nature and consequences? • Who is most affected and why? • What is likely to happen in the coming months?
Historical	• What factors led to the current crisis? How do factors related to the history of the area and population groups affect the crisis? • Has the area faced similar crises in the past? What were the impacts, and what interventions were undertaken? Are these experiences documented? What lessons were learned?
Conflict	• Is the area affected by conflict? If so, what caused the conflict? What is its nature – civil war, international conflict, etc.? How long has it been ongoing? What are the expectations for the future? What groups are most affected by the conflict? • What are the direct and indirect effects of the conflict on food and nutrition security? • Who are the actual and/or potential winners and losers of the conflict?

Type of analysis	Key issues
Security	• Is the area secure or insecure? If insecure, why? • Who is in danger – residents, visitors, etc.? Why? • What impact might the security situation have on responding to a food security crisis?
Political/ institutional	• Which government policies affect food and nutrition security – land tenure, price controls, wage rates, import/export taxes, subsidies, etc.? What are the effects of these policies? • Have any of these policies been changed recently? Are they likely to be changed in the near future? • Do socio-political factors, such as power struggles between groups, land nationalization or privatization, affect the crisis? • What is the status of government service provision, particularly health, education, social security and agricultural extension? Are services improving, deteriorating or staying the same? Why? • Does the government provide social security support to people who are unemployed, sick, etc.? If so, who qualifies? How much is the allowance and how does it compare with average incomes?
Social	• How many people live in poverty and absolute poverty, and who are they? • What administrative systems exist? For example, do traditional leaders exert significant influence, or are national/local government systems more powerful? • Are some groups marginalized, for example, on the basis of ethnicity or relationship with local leaders? • How are gender relationships characterized? How do men and women participate in decision-making processes? • Are gender relationships changing? • What respective roles do men and women have in controlling household assets, including land, crops, livestock, food and cash? • Is local society stable? Are social institutions such as power relations changing rapidly? If so, why? • What social support systems exist, traditional/non-formal and State? Who has access to social support, and who does not? What are the reasons for inclusion and exclusion?
Agricultural	• What are the main food and cash crops? What are the average production levels? Where are crops cultivated and under which farming system – small farms, commercial farms, etc.? • What are the main livestock species raised? What are their main uses? • What are the main risks to agriculture – drought, flood, crop disease, etc.? • How important are fishing and aquaculture to people's livelihoods?
Economy and markets	• What is the basis of the regional/national/local economy? • What is the status of the economy: good/bad, growing/declining? • What is the inflation rate? • What have been the trends in the consumer price index[11] over recent months and years? • Are long-term changes taking place, for example, from dependence on subsistence agriculture to industry? If so, why? • Where are the main markets located? How accessible are they to people affected by the crisis? Do men and women have equal access to markets? • Before the crisis, did markets function well? Were they well integrated and competitive? What was the status of market food availability and access? • Have markets been affected by the crisis? If so, how?

(cont…)

11. Market Analysis in Emergency Food Security Assessments: Guidelines on Market Situation Analysis and Forecast and Response Protocol, WFP Emergency Needs Assessment Service, September 2007.

(…cont)

Type of analysis	Key issues
Education	• What are the level and quality of the education services in the area? • Who has access to education services? For example, do boys and girls have equal access? • What impact has the crisis had on education infrastructure, services, enrolment, retention, etc.?
Cultural	• What are the main cultural factors that might affect food and nutrition security, for example, breastfeeding practices, food taboos?
Environmental	• Is the natural environment changing – deforestation, water resources, etc.? If so, what are the causes and what are the consequences? • Are natural resources, or scarcity thereof, a cause of food and nutrition insecurity? If so, what is the nature of the problem? Is there conflict over natural resources? • Are natural resources and/or health being affected by human activity, for example, industry?
Geography and infrastructure	• What transportation infrastructure is there – roads, railways, airports, etc.? Is infrastructure affected by the season? • Where are services located – hospitals, clinics, schools, etc.? • Where are government offices located – administrative, water board, etc.?

chapter 5

Indicators and data

5.1 Definitions

In an EFSA, indicators are used to describe and measure household food security status, individual nutrition status, and immediate and underlying causes of food insecurity, and to provide insights into the context.

For example:

- the prevalence of malnutrition among children 6 to 59 months of age gives an indication of the nutrition status of the population as a whole;
- the rate of unemployment indicates the state of the economy.

Indicators are distinct from data. **Data** are the pieces of information that are collected from primary or secondary sources. **Indicators** are *compiled from data* and are interpreted through comparison with standard or context-specific thresholds.

For example, terms of trade between the cost of wheat flour and the wage for daily labour might be used as an indicator of food access. This indicator is defined by combining two variables:[12] the cost of 1 kg of wheat flour and the wage for one day's labour. The indicator may be tracked over time to establish trends in food access, compared with a benchmark level that indicates an acceptable ratio between the two variables, and/or compared among different sub-groups or across different geographical areas.

Indicators are defined at the start of the assessment, and may be modified as information is collected and analysed. The data needed for compiling and interpreting indicators are collected during the assessment. The data used in an EFSA may be qualitative or quantitative, as explained in the following sections.

12. Market Analysis Tool: Terms of Trade, WFP Economic Analysis Unit, August 2007.

5.2 The three key sets of indicators used in an EFSA

In an EFSA, **three key sets of indicators are used to estimate the dimensions of the food security problem** caused by an emergency:

- **Mortality rates** give an indication of risks at the *population level*.
- **Nutrition indicators** are used to estimate nutrition status at the *individual level*.
- **Food security indicators** focus on assessing access to food and food consumption at the *household level*. The coping strategy index (CSI) is an important indicator of food security at the *household level*.

Other data and indicators are used to construct and interpret the key indicators, for example:

- market indicators, integrated with food security indicators (see **Chapter 7**);
- age and sex of individuals, used in the interpretation of mortality rates and nutrition status;
- household characteristics, used in the compilation and interpretation of nutrition, food security and coping strategy indicators. Common characteristics include households' size and composition, such as age and gender profiles and education level; their residential status, such as host population or displaced; and the presence of chronically sick individuals, such as those with HIV and AIDS.

5.3 Proxy indicators

Not all indicators provide a direct measurement of the factor to which they are related. Proxy indicators provide indirect information about a factor.

For example, the CSI (see **Section 7.3.4**) is sometimes used as a proxy indicator of household food security. The different coping strategies – behaviours – used by households in an emergency are used to estimate the severity of food insecurity. Extensive field testing has demonstrated that coping strategies correlate closely with food security. Box 2.4 describes proxy indicators that may prove useful in an EFSA.

Box 2.4: Proxy indicators of food security

Proxy indicators to estimate the severity of food insecurity include the following:

- *The coping strategies that people and households adopt*: These may damage health, nutrition status, productive capacity, etc., such as through drastic changes in food consumption, depletion of assets or unusual migration.
- *Diversity of the food items consumed by households*: This is an indication of macro- and micronutrient intake.
- *The size of the food gap*: This measures the difference between households' food requirements and the food to which they have access.
- *Previous crises*: These might provide insights into the potential evolution of the crisis.

There are various ways of combining indicators to estimate severity. For example, the **Integrated Food Security Phase Classification** (IPC) system combines information from different sources to position a crisis on a scale of severity (see **Part IV, Chapter 3**).

5.4 Linking indicators to EFSA objectives

Indicators must be chosen carefully. They should provide information about the issues identified in the objectives, as described in Example 2.1.

Example 2.1: Linking indicators to EFSA objectives

One objective of an EFSA is to identify the prevalence, as a percentage, and the degree – severe or moderate – of food insecurity and malnutrition in the area (see **Part I**).

The core EFSA indicators – mortality, nutrition, food security and coping strategies – are used to address this objective. For example:

- **nutrition**: mid-upper arm circumference (MUAC) measurement for children 6 to 59 months of age;
- **food availability**: food production in the district plus food imports from other districts minus food exports to other districts;
- **food access**: terms of trade between the costs of wheat and daily labour;
- **food utilization**: level of individual knowledge about the cooking of newly introduced relief food;
- **coping strategies**: type of coping strategies currently used, and the significance of these for food security.

All of these indicators are **context-specific**. In this example:

- MUAC measurements are taken if there is a reasonable expectation of malnutrition, or a need to ascertain the nutrition status of the affected population quickly but insufficient time or resources to undertake a full nutrition survey;
- the choice of food availability indicator in this example implies that the area is agricultural; it would not be useful in an urban setting;
- the choice of food access indicator implies that wheat is a main staple and daily labour is a significant source of livelihood;
- the food utilization indicator is used if recent food distributions have included foods with which people are unfamiliar.

5.5 Interpretation of indicators using thresholds

Indicators are compared with thresholds or pre-crisis information to estimate the current status of nutrition and food security.

Some thresholds are established internationally and are universally applicable, for example:

- wasting: a weight-for-height ratio of *minus 2 z-scores of the median of reference* is used as a threshold to define global acute malnutrition in children 6 to 59 months of age;

- crude mortality rate: a threshold of one death per 10,000 people per day denotes an alert; two deaths per 10,000 people per day indicates a critical emergency.

Other indicators and thresholds are context-specific and must be defined for each situation. For example:
- the ways in which people obtain access to food vary widely; indicators and thresholds for food access can be defined only when the local context is understood;
- coping strategies are also highly context-specific; for example, the collection of wild plants for eating might be a normal activity in one society, but indicates an extreme level of crisis in another.

Context-specific thresholds are defined through **value judgements**; much depends on the experience and knowledge of the people making the judgement. Thresholds can be defined in one or a combination of the following ways:
- using pre-crisis data[13], when knowledge of normal conditions forms the basis for comparison;
- using surveys carried out by other agencies in the same area and during the current crisis;
- based on the judgement of local key informants and/or experts; a group discussion with several informants facilitates consensus.

When establishing thresholds in any of these ways, **transparency** is paramount. The rationale for the threshold and the limitations to its application must be clearly stated in the assessment report.

Example 2.2: Establishing thresholds

During the Darfur assessment in 2006, the following information was collected:
- Most people in the area under study depended primarily on their own agricultural production for food and income.
- According to FAO/WFP references, an average individual in Darfur required 150 kg of cereal per year for consumption.
- According to the 2005 EFSA, average yields of cereal were 450 kg/ha.
- To produce enough food, a household had therefore to cultivate at least 0.33 ha of cereal per household member.

On the basis of this analysis, simple thresholds can be established:
< 0.3 ha per household member = critical.
0.3 to 0.4 ha per household member = borderline.
> 0.5 ha per household member = satisfactory.

These thresholds are arbitrary and inserted for the purpose of illustration. In a real situation, numerous factors would be considered when assigning thresholds. For example, if rainfall is very unpredictable, the thresholds for borderline and satisfactory might be raised to provide a wider margin of safety.

13. For example, the comprehensive food security and vulnerability analysis (CFSVA) conducted by WFP.

Notes:
- This type of threshold must always be analysed within the broader context. On its own, the information these categories provide is insufficient. For example, a household with 0.5 ha per household member might have problems if the rains were less than usual, or if conflict restricted access to fields.
- Variations in the data also need to be considered. In this example, average yield is estimated at 450 kg/ha, but this could mask a wide variation: perhaps half the farms yield 750 kg/ha and the other half only 150 kg/ha.

5.6 Cross-tabulation and comparison of indicators

In cross-tabulation and comparison, two or more indicators are combined to gain insights into the prevalence and causes of malnutrition and food insecurity. Box 2.5 provides a summary of this process.

Box 2.5: Cross-tabulation and comparison

Possible linkages among factors are identified during local adaptation of the Conceptual Framework. Indicators that are to be collected during fieldwork to investigate these linkages are defined. The following are some examples:

1. The link between main household income source(s) and household food security status: Do households with poor food security have specific income sources? Indicators to be collected for this analysis would be related to food access, food consumption and income sources.
2. The link between water source and malnutrition: Are malnourished individuals mainly found in households with poor access to water, in terms of quantity and/or quality? Data to be collected would include nutrition indicators, such as MUAC; water quality and source of water; water quantity in litres per person per day; and household water usage for storage, personal washing, etc.

Indicators are **cross-tabulated** during the analysis to provide insights into the factors that affect food security and nutrition status. The results are used in the response analysis (see **Part IV**).

When computerized statistics programmes and skills are available, regressions and multivariate analyses can be undertaken to combine numerous variables simultaneously. Principal component analysis is an example of this approach.[14]

When advanced computing capacity is lacking, simple cross-tabulation of two or three variables or indicators can yield valuable information.

Note: Cross-tabulation can only be applied to quantitative data from one sample. If qualitative data are used, or if information is collected from unrelated sources, *comparisons* can be made but will not have the same statistical validity as cross-tabulations. For example, the area planted from a household questionnaire survey can be *compared* with statements about seed availability from focus group discussions with people in the same community, but the two pieces of information cannot be *cross-tabulated*.

14. The 2009 Guidelines for Comprehensive Food Security and Vulnerability Analysis (CFSVA) (WFP Food Security Analysis Service) include guidance on principal component and cluster analysis.

5.7 Prioritization of indicators

An EFSA should not collect too many indicators. It is better to have a few carefully selected indicators than many, if some will not be useful for the analysis.

Minimum information requirements can be determined according to the following list, which should be reviewed for each context:

- **Mortality**: Mortality data should be used if they are available and/or highly relevant to the crisis being assessed. Consider the timeframe to which the data refer. For example, mortality rates compiled over the course of a year are not useful for estimating the impact of a tsunami a week after its occurrence.
- **Nutrition status**: If there is reason to believe that malnutrition exists, but a full nutrition survey, including weight and height measurements, cannot be carried out and is not available from other sources, MUAC measurements can be used instead.
- **Food security**: This is assessed from household food consumption, taking into account food access. The food consumption score (FCS) – see **Section 7.3** – should be calculated for each household interviewed. At least one relevant food access indicator should be defined and used for each livelihood or other group of households, such as refugees in camps. Selected coping strategies should be compiled, or the CSI adapted, for each household interviewed (see **Section 7.3.4**).

Each indicator should be supported by contextual and qualitative information gathered through focus group discussions, key informant interviews and observation.

Contextual information should always be presented to support the analysis. The depth and scope of this information depend on the time available and the objectives of the assessment.

chapter 6

Data sources

The data sources are specified in the second to last column of the analysis plan (see **Table 2.1**). These may be secondary or primary:

- **Secondary data** have been collected prior to the EFSA, often by other people, and are used to inform the EFSA. They may come from baseline surveys, previous assessments, government information offices, such as for economic and agricultural data, or any other source that is not consulted directly during the assessment.
- **Primary data** are collected during the EFSA from key informant interviews, focus group discussions, observation, household interviews and/or household questionnaires.

Data sources should be identified in the analysis plan as village focus group, household survey, district agricultural officer, etc.

chapter 7

Choice of data and indicators

Chapter 3 described how to identify the broad information requirements based on the available secondary information and using the Food and Nutrition Security Conceptual Framework to identify key factors of food insecurity and the linkages among them. The next step is to define more precisely the data and indicators that will be used in the EFSA.

The assessment design should allow scope to adjust indicators if they prove to be inappropriate, or if additional indicators are identified during the course of the assessment:

- For a **questionnaire-based survey**, the questionnaire should be pre-tested before the assessment starts. This allows problems with the structure, questions and indicators to be corrected before the fieldwork begins (see **Part III**).
- For an EFSA based on **qualitative data**, the data and indicators can be adjusted as the assessment progresses. All field teams should be informed about changes and the reasons for making them.
- Indicators may be adjusted during the analysis stage, for example, by reorganizing the cross-tabulations among data or indicators.

Indicators are categorized into three sets (see **Section 5.4**):

- mortality;
- nutrition status;
- food security.

An additional set of indicators reflecting the *broader context* is also defined (see **Chapter 4**). The other three sets of indicators are described in the following subsections.

7.1 Mortality indicators

Mortality is measured at the *population level*. In rapid EFSAs, mortality data are often obtained from secondary sources, often local institutions such as hospitals, statistics offices, etc. Primary mortality data can also be collected, *but a representative random*

sample must be used. It is rarely possible to obtain accurate mortality data in the early stages of an emergency, owing to the lack of reliable data collection and reporting mechanisms, poor access and rapidly changing circumstances. Moreover, in many disaster-prone countries, reliable data for normal times do not exist.

Table 2.6 identifies the crude mortality rate thresholds that can be used.[15]

Table 2.6: Crude mortality rate

Crude mortality rate	Significance
< 1 death per 10 000 people per day	Reasonable health situation
1–2 deaths per 10 000 people per day	Elevated mortality
> 2 deaths per 10 000 people per day	Health emergency

Qualitative information on mortality normally comes from local key informants sharing their perceptions of excess death in the area, or from direct observation of bodies, new graves, etc. This sort of information should be used with care, as it is highly susceptible to bias. For example, a member of a community that has been the target of a military attack will probably overstate the level of mortality in the region as a whole.

Qualitative information about mortality should be triangulated as widely as possible, and should not be extrapolated to make conclusions about overall mortality rates. Qualitative reports about high and unusual mortality rates provide support to other analyses of nutrition, food security and coping strategies. Alarming reports of mortality can also act as the trigger for a more rigorous assessment and the initiation of a response.

7.2 Nutrition status indicators

Weight, height and age, and micronutrient data are usually collected through random or census anthropometric surveys, covering children 6 to 59 months of age and/or adults, often women. It is possible to gather useful data on nutrition status *without* undertaking a full anthropometric survey, but the reliability of the analysis will be reduced.

The following are examples:

- MUAC measurements on a convenience sample of individuals might produce alarming results and trigger concerns about the nutrition situation, but

15. A Manual: Measuring and Interpreting Malnutrition and Mortality, United States Centers for Disease Control and Prevention (CDC) and WFP, July 2005.

extrapolation to the population as a whole would not be possible. In such cases, the assessment should be followed by a rigorous nutrition survey.
- Growth monitoring through the collection of weight-for-age data at a health clinic may show deteriorating trends, but the children measured may not be representative of the wider population.

As with mortality rates, there are internationally accepted thresholds for determining the extent to which nutrition status has deteriorated at the individual and population levels (see Table 2.7). As long as data have been collected properly, analysis of nutrition indicators is therefore relatively straightforward. Table 2.7 includes guidance on interpreting nutrition thresholds for risks to lives.

Three of the most useful indicators are weight-for-height of children 6 to 59 months of age, MUAC of children and adults, and body mass index (BMI) of adults, which is calculated as the ratio of weight to the square of height.

As a general guide, the following thresholds can be used to define risks to lives at the individual level:
- **Wasting**: There is risk to lives when weight-for-height scores are < -2 z for children.
- **MUAC**: There are risks to lives when MUAC is < 12.5 cm for children, and < 22.5 cm for women.

For adults, BMI thresholds indicative of risks to lives are less clear, but individuals' lives can be considered to be at risk if they have a **BMI below 16** combined with an infectious disease such as HIV/AIDS or tuberculosis.

The guidance note on "Strengthening Rapid Food and Nutrition Security Assessments"[16] provides additional advice on organizing an EFSA to ensure proper analysis of the nutrition situation, with or without anthropometric measurement. However, it is advisable to consult a nutritionist to identify the most appropriate nutrition indicators and interpret results.

16. Guidance Note, Strengthening Rapid Food and Nutrition Security Assessments, WFP Emergency Needs Assessment Service, July 2007

Table 2.7: Anthropometric and clinical indicators of the nutrition situation

Type of malnutrition	Indicators at the individual level	Public health significance
Undernutrition	**Wasting:** **low weight for height (W/H)** → Global acute malnutrition (GAM): W/H < -2 z-scores → Severe acute malnutrition: W/H < -3 z-scores → Moderate acute malnutrition: W/H between -3 and -2 z-scores	**Benchmarks of prevalence at the population level (WHO):** GAM < 5%: acceptable GAM 5-9%: poor GAM 10-14%: serious GAM ≥ 15%: critical • Increased risk of morbidity • Increased risk of mortality
	Stunting: low height for age (H/A) → Global chronic malnutrition: H/A < -2 z-scores → Severe chronic malnutrition: H/A < -3 z-scores → Moderate chronic malnutrition: H/A between -3 and -2 z-scores	**Benchmarks of prevalence at the population level (WHO):** Stunting < 20%: acceptable Stunting 20-29%: poor Stunting 30-39%: serious Stunting ≥ 40%: critical • Increased risk of morbidity • Increased risk of mortality • Decreased performance at school
	Underweight: **low weight for age (W/A), combining wasting and stunting** → Global underweight: W/A < -2 z-scores → Severe underweight: W/A < -3 z-scores → Moderate underweight: W/A between -3 and -2 z-scores	**Benchmarks of prevalence at the population level (WHO):** Underweight < 10%: acceptable Underweight 10-19%: poor Underweight 20-29%: serious Underweight ≥ 30%: critical • Increased risk of morbidity
	Underweight: MUAC • In children: → Global: MUAC < 12.5 cm → Severe: MUAC < 11.0 cm → Moderate: MUAC 11–12.5 cm • In women: → Global: MUAC < 22.5 cm → Severe: MUAC < 21 cm → Moderate: MUAC 21–22.5 cm	• In children: Increased risk of mortality • In women: Increased risk of low birthweight babies
	BMI in adults: W/H^2 → Severe: BMI < 16.0 → Moderate: BMI 16-16.9 → Mild: BMI 17-18.4 → Normal: BMI 18.5-24.9	**Benchmarks of prevalence at the population level (WHO):** BMI below 18.5 for 5-9%: low BMI below 18.5 for 10-19%: mild BMI below 18.5 for 20-39%: high BMI below 18.5 for ≥ 40%: very high • For women: Increased risk of low birthweight babies • For all adults: Increased risk of mortality with very low BMI

(cont…)

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Type of malnutrition	Indicators at the individual level	Public health significance
Undernutrition	**Anaemia:** low blood haemoglobin → Standard thresholds available for adults and children	• For women: Increased risk of: - mortality when giving birth - low birthweight babies • For children: - increased risk of stunting - decreased performance at school • For all: - decreased physical capacity - decreased resistance to disease
	Vitamin A deficiency: low serum retinol → Standard thresholds available for adults and children	• Decreased resistance to disease • Impaired or loss of vision
	Iodine deficiency: low urine iodine → Standard thresholds available	• Increased risk of mental and physical disabilities • Decreased performance at school
Overnutrition and obesity	**BMI in adults: W/H²** → Overweight: BMI 25-29.9 → Obese: BMI ≥ 30	• Increased risk of chronic diseases: diabetes, cancer, hypertension • Increased risk of mortality

Additional data and indicators complement the indicators in Table 2.7 and provide further insights into nutrition status (see Table 2.8). These indicators serve two functions:

1. They provide possible explanations of the nutrition problems identified through the indicators in Table 2.7.
2. They act as proxies for the indicators in Table 2.7. If anthropometric and clinical information is not available, or measurements cannot be taken directly, proxy indicators can help determine whether or not the nutrition situation is hazardous.

Table 2.8: Examples of additional indicators that inform about nutrition status

Category	Indicator
Water access	• Quality: potable/non-potable, treated/untreated • Quantity: litres per person per day • Distance to water source • Time taken for round trip to collect water
Water usage	• Storage capacity in house: litres • Type of storage: covered/uncovered
Sanitation	• Type of sanitation used: household latrine, communal latrine, etc. • Hand washing: always, sometimes, never
Health status	• Prevalence of infectious disease: i.e. percentage of children who have been sick over the previous 2 weeks • Prevalence of chronic diseases • Trends in infectious and chronic diseases: seasonal and long-term
Health care	• Nearest staffed and equipped clinic or hospital: distance and time to reach it • Presence of emergency health services: government, United Nations, NGO or other • Immunization coverage, particularly measles
Health practices	• Food handling practices: hygienic/unhygienic • Extent to which people seek professional health care when sick
Care	• Feeding practices: breastfeeding, complementary feeding, etc. • Age and education level of child carers, i.e. mother • Personal hygiene of children and their carers: acceptable/risky • Relationship between children and their carers • Relationship between heads of household and children • Other occupations undertaken by carers: casual labour, collection of water, etc.

It is difficult to analyse nutrition status using **qualitative data**. *Only highly experienced staff such as nutritionists or other health experts* may be able to make useful qualitative observations based on people's physical aspect or clinical status, including the extent of emaciation or weight loss and signs of micronutrient deficiency, such as scurvy, pellagra and night blindness. Such observations cannot be extrapolated to the wider population, but can be used as triggers for implementing a proper nutrition survey, including anthropometric measurements.

Qualitative information about health and nutrition status can also be obtained from key informants. For example, a focus group of mothers of young children might provide:

- descriptions of the illnesses and symptoms that affect children, and comparison with the past, particularly the same season in the previous year;
- information about the disease cycle using a historical timeline (see **Part III, Chapter 4**): major events – seasons, natural and human-induced disasters, etc. – are plotted on a timeline and disease outbreaks are inserted.

Information from focus groups can be shared with nutritionists and other health experts who may be able to develop hypotheses about nutrition problems and their causes, and to recommend a course of action, such as an anthropometric survey.

7.3 Food security status indicators

An EFSA should employ indicators of household food security status. These indicators will enable assessment of the *current* quality and quantity of food consumption, and of the household's access to adequate food and nutrition. Food security is a broad concept encompassing many factors, and there are currently no internationally recognized qualitative or quantitative indicators for most of these factors. There are however established quantitative and qualitative methods for obtaining reliable information on household food security status. Food consumption indicators, food access indicators and the CSI can all be considered proxy indicators for food security.

7.3.1 Food consumption indicators

Food consumption indicators are designed to reflect the quantity and/or quality of people's diets. In EFSAs, the most commonly used food consumption indicator is the **food consumption score (FCS)**. This is a proxy indicator that represents the dietary diversity, energy and macro and micro (content) value of the food that people eat. It is based on dietary diversity – the number of food groups a household consumes over a reference period; food frequency – the number of days on which a particular food group is consumed over a reference period, usually measured in days; and the relative nutritional importance of different food groups. The FCS is calculated from the types of foods and the frequencies with which they are consumed during a seven-day period.

Although it provides essential information on people's current diet, the FCS is of limited value for in-depth analysis of food consumption patterns, for the following reasons:

- It is based on a seven-day recall period only. This is insufficient for a full analysis of food consumption for longer periods, which is likely to vary by season, for example.
- It provides no indication of the quantity of each foodstuff consumed.
- It does not give information on intra-household food consumption, such as who eats first and last.
- It does not show how food consumption has changed as a result of the crisis, unless previous FCS for the same types of household are available.

More information is needed if food consumption practices and trends are to be fully understood. For example, questions on usual food consumption should complement the seven-day household FCS.

The calculation of the FCS is explained in Box 2.6[17] and Example 2.3.

Box 2.6: Calculation of the FCS

In the household questionnaire
Households are asked to recall the **foods that they consumed in the previous seven days** (see the list of items in Table 2.9). Each item is given a score of 0 to 7, depending on the number of days on which it was consumed. For example:
- if potatoes were eaten on three of the last seven days, they are given a frequency score of 3;
- if potatoes were eaten on three of the last seven days, even if they were eaten twice on each of those days, at two meals, they are still given a frequency score of 3.

In the analysis
Food items are listed according to **food groups** (see Table 2.9), and the frequencies of all the food items surveyed in each food group are summed. Any summed food group frequency value over 7 is recoded as 7.

Each food group is assigned a **weight** (see Table 2.9 and its note), reflecting its **nutrient density**. For example:
- beans, peas, groundnuts and cashew nuts are given a weight of 3, reflecting the high protein content of beans and peas and the high fat content of nuts;
- sugar is given a weight of 0.5, reflecting its absence of micronutrients and the fact that it is usually eaten in relatively small quantities.

The household FCS is calculated for each household by multiplying each food group frequency by each food group weight, and then summing these scores into one composite score.
The household score can have a maximum value of 112, implying that each of the food groups was consumed every day for the last seven days.

The household score is compared with pre-established **thresholds** that indicate the status of the household's food consumption. WFP applies the following thresholds in a wide range of situations:
- poor food consumption: 0 to 21;
- borderline food consumption: 21.5 to 35;
- acceptable food consumption: > 35.

These thresholds can be adjusted if there is clear justification for doing so. For example, in some populations, consumption of sugar and/or oil may be frequent among nearly all households surveyed, even when consumption of other food groups is rare and the food score is otherwise low. In these cases, when the base diet of oil and sugar is combined with frequent (seven days) consumption of starch base only, the score already arrives at 21, but this clearly cannot be classified as even a borderline diet. The thresholds can therefore be raised from 21 and 35 to 28 and 42 – adding 7 to each threshold to account for the daily consumption of oil and sugar, which adds 7 points to the FCS.

When the overall population's consumption of oil and sugar is high, the FSC thresholds should be changed to:
- poor food consumption: 0 to 28;
- borderline food consumption: 28.5 to 42;
- acceptable food consumption: > 42.

17. For further information about application of the FCS, see: Food Consumption Analysis – Calculation and use of the Food Consumption Score in food consumption and food security analysis, WFP Vulnerability Analysis and Mapping Branch, January 2008.

Table 2.9 provides a template for calculating the FCS. Example 2.3 gives an example of a completed template.

Table 2.9: Template for calculating the FCS

Food item (examples)*	Food group	Weight (A)	Days eaten in past 7 days (B)	Score A x B
Maize, rice, sorghum, millet, bread and other cereals	Cereals and tubers	2		
Cassava, potatoes and sweet potatoes				
Beans, peas, groundnuts and cashew nuts	Pulses	3		
Vegetables, relish and leaves	Vegetables	1		
Fruits	Fruit	1		
Beef, goat, poultry, pork, eggs and fish	Meat and fish	4		
Milk, yoghurt and other dairy products	Milk	4		
Sugar and sugar products	Sugar	0,5		
Oils, fats and butter	Oil	0,5		
			Composite score	

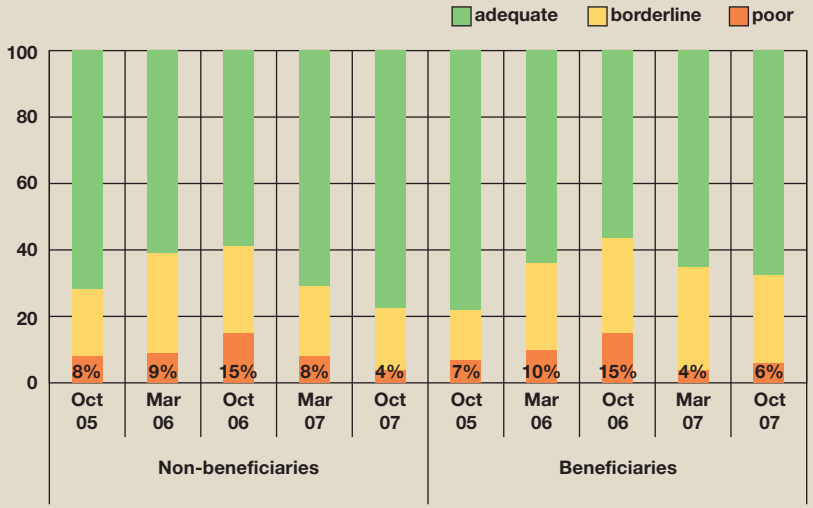
* Food items relevant to the context should be inserted.

Example 2.3: A completed FCS template

Food item	Food group	Weight (A)	Days eaten in past 7 days (B)	Score A x B
Maize, rice, sorghum, millet, bread and other cereals	Cereals and tubers	2	7	14
Cassava, potatoes and sweet potatoes				
Beans, peas, groundnuts and cashew nuts	Pulses	3	1	3
Vegetables, relish and leaves	Vegetables	1	2	2
Fruits	Fruit	1	0	0
Beef, goat, poultry, pork, eggs and fish	Meat and fish	4	0	0
Milk, yoghurt and other dairy products	Milk	4	1	4
Sugar and sugar products	Sugar	0,5	4	2
Oils, fats and butter	Oil	0,5	2	1
			Composite score	**26**

The FCS is a continuous variable, so standard statistics such as the mean and variance can be calculated, and trends of means over time and across categories determined. Frequencies and cross-tabulations can be determined for food consumption groups. Example 2.4 shows a trend analysis for the FCS of non-beneficiaries and beneficiaries.

Example 2.4: A trend analysis for food consumption scores



Box 2.7: Validation of the FCS

Recent research by the International Food Policy Research Institute (IFPRI) attempted to validate the use of the FCS for classifying household food security status, based on survey data from three countries – Burundi, Haiti and Sri Lanka.

The study found the usefulness of the dietary diversity and food frequency indicators encouraging. There are positive and statistically significant associations with calorie consumption per capita, particularly when small quantities are excluded from food frequencies. However, the cut-off points currently used by WFP to define poor, borderline and adequate food consumption groups correspond with energy intake that is considerably below the usual average 2,100 kcal/capita/day benchmark used to define undernourishment. Hence, the poor food consumption group corresponds with extreme undernourishment, and some households in the acceptable food consumption group have consumption below 2,100 kcal/capita/day.

Table 2.10: Food consumption groups and corresponding FCS thresholds and energy intake levels

Food consumption group	Burundi		Haiti	
	FCS	Corresponding energy consumption in kcal/capita/day	FCS	Corresponding energy consumption in kcal/capita/day
Poor	≤ 23	≤ 1 550	≤ 28	≤ 1 600
Borderline	> 23 and ≤ 37	> 1 550 and ≤ 1 800	> 28 and ≤ 42	> 1 600 and ≤ 1 900
Acceptable	> 37	> 1 800	> 42	> 1 900

These data reinforce the notion of context specificity in formulating FCS.
In EFSAs, it is recommended that the thresholds illustrated in Box 2.6 be used.

7.3.2 Food access indicators

Food access is a measure of a household's ability to acquire available food over a given period. People's access to food varies widely among and within areas; it is therefore impossible to define a single standard food access indicator that can be used in all situations. Food access indicators must be tailored to the livelihood strategies employed by the population of the area in which the EFSA takes place.

Food access indicators as measures of individuals' ability to acquire food are associated with livelihood activities, sources of food consumption, food stocks, food- or income-related coping strategies, asset wealth and expenditures.

Knowledge of livelihoods is used to identify the food access strategies of different livelihood groups.[18] For example:

- farming households might obtain their food from a combination of own production and purchases, using income from sales of their produce;
- pastoral households might consume animal products, such as milk, and sell animals to buy grain and other necessities;
- labouring households might buy all of their food at the market, using money that they have earned from a variety of jobs.

18. A livelihood group is a group of people who share the same basic means of livelihood and lifestyles – the same main subsistence and income activities, and the same social and cultural practices – and face similar risks of food and nutrition insecurity.

An example of defining food access indicators based on livelihood strategies is given in Example 2.5.

Example 2.5: Definition of food access indicators associated with livelihoods

In a certain area, some households depend on daily labour for their income. They use the money earned to buy food and other items at the market. All of their food is bought at the market.

Appropriate food access indicators in this case should reflect the purchasing power of households based on:
- prices of key commodities;
- wage rates;
- frequency with which labourers can find work.

Table 2.11 gives other examples of food access indicators and the circumstances in which they might be used.

Table 2.11: Examples of food access indicators

Category	Indicator	Explanation	Circumstances and comments
Food consumption	**Sources of food and income**	Identifies the reliability and sustainability of food and income sources	All types of emergency
Food consumption	**Consumption of "famine foods"**	Within a society, some foodstuffs may be consumed only during periods of food insecurity; regular consumption of these indicates that there is a problem	Slow-onset emergencies that have reached a critical stage
Food stocks	**Diversity of food products available**	The variety of food items that are available and accessible will, in part, determine the quality of the diet	Stocks may be limited by production failures, transportation blockages, embargoes

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Category	Indicator	Explanation	Circumstances and comments
Food stocks	**Food self-sufficiency**	Duration of staple food stocks for household's own consumption	Where agricultural production is an essential livelihood activity and food purchases are constrained by lack of access to markets or lack of income
Income/ livelihood	**Purchasing power**	Comparison of household income or expenditure with the minimum cost of living, for food and other essential expenditures	All types of emergency, but it is often difficult to obtain accurate estimates of income or expenditure, and costs of living may vary
Income/ livelihood	**Remittances**	The size and frequency of transfers from migrants may represent an important source of income for households, but it is usually difficult to quantify remittances. The location of the person sending the remittance and her/his relationship to the household can sometimes act as proxy indicators	Situations in which significant numbers of people travel out of the area to find work
Expenditures	**Terms of trade**[19]	Comparison of, for example: • cost of staple food with daily wage rate • price of livestock with price of cereal Relevant terms of trade need to be defined for each livelihood group	Any emergency in which economic exchange is significant: i.e. most emergencies
Asset wealth	**Asset ownership**	Ownership of productive assets that facilitate food and income generation, i.e. land, animals, skills. Relevant assets are identified from knowledge of livelihood groups and pre- and post-emergency economic activities	Any emergency, but depends on having a good knowledge of local livelihoods
Coping strategies	**Food-related**	The different coping strategies (behaviours) adopted by households in an emergency are used to estimate the severity of food insecurity	Some behaviours are highly reversible, others are not

19. Market Analysis Tool: Terms of Trade, WFP Economic Analysis Unit, August 2007; Market Analysis in Emergency Food Security Assessments: Guidelines on Market Situation Analysis and Forecast and Response Protocol, WFP Emergency Needs Assessment Service, September 2007.

Examples of food access indicators are given in Example 2.6. Food access indicators should always be defined according to the economic context.

Example 2.6: Sample applications of food access indicators

Sources of food and income

- A household acquires most of its food from the relief assistance provided by an international humanitarian organization. This source is considered poor, as it is unreliable and unsustainable. The household has no income, as it has recently moved to a camp for displaced people. Its income source is therefore also considered poor. The combination of poor food sources with poor income sources leads to the conclusion that the household has poor food access.
- Another household is receiving most of its food from relief; it too has poor food sources. However, this household retains access to some of its fields and is able to harvest and sell some cash crops. In addition, the household receives regular remittances from a relative working in the capital. This household's income sources are good. The combination of poor food sources with good income sources leads to the conclusion that this household has average food access.

An illustration of the development of this indicator is given in Example 2.7.

Consumption of famine foods

- Households in a certain area acquire food from cultivation and market purchases. Some local wild plants are nutritious but are not usually consumed because they taste bad and indicate that a household cannot obtain food through the normal channels, making these plants socially unacceptable as food. An EFSA reveals that an increasing number of households are consuming these plants; this indicates that access to normal foods is declining.
- In an urban environment there is stigma about using government soup kitchens. Households that use soup kitchens are considered to have failed. An EFSA reveals that an increasing number of households are using soup kitchens.

It may be difficult to obtain accurate data about these strategies because people are reluctant to admit that they are using them. Data should be cross-checked, for example, by reviewing attendance records at soup kitchens.

Access to natural resources

A pastoral community depends on cattle for its consumption of milk products and for sales to buy food and other essential items. Conflict has reduced mobility and the amount of pasture available to the pastoralists, who are forced to cut the sizes of their herds by selling animals. The price of cattle decreases and the pastoralists' purchasing power declines, as does their direct access to milk products. Food access for the community as a whole has, therefore, deteriorated.

Purchasing power

- Market surveys indicate that the minimum per capita cost of living is US$60 per month. In a household survey, informants are asked to describe their income sources and the monthly income that they receive from each. The results are compared with the US$60 minimum cost of living.

It can be extremely difficult to obtain accurate data on income and expenditure, particularly when much of the economy is informal and people derive their incomes from multiple sources. Informants frequently underestimate their incomes and expenditures, either because they do not know how much they earn and spend in a month – these figures are variable – or because they are reluctant to reveal such information to a stranger. The survey may also miss crucial non-cash components of household income, such as in-kind gifts. This indicator should therefore be used with caution.

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Terms of trade

- Households depend on rice purchased at market as their staple food. The livelihoods of the poorest people are based on casual labour. Workers earn an average of US$60 per month. If rice costs US$0.5 per kilogram, a worker's monthly salary equates to 120 kg of rice.
- If this indicator is monitored over time, trends in food access can be ascertained. For example, if the rice price doubles to US$1 per kilogram and wages remain constant, a worker's salary will equate to 60 kg of rice, indicating a sharp decrease in food access.
- A minimum rice/wage ratio can be determined below which household food access is considered to be insufficient. This ratio will depend on the amount of rice that an average household requires and the other expenses that must be covered from the wages, among other factors.

Food self-sufficiency

In a community, households keep about half of their harvested crops for their own consumption. This does not cover all of their food needs, so the households must have a source of income to buy food and other necessary items. Income comes partly from the sale of crops and partly from other activities, such as fishing and livestock sales. To estimate food access, the post-harvest duration of food stocks is compared with the reliability of the main source of income. Food stocks in this example are classified as follows:

- poor: up to two months household food supply;
- average: three to seven months household supply;
- good: more than seven months household supply.

Income sources are also rated as poor, average and good. The two variables are then combined. For example, a household with poor food stocks and poor income sources is considered to have poor food access. A household with good food stocks but poor income sources is considered to have average food access.

Asset ownership

- In an agricultural area, access to land may be the primary determinant of food access. A suitable indicator might be area of land per household member.
- Displaced people who have lost most of their possessions depend on their skills for their livelihoods. In this case, education level or professional skills might therefore be used as indicators of human assets.
- Access to assets may vary according to gender. Female-headed households may be at a disadvantage compared with male-headed households.

Remittances[20]

An area is affected by a drought – a slow-onset emergency – which has led to the widespread loss of livelihood assets. It is known that people with close relatives working in other parts of the country or abroad are better off, as they generally receive some remittances. Although it is difficult to gain accurate data about the size of remittances, the location of the migrant worker gives an indication of the significance of this source of income for the household. For example, a relative in:

- the district capital, seeking casual labour, implies a minor enhancement of household food access;
- mines in another part of the country implies a medium-level enhancement of household food access;
- the Gulf States, working on oil installations, implies a major enhancement of household food access.

20. For more information, see: Technical Guidance Sheet No. 1 Integrating Migration and Displacement into Emergency Food Security Assessments, WFP Emergency Needs Assessment Service, May 2007; Remittances during crises: implications for humanitarian response, K. Savage and P. Harvey, eds., Humanitarian Policy Group Report No. 25, Overseas Development Institute (ODI), May 2007.

Markets are of critical significance to food access in most situations. Many of the food access indicators described in Table 2.11 are based on market interactions, so it is essential to have indicators illustrating the ways in which markets function.

Common market indicators are shown in Table 2.12. Some of these may not be appropriate in every situation, and additional market indicators can be added, according to the context.[21]

Many of the indicators should be reviewed over time, through comparison with the same period in previous years and with trends over recent weeks or months. **If baseline surveys or previous assessments are not available, market traders can usually provide reliable information about trends and the reasons for them.**

Table 2.12: Market indicators

Households' interaction with markets Sources: household survey, focus group discussion, key informant interview	
Own production sold: staple food, cash crops, livestock, livestock products	• Quantity sold • Proportion of own production sold • Price obtained • Reasons for selling
Food bought from market: disaggregated according to different foods	• Quantity per week/month • Proportion of total household food consumption • Price • Seasonal variation • Access to credit from traders
Participation in labour market	• Household members involved in casual or seasonal labour • Access for men and women to markets • Type of work and season(s) • Daily wage rate(s) • Proportion of annual income from this source
Market functioning Source: Market trader interview	
Prices of key commodities: staple foods, cash crops, livestock, fuel, etc.	• Main commodities available • Prices now and at same time last year • Margins now and at same time last year • Price variation and trends over recent weeks or months • Impact of food aid on prices • Perception of future evolution of prices
Sources of key commodities	• Local, other parts of country or imported • Problems with movement of commodities
Trade volume	• Quantity of commodities sold, and seasonal variation • Variation in supply and demand of key commodities over recent weeks/months • Speed of response in case of changes in supply or demand • Trends over recent weeks/months • Reasons for trends

(cont…)

21. For more guidance on market analysis see: Market Analysis in Emergency Food Security Assessments, WFP Emergency Needs Assessment Service, August 2007.

(…cont)

Terms of trade	• Staple food/livestock • Cash crop/cereal • Labour wage rate/cereal
Labour market	• Number of people seeking work compared with number finding work each day • Variation in supply and demand for labour, according to season • Daily wage rate and seasonal variation
Traders	• Number of traders and trend over recent weeks/months • Access to credit • Size of stocks of key commodities • Impact of food aid on willingness to trade • Transaction costs: transportation, taxes, etc.
District/national level Sources: Secondary data review, key informant interview	
Characteristics of markets	• Location • Wholesale, retail, etc. • Areas covered by markets • Distance between markets • Frequency of markets
Consumer price index	• Recent trends, disaggregated as far as possible by district
Main trade routes	• Commodities traded • In-country and international trade routes • Ease of movement of commodities: physical, administrative
Price variation among markets	• Prices in different markets • Transaction costs
Proportion of country's / district's food imported	• Percentage
Exchange rate	• Fluctuation and impact on imports/exports
National/district data	• Inflation • Poverty rate • Per capita trends in gross national income (GNI) and gross domestic product (GDP) • Unemployment rate • Interest rates
Policy	• Significant changes in trade policy

Examples of using market indicators to develop food access indicators are given in Example 2.7.

Example 2.7: Using market indicators to define food access indicators

For each of the following three food access indicators, examples of market data that would be incorporated in the indicator are given. Other useful market data should be determined according to the context.

Food access indicator: sources of food and income
- **Price stability:** Are the prices of food in the market and the prices paid to producers stable?
- **Food sources:** Where does the food in the market come from? If it is imported – internally or from abroad – how reliable is the supply?
- **Labour market:** How many days per month can a casual labourer expect to find work? Is this stable?

Food access indicator: purchasing power
- **Price stability:** Is the cost of essential food and non-food items increasing, decreasing or remaining stable in relation to normal for this time of year?

Food access indicator: terms of trade
- **Staple food/labour:** The cost of staple food is monitored at the market and compared with the average monthly wage of a casual labourer. This indicator is used to estimate the status of food access for livelihood groups that depend primarily on casual labour.
- **Livestock prices/cereal prices:** A decline of livestock prices against cereal prices has proved to be a strong indicator of deteriorating food access and general food security in pastoral communities.

7.3.3 Description of the current household food security situation

A key part of the description of household food security in an EFSA or a CSFVA is derived from a short-term household food security classification. This is based on the household's current food consumption as a proxy for its current food security. It gives a snapshot picture of the household's situation at the time the data are collected.

This is an essential step in both the EFSA and CFSVA processes and is the starting point for situation analysis and scenario-building exercises (see **Part IV, Section 4.2**).

Households are classified according to the FCS – poor, borderline or acceptable. For some households, the FCS may not reveal their current food security situation. In such cases, information about household access to and sources of food is crucial in allowing these households to be reclassified.

Description of the current household food security is therefore based on the FCS and its thresholds, as described in Box 2.6. This usually[22] means that households with an FCS of 21 or less have poor food security, those with an FCS between 21.5 and 35 have borderline food insecurity, and those with an FCS of more than 35 have acceptable food security.

22. These thresholds can be increased by 7 points each, as described in Box 2.6.

The household food consumption classification serves as a standardized, objective and replicable tool for describing **short-term food security**. This classification can be standardized by using household FCS as the basis for comparison. Although differences in context must be considered when interpreting the FCS, this method of standardization is acceptable because the FCS is well-defined[23] and objectively measurable. When FCS thresholds are appropriately defined, the resulting food consumption groups match the corresponding levels of food intake, to a certain extent (see Box 2.7).

The short-term household food security description may need to be adjusted if the FCS does not properly reflect the food security situation of the moment. This is the case for households with unsustainable sources of food, or with food access strategies that are uncertain, damaging to their future livelihoods or so severe that they endanger the health of household members. Typical examples are food aid recipients, who may be benefiting from acceptable food consumption at the time of the assessment, but who would probably have poor food security without that food.

The use of the FCS-based classification to describe current food security should be triangulated with other food security indicators, such as the CSI and income and production indicators.

In an EFSA, the description of current food security should always go beyond this method. A complete situation analysis should also include statements about the evolution of the overall food security context and about critical livelihood factors related to resilience, coping mechanisms and how income generation and food production will define future access to food.

The description of the current household food security situation therefore serves only as a starting point and for reference. **Part IV, Chapters 3 and 4**, on conducting situation and forecast analysis, go beyond this snapshot analysis and include projections for the future.

The situation analysis starts from the current household food security description, which is based on the FCS complemented by a livelihoods analysis to make it a true, forward-looking food security classification. The analyst decides what adjustments need to be made, based on other food security indicators and a livelihoods analysis, and concentrating on the outlook for households' access to food in the near or more distant future. Ideally, the analyst should draw on a combination of quantitative indicators and qualitative information. The context-specific indicators used for household food security classification are similar to those identified in Table 2.11:

23. It will often be necessary to design a country-specific questionnaire, to ensure that household food consumption is evaluated in a way that is appropriate to the local context.

- income sources, unsustainable or harmful coping strategies, debt, distress indicators;
- production, stocks, reserves;
- food sources, including aggregate food supply; and
- asset ownership, access to natural resources.

Analysis based on household food consumption alone should therefore **not** serve as a simplistic approach to targeting food assistance during programme implementation. The description of current household food insecurity does not automatically equate to food assistance requirements: not everyone with poor food consumption at the time of the data collection will need assistance, and some households with currently good consumption may need assistance later. To define assistance, it is essential to have a good understanding of how households obtain access to food, their livelihoods, the effects of shocks on these, and the macro trends for the future.

7.3.4 Coping strategy indicators

The **coping strategy index (CSI)** is often used as a proxy indicator for food security. Its elements can be used to analyse the structure of coping strategies.[24] The index is based on the many possible answers to the question: "In the past seven days, if there have been times when you did not have enough food or enough money to buy food, how many days has your household had to…"

A summary of the procedure for establishing the CSI is given in Box 2.8.

Box 2.8: Process for establishing the CSI

a) **The specific community's** usual food-based coping strategies are recorded from focus group and key informant interviews.

b) Local key informants assign a **weight** to each coping strategy, based on the **severity** of the circumstances under which it is used. For example, a slight reduction in food consumption by adults might be a response to short-term food insecurity entailing no major problems in the long term. On the other hand, the selling of prime productive assets, such as livestock or machinery, might indicate an extreme level of food insecurity.

c) During the field survey, the **current** food-based coping strategies that people use and the frequency with which they use each strategy are established.

d) For each household, a score is given to each coping strategy:
Score = (frequency with which coping strategy is used) x (weight).

(cont…)

24. Detailed guidance on the CSI is given in The Coping Strategies Index – Field Methods Manual, second edition, CARE, Feinstein International Center, Tango, United States Agency for International Development (USAID), WFP, January 2008

(…cont)

e) The scores for each coping strategy are added together to give a composite score for each household.

A household's composite score is meaningless unless it is compared with some other factor:

- Comparing the scores of **different households at the same time** gives an indication of their **relative** food security status; for example, household X is more severely food-insecure than household Y.
- Comparing the scores of the **same household**, or group of households, **over time** gives a useful indication of the food security trend: improving, deteriorating or stable.

The composite score can also be **calibrated** against other food security indicators. For example, if a score of 95 correlates directly with severe food insecurity as established by other reputable means, this score can be used in the future to indicate severe food insecurity.

An example of calculating the CSI is given in Example 2.8, taken from a study in Kenya cited in the Cooperative for Assistance and Relief Everywhere (CARE) and WFP Coping Strategies Index, Field Methods Manual.

Example 2.8: Calculating the CSI

In the past 30 days, as a result of not having enough food, how often has your household had to:	All the time/ every day	Fairly often/ 3-6 times per week	Occasionally/ 1-2 times per week	Rarely/ less than once a week	Never	Raw score	Severity weight	Score = relative frequency x weight
Relative frequency score	7	4.5	1.5	0.5	0			
a. Rely on less preferred and less expensive foods?		X				4.5	2	9.0
b. Borrow food, or rely on help from a friend or relative?			X			1.5	4	6.0
c. Purchase food on credit?			X			1.5	4	6.0
d. Gather wild food, hunt, or harvest immature crops?					X	0	8	0
e. Consume seed stock held for next season?					X	0	6	0
f. Send household members to eat elsewhere?				X		0,5	4	2.0
g. Send household members to beg?					X	0	8	0
h. Limit portion sizes at meal times?	X					7	2	14.0
i. Restrict adults' consumption so that children can eat?			X			1.5	6	9.0
j. Feed working household members at the expense of non-working members?					X	0	4	0
k. Ration the money available and buy prepared food?					X	0	N.A.	-
l. Reduce number of meals eaten in a day?		X				4.5	2	9.0
m. Pass entire days without eating?					X	0	8	0
Total household score								**55.0**

As noted in Box 2.8, the CSI provides a score for each household, which in Example 2.8 is 55.0. However, unless the significance of the score has been established through reliable calibration, or CSIs have been collected over time, this score alone does not explain much about the **absolute** level of food insecurity experienced by the household. Instead, it allows comparison of the **relative** food security of different households whose CSIs were calculated during the assessment.

This does not mean that the CSI should not be compiled; it is a useful reference for future assessments. The information about coping strategies and the circumstances in which they are employed is used to estimate the **absolute** level of food security, as explained in Box 2.9.

Box 2.9: Developing coping strategy indicators

A method for analysing coping strategies during an EFSA

This approach relies on the combination of qualitative and quantitative data collection:
- Baseline information about local coping strategies is collected through a focus group discussion.
- The information collected is used in the questionnaire design. This leads to the collection of quantitative data that are analysed as follows.

During a focus group interview in the community being assessed, the following questions are asked:
- In this community, what strategies do households adopt when they do not have enough food, or do not have enough money to buy food?
- Which groups within the community might adopt each strategy?
- Under what circumstances is each strategy adopted?

From this it is possible to deduce the food security status and the severity associated with each strategy.

A table is then compiled. The following table *uses examples of coping strategies*.

Strategy	Groups using the strategy	Implication
1. Purchase of less expensive food	All	Alert
2. Withdrawal of children from school	All	Risk to future livelihoods
3. Reduction of number of meals	All	
4. Migration of whole household to look for work	Landless households	
5. Selling land	Landowners	Risk to livelihoods

Based on this example, the focus group might agree to the following:
- Strategies 4 and 5 are adopted during periods of severe food insecurity.
- Strategies 2 and 3 are adopted when food insecurity is moderate or deteriorating, but not yet severe.
- Strategy 1 corresponds to a household that is not currently at risk, but whose situation must be monitored.

The frequency with which the various coping strategies are used can also be considered when discussing and interpreting the severity of the food security situation.

Having established the types of strategies that people *might* use, either qualitative or quantitative data are collected to determine the strategies that they are *currently* using. When quantitative data are used, questions about the coping strategies identified during the focus group are included in the questionnaire. The resultant data are analysed to determine which households are resorting to strategies that indicate moderate or severe food insecurity, according to the information provided by the focus group.

Recent research on the CSI has led to a reduced version being developed. The **reduced coping strategy index** (reduced CSI) compares food security across different contexts. It is a subset of the context-specific CSI, calculated on the basis of a specific set of behaviours each with its own universal severity weighting. The reduced index is less valuable in identifying the most vulnerable households in a location, but it is very useful for comparisons across crises or for geographical targeting because it measures the same set of behaviours and uses the same weights. The behaviours measured by the reduced CSI are:

- eating less preferred/expensive foods;
- borrowing food or relying on help from friends and relatives;
- limiting portion sizes at meal times;
- limiting adult intake so that small children can eat;
- reducing the number of meals per day.

Example 2.9: Calculating a reduced CSI

In the past 7 days, if there have been times when you did not have enough food or money to buy food, how often has your household had to:	Raw score	Universal severity weight	Weighted score = frequency X weight
Relative frequency score			
a. Rely on less preferred and less expensive foods?	5	1	5
b. Borrow food, or rely on help from a friend or relative?	2	2	4
c. Limit portion sizes at meal times?	7	1	7
d. Restrict consumption by adults so that small children can eat?	2	3	6
e. Reduce the number of meals eaten in a day?	5	1	5
Total household score – reduced CSI	Sum of the totals for each strategy		**27**