PART 2: TECHNICAL NOTES

The technical notes are the second of four parts contained in this module. They provide an introduction to nutrition in emergencies. The technical notes are intended for people involved in nutrition programme planning and implementation. They provide technical details, highlight challenging areas and provide clear guidance on accepted current practices. Words in italics are defined in the glossary.

Summary

This introductory module discusses nutrition in emergencies. It explores various classification systems for food and nutrition emergencies. Where and when nutrition emergencies occur and who are the most nutritionally vulnerable is reviewed. Different forms of nutrition assessment and responses are outlined. Finally, some of the existing challenges in the area of nutrition in emergencies are discussed.

Key messages

1. Protecting the nutritional status of vulnerable groups affected by emergencies is essential to prevent acute malnutrition, disease and death.
2. Malnutrition does not result simply from lack of food but from a complex combination of factors.
3. Several systems exist for the classification of food and nutrition crisis; the Integrated Phase Classification system is one example which has been adopted by several agencies and governments to analyse and design responses to food insecurity.
4. Nutrition emergencies are primarily caused by severe shortages of food combined with disease epidemics though underlying factors such as poor care and feeding practices, and insufficient access to health care and an unsafe environment all contribute.
5. While Asia and Africa have suffered significant famines over the past 100 years, food and nutrition crises continue and many countries on both continents have baseline levels of acute malnutrition that indicate emergency response interventions are required.
6. Acute malnutrition is a major concern during emergencies, but chronic malnutrition and micronutrient deficiencies are also issues in certain emergency affected populations.
7. Standard guidance exists for nutrition assessments, commonly conducted at the outset of and throughout an emergency.
8. A range of nutrition interventions are typically implemented in an emergency, both to prevent and treat acute malnutrition as well as support livelihoods.
9. Existing challenges in the area of nutrition in emergencies include:
   a) Lack of commonly agreed classification system for nutritional crises
   b) Proliferation of food based products for the treatment of acute malnutrition
   c) Limited evidence for an effective model to treat moderate acute malnutrition
   d) Challenges in implementation of the Operational Guidance on IYCF in emergencies
   e) Constraints to the operating environment
   f) Inadequate skills and expertise in nutrition in emergencies at national level
   g) Linking relief, recovery and development efforts
   h) Linking nutrition interventions with each other and with other sectors

These technical notes are based on the other HTP modules as well as the following references and related Sphere standards in the box below:

- Lancet Nutrition Series, 2008. http://www.thelancet.com/series/maternal-and-child-undernutrition
- Integrated Phase Classification system, www.ipcinfo.org
- SMART guidelines, www.smartmethodology.org
- Young, H., A. Borrel, Hollard, D. & Salama, P. (2004). Public nutrition in complex emergencies. *The Lancet, 364: 1899-909*. http://www.who.int/hac/techguidance/training/predeployment/Public%20health%20nutrition%20in%20complex%20emergencies.pdf
- Young and Jaspars (2006). The Meaning and Measurement of Malnutrition in Acute Emergencies. Network Paper Number 56. London: ODI. http://www.ipcinfo.org/attachments/Meaning_and_measurement_of_acute_malnutrition_in_emergencies.pdf
- Sphere Handbook, 2011. http://www.sphereproject.org/component/option,com_docman/task,cat_view/gid,70/Itemid,203
- IASC Global Nutrition Cluster, http://oneresponse.info/globalclusters/nutrition/Pages/default.aspx
- Emergency Nutrition Network publication, *Field Exchange*. www.ennonline.net/fex
- United Nations Office for the Coordination of Humanitarian Affairs, http://www.unocha.org
- Nutrition Information in Crisis Situations, NICS, http://www.unscn.org/en/publications/nics/
- Famine Early Warning System Network (FEWS NET), http://www.fews.net/Pages/default.aspx

Sphere standard

Food Security and nutrition assessment standard 1: Food Security

Where people are at increased risk of food insecurity, assessments are conducted using accepted methods to understand the type, degree and extent of food insecurity, to identify those most affected and to define the most appropriate response.

Food security and nutrition assessment standard 2: Nutrition

Where people are at increased risk of undernutrition, assessments are conducted using internationally accepted methods to understand the type, degree and extent of undernutrition and identify those most affected, those most at risk and the appropriate response.

Infant and young child feeding standard 1: Policy guidance and coordination

Safe and appropriate infant and young child feeding for the population is protected through implementation of key policy guidance and strong coordination.

Infant and young child feeding standard 2: Basic and skilled support

Mothers and caregivers of infants and young children have access to timely and appropriate feeding support that minimises risks and optimises nutrition, health and survival outcomes.

Management of acute malnutrition and micronutrient deficiencies standard 1: Moderate acute malnutrition

Moderate acute malnutrition is addressed.

Management of acute malnutrition and micronutrient deficiencies standard 2: Severe acute malnutrition

Severe acute malnutrition is addressed.

Management of acute malnutrition and micronutrient deficiencies standard 3: Micronutrient deficiencies

Micronutrient interventions accompany public health and other nutrition interventions to reduce common diseases associated with emergencies and address micronutrient deficiencies.

Food security standard 1: General food security

People have a right to humanitarian food assistance that ensures their survival and upholds their dignity, and as far as possible prevents the erosion of their assets and builds resilience.

Sphere standard (continued)

Food security – food transfers standard 1: General nutrition requirements

Ensure the nutritional needs of the disaster-affected population, including those most at risk, are met.

Food security – food transfers standard 2: Appropriateness and acceptability

The food items provided are appropriate and acceptable to recipients so that they can be used efficiently and effectively at the household level.

Food security – food transfers standard 3: Food quality and safety

Food distributed is fit for human consumption and of appropriate quality.

Food security – food transfers standard 4: Supply chain management (SCM)

Commodities and associated costs are well managed using impartial, transparent and responsive systems.

Food security – food transfers standard 5: Targeting and distribution

The method of targeted food distribution is responsive, timely, transparent and safe, supports dignity and is appropriate to local conditions.

Food security – food transfers standard 6: Food use

Food is stored, prepared and consumed in a safe and appropriate manner at both household and community levels.

Food security – cash and voucher transfers standard 1: Access to available goods and services

Cash and vouchers are considered as ways to address basic needs and to protect and re-establish livelihoods.

Food security – livelihoods standard 1: Primary production

Primary production mechanisms are protected and supported.

Food security – livelihoods standard 2: Income and employment

Where income generation and employment are feasible livelihood strategies, women and men have equal access to appropriate income-earning opportunities.

Food security – livelihoods standard 3: Access to markets

The disaster-affected population's safe access to market goods and services as producers, consumers and traders is protected and promoted.

Source: *Sphere Handbook*, 'Minimum Standards in Food Security and Nutrition', The Sphere Project, Geneva, 2011.

Introduction

The large-scale famines that occurred in Africa from the 1960s onwards alerted the world to the importance of protecting nutritional status during times of emergency. During the Biafran War (1967 to 1970), up to 1 million civilians died from famine and fighting. Images of starving children with distended stomachs were shown around the world, horrifying and haunting the Western public. A massive humanitarian operation was launched to deliver food aid and to set up selective feeding programmes. The Ethiopian famine in the mid-1980s again caused worldwide alarm and mobilised donors to send aid. Since then, various food and nutrition crises have occurred and emergency appeals for funding have grown ever larger, from 13.1 billion US dollars in 2005 to 15.6 billion US dollars in 2010, with a doubling of the number of beneficiaries during this time[1]. The amount within this aid committed to the 'food' sector has doubled from 11 to 22%.[2] Funding for nutrition has grown significantly; from 2008 to 2010 the amount received for nutrition in countries reporting nutrition as a separate sector has quadrupled[3]. The number of agencies working in emergencies and responding to malnutrition has also grown.

[1] OCHA Financial Tracking Services, http://fts.unocha.org/pageloader.aspx?page=search-reporting_display&CQ=cq040411151157dQ3DDBH0s1

[2] Nutrition is not a stand-alone category within the appeal format so the 'food' sector is used as a proxy for nutrition though it is recognised that nutrition activities are also often included in other sectors.

[3] FNTS disaggregation of Nutrition funding 2008-2010 for countries with designated Nutrition Cluster

What is malnutrition?

Malnutrition is a broad term which refers to both *undernutrition* and *overnutrition*. The main focus of this module is on undernutrition. Individuals are malnourished, or suffer from undernutrition if their diet does not provide them with adequate macronutrients (protein, fat and carbohydrates) and micronutrients (minerals and vitamins), or they cannot fully utilize the food they eat due to illness.

There are three types of undernutrition: *acute malnutrition* (rapid weight loss or inadequate weight gain due to severe nutritional restrictions, a recent bout of illness, inappropriate childcare practices or a combination of these factors[4]), *chronic malnutrition* (inhibited growth in height and cognitive development caused by undernutrition over a period of time) and *micronutrient malnutrition* (deficiency in one or more minerals or vitamins). Acute malnutrition is identified by wasting and/or bi-lateral pitting oedema (swelling on both sides of the body). Chronic malnutrition is recognised by *stunting*, or a decreased height for age. Micronutrient malnutrition results in symptoms specific to the deficient micronutrient.

People are also malnourished, or suffer from overnutrition if they consume too many calories which results in an individual being overweight or obese.

Undernutrition is the most common form of malnutrition found in emergency situations. However, while overweight and obesity are not typically the focus of an emergency response, it is a problem in countries with long-standing refugee populations who are dependent on food aid such as in Algeria, Yemen and the Occupied Palestinian Territories and in countries with growing economies such as China and India. The existence of both undernutrition and overnutrition in a population is referred to as the "double burden" of malnutrition i.e. the existence of high levels of undernutrition, especially among children along with a rapid rise in overweight, obesity and diet-related chronic diseases amongst children, adolescents and the adult population.

Importance of nutrition in emergencies

Protecting the nutritional status of vulnerable groups affected by emergencies is enshrined in human rights law.[5] Individuals who suffer from acute malnutrition are much more likely to become sick and to die. At the same time, sick individuals are more likely to become malnourished.

Emergencies have an impact on a range of factors that can increase the risk of malnutrition, illness (morbidity) and death (mortality), see **Box 1** *below. If a population has a relatively good nutritional status at the onset of an emergency, it is important to protect this as it can deteriorate with the impact of the emergency. Populations that have a poor nutritional status at the onset of an emergency are, in general, even more vulnerable to widespread nutritional crises as a result of an emergency.*

Box 1 illustrates how emergencies may involve the large-scale destruction of property and infrastructure, a breakdown of essential services including health services, water supply and sanitation, and migration of large numbers of people. Emergencies can also disrupt social systems. Household access to food may become limited, causing displacement, forcing people to live in over-crowded settlements and families to split up. These disruptions can cause loss of earnings and reduce access to clean water, sanitation and health services. The impact on individuals is an increased risk of becoming undernourished and/or sick resulting in a greater likeliness of death.

High prevalence of acute malnutrition and mortality rates continue to occur during emergencies. For example, the ongoing conflict and drought in Somalia has displaced hundreds of thousands of people. Somalia now has one of the highest national averages of acute malnutrition, 16% (with 4.2% severe acute malnutrition) with some areas reporting a prevalence of acute malnutrition well above 20%. Similar unacceptably high prevalences of acute malnutrition and stunting caused by chronic emergencies continue to be reported in other countries, such as Kenya, Sudan and Ethiopia[6].

Broad-based approach to tackling undernutrition

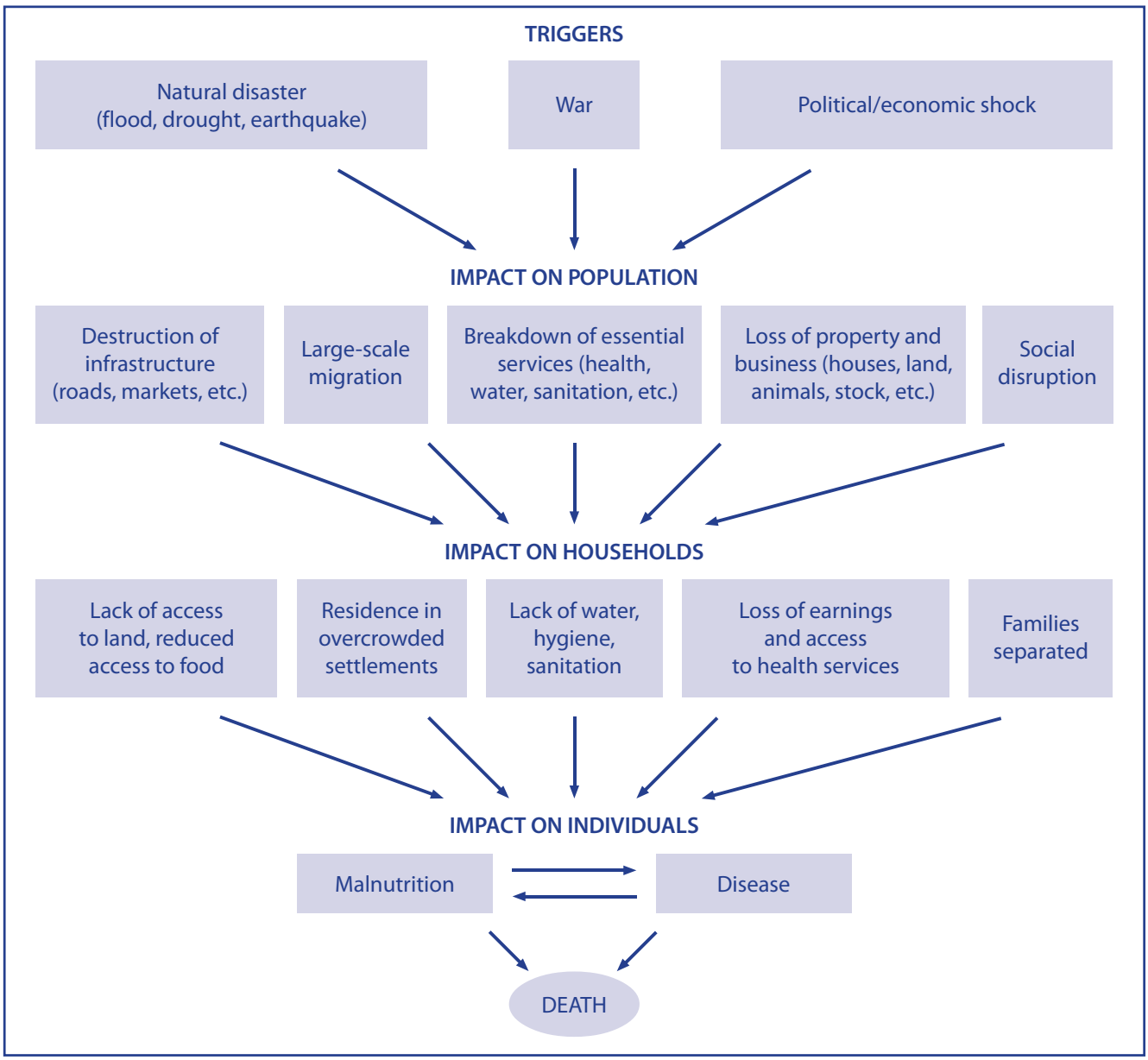
Undernutrition does not result simply from lack of food but from a complex combination of factors. Hence, broad-based approaches to prevent and treat undernutrition are required. At the one end of the scale, interventions to treat malnourished individuals and prevent death are essential. At the other end of the scale, interventions to 'prevent' malnutrition are needed. These preventative interventions can include protecting livelihoods and health, ensuring a healthy environment and food security (the ability of a household to access food). This broad-based approach is referred to as a public nutrition approach.

[4] Taking Action, Nutrition for Survival, Growth and Development, White paper (2010), ACF International

[5] The right to adequate food, and freedom from hunger and malnutrition is recognised in international law. See Module 21 for a detailed discussion of international conventions.

[6] Nutrition Information in Crisis Situations (NICS) Issue 21, March 2010. United Nations System Standing Committee on Nutrition.

Box 1: The impact of an emergency on nutritional status



What is an emergency?

The term 'emergency' is defined in various ways by organisations within the international humanitarian community, In general, emergencies are characterised in these definitions as 'extraordinary', 'urgent' and 'sudden' situations resulting in significant destruction and loss of, or threat to lives. (See Annex 1 for several of these definitions.)

The term 'complex emergency' has been used in recent years to refer to a major humanitarian crisis of a multi-causal, essentially political nature that requires a system-wide response.

Some organisations distinguish between 'loud' and 'silent' emergencies. 'Loud' emergencies are those that result from catastrophic events such as hurricanes, earthquakes, floods and war. Recent 'loud' emergencies include the 2005 Indian Ocean earthquake and tsunami affecting several countries including Indonesia, the 2010 earthquake in Haiti and the 2011 earthquake and tsunami in Japan. These events typically receive considerable international publicity although this does not always translate into an adequate humanitarian response.

'Silent' emergencies on the other hand receive limited international attention or humanitarian assistance. These emergencies tend to be of little political interest to industrialized nations, are rarely covered in the media, and can be marginalized in donors' funding decisions. Examples of recent 'silent' emergencies include:

Box 2: The most underfunded emergencies of 2010

In 2010, over US$7 billion was requested through Consolidated and Flash Appeals. Just over $4 billion (63%) was received. The most underfunded appeals (defined as receiving less than 45% of requested funds) in 2010 were Central African Republic, Guatemala, Mongolia, and Zimbabwe. The most well-funded appeals (receiving greater than 60% of requested funds) were Haiti, Afghanistan, Democratic Republic of the Congo, Kenya, Kyrgyzstan, Pakistan, Somalia and Sudan. However, the most well-funded appeal (Haiti) received only 75% of the total funding requested.

Source: OCHA Financial Tracking Service, 2010.

- Famine in Sudan in 1998,
- Violence and displacement in Sudan (Darfur) from 2002[7],
- Displacement North Korea (2002)[8],
- Political unrest and displacement in Somalia 2000/2008/2010-11[9], and
- Violence and deprivation in the Democratic Republic of Congo (2006)[10].

However, recent analysis shows that overall humanitarian funding has increased and is being distributed more equitably across sectors and emergencies. Though, the needs continue to grow and are still not matched by resources[11]. The UN Office for Coordination and Humanitarian Affairs (OCHA) collects and analyses financial information on all emergencies that have requested funding through a United Nations (UN) appeal. **Box 2** below details the proportion of funding received for different emergencies in 2010 highlighting the most under and well-funded emergencies. A common characteristic of these under-funded emergencies is that they last for many years and often occur in countries of little geo-political importance to industrialized nations.

Emergencies cover a wide variety of scenarios. They differ in terms of:

- Length (short-term, chronic)
- Cause (natural, conflict-related, economic-political, 'complex')
- Magnitude (number of people in crisis)
- Impact (destruction of infrastructure, agricultural, health and social systems)
- Affected groups (internally displaced persons, refugees, stable populations)
- Humanitarian response (large-scale response, no response at all)

What is a nutrition emergency?

When does an emergency become a food crisis, nutrition emergency or famine? While there are no universally accepted definitions, various attempts have been made to classify the severity of an emergency based on levels of acute malnutrition (wasting and oedema) in the population as one indicator of distress. These classifications suggest that emergencies can be divided into progressive stages. In the most extreme stages, the levels of food insecurity, acute malnutrition and mortality are so severe as to classify the situation as 'famine'.

The discussion below outlines a few of the recently developed nutrition and/or food security classification systems. It is commonly agreed among experts that an assessment of a situation should be made based on more than just levels of acute malnutrition and mortality. A clear analytical process is needed to review the situation from a variety of angles and the underlying context.

Classification systems

A variety of classification systems at national, regional and global level have been developed to classify the severity of food and nutritional crises. **Table 1** outlines the four most recent. Each of the classification systems utilises a slightly different combination of indicators to analyse and classify situations, however all of these systems include mortality, chronic and acute malnutrition. Thresholds, or the classification of the nutritional situation of the population based on the prevalence of individuals' nutrition status, are also presented for each indicator. A full description of these classification systems is presented in **Annex 2**.

[7] Humanitarian Exchange Magazine, Humanitarian Practice Network, Issue 20, March 2002.
[8] Humanitarian Exchange Magazine, Humanitarian Practice Network, Issue 20, March 2002.
[9] Natural Disaster History of Somalia, ReliefWeb , www.reliefweb.int
[10] MSF top 10 most underreported humanitarian stories of 2006.
[11] ALNAP review of the humanitarian system, Field Exchange Issue 39, 2010.

What these systems have in common is that they all use the quantifiable (numeric) outcomes of mortality and malnutrition as measures of severity, and link these with qualitative (descriptive) indicators of food security. Where the classifications differ is in the thresholds suggested to designate a particular stage of severity as well as the terminology used to classify a particular situation. For example, ùfamineû is variously declared when acute malnutrition has reached more than 20 per cent (Howe and Devereux), 25 per cent (ODI classification), and 30 per cent (FAO/FSNAU Integrated Phase Classification)[12].

The term 'nutrition crisis' or 'nutrition emergency' are generic terms used throughout this module to refer to a situation characterised by high mortality, high levels of acute malnutrition or absolute numbers of acutely malnourished individuals, that may or may not exist in conjunction with conflict.

The Integrated Phase Classification system (IPC) is the most recent classification system to be developed and it builds significantly on other systems. Work on the IPC began in 2004 with an aim to develop a common scale for food security classification, which is comparable across countries, making it easier for donors, agencies and governments to identify priorities for intervention before they become catastrophic. The IPC includes a much wider variety of non-nutrition indicators such as disease, access to water and conflict. Most recently, maternal under-nutrition (measured by BMI) was recommended as an additional indicator to gauge the overall nutritional situation and level of severity of crisis. This is due to the strong association between a low prevalence of Body Mass Index (BMI) and declines in food security, suggesting low BMI is a direct outcome of food insecurity whereas acute malnutrition in children is more of a composite indicator comprising poor health, lack of food, inadequate caring practices[13].

Since 2009, there has been significant endorsement of the IPC model from a variety of partners. There is important buy-in at top management levels in the UN Food and Agriculture Organisation (FAO), the UN World Food Programme (WFP), Famine Early Warning System Network (FEWS NET), European Commission Joint Research Centre (JRC), Oxfam, Save the Children UK and CARE as well as in donor agencies such as the European Commission (EC).

While there are still questions regarding the potential of the IPC for use in chronic emergency situations, the IPC has achieved "proof of concept" in emergency and disaster management contexts. The IPC is being used by several governments that have adopted the approach in their own national institutions such as Kenya, northern and southern Sudan, and Burundi. Key UN agencies, NGOs, donors, and governments alike have embraced the main value added areas of the IPC approach, namely the application of normative standards and the process of consensus building around vulnerability classification, and are actively employing and utilizing the IPC[14].

The IPC is currently going through a revision to develop a manual 2.0, following a two year consultative process and one recommendation is the development of a scale to classify chronic food insecurity. Further, a revised acute scale will also be developed following recent advances and expert consultation. The new scales will be released in late 2011.

Many experts agree that it is extremely difficult to set generic thresholds for mortality and acute malnutrition to gauge the severity of a crisis. The classification of a certain situation using one of these systems is not prescriptive, and needs to be used relative to local circumstances. (See Modules 7 and 8 on Individual and Population Assessment for more detail.).

Thresholds for response

Each system has a set of thresholds for classifying a situation. The ODI classification (**Annex 2**) and WHO decision tree (**Annex 3**) suggest appropriate food and selective feeding response options based on various thresholds. The IPC has developed a more detailed strategic response framework that not only recommends appropriate food based interventions but suggests responses that aim to:

- Mitigate immediate negative outcomes,
- Support livelihoods and,
- Address underlying/structural causes

The IPC response framework aims to provide a diverse array of response options for different contexts addressing both immediate needs and medium/longer term response. The response framework is purposefully not descriptive; it merely provides an overarching framework to ensure the basic elements of a holistic response are identified. See **Table 2**.

As highlighted in the section above, many experts agree that the decision-making frameworks are not prescriptive, and need to be interpreted based on local circumstances. Current recommendations are to consider overall trends in *global acute malnutrition* (GAM) and *severe acute malnutrition* (SAM) as part of a thorough situation analysis against baseline levels and context rather than waiting until a certain threshold has been reached, by which time it could be too late to implement an effective response.[15] (See Modules 7 and 8 for further discussion.)

[12] All based on the 1977 NCHS growth references (not the new WHO Growth Standards)

[13] Review of Nutrition and Mortality Indicators for the IPC: Guidance on Reference Levels and for Decision-making, Helen Young and Susanne Jaspars, September 2009.

[14] Integrated Food Security Phase Classification End of Project Evaluation. Frankenburger and Verduijn, 2011.

[15] Young, Helen and Susanne Jaspars (2009). *Review of Nutrition and Mortality Indicators for the IPC: Reference Levels and Decision-making*. Geneva: UNSCN.

Table 1: Summary of food crises and famine classification systems with thresholds for mortality, acute malnutrition and stunting

Classification system	Level	Notes
UN thresholds 2000	Serious	**Wasting** 10-14% (<-2SD WHZ)
	Critical	**Wasting** >15% (<-2SD WHZ)
ODI level and type of food security 2003	Chronic (or periodic) food insecurity	**CMR** 0.2-1/10,000/day **Wasting** 2.3-10% (<-2SD WHZ) **Stunting** >40%
	Acute food crisis	**CMR** 0.2-2/10,000/day **Wasting** 2.3-10% or increases (<-2SD WHZ)
	Extended food crisis	**CMR** 1-2/10,000/day **Wasting** 15-30% (<-2SD WHZ)
	Famine	**CMR** >2/10,000/day **Wasting** >25% (<-2SD WHZ) or dramatic increases
Howe and Devereux famine magnitude scale 2004	Food security conditions	**CMR** <0.2/10,000/day and **Wasting** <2.3% (<-2SD WHZ)
	Food insecurity conditions	**CMR** ≥0.2 but <0.5/10,000/day and/or **Wasting** ≥2.3 but <10% (<-2SD WHZ)
	Food crisis conditions	**CMR** ≥0.5 but <1/10,000/day and/or **Wasting** ≥10 but <20% (<-2SD WHZ) and/or oedema
	Famine conditions	**CMR** ≥1 but <5/10,000/day and/or **Wasting** ≥20% but <40% (<-2SD WHZ) and/or oedema
	Severe famine conditions	**CMR** ≥5 but <15/10,000/day and/or **Wasting** ≥40% (<-2SD WHZ)and/or oedema
	Extreme famine conditions	**CMR** ≥15/10,000/day
FSAU/FAO Integrated food security phase classification 2007[16]	Generally food secure	**CMR** <0.5/10,000/day **Wasting*** <3% (<-2SD WHZ) **Stunting** <20% (<-2SD HAZ)
	Moderately/Borderline Food Insecure	**CMR** <0.5/10,000/day U5MR <1/10,000/day **Wasting*** >3% but <10% **Stunting** 20-40% (<-2SD HAZ), increasing
	Acute food and livelihood crisis	**CMR** 0.5-1/10,000/day U5MR 1-2/10,000/day **Wasting*** 10-15% (>-2SD WHZ), > than usual, increasing
	Humanitarian emergency	**CMR** <1-5/10,000/day, >2x baseline rate, increasing U5MR >2-10/10,000/day **Wasting*** >15% (>-2SD WHZ), > than usual, increasing
	Famine/Humanitarian catastrophe	**CMR** >2/10,000/day (e.g., 6,000/1,000,000/30 days) **Wasting*** >30%

* And/or oedema

Note: CMR = Crude Mortality Rate, ODI = Overseas Development Institute, FSNAU/FAO = Food Security and Nutrition Assessment Unit (for Somalia)/Food and Agriculture Organization of the United Nations

[16] New scale to be released in 2011 which will include revised malnutrition and mortality thresholds, www.ipcinfo.org

Table 2: IPC Strategic Response Framework

Phase Classification		Strategic Response Framework	
		General Emphasis of Strategic Response	**Objectives:** (1) mitigate immediate, (2) support livelihoods, And (3) address underlying causes
1	Generally Food Secure	Investment in livelihood production system, trade, and distribution systems; enabling development; addressing issues of equity and sustainability	Strategic assistance to pockets of food insecure groups Investment in food and economic production systems Enable development of livelihood systems based on principles of sustainability, justice, and equity Prevent emergence of structural hindrances to food security Advocacy
2	Chronically Food Insecure	Provision of safety nets; risk reduction interventions; livelihood support; addressing structural hindrances	Design and implement strategies to increase stability, resistance and resilience of livelihood systems, thus reducing risk Provision of 'safety nets' to high risk groups Interventions for optimal and sustainable use of livelihood assets Create contingency plan Redress structural hindrances to food security Close monitoring of relevant outcome and process indicators Advocacy
3	Acute Food and Livelihood Crisis	Urgent interventions to increase food access/availability to minimum standards and prevent destructions of livelihood assets	Support livelihoods and protect vulnerable groups Strategic and complimentary interventions to immediately † food access/ availability AND support livelihoods Selected provision of complimentary sectoral support (e.g., water, shelter, sanitation, health etc.) Strategic interventions at community to national levels to create, stabilize, rehabilitate, or protect priority livelihood assets Create or implement contingency plan Close monitoring of relevant outcome and process indicators Use 'crisis as opportunity' to redress underlying structural causes Advocacy
4	Humanitarian Emergency	Urgent interventions to prevent severe malnutrition, starvation, and irreversible asset stripping by increasing food access/availability and other basic needs to minimum standards	Urgent protection of vulnerable groups Urgently † food access through complimentary interventions Selected provision of complimentary sectoral support (e.g., water, shelter, sanitation, health, etc.) Protection against complete livelihood asset loss and/or advocacy for access Close monitoring of relevant outcome and process indicators Use 'crisis as opportunity' to redress underlying structural causes Advocacy
5	Famine/ Humanitarian Catastrophe	Critically urgent protection of human lives through comprehensive assistance of basic needs (e.g. food, water, health, shelter, etc.)	Critically urgent protection of human lives and vulnerable groups Comprehensive assistance with basic needs (e.g. food, water, health, shelter, etc.) Immediate policy/legal revisions where necessary Negotiations with varied political-economic interests Use 'crisis as opportunity' to redness underlying structural causes Advocacy

Where do nutrition emergencies occur?

Historically, the largest famines (in terms of excess mortality) have occurred in Asia. Annex 4 lists the famines recorded during the twentieth century that collectively resulted in more than 70 million deaths. The largest famine occurred in China between 1958 and 1962 and resulted in an estimated 30 million deaths. More recently, the Democratic People's Republic of Korea has reportedly experienced widespread famine with reports of up to 3.5 million deaths (1990s). In both cases, the root cause of famine was government policies that led to massive food shortages. The secretive nature of both governments prevented reports of famine from getting out and thus the international response was limited.

Over the years, Africa has suffered more frequent famines and nutritional crises but fewer deaths (due to lower population density of vulnerable populations in Africa vs. Asia)[17]. However, up to 1 million famine deaths occurred in Ethiopia during the 1983 to 1985 drought. Famines continue to be reported in different parts of the world although the term is much debated and for political reasons used very cautiously.

Nutritional crises are currently more commonly reported given the political weight of the word 'famine' and the varying definitions of the word. For example, using the Howe and Devereux classification, the situation in Niger in 2004/5 characterised by large scale food shortages, high levels of acute malnutrition and mortality would be classified as a 'famine'. However, the international community referred to the situation as a 'food crisis', possibly due to pressure from the government. Therefore, while not broadly categorised as 'famines', there are several recent nutritional crises that have occurred with significant levels of acute malnutrition, mortality and widespread suffering including the 1998 crisis in South Sudan (Bahr-al-Gazal), Malawi in 2002, as well as that of Niger in 2004/5.

In addition to the declared nutrition crises, the distribution of acute malnutrition by country suggests that most nutritional emergencies are chronic and 'invisible'. Globally, out of 132 countries with data, 23 countries have levels of wasting above 10%[18]. **Table 3** lists the countries with a national prevalence of acute malnutrition of 10 per cent or more. Based on these prevalences, according to the WHO decision-tree (**Annex 3**), selective feeding programmes should be introduced in all of these countries.

The average level of wasting in South Asia is 17 per cent compared to 10 per cent in sub-Saharan Africa[19], suggesting that South Asia is in a constant state of ùacute food and livelihood crisisû requiring emergency nutrition interventions.

Table 3: Countries with wasting levels of 10 per cent or above (from State of the World's Children, UNICEF 2011)

Country	Prevalence (%)
Bangladesh	17
Burkina Faso	11
Central Africa Republic	12
Democratic Republic of the Congo	10
Djibouti	17
Eritrea	15
Ethiopia	12
Haiti	10
India	20
Indonesia	14
Maldives	13
Mali	15
Morocco	10
Myanmar	11
Nepal	13
Niger	12
Nigeria	11
Pakistan	14
Sao Tome and Principe	11
Sierra Leone	10
Somalia	13
Sri Lanka	15
Sudan	16
Syria	10
Timor Leste	25
Yemen	15

Source: United Nations Children's Fund, *The State of the World's Children, 2011.*

Note1: Wasting refers to % < -2SD weight for height, WHO Child Growth Standards (2006)

Note 2: Egypt and the Philippines are not included in this list as they have national wasting prevalences below 10%. They are included in Table 4 as they have a large number of wasted children, even with national prevalences below 10%

[17] Devereux, S. Famine in the 20th Century, IDS Working Paper 105, 2000. http://www.staffs.ac.uk/schools/sciences/geography/dlearn/ma_folder/FAS07/FAS07/downloads/devereux.pdf

[18] State of the World's Children, UNICEF 2011.

[19] Tracking progress on child and maternal nutrition: A survival and development priority. UNICEF 2009

Table 4: 10 Countries that account for 60% of the global wasting burden

Country	Wasting			
	Moderate and severe		Severe	
	Numbers (thousands)	Prevalence (%)	Numbers (thousands)	Prevalence (%)
India	25, 075	20	8,105	6
Nigeria	3,478	14	1,751	7
Pakistan	3,376	14	1,403	6
Bangladesh	2, 908	17	485	3
Indonesia	2,841	14	1,295	6
Ethiopia	1,625	12	573	4
Democratic Republic of the Congo	1,183	10	509	4
Sudan	945	16	403	7
Egypt	680	7	302	3
Philippines	642	6	171	2

While 23 countries have levels of wasting that warrant intervention, just 10 countries account for 60% of the burden of wasting in the world[20], outlined in **Table 4** above.

What are the causes of undernutrition?

Maternal and child undernutrition is estimated to cause 3.5 million deaths annually[21]. Complex and chronic emergencies and natural disasters increase the risk of undernutrition and mortality in a population.

The UNICEF conceptual framework is a useful tool to help understand the many factors that impact on nutrition status. It identifies three levels of causality: immediate, underlying and basic which can all be disrupted during emergencies.

The immediate causes of undernutrition are a lack of dietary intake, or disease. This can be caused by consuming too few nutrients or an infection which can increase requirements and prevent the body from absorbing the nutrients consumed.

Whether or not an individual gets enough food to eat or whether s/he is at risk of infection is mainly the result of factors operating at the household and community level such as:

- Inadequate household food security
- Inadequate care
- Inadequate services and unhealthy environment

In practice there is significant overlap in the three groups of underlying causes.

All three clusters of underlying causes of undernutrition are subject to seasonal variation. For example, access to food typically reduces prior to the harvest when workload is also high (for agricultural producers), or prior to the rains when workload finding water and pasture is high (for pastoralists).

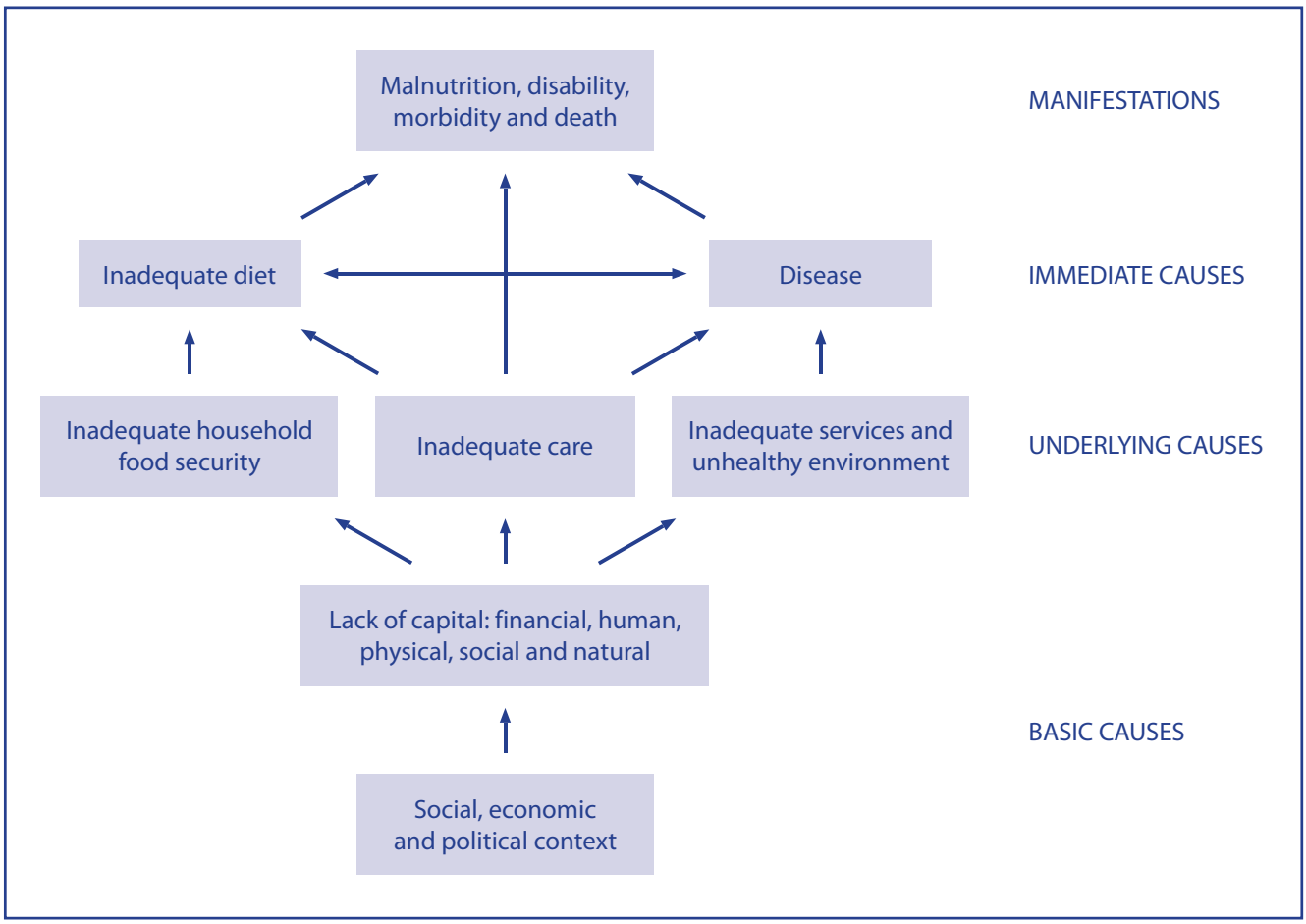
The third level of factors contributing to undernutrition operate at the basic level. This refers to the resources available (human, structural, financial) and how they are used (the political, legal and cultural factors).

Political, legal and cultural factors may defeat the best efforts of households to attain good nutrition. These include the degree to which the rights of women and girls are protected by law and custom; the political and economic system that determines how income and assets are distributed; and the ideologies and policies that govern the social sectors.

[20] Tracking progress on child and maternal nutrition: A survival and development priority. UNICEF 2009

[21] Black et. al, Lancet Nutrition Series, 2008.

Box 3: The UNICEF conceptual framework for undernutrition



The link between health and nutrition

As the conceptual framework demonstrates, there is a close relationship between undernutrition and illness and the interplay between the two tends to create a vicious cycle. Where a child is undernourished, immunity to infection is compromised, thus the child may fall ill and then undernutrition worsens, leading to further reduction in resistance to illness. Children who enter this undernutrition – infection cycle can quickly fall into a potentially fatal spiral, as the severity and duration of illnesses increases one condition and this feeds off the other.

Additionally, the health and nutritional status of pregnant women will significantly impact the health, well-being and nutritional status of their infants. For more information on the links between health and nutrition in emergencies, see Module 8 on Health Assessment and the Link with Nutrition and Module 15 on Health Interventions.

What are the causes of nutrition emergencies?

Emergency situations characterised by high levels of acute malnutrition are usually the result of severe shortages of food combined with disease epidemics. Vulnerability to nutrition emergencies is also dependent on a variety of factors including the underlying health and nutrition situation, poverty and the risk of shocks (natural disasters, economic) to the population. Some populations are more vulnerable than others due to their specific contexts.

Vulnerability to nutrition emergencies

Underlying health and nutrition situation

The existing health and nutrition situation greatly affects how vulnerable a population is to a nutritional emergency. For example the health and nutrition situation in Haiti was poor before the earthquake in 2010, there was nationally high stunting (29%) in children under-five, and rates of exclusive breastfeeding were 41%[22] though many estimated this was much lower at 20-30%. An estimated 5% of the under five population was acutely malnourished, of whom 0.8% suffered from SAM[23]. In addition, nutrition surveys carried out in the capitol, Port au Prince reported high levels of food insecurity, lack of access to health services, limited services to treat SAM and poor water quality. The population was very vulnerable to any shock and much less resilient to the health and nutrition challenges brought on as a result of the earthquake including increased diseases (cholera outbreaks), disruptions to existing food supply, disruption to infant feeding practices and limited access to clean water and sanitation.

The situation in Haiti after the 2010 earthquake offers a stark contrast to the earthquake and tsunami in Japan in 2011. The initial response in both focused on life-saving medical support, often through visiting medical teams to ad-hoc camps of displaced people (Haiti) and designated evacuation centres (Japan). However in Japan, the underlying health and nutritional status of the population was good, as was access to health services. There was an effective infrastructure, policies and resources for emergency response. As such, there has been no known news coverage of large scale health and nutrition deterioration beyond that related to radiation.

Human immunodeficiency virus (HIV)

The prevalence of HIV and AIDs in a country can also increase the vulnerability of a population to nutritional emergencies. HIV and AIDS are having a marked effect on food security, particularly in already poor countries. Labour shortages, knowledge loss, and loss of formal and informal institutional capacity caused by HIV and AIDS have had an adverse impact on large-scale commercial agriculture. Although there is limited evidence of a clear association between the prevalence of malnutrition and HIV and AIDS at a population level, populations with high levels of HIV and AIDs are very susceptible to nutrition emergencies. For example, in Malawi between 30 and 50% of all children with SAM in Nutrition Rehabilitation Units have been documented as havingHIV[24, 25].

At an individual level, the vulnerability of individuals with HIV and/or AIDS may be increased in an emergency as care and support services as well as medical supplies can be disrupted. See more on HIV under the ***Cross cutting interventions*** section later in this module as well as Module 18 on HIV and Aids and Nutrition.

Poverty and urban pressures

The world is rapidly urbanising with the majority of the world's population now living in urban areas. This demographic transition has created complex urban landscapes with disproportionately large slums that concentrate vulnerabilities to natural disasters.

Urbanisation is a result of rapid natural increase in population, rural urban migration and displacements. It is estimated that more than half of the Sub-Saharan African population will live in urban areas within two decades. Short of drastic action, the world slum population will probably grow by six million each year (or another 61 million people) to a total of 889 million by 2020[26].

Urban areas and slums are characterised by shortage of adequate shelter resulting in overcrowding, inadequate and insufficient drinking water, substandard sanitation facilities and infrastructure, exposure to urban pollution and hazardous materials, lack of affordable and adequate land and frequent food shortages. These factors can adversely affect nutrition status at the immediate and underlying causal level.

In general, children under five years of age in urban areas are less underweight and stunted than children in rural areas. However data from slum areas in Bangladesh and Indonesia show the prevalence of underweight, stunting and wasting were higher in the slum areas than in the rural or urban (total) population[27].

Rapid and unplanned urban growth has a range of humanitarian consequences. Urban crises are likely to occur more frequently and with varying degrees of magnitude and scope. Many urban authorities are not sufficiently prepared to manage such crises. Cities affected by poor governance, political conflicts and limited disaster management capacity, will increasingly experience humanitarian crises calling for an external response as witnessed in recent crisis in Zimbabwe, Sudan, Somalia, DRC, Pakistan and Haiti[28].

[22] Demographic and Health Surveys 2005-2008

[23] Demographic and Health Surveys 2005-2008

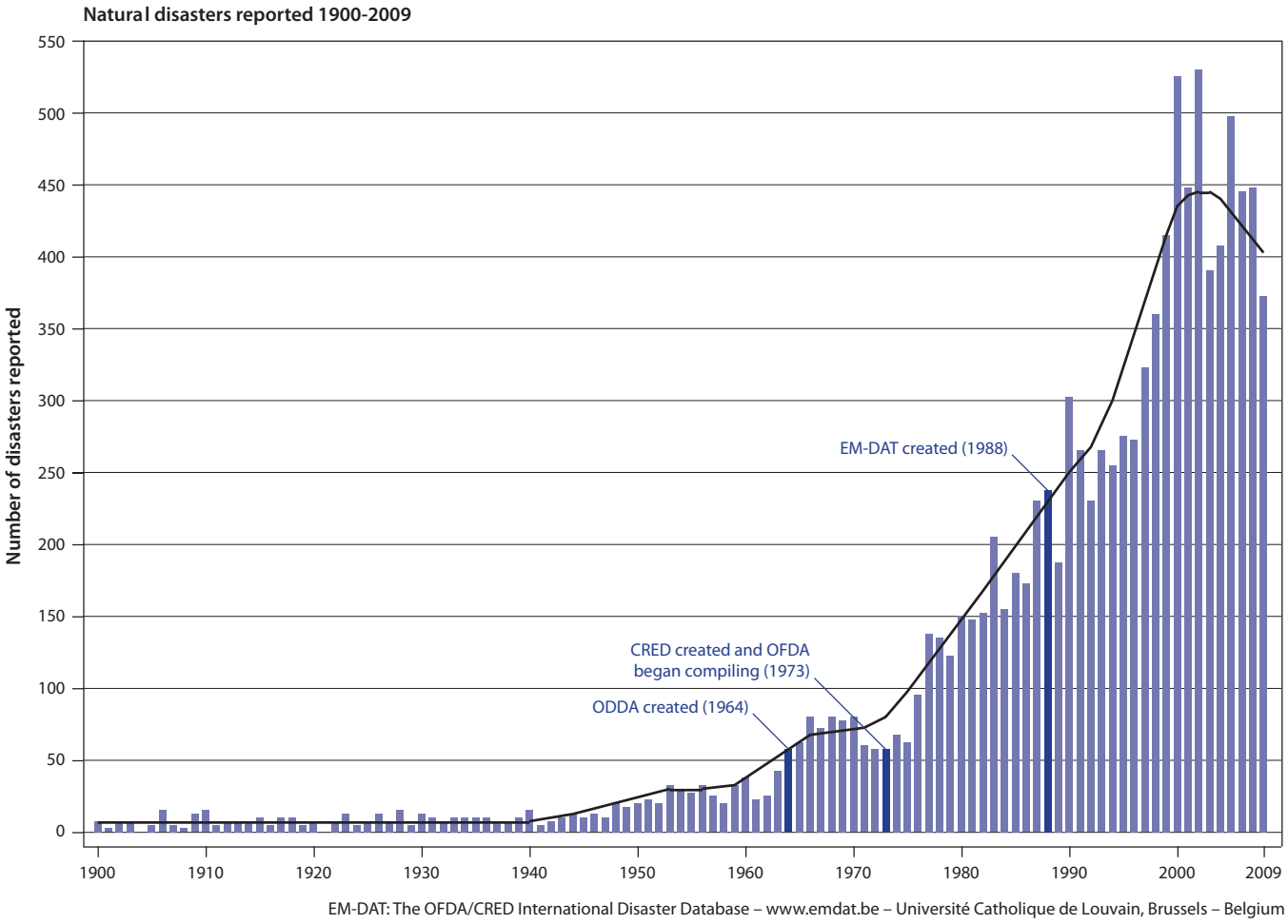
[24] Bunn et al. Features associated with underlying HIV infection in severe acute childhood malnutrition: a cross-sectional study. Malawi medical journal, September 2009.

[25] Impact of HIV/AIDS on Malnutrition in Malawi, Thurstens, S and M Corbett. Field Exchange, May 2005.

[26] 73rd IASC Working Group Meeting, March 2010

[27] http://www.fao.org/ag/agn/nutrition/urban_assessment_en.stm

[28] Humanitarian consequences of urbanisation, 73rd IASC Working Group Meeting, March 2009.



EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be – Université Catholique de Louvain, Brussels – Belgium

The fluctuation in food prices in 2008 and again in 2011 has increased the vulnerability of millions of households to poverty and economic crisis. This is a particular problem for low income households that are net purchasers of food. Urban populations are often dependent on the market for accessing food and therefore with a rise in price of basic food commodities, a poor urban household can easily slip into crisis.

Climate change

Reported natural disasters have increased in number over the past century from under 100 annual natural disasters reported before 1975 to over 450 in 2000 (See graph)[29].

The increase in the number of disasters can be attributed partly to an increase in better reporting over time, though is also a result of growing population, increased urbanisation, building in more risk prone areas, and climate change.

While there is some controversy over the potential impact of climate change in the coming years, many believe that it will not only increase the number and frequency of natural disasters but that it will also increase the risk of hunger and undernutrition due to changes in the pattern of climate-related extreme events such as heat waves, droughts, storms, heavy precipitation and floods. It is predicted that there will be an increased risk to disasters and vulnerable communities and households will suffer serious setbacks in terms of food and nutrition security. One current example of this is the drought in Somalia and the wider Horn of Africa (2011), caused by a La Niña phenomenon. The World Meteorological Organization states that the 2011 La Niña phenomenon is the strongest in a century[30].

[29] Examining linkages between Disaster Risk Reduction and Livelihoods, Feinstein International Famine Center. February 2011.

[30] The 2011 La Niña phenomenon is the same which caused flooding in Australia and South East Asia in 2010

Climate change negatively affects food availability (reducing production) and access (increasing prices and decreasing purchasing power). These factors lead to increased food insecurity particularly for poor households, and can also increase the risk of micronutrient deficiencies due to the substitution behaviour, whereby poor households switch to cheaper less nutritious foods due to price increases Climate change also negatively affects nutrition through its impacts on health. Climate disruptions decrease quality and availability of water, disrupt sanitation systems, and increase the risk of infectious diseases which eventually increase the nutrient needs of an individual[31].

There is growing awareness that climate vulnerability analysis should be incorporated systematically into policy and institutional frameworks for disaster preparedness and response.

Triggers for nutrition emergencies

Where there is underlying vulnerability, sudden events such as natural disasters, conflict or economic shocks can trigger a nutrition emergency.

Natural disasters

Natural disasters include floods, hurricanes, cyclones, volcanic eruptions and drought. Floods are the most damaging of natural disasters, particularly in Asia. Floods can cause sudden destruction of crops and livestock, and sever people's links with markets. Health systems can be disrupted and health risks can increase. However if managed properly, floods can also be beneficial and increase the cultivation area for off season cropping – though this requires investment and polices by governments.

Drought is a natural, cyclical event that usually develops slowly, gradually worsening if left unchecked. Destitution, starvation and death may arise from a drought situation in the absence of appropriate response and support mechanisms. Drought may result in reduced food production, loss of livestock and increased food prices, thus resulting in a shortage of overall food availability as well as a reduction in normal food sources for some groups. Lack of water for human consumption reduces hygiene and thus increases the risk of disease.

Earthquakes can kill large numbers of people in one fell swoop and can have a devastating impact on livelihoods and food security. In rural areas earthquakes can destroy crops, food reserves, assets and roads, all of which can impact adversely on food production and food security. In urban areas earthquakes can destroy small businesses and shops, impacting a household's purchasing power and ultimately decreasing food security. Earthquakes can also destroy health facilities, water and sanitation systems.

While the number of geophysical disasters, such as volcanoes and earthquakes, has remained fairly steady, the number of hydro-meteorological disasters such as droughts, windstorms and floods has more than doubled since 1996. Due to climate change, the number of extreme events such as droughts, floods and heat waves will increase (see section on Climate Change above).

Conflict

Conflict, especially internal conflict, is a major trigger for nutrition emergencies. The majority of internal conflicts have occurred in Africa (Sudan; Democratic Republic of Congo, Niger, Somalia, Cote d'Ivoire) and in Asia (Pakistan, Afghanistan, Uzbekistan, and Nepal). Growing conflict in the Middle East is arising in response to food price increases and economic policies.

Conflict and war cause nutrition emergencies in different ways than that of natural disasters. The very tactics of war are often designed to block people's normal ways of accessing food and health services while conflict often destroys infrastructure to support health, food production and marketing. While there are many examples of how conflict has impacted mortality and acute malnutrition including the Democratic Republic of Congo (early 2000s), Somalia (1990s-2000s), **Box 4** details the way in which conflict in West Darfur, Sudan resulted in increased mortality and acute malnutrition.

Political crises and economic shocks

A significant underlying factor in the cause of nutrition emergencies is the nature of a political regime. Political systems that have either disintegrated altogether (as in Somalia) or are undemocratic (as in the Democratic People's Republic of Korea) are the most vulnerable to nutrition emergencies. In these situations, individual vulnerability is often related to social or political status. For example, Afghan women, who under Taliban rule were socially, politically and economically marginalised, were particularly vulnerable. Furthermore, they were found to be at greater risk of malnutrition than their children in various nutritional surveys conducted during 2000 and 2001.

Political systems and related economic strategies have caused some of the worst food and nutrition crises in history. For example, in the 'Great Chinese Famine' of 1958 to 1962, the food crisis was the direct result of political and economic policies: enforced collectivisation of agriculture, obligatory procurement of grain and an intensive industrialisation programme. A famine in Ukraine between 1932 and 1934 killed between 5 million and 8 million people and was again caused by deliberate political and economic policies. Greater detail on the Soviet famine is provided below in **Box 5**.

[31] Climate change and nutrition security: Message to the UNFCCC negotiators. 16th United Nations Conference of the Parties (COP16), Cancun, November 29th-December 10th, 2010.

Box 4: Conflict and mortality in West Darfur, 2004

Conflict in West Darfur, Sudan began in 2003 following an offensive movement of two rebel groups towards the Government of Sudan. The ensuing anti-rebel offensive led by pro-government Janjaweed militia and Sudanese army units, resulted in the displacement of more than one million people within Darfur itself, and the flight of about 188,000 to neighbouring Chad up until August 2004.

Médecins Sans Frontiers, one of the first international aid agencies to obtain authorization to work in the area, conducted a retrospective mortality survey in 2004. Until this survey there had been no systematically gathered epidemiological evidence of mortality.

The survey found that prior to arrival at displacement sites, mortality rates (expressed as deaths per 10,000 per day), were between 5.9 (95% CI 2.2-14.9) and 9.5 (6.4-14.0) in 4 towns and camps surveyed. Violence caused 68%-93% of these deaths. People who were killed were mostly adult men, but also women and children. Most households fled because of direct attacks on their villages. In camps, mortality rates fell but remained above the emergency benchmark, with a peak of 5.6/10,000 per day. The report documented the exceptional nature of the conflict due to the overwhelming contribution of violence to mortality, resulting in crude mortality rates that were actually higher than mortality rates among children younger than 5 years.

Source: Deportere E, et al (2004): Violence and mortality in West Darfur, Sudan (2003-4): epidemiological evidence from four surveys. The Lancet, vol 364, October 9th, 2004, pp 1315-1320 as reported in Field Exchange Issue 24, March 2005.

Box 5: The Soviet famine: 1932-1934

In 1929, Stalin launched a campaign for 'collectivisation'. Wages were abolished and workers were instead paid as a share of the collective's output. Peasants violently resisted and Stalin responded by declaring all collective land state property and anyone guilty of destroying them was to be severely punished. Agricultural production fell by 40 per cent and famine ensued.

Despite the massive scale of the famine, a deliberate conspiracy of silence was enforced and doctors were forbidden to disclose on death certificates that the deceased had starved to death. Figures on the number of people who died during the famine in Ukraine are difficult to accurately determine. Estimates vary between 5 million and 8 million, equivalent to between 10 to 25 per cent of the entire population of the Ukraine.

The Ukrainian famine finally ended in 1934 when Stalin ordered a stop to the forced seizure of grain and allowed each household to have a small plot of land on which to grow vegetables and raise a cow, a pig and up to 10 sheep.

Source: Watson, Fiona, 'One hundred years of famine – a pause for reflection', Field Exchange, No. 8, November 1999.

There are several examples of recent food and nutrition crises that have been caused by political and economic mismanagement including Somalia. Somalia has been in a crisis state for 20 years[32] during which time there has been no central government protracted civil war and a large part of the country has suffered from a humanitarian crisis. The humanitarian community has provided significant support over the years though the situation remains precarious. Humanitarian organisations face severe constraints including regular interference in their operations by armed groups. In 2010, this interference escalated in south central Somalia to the outright banning by the militia group, Al Shabaab, of eight humanitarian organisations including WFP. The agencies still present deliver services under very difficult circumstances and 'remote implementation' through national staff and local implementing partners is increasingly the norm. However, the lack of access to this region has significantly increased the vulnerability of the population to nutritional crisis. As of 2011, following a severe drought and economic crisis forcing cereal prices over 200% of average; this area is in the most critical nutrition situation within the country. It is classified as 'very critical' on the nutrition scale[33] which is characterised by levels of acute malnutrition above 20% GAM[34].

[32] Since 1991 (CAP 2011)

[33] OCHA Nutrition Situation, January – June 2011

[34] FSNAU Nutrition Technical Series Report, Post Deyr 10/11, February 2011 and Nutrition Update March – April 2011

Box 6: Participatory study of impact of the global crises on the poor[35]

A study was conducted in February 2009 to examine the impacts and responses to the food, fuel and financial crises in poor rural and urban communities in Bangladesh, Indonesia, Kenya, Jamaica and Zambia.

The global financial crises hit when the shock of the high food and fuel prices still reverberated. People had not yet recovered from the peak of the food and fuel prices, many prices remained high and fluctuation created uncertainty.

The study showed that livelihood adaption had been swift, but into low-yield or dangerous activities. Eating less frequently, and less diverse and nutrient rich diets was reported. Education for children appeared to be on the decline as children were being withdrawn from school and entering work and there were a growing number of children and young girls selling sex.

Community based support was largely inadequate and government programmes were largely insufficient. Stress levels in households were increasing and there were indications domestic violence was increasing. Petty crime, drug and alcohol abuse were also on the increase.

Food price volatility

Global food price fluctuations and increases have caused increased vulnerabilities to nutrition emergencies in the past few years. Global food prices began to rise in 2005, and compounded with the global economic and fuel crises in 2008, has caused increased levels of poverty, food insecurity and resulting undernutrition[36]. The impact of the global food and economic crises on the poor is outlined below in **Box 6**.

The global food crisis continues due to a variety of reasons including reduced agriculture production (extreme drought or floods as in Australia, Pakistan and Russia), export restrictions and panic buying, increased demand for both biofuels (which takes land away from food production) and for food (especially meat), financial causes (depreciation of the dollar), increased oil prices which drive up the cost of agricultural essentials like fertiliser and transport and overall underinvestment in the agricultural sector. The outlook, according to the World Bank is for volatile prices through 2015.

Those most affected by the food price crisis include countries who are net importers and households with low incomes who are net food buyers. The poorest and most vulnerable suffer most, with the higher prices taking an exponentially greater amount of their already limited resources and forcing them to consume fewer nutritious foods and reduce access to basic services such as health and education. **Box 7** below summarises the results from a study on the impact the global food crisis is having (particularly on children).

Box 7: The global food crisis impact on children

In November 2008, Save the Children UK examined how the global food crisis affected different sectors of a rural community in northern Bangladesh. It was evident the rise in global food prices had a damaging impact on the nutrition situation of the poorest households in these communities. After food prices reached their peak in 2008, between 32% and 50% of households had a lower disposable income. The percentage of households that were unable to afford a diet that met their energy requirements doubled. The poorest families were even less able to afford a diet that provided the necessary quantity and quality for good health and nutrition. Children from the poorest households received fewer meals per day, had less diverse diets and were less likely to receive nutritious foods. To cope with the rise in rice prices damaging strategies were adopted such as sending children to work, selling assets, and eating less.

Global increases in staple food prices not only threaten the food security of millions but the economic recovery and social stability of developing countries as recently demonstrated by the protests in Egypt, Haiti, Jordan, Mozambique, Tunisia and Yemen.

Source: How the Global Food Crisis is hurting children: The impact of the food price hike on a rural community in Northern Bangladesh, Save the Children UK, April 2009.

[35] Field Exchange, Issue 37, November 2009

[36] Hungry for Change, Save the Children UK, 2009.

Who are most nutritionally vulnerable in emergencies?

The population groups most nutritionally vulnerable in emergencies can be categorised according to their:

- Physiological vulnerability
- Geographical vulnerability
- Political vulnerability
- Socio-economic vulnerability
- Internal displacement and refugee status

Physiological vulnerability

Individuals are physiologically vulnerable for two reasons. Firstly, nutrient requirements increase at certain ages. For example, young children who are growing and developing quickly and pregnant and lactating women who require more nutrients to feed a baby are all physiologically vulnerable. Also, reduced appetite and ability to eat can cause vulnerability. Older people, the disabled and people living with chronic illness such as HIV and AIDS may all suffer from a reduction in appetite, difficulties in chewing and difficulties in accessing food, all of which makes them vulnerable (see Module 3 on Understanding Malnutrition for more in-depth descriptions about physiological vulnerability).

The elderly and the disabled are also often reliant solely on others for fulfilling their basic needs such as food, water, medical support and care. In emergency situations their pre-existing support structures, resources and coping mechanisms may be inaccessible or *destroyed. The 2010 earthquake in Haiti displaced over 200,000 people over the age of 60, many of whom found shelter in camps with the help of family, friends and humanitarian workers. Blindness in the elderly population in Haiti is highly prevalent, limiting mobility to access food, water and medicines. The vulnerability of elderly to dehydration and undernutrition is compounded by the fact that aging reduced the body's resilience.*

Gender also plays a role in a person's physical vulnerability. Women/girls and men/boys face different risks in relation to deterioration of their nutritional status in emergency contexts. These different vulnerabilities are related both to their differing nutritional requirements and to socio-cultural factors related to gender. For example in emergency situations where food is in short supply, women and girls may be more likely to reduce their food intake as a coping strategy in favour of other household members. This can contribute to undernutrition among women and girls. Furthermore because of social traditions men and boys may be favoured and fed better than women and girls in some societies.

Geographical vulnerability

In some emergencies, populations who live in certain geographical areas are at particular nutritional risk. For example, those living in rural drought- or flood-prone areas are likely to be less food and nutritionally secure. Certain livelihoods can become unsustainable as natural resources become scarce. Families who live in front-line areas during a war or in areas of conflict, or in densely populated urban areas (slums) are also vulnerable.

Political vulnerability

As mentioned above, political factors have been the cause of some of the worst famines and nutrition crisis in history and groups who suffer from political persecution can be nutritionally vulnerable.

Socio-economic vulnerability

The poorest households are often some of the most vulnerable to disasters often struggling the most to cope with shocks. As detailed under economic shocks above, the impact of the food, fuel and economic crisis in 2008 and again in 2011 is a good example. With fewer resources, the poor in several countries have resorted to eating less frequently, consuming a less diverse and nutrient rich diet and engaging in riskier livelihood strategies.

Internal displacement and refugee status

Both natural- and conflict-related disasters can lead to population migration and displacement. Displaced populations can be particularly vulnerable to nutrition emergencies. Currently, there are approximately 16 million refugees and 26 million internally displaced persons (IDPs) worldwide[37]. The number of IDPs is much higher than the number of refugees, partly because it includes those who have fled their homes as a result of any type of emergency, not just those who have fled persecution.

Refugees and IDPs who flee with little or no resources are at risk of food insecurity, as they may be completely cut off from their normal food sources, social structures and coping mechanisms. Refugees often end up in inhospitable and isolated parts of the country, such as Northern Kenya and Eastern Chad. Their situation also depends on the size of the refugee or IDP population, whether they are living in large overcrowded camps, in small groups or with host families, whether they have access to land and income earning opportunities, and on the food security of the host country and population themselves.

Many of the countries hosting refugees suffer from chronic food insecurity, chronic poverty, conflict and political and economic insecurity. For example, Eastern Chad where millions of Darfur refugees from Sudan have fled is chronically food

[37] UNHCR Annual Report, 2009.

Box 8: Inadequate general rations associated with persistent angular stomatitis in refugees in Bangladesh: 2003

Since 1978, refugees from Northern Rakhine State, Myanmar, have been living in camps in the Cox's Bazar area of Bangladesh. Nutrition survey data was compiled in 2003 and showed that angular stomatitis, a clinical sign of ariboflavinosis, had been prevalent in children (6-59 months) since at least 1997.

Analysis of the general ration received during 2002 and the first half of 2003 contained an average of only 33% of the population requirement for riboflavin.

Micronutrient powders and other specialised food supplementation products have been piloted in these camps to increase access to multiple micronutrients. (See module 14 for more information on interventions for micronutrient malnutrition.)

Source: Report on Nutrition Survey and an Investigation of the Underlying Causes Of Malnutrition. Camps for Myanmar Refugees from Northern Rakhine State Cox's Bazar, Bangladesh, August 2003. UNHCR

insecure with persistent conflict. Conflict is escalating in Yemen currently due to economic insecurity – resulting in the return of many Somali refugees to return to Somalia. Populations hosting refugees and IDPs are often increasingly vulnerable to nutrition crises for the above reasons and they typically receive less attention from the international community because they have not crossed an international border.

What types of malnutrition occur in emergencies?

The most common nutritional problems in emergencies are acute malnutrition (wasting and/or nutritional oedema) especially in young children, micronutrient deficiencies and in some situations chronic malnutrition (stunting). **Table 5** provides a brief overview of these. (More detailed descriptions of types of malnutrition can be found in Module 3 on Understanding malnutrition and on Module 4, Micronutrient malnutrition.)

Of concern in emergencies is the increased risk of **moderate and severe acute malnutrition** because acute malnutrition is strongly associated with death. Children suffering from SAM are 9 times more likely to die than a healthy child[38]. Children under the age of five are particularly vulnerable to developing acute malnutrition during emergencies and are frequently the first group in a community to show signs of malnutrition during times of hardship.

In many long-term emergencies, however, the prevalence of acute malnutrition may be relatively low while the rates of other forms of malnutrition, such as **stunting** are high. Stunting inhibits a child from reaching his or her full physical and mental potential. It can have a major impact on work output and national economic development[39]. Furthermore, small mothers have small babies who are more likely to be sick and die. Stunting therefore is becoming an increasingly important measure of nutritional wellbeing in chronic emergencies and is included as one of the variables in analysing the level of food and nutrition insecurity in the Integrated Phase Classification system (see Module 20 for more information)[40].

There are several chronic emergency situations characterised by high levels of stunting. In Mae La Camp in Tak province on the northern border between Thailand and Burma where over 40,000 Burmese refugees live, the prevalence of stunting in children under 5 years is 34% while the prevalence is 16% in the host community[41]. Additionally, in Somalia the prevalence of stunting is as high as 30% in the south-central, compared to between 15 and 25% in other regions[42] highlighting the chronic emergency state of the south-central region.

Micronutrient deficiencies are often found in emergency-affected populations. Although micronutrients are needed in small amounts, a diverse diet is needed to obtain these required amounts. During emergencies, diets often lack essential micronutrients and deficiencies subsequently arise. Populations that are entirely dependent on a general food ration are often at risk of micronutrient deficiency disease outbreaks, such as that described in **Box 8** above.

In certain situations of food and nutrition crises, populations resort to the consumption of certain toxic wild foods (unknowingly) or harvest crops too early in order to avoid starvation. This has occasionally resulted in outbreaks of various conditions, which have been resolved when alternative food sources became available.

[38] Lancet Nutrition Series, 2008.

[39] Tracking Progress on Child and Maternal Nutrition, UNICEF 2009.

[40] While difficult to address in a short-term emergency response it needs to be highlighted as a problem and a response integrated into transitional, recovery and long term health and nutrition planning and policy.

[41] Banjong O et al (2003). Dietary assessment of refugees living in camps: A case study of Mae La Camp, Thailand. Food and Nutrition Bulletin, vol. 24, no 4, pp 360-367 from Field Exchange Issue 22, 2004.

[42] Somalia National Micronutrient Study, ICL 2009.

Table 5: Types of undernutrition

Acute malnutrition	Description
Marasmus (or wasting)	Marasmus is a form of *acute malnutrition* that can be moderate or severe. Marasmus is usually the result of inadequate food intake, illness, poor feeding practices or a combination of these. Marasmic individuals are wasted, characterised as very thin, often with flaccid skin, hanging in loose folds to give an ùold manûs appearance'. Marasmic individuals may be alert but irritable.
Kwashiorkor (or nutritional oedema)	Kwashiorkor is a form of *severe acute malnutrition*. It is characterised by clinical signs including nutritional or bi-lateral pitting oedema which is swelling on both sides of the body due to water retention) beginning in the feet and lower legs which can spread upwards to other parts of the body. Other signs include cracked and peeling skin, changes in hair colour (lightening) and texture, and lethargy.
Marasmic-kwashiorkor	Marasmic-kwashiorkor is a severe form of *acute malnutrition* and occurs when an individual shows clinical signs of both marasmus and kwashiorkor.
Chronic malnutrition	
Stunting	Stunting is a form of *chronic malnutrition* that arises when individuals are too short for their age. It occurs in the first 2 to 3 years of life.
Underweight	Underweight individuals are too light for their age (maybe short or thin or both).
Micronutrient deficiencies	
Iron deficiency (anaemia)	Lack of iron eventually results in iron-deficiency *anaemia*. Typical signs are: paleness, tiredness, headaches and breathlessness.
Vitamin A deficiency (xeropthalmia)	Lack of vitamin A results in *xeropthalmia*. The signs in order of presentation are: night blindness, Bitots spots (dryness and foamy accumulations on the inner eyelids), corneal xerosis (dullness or clouding of the cornea), keratomalacia (softening and ulceration of the cornea), permanent blindness.
Iodine deficiency (goitre and cretinism)	Iodine deficiency causes a range of abnormalities including goitre (swelling of the thyroid gland in the neck) and *cretinism* (mental and physical disability).
Vitamin C deficiency (scurvy)	Vitamin C deficiency results in scurvy. Typical signs are: swollen and bleeding gums, minute haemorrhages (bleeding), brittle hair, slow healing of wounds.
Niacin deficiency (pellagra)	Niacin deficiency results in *pellagra*, which affects the skin, gastro-intestinal tract and nervous systems. For this reason, it is sometimes called the 3Ds: dermatitis, diarrhoea and dementia. Dermatitis is the most distinctive feature causing redness and itching on areas of the skin exposed to sunlight.
Thiamin deficiency (beriberi)	Thiamin deficiency results in *beriberi* of which there are eight clinically recognizable syndromes.
Riboflavin deficiency	Riboflavin deficiency leads to *ariboflavinosis*, a deficiency disease characterised by angular stomatitis that affects the corners of the mouth, which can become split or cracked. Cheilosis, scaling and cracking of the surface of the lips may be seen. Glossitis, inflammation or swelling of the tongue is also sometimes reported.

For example, in 2004 in eastern and central Kenya, an outbreak of aflotoxin poisoning was documented due to widespread aflatoxin contamination of locally grown maize, which occurred during storage of the maize under damp conditions. The government of Kenya provided replacement maize to the affected population once the cause of the poisoning was recognised, surveillance for aflotoxin poisoning of humans was extended to other regions and aflotoxin screening of maize was increased[43].

Table 5 provides a brief overview of the different types of undernutrition often found in emergencies; see Module 3 (Understanding Malnutrition) and Module 4 (Micronutrient Malnutrition) for more detail.

[43] Morbidity and Mortality Weekly Review (MMWR) by the Centers for Disease Control (CDC), September 3, 2004/53(34); 790-793.

Response to nutrition emergencies

Nutrition response includes both assessment (and analysis) followed by intervention.

Nutrition assessment

An understanding of the context of the emergency situation is necessary to develop an appropriate response. Analysis of data on the affected population and area increases our understanding of the extent and causes of the undernutrition. Primary data can be collected through different types of assessments. Additionally, it is important to review available existing data on the population. **Table 6** highlights the different types of nutrition assessments and data collection methods common in an emergency.

Table 6: Types of nutrition assessment

Type of assessment	Objectives	Data collection methods
Rapid nutrition assessment	• To verify the existence or threat of a nutrition emergency • To estimate the number of people affected • To establish immediate needs • To identify local resources available and external resources needed • To provide initial screening for inclusion in a selective feeding programme	• Direct observations of population and environment • Interviews with key informants • Review of records from available feeding centres and/or health facilities • Nutritional screening
Anthropometric nutrition surveys	• To establish the prevalence of malnutrition • To identify likely causes of malnutrition	• Surveys of under-fives (sometimes women or adults)
Nutrition surveillance	• To identify trends in nutrition status	• Repeated surveys • Growth monitoring • Sentinel site surveillance

Rapid assessments are useful to quickly establish if there is a major nutrition problem or not and to identify immediate needs. Rapid assessments are frequently multi-agency and multi-sectoral in order to have a broad analysis of risks, needs and priorities and to make recommendations to ensure all the health and nutrition needs of an emergency-affected population are met.

Commonly, information relating to nutrition is gathered from key informants as part of a broader emergency needs rapid assessment. For example, informants may be asked whether malnutrition has become more common and whether any children are displaying signs of kwashiorkor or micronutrient deficiencies. Informants may be asked about changes in dietary habits such as reduction in food quantity, quality and reduced frequency of meals. Consumption of unusual wild foods is also frequently a sign that nutrition is becoming compromised. Direct observations of population and environment can also be used as well as review of records from available feeding centres and/or health facilities.

Anthropometric household rapid assessment can also be undertaken. In this case, as it is often not possible to draw a random sample representative of the population surveyed, the findings must be used cautiously. The measurement of the mid-upper arm circumference (MUAC) is often used in these circumstances as it can be done quickly and requires very little equipment (only a measuring tape).

Rapid assessments are frequently multi-agency (involving several agencies) and multi-sectoral (involving several technical sectors) in order to have a broad analysis of risks, needs and priorities and to make recommendations to ensure all the health and nutrition needs of an emergency-affected population are met. An initiative to improve the effectiveness of rapid assessments has resulted in a multi-cluster initial rapid assessment (IRA) tool[44]. This was developed by the nutrition, health and WASH (water, sanitation and hygiene) clusters in 2007[45]. The tool includes guidelines, a standard data collection form, an associated aide memoire for field teams, and a data entry and analysis template and software. The tool is available on the cluster websites.

[44] For details see the nutrition cluster website , http://oneresponse.info/GlobalClusters/Nutrition/Pages/default.aspx

[45] The ùCluster approachû is one of the outcomes of the Humanitarian Reform, led by the Inter-Agency Standing Committee with the aim of improving coordination and the quality of humanitarian action. For details see http://www.onerespons.org.

A new inter-sectoral tool to include other sector such as education and protection is currently being developed by the Needs Assessment Task Force (NATF) of the IASC, called the MIRNA – (multiple indicator rapid needs assessment) and should be rolled out late 2011.

Anthropometric nutrition surveys involve the collection of anthropometric information which is used to establish the prevalence of acute malnutrition in a population. In addition, underweight and stunting can be estimated, keeping in mind that the uncertainties about the age will undermine the accuracy of those results in some populations.

Other data can be collected in addition to anthropometry but it is not recommended that many additional data are added to the survey as it might undermine the quality of the whole survey due to surveyors and respondents fatigue. Moreover, information on food security or public health might be available from secondary data or might be collected more efficiently using other types of assessment methodologies.

Surveys are cross-sectional (one-off) and provide a 'snap-shot', e.g., the information collected reflects the situation for a particular point in time. When repeated surveys of the same population are conducted, trends can be established. Most of the time, it is not possible to measure everyone in the area surveyed so a representative sample of the population will be selected who will then be measured to determine the prevalence of acute malnutrition in the population.

Survey populations

In many countries young children are the most nutritionally vulnerable and act as a proxy for the nutritional status of the entire population. Since the children aged 6-59 months are routinely measured in nutrition surveys, they serve as a principal group for which comparisons could be drawn among populations measured at different times and places.

Younger or older children, adults and the elderly are assessed less frequently but may be included where there is reason to believe that they are nutritionally vulnerable. For example, the elderly were found to be nutritionally vulnerable during the Bosnian crisis of the early 1990s and after the Haiti earthquake in 2010 while the focus in Kosovo 2000 was on infants under six months of age.

The nutritional status of women, usually mothers or carers, is sometimes assessed in nutrition surveys. Women who care for young children are often nutritionally vulnerable, especially as they are most likely to be pregnant or lactating. (For more information on Individual and Population Assessment, please see Modules 7 and 8.)

Non-anthropometric data

It is crucial to analyse non-anthropometric data along with anthropometric data to understand the severity and context of the situation and to identify factors likely to be associated with malnutrition. However it is not recommended that many additional data are added to the survey as it might undermine the quality of the whole survey due to surveyors and respondents fatigue.

There are no standard methods for collecting information on the determinants of malnutrition either in terms of what to collect or how to collect it. Different agencies tend to use their own data collection forms and collect different types of information.

The most common tools used to assess the determinants of malnutrition include:

- **Secondary information** – collation of existing information from various sources such as government departments or international agencies working in the area
- **Questionnaires** – a set of questions that may be qualitative or quantitative; often filled in by the survey field workers who take a sample of mothers (of children who are being anthropometrically measured) or households heads from the geographical area of interest
- **Key informant interviews** – individual interviews possibly with local leaders or government representatives encouraging informants to articulate their own opinions and concerns
- **Focus group interviews** – Possibly with small groups of local people such as village women or farmers
- **Direct observation** – Observations of the environment such as sources of drinking water, sanitation systems, quality of housing, and health facilities and services
- **Seasonal calendars** – Calendars developed to illustrate the seasonal variation of factors affecting nutritional status

A recent attempt to standardize nutrition assessments in emergencies is the SMART initiative, see **Box 9**.

Additionally, a nutrition assessment checklist has been developed by the Centre for Research on the Epidemiology of Disasters (CRED) which provides useful standard guidance on assessments (http://www.cedat.be/completeness_checklist).

For more information on anthropometric nutrition surveys, see Module 7 on measuring malnutrition: population assessment.

Box 9: SMART initiative

The Standardized Monitoring and Assessment of Relief and Transitions (SMART) Initiative, is one effort seeking to ensure that reliable and consistent data are available in humanitarian emergencies. SMART has identified three types of data (mortality, nutritional status and food security) as critical and has developed a computer-based system, SMART Methodology Version 1, to improve and standardize survey data collection and dissemination.

The SMART Methodology draws from core elements of several methodologies and current best practices in assessing nutritional status, mortality rate, and food security. It is iterative, with continuous upgrading that will be informed by research and best practices. In Version 1, the food security component is considered a "work in progress." For more information and to download the free software, visit http://www.smartmethodology.org/.

Nutritional surveillance and information systems

Nutrition surveillance refers to a continuous process and focuses on monitoring trends in the nutrition situation over time rather than providing one-time estimates of absolute levels of malnutrition.

Nutrition surveillance or nutrition information systems collect, analyse, interpret and report on information about the nutritional status of populations and are used to inform appropriate response strategies. Nutrition surveillance can, and should, incorporate many sources of information (anthro-pometric, food security, nutritional, health) in order to maximise its usefulness and integration.

The objectives of a nutrition surveillance system depend on the context. In general there are four principle objectives: to inform programme design, programme management and evaluation, policy making and crisis management.

Data from existing surveillance systems is very useful in emergencies and should be analysed to inform situation analysis and develop appropriate response strategies. If there is no form of nutrition surveillance in an emergency situation, careful consideration should be taken in developing a system. A strong nutrition surveillance system requires multiple stakeholder commitment and long term funding and support. While systems can be established quickly, it is crucial to identify objectives and stakeholder and develop stakeholder support and funding from the outset.

More details on nutrition surveillance and nutrition information systems can be found in Module 10, Nutrition information and surveillance systems.

Nutrition responses

A wide variety of response options exist for the different phases of food and nutrition crises. **Table 7** lists a range of common responses options. The table has been divided into responses that aim to prevent undernutrition, such as improving the water supply and sanitation situation to prevent epidemics of disease, and those with the objective of treating acute malnutrition, such as therapeutic care. More detail on the various response options is provided below in the table, detailed information can be found in Modules 11 to 19.

Interventions detailed

Food aid

Food aid has traditionally been the dominant form of response to nutrition-related problems in emergencies. However donors and humanitarian agencies are increasingly using the term *food assistance* as an alternative to food aid in response to the changing landscape of global food insecurity and recognition that a broadened approach to food insecurity could improve the efficiency of the response. Additionally, at the global level, the IASC has formed a Global Food Security cluster to coordinate food related interventions and increase *access* to food, thus expanding beyond food aid.

In general, food aid still dominates in emergency response though increasingly food assistance is broadening to include cash transfers, food vouchers, and agricultural and livestock support.

Global humanitarian expenditure by sector for 2010 is shown in **Table 8**. By far, the largest expenditure for a specific sector was on food.

Table 7: Typical response options for nutritional emergencies

Intervention	Objectives	Description	Limitations
Response options aimed at preventing undernutrition			
General food distribution	• To meet immediate and medium term food needs and restore and protect the livelihoods of vulnerable and marginalised groups. • To improve the access to food for IDPs and returnees in a specific area • To support the improved nutrition and health status of children, pregnant and lactating women, people living with HIV/AIDS and other vulnerable groups • To help to improve the health and nutritional status of mothers and children	General food distribution (GFD) is the term used for food rations that are given out to selected households affected by an emergency. The food ration consists of a number of items (the minimum three are cereal, pulses and oil, but items such as salt, sugar, fresh vegetables, fortified blended flours, canned meat or fish can be added). The general ration is normally delivered as a package of dry items. Food aid can be a form of livelihood support either when provided through a *general food distribution*, which prevents people from selling assets to buy food and other essential commodities, or as a *food-for-work* programme, which creates community assets that promote livelihoods providing wages in the form of food.	Food aid needs to be linked with other interventions that address underlying causes of undernutrition to have maximum impact.
Livelihood support			
• **Income and employment**	• To protect the sale of assets or the recovery of assets • To provide a means for accessing basic needs	Cash transfer interventions include cash distribution, cash for work, and micro-finance. In theory, cash grants are quicker and can be applied on a larger scale in acute emergencies than other forms of cash transfer.	Cash programmes can only be implemented if food is available locally or where food markets are functioning. There is a need for more evaluation of cash programming to refine understanding of the impact on food security, nutrition, markets, social relations and security.
• **Production support**	• To protect livelihoods by preventing the sale of assets or assisting the recovery of lost assets	Production support includes crop production, livestock interventions and fishing support. Crop production support is commonly comprised of seeds and tool distribution and or seed fairs – markets organized so that affected households can access seed through exchange of vouchers.	

Table 7: Typical response options for nutritional emergencies (continued)

Intervention	Objectives	Description	Limitations
		Livestock interventions include livestock off-take, fodder distribution, veterinary care, repairing boreholes and other water sources and destocking (providing livestock owners a value to animals that would otherwise die). Emergency animal health and vaccination campaigns are important	
• **Market support**	• To ensure that people's access to basic goods is maintained	Market support interventions can take many forms: cash and voucher programmes, programmes that maintain food prices in markets (e.g., through the provision of subsidised foods); and programmes to ensure producers to access markets.	An understanding of the key markets that affect the livelihoods of poor people is critical in developing appropriate market access interventions. It is still unclear whether these market and production oriented interventions can be scaled up sufficiently and rapidly in an acute emergency to meet the needs of large numbers of people.
Emergency school feeding	• To reduce short-term hunger of children attending school • To improve attendance, enrolment and concentration • To contribute to household food security	Typical school feeding programs distribute food to schools for on-site (wet) feeding. Some programs provide a ration to the households as well, to encourage school attendance and participation in the program. School feeding can be started quickly if the school is well established and able to prepare the food. School feeding supports the psychosocial benefits and social cohesion that school provides for children who have experienced a crisis.	Studies have shown that the link between the provision of school lunch or breakfast and improved growth is weak. They have also shown that the effect of school meals on cognitive performance is inconsistent[46].

[46] School feeding position paper, Save UK, 2001.

Table 7: Typical response options for nutritional emergencies (continued)

Intervention	Objectives	Description	Limitations
			Children who do not attend school do not benefit from the programme. In some cases, children benefiting from the program may receive less food from home (i.e., the "substitution effect").
Blanket Supplementary feeding	• To prevent deterioration in the nutritional status of at-risk groups in a population • To reduce the prevalence of MAM in children under five thereby reducing the risk of mortality and morbidity (illness)	Emergency blanket supplementary feeding programmes (SFPs) target a food supplement to all members of a specified at-risk group, regardless of their nutritional status. Blanket SFPs are often implemented when general food distribution for the household has yet to be established or is inadequate for the level of food security in the population. The supplementary ration is meant to be additional to, and not a substitute for, the general ration.	The decision to open a blanket or targeted supplementary feeding programme should be based on a thorough analysis of the situation, including past and current levels of acute malnutrition, underlying causes, public health priorities and available human, material and financial resources.
Infant and young child feeding support	• To promote early initiation of breastfeeding in newborns. • To protect and support exclusive breastfeeding for the first six months of life • To enable timely, appropriate and safe complementary feeding from 6 months to 2 years of age and beyond • To manage artificial feeding at individual and population levels • To integrate skilled breastfeeding • To uphold the provisions of the Operational Guidance on IFE and The Code[47] in all emergencies as a minimum requirement.	Priority interventions include breastfeeding protection and support, minimising the risks of artificial feeding and enabling appropriate and safe complementary feeding. Multi-sectoral engagement is essential, in particular reproductive health child protection and health services. Advocacy with and links to WASH, shelter and food security interventions are needed to priortise the needs of pregnant and lactating women, and families with children under 2 years. Mothers, families, communities and health workers should be reassured of the resilience of breastfeeding. Frontline emergency staff are prepared to deal with cases they may encounter requiring urgent assistance around IYCF.	The nature and impact of IYCF interventions is influenced by the prevailing IYCF practices in the population: sub-optimal IYCF practices make response more difficult and the situation more risky for infants and young children. Emergency preparedness is crucial.

[47] The International Code of Marketing of Breastmilk Substitutes was adopted in 1981 by the World Health Assembly and calls upon breastmilk substitute manufacturers and distributors not to provide free or low-cost supplies to any part of the health care system.

Table 7: Typical response options for nutritional emergencies (continued)

Intervention	Objectives	Description	Limitations
		Safe 'corners' or spaces for mothers and infants should offer services such as one-to-one counselling, enable mother-to-mother support, and provide information on allied services. Where artificial feeding is indicated, mothers and caregivers need assured access to adequate amounts of an appropriate breastmilk substitute for as long as they need and the associated essential supports (water, fuel, storage facilities, growth monitoring, medical care, time). Milk and milk products should not be included in untargeted distributions. Donations of BMS, milk products, bottles and teats should not be sought or accepted in emergencies. Code violations should be reported to WHO and UNICEF (see Operational Guidance on IFE for contacts).	IYCF protection and support requires cross-sectoral involvement that can be difficult to make happen. Management of artifical feeding in emergencies is challenging, resource intensive and carries risks.
Health support	• To ensure people have access to services that prevent, diagnose and manage communicable diseases • To ensure that all children aged 6 months to 15 years have immunity against measles • To ensure people have access to free reproductive health services including clean and safe deliveries	Nutrition-related health interventions include: • Provision of essential health services • Provision of adequate and safe water supplies and sanitation • Prevention of overcrowding in refugee and displaced camps • Immunization • De-worming • Prevention and management of communicable diseases (e.g. hygiene promotion, diagnosis and case management and outbreak detection, investigation and response for key communicable diseases such as HIV, pneumonia, diarrhoea, measles etc.)	
Micronutrient interventions	• To reduce micronutrient malnutrition • To prevent epidemics of micronutrient deficiency diseases	There are a variety of interventions that support improved micronutrient nutrition in emergencies including the inclusion of nutrient-rich commodities in food aid rations, provision of fresh food items that are complementary to a general ration, provision of micronutrient-fortified foods (e.g. Blended foods), distribution of food supplementation products for home fortification	Excessive intakes of micronutrients can be harmful. It is important that strategies for reducing micro-nutrient malnu-trition ensure that intakes remain within recom-mended levels.

Table 7: Typical response options for nutritional emergencies (continued)

Intervention	Objectives	Description	Limitations
Responses aimed at treating undernutrition			
Therapeutic care	• To treat and reduce the prevalence of severe acute malnutrition and prevent mortality	Severely acutely malnourished children without medical complications are treated in the community with RUTF and provided regular medical checks. Those with medical complications receive specialized medical care at inpatient health facilities and are provided with F75, F-100 and/or RUTF for nutritional treatment. Skilled support for breastfeeding and infant feeding should be integrated into therapeutic care programmes.	
Targeted Supplementary feeding	• To treat moderate acute malnutrition	Targeted SFPs provide nutritional support to individuals with moderate acute malnutrition. The ration is meant to be additional to, and not a substitute for, the general ration or the household's own food. Skilled support for breastfeeding and infant feeding should be integrated into targeted supplementary feeding programmes.	Targeted SFPs should always be implemented when there is sufficient food supply or an adequate general ration. The most appropriate food commodity should be selected based on available evidence. Programme design should be based on the context and reviewed frequently to ensure positive outcomes.
Treatment of micronutrient deficiency diseases	• To treat micronutrient deficiency diseases	Usually an oral supplement tablet or capsule. A relatively new and effective approach involves using micronutrient powders (eg Sprinkles) that can be added to normal food to increase micronutrient intake.	Appropriate supplements should be made available as part of an essential drugs package. Effective treatment should always be accompanied by the development of a prevention strategy.

Much of the emergency food aid goes to Africa. For example, in 2009, the World Food Programme (WFP), who delivers almost 70 per cent of the world's emergency food aid, sent 65 per cent of emergency food aid to sub-Saharan Africa and 20 per cent to Asia.[48]

[48] World Food Programme, Annual Report 2009, WFP, 2010.

Table 8: Global humanitarian expenditure by sector (2010)

Sector	% of global humanitarian expenditure
Sector not yet specified*	31.6
Food**	27.8
Coordination and support services	9.5
Health	8.6
Shelter and non-food items	4.7
Water and sanitation	3.9
Economic recovery and infrastructure	3.7
Agriculture	2.9
Protection/human rights/rule of law	2.4
Education	2.2
Multi-sector	1.4
Mine action	1.2
Total	99.9

Source: OCHA, 2010.

* "Sector not yet specified" contains unearmarked or loosely earmarked contributions that the recipient has not yet applied to specific projects and sectors.

** Nutrition interventions are often included under food, though can also be found in Health and Agriculture

However, the allocation of emergency food aid is not based solely on the levels of wasting in a given country but on a range of other factors. For example, between 2000 and 2004, emergency food aid went principally to just six countries: Ethiopia, Sudan, Afghanistan, Angola, Iraq and the Democratic People's Republic of Korea. Some of these countries were obviously prioritised for political reasons; supporting the assertion that often "*food aid allocations…have traditionally served primarily domestic agricultural interests and…foreign policy objectives*".[49]

Food aid is an important element of emergency response. However to maximise impact on undernutrition, it needs to be linked with other interventions addressing underlying causes.

General food distribution (GFD)

Food aid can be delivered in several forms. The most common form is through GFD, where a group of select food commodities are given out to vulnerable households affected by an emergency. Over the past decade, the responsibility for targeting and distributing emergency general rations in non-camp situations has increasingly been given to the affected community themselves.

A general food ration consists of a number of items, the minimum three being cereals, pulses and oil. Items such as salt, sugar, fresh vegetables, canned meat or fish can be added. Fortified blended foods (FBFs) are also often included in a general food ration for some or all individuals in a household. FBFs are processed mixtures of cereals and other ingredients (e.g., pulses, dried skimmed milk, and possibly sugar and/or some kind of vegetable oil) that have been milled, blended, fortified with micronutrients and pre-cooked. FBFs provide an additional source of micronutrients to the ration. Examples of blended foods are Corn Soy Blend (CSB), UNIMIX and Wheat Soy Blend (WSB).

The traditional composition of CSB and UNIMIX have recently been reformulated by UNICEF and WFP to meet additional energy density and micronutrient needs of some population subgroups, see **Box 10**.

A full ration, targeted to populations entirely dependent on the ration and who have no access to other foods, provides on average 2100 kcals of energy per person per day (Sphere minimum standard). This figure may be adjusted depending on the demographic profile of the population, ambient temperatures, physical activity level of recipients and access to alternative food sources.

In addition to ensuring adequate quantity of the ration, it is important to ensure nutritional quality in a food ration. WFP and UNHCR have developed a spread sheet application (Nutval) for planning, calculating and monitoring the nutritional value of the general food rations. Nutval (www.nutval.net) has been designed to make the jobs easier for those involved in planning food rations. It aims to ensure nutritionally adequate rations to minimize public health problems such as micronutrient deficiencies.

A general food ration is normally delivered as a package of dry items. Targeting of dry rations should consider the most appropriate way to ensure vulnerable groups including women, child headed households, and the elderly can access distributions, and ensure relevant security provisions are provided. If a programme is providing food to heads of household, consideration should be given to female heads of households, polygamous households and child headed households.

In specific circumstances when people do not have the means to cook for themselves or where insecurity would put recipients of take-home rations at risk, a large scale cooked food distribution (often called 'wet feeding') may be appropriate until such a time as the entire population can be assisted in the form of take-home GFD rations.

[49] Morris, Saul S., Bruce Cogill, Ricardo Uauy, 'Maternal and Child Undernutrition Series: Effective international action against undernutrition: why has it proven so difficult and what can be done to accelerate progress?', *The Lancet, 371 (9612)*, 16 February 2008.

Box 10: Reformulation of CSB

Corn Soy Blend Plus (CSB +/++) is a reformulation of the original CSB to meet the additional energy density and micronutrient needs of some population subgroups. CSB+ is a product for children two years of age and older, adolescents, pregnant/lactating women, adults and other vulnerable groups such as those with chronic illnesses. It is a mixture of cereals, soy beans, sugar and a vitamin/mineral mix. CSB++ is a more digestible form of CSB intended for children 6-23 months. In addition to the above-mentioned components it includes dried skim milk and oil in its formulation and has a higher nutritional value with 410kcal, 16 per cent protein, 9 per cent fat and a vitamin and mineral complex. Both of these new CSBs contain an improved micronutrient formulation. As of early 2010 WFP has replaced all FBF's in GFDs with the improved CSB+/++. CSB++ can also be used in treatment as well as prevention programs.

Source: Module 11

Distributing cooked food can be advantageous because it can guarantee access to food for the politically vulnerable, reduce the risk of food rations being "taxed" for safe passage, and addresses problems of lack of fuel, utensils, and/or water. However, distributing cooked food is resource intensive and encourages population concentrations, which may increase the risk of physical attack, spread of diseases and/or military recruitment. Such programmes should only be considered as a short-term measure to be phased out when people have the necessary resources to prepare food at home and/or when security permits.

See Module 11 for a detailed description of general food rations, ration design, food commodities and targeting.

Livelihood support

There are a large variety of livelihood support interventions that can be implemented in emergencies. These can be divided up into four broad groups: food aid, income and employment, production support and market support.

Food aid can be a form of livelihood support either when provided through a general food distribution, or as a food-for-work programme, which creates community assets that promote livelihoods providing wages in the form of food.

Food for work

Food for work (FFW) and *food for asset creation* are programmes where households receive a general ration in exchange for work. Such schemes are often implemented to discourage dependency on food aid and also to create assets such as roads, schools or irrigation systems. FFW is also seen as a way of ensuring that only the needy receive assistance. It is important that FFW programmes ensure women as well as men are targeted but that programmes do not prevent women from having the time to care for their infant and children.

Establishing sizeable programmes in a short space of time can be difficult, requiring significant management resources. A disadvantage of these kinds of programmes is that a household without a physically active member is not able to participate.

Income and employment

An increasing number of agencies are supporting and implementing cash transfer interventions in a variety of emergency contexts. Cash distributions are often more cost-efficient when compared to food aid and can also be faster to implement. Furthermore, cash can be easily invested in livelihoods. There is also some evidence to suggest that cash transfers can improve the status of women and marginalized groups.

It is generally accepted that cash is appropriate when food and essential non-food items are available and markets are functioning, when there are reasonable assurances that the intervention does not raise security concerns for staff or recipients and when there is little potential for price distortion (e.g., inflation) within the local market.

A number of agencies are gaining experience in implementing cash interventions (cash grants and cash for work). These interventions have certain advantages over delivery of food aid. They can be more rapidly implemented, require less logistical support and allow participants to choose how to meet their immediate needs. *There is a need for more evaluation of cash programming to refine understanding of the impact on food security, nutrition, markets, social relations and security*. For more information see Module 16.

Production support

Production support includes crop production, livestock and fishing support. These can take a variety of forms, depending on the stage and type of emergency and the livelihoods affected.

Livestock interventions include livestock off-take, fodder distribution, veterinary care, and repairing boreholes and other water sources. Other interventions include subsidies for transport to market or initiatives to improve access to pasture in neighbouring regions or countries. Restocking is carried out during the recovery or rehabilitation stage of an emergency.

Market transport subsidies may be possible for animals still in a fair condition early in an emergency. Purchase for slaughter can be started after the end of any market transport subsidy. Purchase for slaughter targets the animals still in good condition.

Destocking (also referred to as livestock off-take) involves buying (or exchanging) livestock for immediate slaughter with the meat distributed dry or fresh. The main aim of destocking is to provide a value to animals that would otherwise die. Destocking has become one of the most widely used emergency interventions in pastoralist areas. Destocking can be run alongside a veterinary or feed supplement programme, where the money from livestock sales can be used to buy veterinary drugs or fodder for the remaining stock.

Emergency animal health and vaccination campaigns are important because of increased risk of exposure to disease in some emergencies.

Restocking is a method of asset building aimed at families who have recently lost most of their stock. In food insecure environments, beneficiaries may need to be supported with additional food or cash so that they do not have to sell their herds to meet basic needs. For more information see Module 16.

Market support

Markets play a crucial role in supplying goods and services to ensure survival and to protect livelihoods. Prior to, during and after a crisis, disaster affected populations depend on markets for employment and income.

Organisations are increasingly realising that optimising opportunities for assisting disaster affected communities need to consider market function. An analysis of markets is needed in order to ensure sustainable support to livelihoods of disaster affected populations. The aim of market support programmes in emergencies is generally to ensure that people's access to basic goods is maintained.

Market support interventions can take many forms: cash and voucher programmes, programmes that support market infrastructure and the maintenance of food prices in markets (e.g., through the provision of subsidised foods); as well as ensuring producers to access markets. Gaining a sound understanding of the key markets that affect the livelihoods of poor people is a critical first step in developing appropriate market access interventions. Simple market analysis tool are available which can assist in determining whether an increase in demand for basic goods, created by cash distributions, can be met through the market.

It is still unclear whether these market and production oriented interventions can be scaled up sufficiently and rapidly in an acute emergency to meet the needs of large numbers of people. Implementing agencies are currently piloting interventions and assessing capacities and outcomes.

A significant 'unknown' with regard to livelihood interventions in emergencies is whether the same level of resources can and will be made available by donors on an equivalent scale to that which has historically been made available for food aid programming. See Module 16 for a more detailed discussion.

Emergency school feeding

Emergency school feeding programmes provide a food supplement for children attending school. The aim of most programmes is to keep children in school, address short term hunger and/or increase food security of the household.

There are a variety of types of food supplements and/or meals that are provided as part of a school feeding programme from fortified biscuits to meals of rice and dahl. Some programmes provide a take-home ration to the child to increase attendance.

Parents and communities may be required to contribute food or non-food items. The food provided to children through the programme is not always intended to be a significant part of the child's daily energy needs. In food insecure areas, it is intended as an ùadded extraû to the child's home diet. The amount provided to school-aged children is therefore intended to provide approximately one third of the child's daily energy requirements (from 550-700 kcal).

Emergency school feeding has advantages and limitations. It can offer a rapid way of distributing food in an emergency-affected community if the infrastructure is largely in place. Programmes also increase the likelihood that children will continue to attend school. However, in many emergency affected areas the poorest households may not be able to send their children to school or to allow their continued attendance where children are required to undertake key household activities. Children receiving a food supplement or meal at school might not be provided food at home. Additionally, studies have shown that the link between the provision of school lunch or breakfast and improved growth is weak and that the effect of school meals on cognitive performance is inconsistent[50].

Infant and young child feeding

Infant and young child feeding (IYCF) encompasses interventions to protect and support the nutritional, care and development needs of infants and young children. It is particularly important to support optimal IYCF during emergencies because of the higher risk of disease in young children as a result of population displacement, overcrowding, food insecurity, poor water and sanitation and an overburdened health care system. Non-breastfed infants and infants that are partially artificially fed are especially at risk.

[50] School feeding position paper, Save UK, 2001.

Priority IYCF interventions include breastfeeding protection and support, minimising the risks of artificial feeding and enabling appropriate and safe complementary feeding. Special attention should be paid to feeding pregnant and lactating mothers in order to encourage them to breastfeed successfully and to maintain their nutritional status. Skilled support for breastfeeding should be provided to those requiring it (e.g. mothers of newborn infants, malnourished mothers and/or infants, HIV-affected mothers who are breastfeeding). Mothers and caregivers who artificially feed their infants must be supported to do so in the safest possible manner and with the commitment to sustain this support for as long as the infant needs it.

Basic, multi-sectoral interventions are needed to create a protective and supportive environment for IYCF. Support to meet basic household needs – food, WASH, shelter, health – should to be prioritised for pregnant and breastfeeding women and mothers with children under 2 years.

Key policy guidance documents to inform emergency programming include the Operational Guidance on IFE[51] and the International Code of Marketing of Breastmilk Substitutes (BMS) and subsequent relevant World Health Assembly (WHA) resolutions (collectively known as the Code). Sphere 2011 includes two IYCF standards.

Additionally, the management of acute malnutrition in infants (MAMI) has been the subject of review and a recent report provides information on the management of acutely malnourished infants under six months of age (infants <6m) in emergency programmes and suggested ways forward to improve practice[52].

For more details on IYCF in emergencies, see Module 17.

Health interventions

There are strong linkages between health and nutrition status and programming. A number of priority health interventions will significantly impact the nutritional status of the population, additionally; many nutrition interventions (prevention, promotion and treatment) are conducted through the health care system.

In emergencies, with displaced, overcrowded populations and often a break down in health services, infectious diseases become more prevalent. Risks of epidemics of diarrhoea, measles, dysentery, malaria and meningitis are elevated. The most important way of stopping these epidemics is by improving sanitary conditions through ensuring proper water supplies, personal and food hygiene and sanitation, avoiding overcrowding, providing vector control (such as mosquito nets and residual spraying) and essential health services to treat new cases of disease, improving the nutritional status of the population and offering vaccination (for measles and meningitis).

It is important to ensure health services are designed with the different needs of women and men in mind – ensure access to quality services for all; develop targeted services for hard to reach populations as needed; ensure gender balance among health providers where needed so that all community members are reached (e.g. in Purdah communities women and girls cannot be easily treated by male health attendants).

Implementation of essential services should be carried out in a way that supports and strengthens the health system and does not undermine it or its future development. Health and nutrition programming should be integrated or well-coordinated and focus on the key priority proven effective interventions that will have high impact on the main causes of excess morbidity and mortality. See Module 15 for more details.

Supplementary feeding

There are two types of supplementary feeding programmes (SFPs) in emergencies: blanket and targeted. Blanket SFPs aim to prevent deterioration in the nutritional status of at-risk groups in a population or to reduce the prevalence of MAM in children under five thereby reducing the risk of mortality and morbidity (illness). Targeted SFPs aim to rehabilitate (or treat) individuals with MAM.

The decision to open a blanket or targeted SFP should be based on a thorough analysis of the situation, including past and current rates of malnutrition, underlying causes of malnutrition, public health priorities, and available human, material and financial resources. Current recommendations are to consider overall trends in GAM and SAM and context rather than waiting until a certain threshold has been reached, by which it could be too late to implement an effective response.

Blanket SFPs are often set up at the onset of an emergency when the GFD systems is being established and/or rates of acute malnutrition are high (e.g., more than 15 per cent), or an increase in rates of malnutrition is anticipated due to seasonally induced food insecurity, epidemics, or in case of micronutrient deficiency disease outbreaks.

Based on current evidence it is recommended that targeted SFPs should be implemented when there are large numbers of malnourished individuals (some guidelines stipulate a cut-off of 15% GAM). Targeted SFPs should ideally be run in conjunction with a GFD. For long term sustainability and as part of the Integrated Management of Acute Malnutrition these types of interventions should be integrated within existing health structures.

[51] Endorsed in the World Health Assembly Resolution 43,23 (2010)

[52] For more information, visit http://www.ennonline.net/research/mami

Box 11: Lack of evidence-base for emergency supplementary feeding programmes

Supplementary feeding programmes (SFPs) have been a major part of emergency nutrition response in most of the large-scale emergencies over the last 50 years. However, evidence that they are effective is limited. A study of 82 programmes implemented between 2002 and 2005 concluded that: "*the data collected by agencies on coverage and prevalence of malnutrition do not demonstrate any impact of emergency SFPs at population level. Indeed, a significant number of nutrition surveys showed a decline in nutritional status following a period of implementation of the SFP*". Furthermore, less than 40 per cent of programmes reviewed met Sphere performance targets.

Source: Navarro-Colorado, Carlos et al. 'A Retrospective Study of Emergency Supplementary Feeding Programmes', Emergency Nutrition Network and Save the Children United Kingdom, June 2007.

There are a wide range of commodities currently in use to treat MAM. They generally fall into two categories: dry rations/premixes (such as fortified blended foods like *Corn Soy Blend* (CSB)) or *ready- to- use foods* (RUF). Dry rations/premixes require some additional preparation in the home, while RUFs can be eaten directly from the package without any additional preparation. While numerous trials are on-going, there is no clear evidence about whether RUFs have more impact than dry rations/premixes or are more cost effective for the treatment of MAM.

Powdered milk-also known as *dry skim milk* (DSM), *non-fat dry milk* (NFDM) or *dry whole milk*-should never be distributed alone in a take-home ration as part of a SFP or (other intervention). The risk of dilution and germ contamination are very high and the milk could be used as a breast milk substitute. Powdered milk can be added to fortified blended foods (FBFs) before distribution but not when FBFs are pre-mixed with oil, unless the client is directed to use the FBF within two weeks to avoid spoilage.[53] Neither RUFs nor blended food rations are appropriate for use with infants under 6 months of age[54].

It should be noted that a global review in 2005 highlighted the lack of effectiveness of targeted SFPs, see Box 11. A variety of different approaches (and food based products) for addressing MAM are currently being field tested and there is ongoing work into alternative strategies.

If a SFP is to be implemented, the most appropriate food commodity should be selected based on available evidence and the programme design should be based on the context and reviewed frequently to ensure good coverage, good recovery and low default[55]. It should also be linked to other health and nutrition interventions in emergencies to ensure a full range of health and nutrition support to targeted individuals.

For more information on target groups, admission and discharge criteria, monitoring and evaluation and food commodities for SFPs, see Module 12.

Therapeutic care

Severe acute malnutrition is a complex medical condition that needs specialised care to save a patient's life. Therapeutic care programmes aim to save the lives of individuals with SAM.

Therapeutic care programmes are often initiated in emergencies when population malnutrition and mortality rates reach specific levels taking into account contextual factors, underlying health situation and services as well as available resources and, increasingly, are continuing beyond an emergency to become part of routine health service delivery in many countries.

Therapeutic care has evolved in recent years from an approach based solely on *inpatient care* to an integrated strategy in which those with SAM and medical complications are treated in hospitals and those with no medical complications are treated at community level. This community based approach has been made possible through the development of *Ready-to- Use Therapeutic foods* (RUTFs) which can be consumed by the patient at home, see **Box 12** below. The evidence base for RUTF is very strong.

This community-based approach is commonly referred to as *Community Management of Acute Malnutrition* (CMAM). Key components of this approach include inpatient care (for complicated cases of SAM and infants with SAM under 6 months), outpatient care (for uncomplicated cases), community mobilisation and active case finding. Evidence for the CMAM approach using RUTF is very strong.

Therapeutic care should be integrated into routine primary health systems in post and non-emergency situations. Emergency therapeutic care programmes should build on what capacity exists with an aim to improve capacity through the emergency for long term management of SAM.

It is recognized that there is need for more documentation and analysis of the experiences of integration in different contexts. See Module 13 for more details.

[53] FANTA (2008). Training guide for community-based management of acute malnutrition (CMAM). Washington DC. FANTA.

[54] ENN (2002) Operational Guidance on Infant Feeding in Emergencies 5.1.5 Module 2. London: ENN.

[55] See Sphere indicators for programme performance in Sphere Handbook, 2011 or in Module 12.

Box 12: What are RUTFs?

Ready –to-use Therapeutic Foods, or RUTF, are soft or crushable foods that can be consumed directly from the packet by children from the age of six months. RUTF formulation is specifically for the dietary treatment of SAM before the onset of medical complications or when these are under control after stabilisation.

RUTF has a nutrient composition based on the F100 liquid/milk diet which has been recommended since 1999 by WHO for the recovery phase in the management of SAM. It is produced by replacing part of the dried skim milk used in the F100 formula with peanut butter. Studies have shown that it is at least as well accepted by children as F100; that it is effective for rehabilitating severely malnourished children, and that it promotes faster weight gain than F100. RUTF nutrition composition has been developed based on metabolic and clinical research and its formulation allows rapid growth and recovery of children with severe acute malnutrition.

RUTF can only be given to children aged six months or above. Infants less than 6 months do not have the reflexes to swallow solid foods and also have a metabolism which needs higher water intakes than older infants.

Treatment of micronutrient deficiency diseases

Micronutrient deficiency diseases require urgent medical treatment. This usually takes the form of oral supplement tablets or capsules. A relatively new approach involves using micronutrient powders that can be added to the normal food to increase micronutrient intake. These have been shown to be effective for the treatment of iron deficiency anaemia.

In some situations the prevalence of a micronutrient deficiency disease may be so high that blanket treatment of a population is justified. However, if this is done, the possibility of excessive intake for those who are not suffering from deficiency must be taken into account.

Recognition and treatment of these diseases has the potential to greatly reduce the burden of morbidity and mortality in a population. Appropriate diagnosis and treatment of cases should always be accompanied by the development of a prevention strategy. (See Module 14 for more detail.)

Cross cutting issues for emergency nutrition response

HIV

Humanitarian crises, which are often linked to displacement, food insecurity and poverty, increase vulnerability to HIV and negatively affect the lives of people living with HIV. Pre-emergency HIV services may be disrupted and people may no longer have access to services for care, support and prevention. HIV infection causes poor immunity and increased metabolic demands.

In emergencies there is often reduced access to nutritious foods, health services, and sanitation. Pre-emergency HIV services such as antiretroviral treatments, home based care programs, nutritional support programs, and palliative care programs may be disrupted. The health status of people living with HIV can deteriorate rapidly under these conditions and pose an additional burden on strained emergency services. The ability of mothers and other carers living with HIV to provide optimal nutrition and care for their children may be affected and subsequently affect the nutritional status of those children. The lack of awareness and prevention programs, disrupted families, and gender based violence may increase spread of HIV through the community. Eight critical HIV/AIDS and nutrition related activities in emergencies have been identified as follows.

Eight critical HIV/AIDS and nutrition-related activities in emergencies

1. Integration of HIV into all aspects of emergency care - prevention, education, health, basic services, planning and management
2. Targeted food support
3. Maternal and infant health and feeding
4. Treatment and care of HIV (and TB)
5. Treatment of severe malnutrition
6. Support networks, including livelihood support and home based care
7. Food hygiene, sanitation, water, shelter
8. Protection

Gender

Gender mainstreaming of a nutrition project means ensuring the distinct needs and realities of women, girls, men and boys are reflected throughout the project. Gender equality in programming aims to ensure the different nutrition needs of all are understood and to ensure that they all have equal access to and benefit from relevant interventions.

Key activities to ensure gender equality in nutrition programming include[56]:

[56] Adapted from IASC Gender Handbook, 2006. http://www.humanitarianreform.org/Default.aspx?tabid=656

- Design nutrition interventions in accordance with food culture and nutritional needs of all community members.
- Ensure meaningful participation of women and men in decision making and programme design, implementation, monitoring and training.
- Monitor access to services by different population groups to ensure adequate access.

Evaluations of humanitarian effectiveness show gender equality results are weak, although there is a universal acceptance that humanitarian assistance must meet the distinct needs of women, girls, boys and men to generate positive and sustainable outcomes.

As a result, the IASC sub-working group on Gender has developed a Gender Marker which is a tool that codes, on a 0-2 scale, whether or not a humanitarian project is designed well enough to ensure that women/girls and men/boys will benefit equally from it or that it will advance gender equality in another way. If the project has the potential to contribute to gender equality, the marker predicts whether the results are likely to be limited or significant. The marker can be used by project design teams to assess and strengthen the gender equality potential of projects.

As of 2010, all humanitarian appeals and funding mechanisms are expected to use the marker to code and improve the gender dimensions of projects. At the country level, Nutrition Cluster country teams will designate a gender code for each project, they will also evaluate and monitor projects to ensure positive gender outcomes. At the global level, the Gender Marker is being integrated into the training of Humanitarian Coordinators and cluster leads as well as in the guidance notes for the Consolidated Appeals Process (CAP) and Central Emergency Response Fund (CERF) proposals.

A key component of the Gender Marker for nutrition programmes is that all programme data must be disaggregated by sex or it is unlikely to receive humanitarian funding through the CAP, CERF or pooled funding[57].

Protection

Protection is concerned with the safety, dignity and rights of people affected by disaster or armed conflict. Protection covers a wide range of activities that are aimed at ensuring respect for the rights of all individuals, regardless of their age, gender or social, ethnic, national, religious or other background. This requires a collaborative and coordinated response by various national and international actors with diverse mandates, expertise and experience[58, 59].

The Sphere handbook (2011) outlines four basic Protection Principles that should inform all humanitarian action:

1. Avoid exposing people to further harm as a result of your actions
2. Ensure people's access to impartial assistance – in proportion to need and without discrimination
3. Protect people from physical and psychological harm arising from violence and coercion
4. Assist people to claim their rights, access available remedies and recover from the effects of abuse.

The Global Protection Cluster, chaired by UN High Commissioner for Refugees (UNHCR), is in the process of developing guidance and tools on protection for use at the country level[60].

Environment

The Sphere handbook (2011) defines the environment as '… the physical, chemical and biological elements and processes that affect disaster-affected and local populations' lives and livelihoods'. As such, it provides the natural resources that sustain individuals and contributes to quality of life. It needs protection and management if essential functions are to be maintained.

Given the impact of climate change over the past few years and the projected increase in dramatic climatic events, often occurring in vulnerable areas, all actors in emergency response should consider the environment in their analysis, planning, and implementation to ensure that their activities do not negatively impact it. The Sphere minimum standards provide guidance on how to address the need to prevent over-exploitation, pollution and degradation of environmental conditions. They also highlight mechanisms to reduce risk and vulnerability[61].

Disaster risk reduction

In the context of humanitarian emergencies, focus is usually placed on the initial humanitarian and emergency response. However, the importance and value of disaster risk reduction (DRR) programming is increasingly being recognized. A DRR approach suggests that a comprehensive view of risk and vulnerability are necessary elements in preventing, reducing and mitigating the negative impacts of shocks on lives and livelihoods.

[57] All information and documents related to the Gender Marker is available on the OCHA website and http://oneresponse.info/crosscutting/gender/Pages/The%20IASC%20Gender%20Marker.aspx

[58] Sphere handbook, 2011.

[59] Global protection cluster overview, http://oneresponse.info/GlobalClusters/Protection/Pages/default.aspx

[60] For more information on protection or the Global Protection Cluster contact, HQPROCLU@unhcr.org or visit http://oneresponse.info/GlobalClusters/Protection/Pages/default.aspx.

[61] Sphere handbook, 2011.

Given the broad definition of DRR, organisations have adopted a variety of approaches to addressing it through development programming, hazard and risk analysis, risk management, and natural resource management.

While there is increased understanding of the need to focus more attention on mitigating risks to disasters, there is a lack of standardisation of definitions, tools, methodologies and assessments associated with DRR. Additionally there is proportionally much more limited funding for DRR than that for response (most bi-lateral donors earmark only 5-10% of their annual humanitarian budget to DRR)[62]. Increased standardisation, funding and programming for DRR activities could assist agencies and communities to develop initiatives and strengthen systems to limit the damage of future disasters.

Early recovery

Early recovery is an approach to emergency response that applies development principles of sustainability and local ownership to the delivery of humanitarian assistance as early as possible. Recovery is about building back better and creating safer and more resilient communities[63, 64].

Early recovery is most achievable when principles are mainstreamed in the planning and implementation of the emergency phase and carried forward in transition and recovery strategies. Increased integration of early recover principles in emergency response could strengthen existing systems and communities and facilitate local ownership, capacity development and partnerships.

Challenges to the early recovery concept relate to the complexities of coordination between relief and development actors, donors and funding budget lines. Additionally, early recovery interventions require more effective, rapid and flexible financing that that often offered under development funding[65].

The Early Recovery cluster, led by the UN High Commissioner for Refugees (UNHCR), has developed a variety of resources, guidelines and tools for the analysis, assessment, and programming within an Early Recovery framework[66]. For more information visit the Early Recovery page on the following website: www.humanitarianreform.org.

Working with the community

All emergency related programming needs to work with the support of the community. Disaster-affected people possess and acquire skills, knowledge and capacities to cope with, respond to and recover from disasters. The local population is usually the first to react in a disaster and even early in a response some degree of participation is always feasible. Explicit efforts to listen to, consult and engage people at an early stage will increase quality and community management later in the programme[67].

Active participation in humanitarian response is an essential foundation of people's right to life with dignity affirmed in the Code of Conduct for the International Red Cross and Red Crescent Movement and Non-Governmental Organisations (NGOs) in Disaster Relief[68].

This is reflected in the Sphere Common Standard 1: people's capacity and strategies to survive are integral to the design and approach of the humanitarian response and agencies should act to progressively increase the disaster affected people's decision making power and ownership of programmes during the course of a response.

For more on working with the community in nutrition emergencies, see Module 19.

Linking interventions and sectors

To effectively address undernutrition, all underlying causes must be addressed. For an emergency nutrition intervention to have maximum impact, they need to be linked to each other as well as to that of other sectors. For example, the treatment of acute malnutrition should include relevant WASH and health activities. Similarly, IYCF is now recommended to be systematically included in CMAM activities.

Capacity development[69] in Nutrition in Emergencies

In many countries, national capacity for response to nutrition emergencies is sorely limited. Reasons for limited capacity in nutrition in emergencies include[70]:

- The lack of well-funded in-country training facilities for nutrition
- The focus of many international agencies on in-house capacity building, bypassing government

[62] Examining linkages between Disaster Risk Reduction and Livelihoods, Literature Review, Feinstein International Centre, Tufts University, 2010.

[63] Early Recovery FAQ's, Early Recovery Cluster, 2008.

[64] Early Recovery: UNICEF Policy brief

[65] Early Recovery: UNICEF Policy brief

[66] Early Recovery Key Things to Know, Early Recovery Cluster, 2009.

[67] Sphere handbook, 2011.

[68] Sphere handbook, 2011.

[69] Capacity development' is an on-going process that needs to be embedded within organisations to be maintained. In contrast, 'capacity building' implies that there is an end point – i.e. capacity having been built

[70] Capacity Development for Enhancing Nutrition in Emergencies- Stakeholder Report, NutritionWorks, June 2007.

Box 13: Role of government and UN in coordinating emergency response

A. Led by the national authority through established structures.
In countries with repeated emergencies, governments may have special departments for coordinating emergency nutrition preparedness and response. For example, in 2000, with the support of UNICEF and WFP, an Emergency Nutrition Co-ordination Unit (ENCU) was established in Ethiopia as part of the Disaster Prevention and Preparedness Commission (DPPC). The primary role of the ENCU is facilitate the use of good quality nutrition and nutrition-related information to enable the rational use of food aid and other resources in emergency affected areas. The ENCU continues to lead and coordinate emergency nutrition response throughout the country.

B. Operation in the absence of a national authority
When there is no recognised government or authority, humanitarian agencies often come together and work under a common framework. Humanitarian response in Somalia was initially supported by the Addis Ababa Declaration in 1993 which created the Somalia Aid Co-ordination Body (SACB) with the aim of facilitating the development of a common approach to the allocation of resources available for Somalia. The SACB consisted of donors, UN agencies, NGOs as well as multilateral and regional institutions and organisations. Coordination has since been taken over by the Cluster Approach (detailed below).

C. Co-leading by government and external partners
There are also examples where neither of the above hold true – such as the case of the USA-led coordination of the humanitarian response to the Haiti earthquake in January 2010. Within 10 days of the earthquake, agreements were made between the Haitian president and the US Secretary of State, as well as between the UN and the US Government which paved the way for a strong US role in the Haiti response.
Under these agreements, the US was 'to assist as needed in augmenting security in support of the Government and people of Haiti and the United Nations, international partners and organisations on the ground.' A US Joint Task Force Haiti (JTH) was deployed to support the humanitarian response, and the US military force operated under autonomous US command.

Source: Module 2 The Humanitarian System

- The high level of staff turnover particularly among government employees due to poor incentives
- The lack of career structures/incentives within government to remain in the nutrition sector.
- Lengthy periods between emergencies whereby national institutional memory and capacity is eroded

Building capacity as part of the emergency nutrition response is recommended to ensure that that national staff gains knowledge, skills and hands-on experience which they can use throughout recovery efforts, in development and in future emergency situations.

Currently there are a growing number of initiatives aimed at developing capacity in the sector. Capacity development for nutrition is a focus of the Global Nutrition Cluster and several tools such as the Harmonised Training Package (HTP)[71] have been developed as a mechanism to improve training and ultimately help develop capacity. Additionally agencies such as UNICEF, ACF, Concern Worldwide, and Save the Children, as well as institutions such as Institute of Child Health and Development, the Emergency Nutrition Network and NutritionWorks have all developed training initiatives to improve capacity at the national level. It is recognised that capacity development needs to be institutionalised in order to be sustained.

Coordination of nutrition in emergencies

Ensuring that there is an enabling environment for coordination is particularly important given the increase in the number of organisations working in the humanitarian sector and in nutrition-related areas during emergencies in recent decades.

Ultimate responsibility for the provision (and coordination) of relief rests with the authority controlling the territory affected by the disaster, be it a national government or occupying power. This is a fundamental principle of humanitarian action, yet one that can be challenging to adequately address in practice. There is the additional risk that poorly planned and poorly coordinated humanitarian action can undermine this responsibility, in particular during early stages of response. Nevertheless, this responsibility of the authority controlling the affected territory needs to be recognised at all times, even in situations where that responsibility has been delegated, or assumed, by other actors.

[71] The entire HTP is hosted on the UN sub-Committee for Nutrition (SCN) website and has been developed by NutritionWorks in collaboration with the Emergency Nutrition Network (ENN). http://www.unscn.org/en/gnc_htp/.

Where the government cannot or will not undertake this responsibility, then the UN has a responsibility to intervene. A Humanitarian Coordinator (HC) is then designated by the United Nations to lead and coordinate humanitarian efforts. The HC is responsible for coordination amongst a variety of actors including UN agencies, NGOs, civil society organisations and components of the Red Cross/Red Crescent movement that commit to participate in coordination arrangements

Examples of the varying role of the national government in emergency response are found below in Box 13.

Mechanisms for coordination

To ensure that assistance is delivered in a cohesive and effective manner, various coordination mechanisms, frameworks and structures have been established at global and country levels[72]. The UN Office for Coordination of Humanitarian Affairs (OCHA) is responsible for bringing together humanitarian actors to ensure a coherent response to emergencies.

In 2005, an independent review of identified significant gaps in humanitarian response. In response to the review, and as part of a process to improve the response and coordination in humanitarian emergencies, the United Nations Inter-agency Standing Committee (IASC) initiated the Cluster Approach for emergency response. The Cluster Approach is intended to strengthen predictability, response capacity, coordination and accountability through defining partnerships and accountability in key sectors of humanitarian response.

The Cluster Approach operates at two levels. At the global level, the aim is to strengthen system-wide preparedness and technical capacity to respond to humanitarian emergencies by designating Cluster Lead Agencies (CLAs), and in some instances co-chair CLAs, for specific technical areas. Eleven global clusters have been identified: Health, Nutrition, Water and Sanitation, Food Security and Agriculture[73], Shelter, Education, Camp Management, Protection, Early Recovery, Logistics and Telecommunications. UNICEF is the CLA for the Nutrition Cluster. In addition, CLAs for cross cutting issues such as Early Recovery, Age, Gender, the Environment and HIV/AIDS have also been defined. By designating global CLAs for technical areas and cross cutting issues, it is possible to ensure predictable leadership and accountability in the main technical areas of humanitarian response, in particular in terms of promoting global guidance and capacity development within and between clusters

At the country level, the cluster approach aims to ensure a more coherent and effective response, supported by the designated CLA, by mobilising agencies to respond strategically across all relevant sectors. While coordination is relevant in both emergency and non-emergency contexts, the cluster approach has one additional aspect, which is that the CLA is to act as the "Provider of Last Resort." In other words, if the CLA has the resources to do so, and the affected population are accessible, the CLA is responsible to step in and fill the gaps in humanitarian response if no other option is available. In cases where insecurity or limited funds are the key barriers to fulfilling the role of provider of last resort, the CLA is responsible for advocacy to address these barriers.

Within the CLA, individuals or teams are designated to fulfil the cluster coordination role. While they are employed by the CLA, their role is to represent the best interests of the cluster as a whole. Currently, there is a Global Nutrition Cluster (GNC) Coordination Team based in UNICEF NY and Geneva. It is responsible for coordination of the GNC, a network of individuals and agencies at global level, and increasingly to providing support to county level implementation. The GNC focuses in six strategic areas, namely coordination, advocacy and resource mobilisation; policy, standards and guidelines; capacity development; preparedness; assessment, information and monitoring; and best practices and lessons learned.

At country level, individual nutrition cluster coordinators (and in some cases cluster coordination teams) work with national and international partners in a number of areas. This includes establishment and maintenance of cluster coordination mechanisms, assessments; developing response strategies to address agreed upon priorities; ensuring standards are in place as well as capacity to meet them; information and knowledge management around nutrition response, and resource mobilisation and advocacy.

Despite the various initiatives, adequate coordination remains a challenge in many emergency settings. See Module 2 for a more detailed discussion.

Standards, monitoring and evaluation, and accountability

Over the past decade, it has been recognised that there is a need to develop standards and improve monitoring and evaluation in humanitarian emergencies. Additionally, new initiatives have been developed to help ensure accountability.

[72] For further details, see Module 2.

[73] Officially created in 2011

There are several types of standards for humanitarian response.

Legal standards based on International Human Rights Law (IHRL) and International Humanitarian Law includes the right of all human beings to adequate food and to be free from hunger[74]. The right to food is not a right to be fed, but primarily the right to feed oneself in dignity. The right to food requires States to provide an enabling environment in which people can use their full potential to produce or procure adequate food for themselves and their families. In addition, IHL stipulates that the starvation of civilians as a method of combat is prohibited – both in international and non-international armed conflicts.

The Sphere standards are largely recognised as the universal **technical standards** for humanitarian response. There are 18 minimum standards in food security and nutrition (highlighted at the beginning of this document). These are qualitative, neutral, statements that are meant to be universal, specifying the minimum levels to be attained in humanitarian response. They are complemented by key indicators, and guidance on approaches also highlighting dilemmas, controversies or gaps in current knowledge. Sphere also emphasises the process of engagement through its Minimum Standards in Core Areas which should be incorporated alongside the technical standards of each chapter.

Guidelines for the **monitoring and evaluation** of each of the main nutrition related interventions in emergencies have been strengthened due to the development of these technical standards. These can be found within the other modules of the HTP. See also module 20 on Monitoring and Evaluation.

It is recognised that key areas to evaluate in emergency nutrition interventions include:

- **Effectiveness:** (achieving objectives – doing the thing right, including cost-effectiveness)
- **Efficiency:** (doing it right, with as few resources as possible; effort, time, money, people, material)
- **Relevance/Appropriateness** (doing the right thing in the right way at the right time)
- **Impact** (doing the right thing, changing the situation more profoundly and in the longer-term)
- **Coverage** (the extent to which the interventions reach the intended target population-linked to effectiveness

There is a trend to try and combine evaluations of organisations with different mandates to obtain a fuller picture of the overall operating context and causal relationships between intervention areas.

There is also a trend towards conducting real time evaluations meant to provide quick and practical feedback in 'real time' in the early stages of an emergency to strengthen the response[75].

Accountability has many dimensions and many definitions. The term 'accountability web' has been used to describe the multi-stakeholder and multi-directional accountabilities of humanitarian organisations – to their board of trustees as well as to their donors, charity law, their partners and the people on whom their work is focused – disaster-affected persons. Agencies have recognised the need to be accountable to their donors and to their agency mission statement or principles, and have put in place systems to do so. These accountabilities continue to dominate agency practices. In contrast, there is currently no incentive, or obligation, to be accountable to affected communities, other than a voluntary commitment to do so. Several initiatives including the Humanitarian Accountability Partnership (HAP) have emerged to fill these gaps. In particular, the HAP offers guidance, technical support, advice and inspection services so as to strengthen organisations' accountability to affected persons.

Although much has been done on the development of standards, monitoring and evaluation frameworks, and accountability in humanitarian emergencies, challenges remain. Standards and monitoring procedures for new types of interventions have yet to be defined (e.g. cash programming). There are also concerns that in some contexts, existing standards are not achievable or even appropriate. Impact evaluations are still rarely conducted in nutrition emergencies. And, the evidence of accountability in nutrition is a work in progress. See Modules 20 and 21 for more discussion on monitoring and evaluation as well as standards and accountability (respectively).

Recent Developments and on-going challenges in nutrition in emergencies

Recent developments

Over the last 40 years, there have been many advances in key areas of nutrition in emergencies, even if efforts to further improve standards and practices are needed.

- **Standardisation of assessments**

Nutrition assessments are now far more rigorous than in the past. In particular, nutrition surveys to establish the prevalence (level) of malnutrition in emergency-affected populations are now widely carried out. Internationally agreed upon standard guidance exists for design, implementation, analysis and presentation of nutrition survey results.

[74] International covenant on economic, social and cultural rights, 1976. http://www2.ohchr.org/english/law/cescr.htm

[75] Real time evaluations are carried out 8 to 12 weeks after the onset of the emergency and the results are usually processed within one month of data collection.

- **Early warning systems**

Many early warning systems (EWS) have been set up at national and regional levels. These have become increasingly sophisticated and no longer rely solely on food production information. EWS now incorporate information on access to food as well as availability, e.g., markets and coping strategies. Systems which have been operating for a number of years in crisis-prone countries have built up baseline information and an understanding of trends so that alerts to pending emergencies are produced in a timelier manner.

- **Standardization of ration scales**

The United Nations revised ration scales in 1997 to better reflect nutrition requirements. It is currently recommended that a full ration provide on average 2100 kcal/person/day[76] (an increase from the previous 1900 kcal).

- **Improvement in nutritional quality of fortified blended flours (FBFs)**

WFP and UNICEF have revised the composition of traditional corn-soy blend (CSB) based on nutritional requirements. CSB+ and CSB++ are the resulting new formulations developed to meet the additional energy density and micronutrient needs of some population subgroups. As of early 2010 WFP has replaced all FBF's in general food distributions with the improved CSB+/++.

- **Targeting of food rations**

Systems for targeting food aid have been refined with an increasing emphasis on community-based involvement to determine targeting criteria. Systems to monitor the success level of targeting have been established. Where these approaches work, resources are conserved and communities are empowered.

- **Therapeutic care in the community**

Therapeutic feeding programmes have been revolutionised by the development of RUTF. Children with SAM without complications can now be treated in the community with RUTF and regular medical visits. This has led to far greater programme coverage and has reduced crowding in centres where the risk of cross infection is high.

- **Micronutrient nutrition**

The importance of micronutrients (vitamins and minerals) for health and growth has been proven. While there is no one single approach to preventing micronutrient malnutrition in all emergency contexts, the development of new products such as blended foods and multiple micronutrient powders that can be provided as part of a general ration or targeted to particularly vulnerable groups has helped to reduce micronutrient deficiencies. Micronutrient supplementation (for example, with vitamin A) has also become an important part of emergency nutrition response.

- **Infant and Young Child Feeding (IYCF) in emergencies**

Significant policy guidance has been developed to support IYCF in emergencies. Documents to support emergency programming include the Operational Guidance on Infant and Young Child Feeding in Emergencies[77], the International Code of Marketing of Breastmilk Substitutes (BMS) and subsequent relevant World Health Assembly (WHA) resolutions (collectively known as the Code). Additionally, Sphere 2011 includes two IYCF standards.

- **Expansion of interventions to address undernutrition in emergencies**

The range of interventions to prevent and address malnutrition has expanded. In addition to more traditional food aid distribution and selective feeding programmes, food security and livelihood support interventions, including cash distribution, are now common. It is recognised that well-designed non-food interventions have greater capacity to protect and promote livelihoods in the longer term than food aid alone.

- **Coordination and increase of agencies involved**

There has been a significant expansion in the number of organisations working in nutrition-related areas during emergencies. Coordination has therefore become a priority. The Office for the Coordination of Humanitarian Affairs (OCHA) was created in 2005 to coordinate United Nations agencies. Additionally the United Nations Inter-agency Standing Committee (IASC) initiated a cluster approach to facilitate the coordination and improve response in emergencies.

- **Lesson-learning**

Evaluations and reviews of lessons learned are now much more frequently carried out in an effort to avoid the repetition of mistakes. Dissemination of experience has also increased through a number of initiatives such as the GNC, publications such as Field Exchange[78] and those produced as part of the Humanitarian Practice Network (HPN)[79] and the Active Learning Network for Accountability (ALNAP).[80] In addition, operational research during emergencies has increased aiming to provide a greater evidence base for future emergency response.

[76] The management of nutrition in major emergencies, WHO (2000) and Sphere handbook, 2011. The International Committee for the Red Cross suggests 2400 kcal.

[77] Endorsed in the World Health Assembly Resolution 43,23 (2010)

[78] Field Exchange is a magazine containing field articles, research and news pieces for those working in emergency nutrition and food security. For details see www.ennonline.net.

[79] HPN publications are written by and for practitioners. HPN produces three types of specialist publications for the humanitarian community: Humanitarian Exchange Magazine, HPN Network Papers, Good Practice Reviews. For details see www.odihpn.org.

[80] ALNAP was established in 1997, following the multi-agency evaluation of the Rwanda genocide. It is a collective response by the humanitarian sector, dedicated to improving humanitarian performance through increased learning and accountability. For details see www.alnap.org/about.

On-going challenges in nutrition in emergencies

While there have been important advances in the area of nutrition in emergencies over the last 40 years, a number of major challenges remain. These are mainly operational and result from the political and institutional factors that have a major influence on the outcomes of response to emergencies. They include:

- Lack of commonly agreed classification system for nutritional crises
- Proliferation of food based products for the treatment of moderate acute malnutrition
- Limited evidence for an effective model to treat MAM
- Challenges in implementation of the Operational Guidance on IYCF in emergencies

Constraints to the operating environment

- Inadequate skills and expertise in nutrition in emergencies at national level
- Linking relief, recovery and development efforts
- Linking nutrition interventions with each other and with other sectors

Lack of commonly used classification system for nutrition crises

While the IPC is gaining support in a number of countries and with a number of agencies, there is no agreed upon framework for analysis and classification of nutrition crises situations. Therefore it is impossible to compare the scale of an emergency in one area to that of another. Furthermore, areas with high rates of malnutrition are not necessarily recognized as nutrition emergencies and may not receive emergency international aid. An estimated 10 children die every minute from undernutrition, most of whom live in Asian countries where levels do not result in an emergency being declared.

Proliferation of food based products for the treatment of acute malnutrition

Significant evidence exists for the effectiveness of treatment of SAM with RUTF. Based on this evidence, the UN issued a Joint Statement on the Community Management of Acute Malnutrition in 2009. The success of outpatient programming to treat SAM using RUTF has spawned a proliferation of products available on the market to treat MAM and prevent undernutrition, though to date there is limited (or no) evidence on the effectiveness of most of these products though research is ongoing and decision making trees to help guide decision making on the products that can be used, are being developed by many agencies and the GNC.

In addition, the private sector has taken an increased role in the development, promotion and marketing of various food based products. Several agencies are embarking on public-private arrangements (with Pepsico, Campbells, etc) for food based product development and use.

Rigorous research and documentation is required to build the evidence base on the effectiveness and feasibility of these products. Additionally, guidance for the production, marketing and distribution of food based products (like that of the Code of Breastmilk substitutes) is urgently required to provide a framework and guidance for the food industry.

Limited evidence for an effective model to treat MAM

Various actors within the global nutrition community have developed pilot programmes to test the feasibility and effectiveness of different models as well as different products to treat MAM. At the same time, many agencies have developed decision trees for programming with new food based products including UNHCR, UNICEF, and WFP; however all are different.

As yet, there is no evidence for an effective, cost-effective approach to treat MAM. Additional research and ultimately normative guidance for programmes is necessary.

Challenges in implementation of the Operational Guidance on IYCF in emergencies

It is crucial to protect and support the nutrition, care, health and development needs of infants and young children in emergencies due to their higher risk of disease. Significant advances have been made in awareness and in the development of policy guidance, standards and training materials for IYCF in emergencies. However there remains a gap and demand for development of programmatic guidance on IYCF assessment and programming design in emergencies at scale, to enable practitioners to meet the provisions of the Operational Guidance on Infant Feeding in Emergencies. There is also often limited experience and capacity to address IYCF in emergencies, poor emergency preparedness and in some contexts, Code violations.

Constraints of the operational environment

Many emergencies occur in extremely hostile and difficult contexts. Relief operations are therefore hampered by threats to security, lack of access, transportation problems, lack of infrastructure and other obstacles outside the control of aid workers. There are cases where malnutrition rates have soared and it has been very difficult to address the problems purely because of insurmountable logistical and access problems. For example access to populations in South-eastern Somalia is limited due to political issues and continued conflict resulting in a very precarious nutrition situation. Additionally, populations in Libya and Ivory Coast have been cut off from international support due to internal conflict.

The Humanitarian Response Index 2010 documented a lack of access as one of the main constraints to humanitarian response, reporting that donor governments do not still support protection of civilian efforts adequately to ensure protection needs of populations are met.[81]

Inadequate skills and expertise in nutrition in emergencies at national level

National capacity for responding to nutrition emergencies differs across countries and while some have built significant capacity such as Ethiopia, most others have very limited capacity. While some agencies have developed significant capacity development activities and many resources have been developed, to realise capacity development in the long term, efforts must be sustained, integrated into national development processes, build national commitment and be supported by long term funding[82].

Linking relief, recovery and development efforts

While agencies are embracing Disaster Risk Reduction and Early Recovery more and more, proportionally there is much limited work on prevention, preparedness and linking humanitarian relief, recovery and development programmes. This is vital in order to prevent and minimise human suffering when all scenarios suggest increased humanitarian needs[83].

Common frameworks, guidelines, tools, funding and evidence of impact are all required to make this more of a reality.

Linking nutrition interventions with each other, and other sectors

Given the multi-causality of undernutrition, nutrition interventions in emergencies need to be integrated with other sectoral responses for maximum impact. Clean water and sanitation, food security and health care are all necessary to combat acute malnutrition in emergencies, in recovery and in development contexts. Without ensuring a range of multi-sectoral interventions to address the underlying causes in each situation, many stand-alone nutrition interventions will have limited impact.

[81] DARA is an independent organization committed to improving the quality and effectiveness of aid for vulnerable populations suffering from conflict, disasters and climate change. http://daraint.org/humanitarian-response-index/humanitarian-response-index-2010/key-findings/

[82] Capacity Development for Nutrition in Emergencies: Beginning to synthesise experiences and insights, Gostelow 2007.

[83] Humanitarian Response Index, 2010.

Annex 1: Definitions of emergency

"*An unforeseen and often sudden event that causes great damage, destruction and human suffering*" (Centre for Research on the Epidemiology of Disasters, 2007)

"*Urgent situations in which there is clear evidence that an event or series of events has occurred which causes human suffering or imminently threatens human lives or livelihoods and which the government concerned has not the means to remedy; and it is a demonstrably abnormal event or series of events which produces dislocation in the life of a community on an exceptional scale*" (World Food Programme, Consolidated Framework of WFP Policies, Policy Issues Agenda item 4, 2007)

***"A state in which normal procedures are suspended and extraordinary measures are taken in order to avert the impact of a hazard on the community"* (World Health Organization, Emergency and Humanitarian Action, 2005.)**

"*Any situation where there is an exceptional and widespread threat to life, health and basic subsistence, which is beyond the coping capacity of individuals and the community*" (Oxfam Humanitarian Policy, 2003.)

Complex emergency

"*A humanitarian crisis in a country, region or society where there is a total or considerable breakdown of authority resulting from internal or external conflict*" (Inter-Agency Standing Committee, FAO field programme circular 2/96 (annex), 1994.)

"*Relatively acute situations affecting large civilian populations, usually involving a combination of war or civil strife, food shortages, and population displacement, resulting in significant excess mortality*" (Burkholder, B. T., Toole, M. J., 'Evolution of complex disasters', The Lancet, 346 (8981), 14 October 1995.)

"*chronic, multi-causal disasters: political factors are however primary in determining their intensity*" (Macrae, J., 'Aid under fire: redefining relief and development assistance in unstable situations', Wilton Park (UK), 7-9 April 1995.)

Annex 2: Nutrition-related standards and benchmarks used to gauge the severity of an emergency and the response requirements

Source: Darcy, James and Charles-Antoine Hofmann, 'According to Need? Needs Assessment and Decision-Making in the Humanitarian Sector', Humanitarian Policy Group Report 15, Humanitarian Policy Group, September 2003.

ODI Classification of levels and types of food security 2003

Level	Mortality and malnutrition indicator	Food security indicators	Responses
Chronic (or periodic) food insecurity Access to food limited, often seasonally, and diet inadequate for good health. High prevalence of chronic malnutrition (stunting) and likely to be some seasonal increase in mortality, morbidity and acute malnutrition (wasting)	CMR 0.2-1/10,000/day Wasting 2.3-10% Stunting >40%	Production: Poor yields leading to pre-harvest 'hungry season'; low prices for cash crops, etc. Income and employment: high unemployment and low wages leading to poverty. Dependence on casual labour and the informal economy, etc. Markets: price instability of staple foods and other key commodities; shortages of key commodities and foods (often seasonal); lack of market integration Assets: low asset base; high reciprocity (e.g., dependence on loans, kinship/family ties, seasonal labour). Coping strategies: adaptive or insurance strategies periodically employed (e.g., changes in cropping patterns; sale of non-productive assets; borrowing small loans; seasonal labour migration; collection of wild foods, etc.)	Typical indicated responses: Longer-term strategies: support to livelihoods, food security, existing public health system; social safety nets Information systems required: early warning systems; health and nutrition surveillance

ODI Classification of levels and types of food security 2003 (continued)

Level	Mortality and malnutrition indicator	Food security indicators	Responses
Acute food crisis A crisis of food access generally precipitated by a shock but may be compounded by longer-term vulnerabilities (e.g., poverty, HIV/AIDS, etc.). National capacity (or will) to espond exceeded e.g., lack of strategic food reserves). CMR and wasting levels remain normal initially but rise as a crisis persists.	CMR 0.2-2/10,000/day Wasting 2.3-10% or increases in wasting rates (e.g., doubling over a few months)	Production: precipitating events such as drought or war lead to loss of crops and/or livestock; dramatic decline in overall food availability Income and employment: loss of jobs; fall in wages; increased dependence on the informal economy Markets: dramatic rises in price of food and other basic items Coping strategies: normal coping mechanisms start to break down under stress. Increase in unsustainable crisis strategies (e.g., changes in consumption patterns; disposal of key productive assets)	Typical indicated responses: Emergency responses and 'stepping up' of longer-term strategies; targeted general ration; possibly targeted supplementary and therapeutic feeding; increased health care provision; targeted agricultural production inputs; livelihood and food security support information systems required: early-warning systems (food availability and prices); health and nutrition surveillance; multisectoral assessments (including household food security, livelihoods, health and nutrition status, access to water and sanitation); mortality and nutrition surveys
Extended food crisis A long-term crisis of food access often associated with poverty, lack of investment, erosion of livelihoods and political marginalization. Wasting levels remain chronically high and fluctuate depending on season and level of humanitarian aid (if provided).	CMR 1-2/10,000/day Wasting 15-30%	Production: low crop and livestock production over long time period Income and employment: poverty and destitution high; high unemployment; low wages; high dependence on welfare and low return activities (e.g., petty trading). Markets: prices of food and other basic items unaffordable for the poor Coping strategies: unsustainable crisis strategies relied upon during specific seasons	Typical indicated responses: Longer-term strategies together with some emergency responses; strengthening civil organisations (especially of marginalized groups); sustainable livelihood support; targeted general ration; supplementary and therapeutic feeding Information systems required: health and nutrition surveillance; multisectoral assessments (including household food security, livelihoods, health and nutrition status, access to water and sanitation); mortality and nutrition surveys

ODI Classification of levels and types of food security 2003 (continued)

Level	Mortality and malnutrition indicator	Food security indicators	Responses
Famine A food crisis that results in major excess mortality and very high levels of severe acute malnutrition (both children and adults)	CMR >2/10,000/day Wasting > 25% or dramatic increases in wasting rates (e.g., trebling over a few months)	Characterised by catastrophic lack of access to food, including market collapse; mass destitution; social breakdown; breakdown of formal and informal social systems Coping strategies: coping and crisis strategies exhausted or extreme survival strategies (e.g., distress migration, high-risk activities)	Typical indicated responses: Major and immediate emergency response. Blanket general ration distribution; extensive supplementary and therapeutic feeding; health service support Information system required: health and nutrition surveillance; repeated multisectoral assessments; repeated mortality and nutrition surveys

Howe and Devereux famine magnitude scale 2004

Source: Howe, Paul. and Stephen Devereux, 'Famine intensity and magnitude scales: A proposal for an instrumental definition of famine', Disasters, 28(4), 23 November 2004.

Phase designation	'Lives': malnutrition and mortality indicators	'Livelihoods': food security descriptors
Food security conditions	CMR <0.2/10,000/day and Wasting <2.3%	Social system is cohesive; prices are stable; negligible adoption of coping strategies.
Food insecurity conditions	CMR ≥ 0.2 but <0.5/10,000/day and/or Wasting ≥2.3 but <10%	Social system remains cohesive; price instability, and seasonal shortage of key items; reversible 'adaptive strategies' are employed.
Food crisis conditions	CMR ≥ .5 but <1/10,000/day and/or Wasting ≥10 but <20% and/or prevalence of oedema	Social system significantly stressed but remains largely cohesive; dramatic rise in price of food and other basic items; adaptive mechanisms start to fail; increase in irreversible coping strategies.
Famine conditions	CMR ≥1 but <5/10,000/day and/or Wasting ≥20% but <40% and/or prevalence of oedema	Clear signs of social breakdown appear; markets begin to close Or collapse; coping strategies are exhausted and survival strategies are adopted; affected population identify food as the dominant problem in the onset of the crisis.
Severe famine conditions	CMR ≥5 but <15/10,000/day and/or Wasting ≥ 40% and/or prevalence of oedema	Widespread social breakdown; markets are closed or inaccessible to affected population; survival strategies are widespread; affected population identify food as the dominant problem in the onset of this crisis.
Extreme famine conditions	CMR ≥15/10,000/day	Complete social breakdown; widespread mortality; affected population identify food as the dominant problem in the onset of the crisis.

FAO/FSNAU integrated food security and humanitarian phase classification reference table

Source: Food and Agriculture Organization, Food Security and Nutrition Analysis Unit – Somalia. Integrated Food Security and Humanitarian Phase Classification: Technical Manual Version I. Technical Series Report No. IV, FAO, Nairobi, 11 May 2006[84].

Phase classification	**Key reference outcomes** *(current or imminent outcomes on lives and livelihoods; based on convergence of evidence)*	**Strategic response framework** *(mitigate immediate outcomes, support livelihoods, and address underlying/structural causes)*
Generally food secure	***Crude mortality rate*** <0.5/10,000/day ***Acute malnutrition*** <3% (w/h < -2 z-scores) ***Stunting*** <20% (w/age <-2 z-scores) ***Food access/availability*** usually adequate (>2,100 kcal ppp day); stable ***Dietary diversity*** consistent quality and quantity of diversity ***Water access/availability*** usually adequate (> 15 litres ppp day); stable ***Hazards*** moderate to low probability and vulnerability ***Civil security*** prevailing and structural peace ***Livelihood assets*** generally sustainable utilization (of 5 capitals)	Strategic assistance to pockets of food insecure groups Investment in food and economic production systems Enable development of livelihood systems based on principles of sustainability, justice and equity. Prevent emergence of structural hindrances to food security Advocacy
Chronically food insecure	***Crude mortality rate*** <0.5/10,000/day; U5MR<1/10,000/day ***Acute malnutrition*** >3% but <10% (w/h <-2 z-score); usual range; stable ***Stunting*** >20% (w/age <-2 z-scores) ***Food access/availability*** borderline adequate (2,100 kcal ppp day); unstable ***Dietary diversity*** chronic dietary diversity deficit ***Water Access/Availability*** borderline adequate (15 litres ppp day) ***Hazards*** recurrent, with high livelihood vulnerability ***Civil security*** unstable; disruptive tension ***Coping*** 'insurance strategies' ***Livelihood assets*** stressed and unsustainable utilization (of 5 capitals)	Design and implement strategies to increase stability, resistance and resilience of livelihood systems, thus reducing risk. Provision of ùsafety netsû to high risk groups Interventions for optimal and sustainable use of livelihood assets Create contingency plan. Redress structural hindrances to food security. Close monitoring of relevant outcome and process indicators Advocacy

[84] New version to be released 2011

Acute food and livelihood crisis	***Crude mortality rate*** 0.5-1/10,000/day; U5MR 1-2/10,000/dy ***Acute malnutrition*** 10-15% (w/h <-2 z-score); > than usual; increasing ***Disease*** epidemic; increasing ***Food access/availability*** lack of entitlement (2,100 kcal ppp day) ***Dietary diversity*** acute dietary diversity deficit ***Water access/availability*** 7.5-15 litres ppp day; accessed via asset stripping ***Destitution/displacement*** emerging; diffuse ***Civil security*** limited spread, low intensity conflict ***Coping*** 'crisis strategies'; CSI > than reference; increasing ***Livelihood assets*** accelerated and critical depletion or loss of access	Support livelihoods and protect vulnerable groups Strategic and complimentary interventions to immediately ↑ food access/availability AND support livelihoods Selected provision of complimentary sectoral support (e.g., water, shelter, sanitation, health, etc.) Strategic interventions at community to national levels to create, stabilize, rehabilitate or protect priority livelihood assets Create or implement contingency plan. Close monitoring of relevant outcome and process indicators Use 'crisis as opportunity' to redress underlying structural causes. Advocacy
Humanitarian emergency	***Crude mortality rate*** 1-2/10,000/day, >2 x reference rate, increasing; U5MR >2/10,000/day ***Acute malnutrition*** >15% (w/h <-2 z-score); > than usual; increasing ***Disease*** pandemic ***Food access/availability*** severe entitlement gap; unable to meet 2,100 kcal ppp day ***Dietary Diversity*** regularly 2-3 or fewer main food groups consumed ***Water access/availability*** < 7.5 litres ppp day (human usage only) ***Destitution/displacement*** concentrated; increasing ***Civil security*** widespread, high intensity conflict ***Coping*** 'distress strategies'; CSI significantly > than reference ***Livelihood assets*** near complete and irreversible depletion or loss of access	Urgent protection of vulnerable groups Urgently ↑ food access through complimentary interventions. Selected provision of complimentary sectoral support (e.g., water, shelter, sanitation, health, etc.) Protection against complete livelihood asset loss and/or advocacy for access Close monitoring of relevant outcome and process indicators Use 'crisis as opportunity' to redress underlying structural causes. Advocacy

Famine/Humanitarian catastrophe	***Crude mortality rate*** >2/10,000/day (e.g., 6,000/1,000,000/30 days) ***Acute malnutrition*** >30% (w/h <-2 z-score) ***Disease*** pandemic ***Food access/availability*** extreme entitlement gap; much below 2,100 kcal ppp day ***Water access/availability*** <4 litres ppp day (human usage only) ***Destitution/displacement*** large scale; concentrated ***Civil security*** widespread, high intensity conflict ***Livelihood assets*** effectively complete loss; collapse	Critically urgent protection of human lives and vulnerable groups Comprehensive assistance with basic needs (e.g., food, water, shelter, sanitation, health, etc.) Immediate policy/legal revisions where necessary Negotiations with varied political-economic interests Use 'crisis as opportunity' to redress underlying structural causes. Advocacy

United Nations thresholds for malnutrition (2004)

Source: The Management of Nutrition in Major Emergencies (IFRC, UNHCR, WFP, WHO)

Interpretation	Prevalence of global acute malnutrition (<80% below median/or <-2 Z scores)	Mean weight-for-height Z score
Acceptable	<5%	>-0.4
Poor	5-9%	-0.4 to 0.69
Serious	10-14%	-07 to 0.99
Critical	>15%	<-1.00

Annex 3: WHO decision tree for implementation of selective feeding programmes

Source: World Health Organization, The Management of Nutrition in Major Emergencies, WHO, Geneva, 2000.

Finding	Action required
Food availability at household level below 2,100 kcal per person per day	Unsatisfactory situation: • Improve general rations until local food availability and access can be made adequate.
Malnutrition rate 15% or more *or* 10-14% with aggravating factors	Serious situation: • General rations (unless situation is limited to vulnerable groups); *plus* • Supplementary feeding generalized for all members of vulnerable groups especially children and pregnant and lactating women • Therapeutic feeding programme for severely malnourished individuals
Malnutrition rate 10-14% *or* 5-9% with aggravating factors	Risky situation: • No general rations; *but* • Supplementary feeding targeted at individuals identified as malnourished in vulnerable groups • Therapeutic feeding programme for severely malnourished individuals
Malnutrition rate under 10% with no aggravating factors	Acceptable situation: • No need for population interventions • Attention for malnourished individuals through regular community services

Note: This chart is for guidance only and should be adapted to local circumstances.

The malnutrition rate is defined as the percentage of the child population (6 months to 5 years) who are below either the reference median weight-for-height -2SD or 80 per cent of reference weight-for-height.

Aggravating factors:

- General food ration below the mean energy requirement
- Crude mortality rate more than 1 per 10 000 per day
- Epidemic of measles of whooping cough (pertussis)
- High incidence of respiratory or diarrhoeal diseases

Annex 4: Famines of the twentieth century

Source: Devereux, 2002.

Location	Date	Causal trigger	Excess mortality
Nigeria (Hausaland)	1903-06	Drought	5,000
Tanzania (South)	1906-07	Conflict	37,500
West Africa (Sahel)	1913-14	Drought	125,000
Tanzania (Central)	1917-19	Drought and conflict	30,000
China (Gansu, Shaanxi)	1920-21	Drought	500,000
Soviet Union	1921-22	Drought and conflict	9,000,000
China (northwest)	1927	Natural disasters	3,000,000-6,000,000
China (Hunan)	1929	Drought and conflict	2,000,000
Soviet Union (Ukraine)	1932-34	Government policy	7,000,000-8,000,000
China (Henan)	1943	Conflict	5,000,000
India (Bengal)	1943	Conflict (fear of Japanese invasion)	2,100,000-3,000,000
Rwanda	1943-44	Conflict and drought	300,000
Holland (Dutch Hunger)	1944-45	Conflict (Nazi blockade)	10,000
Soviet Union	1946-47	Drought and government policy	2,000,000
Ethiopia (Tigray)	1957-58	Drought and locusts	100,000-397,000
China	1958-62	Government policy	30,000,000-33,000,000
Ethiopia (Wollo)	1966	Drought	45,000-60,000
Nigeria (Biafra)	1968-70	Conflict (war of independence)	1,000,000
West Africa (Sahel)	1969-74	Drought	101,000
India (Maharashra)	1972-73	Drought	130,000
Ethiopia (Wollo and Tigray)	1972-75	Drought	200,000-500,000
Somalia	1974-75	Drought and government policy	20,000
Bangladesh	1974-75	Flood and market failure	1,500,000
Cambodia	1979	Conflict	1,500,000-2,000,000
Uganda (Karamoja)	1980-81	Conflict and drought	30,000
Mozambique	1982-85	Conflict and drought	100,000
Ethiopia	1983-85	Conflict and drought	590,000-1,000,000
Sudan (Darfur, Kordofan)	1984-85	Drought	250,000
Sudan (south)	1988	Conflict	250,000
Somalia	1991-93	Conflict and drought	300,000-500,000
Democratic People's Republic of Korea	1995-1999	Government policy and floods	2,800,000-3,500,000
Sudan (Bahr el Ghazal)	1998	Conflict and drought	70,000