Chapter 1
Food Security Basics

Abstract This chapter presents the technical definition of food security introduced by the 2008 World Food Summit and its evolution over time. It analyses the core concepts introduced by this definition and clarifies its distinguishing features with respect to those of the concept of nutrition security, food self-sufficiency, poverty, undernutrition, malnutrition and hunger. The dynamic aspect of the technical definition of food security is linked to the concept of vulnerability to food insecurity and resilience in a food security context. This chapter also addresses the juridical and political aspects of food security and compares them with the technical definition. At the end of this chapter, the reader will be able to describe the relevant features of the food security target and identify the most important elements for designing, implementing, monitoring and evaluating policies, programmes and project focused on fighting hunger and malnutrition.

1.1 Introduction

From a technical perspective, the concept of food security has evolved considerably over time (Maxwell and Frankenberger 1992; Clay 1997). One of the most accepted definitions is that stated in the Plan of Action of the Rome Declaration, which was adopted at the 1996 World Food Summit. According to this definition, food security “exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (Food and Agricultural Organization [FAO] 1996).

This concept introduces the following:

– The four basic and distinctive characteristics of food security, that is, food availability (“sufficient, safe and nutritious food”), access (“physical and economic access”), utilisation (“to meet dietary needs and food preferences”), and stability (“for all people at all times”);
– The individual level as the unit of analysis (“all people”);
1.2 Food Security and Its Dimensions

The technical concept of food security is rooted in the three basic, distinct, and interrelated dimensions: food availability, access to food, and food utilisation. Over time, a fourth pillar—food stability—has been added (Table 1.1) (Riely et al. 1999; Thomson and Metz 1996).

Food availability is reached when a sufficient quantity of safe and nutritious food is consistently available to individuals within a country—i.e., when such food is in reasonable proximity of them or within their reach. In addition, this quantity of food must meet the individuals’ food preferences (FIVIMS 2003; Hussein 2002; Riely et al. 1999; Thomson and Metz 1996). Sufficient quantities of appropriate, necessary types of food can be ensured through domestic food production (household food production for subsistence and other types of domestic food output, such as that from commercial farms), commercial food imports, net food stocks, or food assistance. Therefore, food availability addresses the “supply side” of food security and depends primarily on the agricultural sector and the domestic and international distribution systems.

Available food should be of appropriate quality and meet people’s tastes and cultural traditions. This aspect is called the adequacy of food, meaning that food must not contain adverse substances above the levels set by international standards and must meet cultural values with regard to food preparation and consumption (FAO 2008).
The second pillar of the technical concept of food security concerns both economic and physical access to food.

Economic food access implies that households and all the individuals therein have adequate resources to obtain appropriate food to maintain a nutritious diet. Such access depends on the ability of households to generate the income necessary to buy—or other resources to barter to obtain—enough food to feed the household’s members (USAID 2012).

Therefore, considering the household level, the most important determinants of economic food access are the wage level, employment, and prices. When households are subsistence producers, the relevant factors for economic food access are the available productive assets and nonmarket transfers.

Physical access relates to food being accessible to everyone, everywhere. This dimension of food security is mainly linked to infrastructure, market and storage facilities, political stability, security and legal, cultural or religious prohibitions (FAO-FSAU 2005). For example, religious restrictions include food taboos that govern particular phases of the human life cycle, which may be associated with special events such as menstrual periods, pregnancies, childbirth, lactation, preparation for the hunt, battles, weddings, and funerals (Meyer-Rochow 2009).

Considering the constraining factors affecting food access, the most commonly adopted policies are pro-poor agricultural development interventions focused on resource-poor farmers; the introduction of employment and income-generating activities; and the implementation of public transfers and safety net mechanisms.

The definition of food security introduced at the 1996 World Food Summit was refined by the FAO in 2002. In the glossary of the FAO’s annual report, food security is described as “a situation that exists when all people, at all times, have

### Table 1.1 Food security dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Definition</th>
<th>Key question</th>
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<tbody>
<tr>
<td>Food availability</td>
<td>Sufficient quantities of safe and nutritious food are consistently available to individuals within a country, are in a reasonable proximity to them or are within their reach</td>
<td>Is food actually or potentially physically present?</td>
</tr>
<tr>
<td>Access to food</td>
<td>Households and all individuals within them have adequate resources to obtain appropriate food for a nutritious diet</td>
<td>If food is available, do households and individuals have sufficient access to that food?</td>
</tr>
<tr>
<td>Food utilisation</td>
<td>Proper biological use of food, requiring a diet that provides sufficient energy and essential nutrients, potable water and adequate sanitation</td>
<td>If food is available and accessible, are households and individuals properly utilising the food?</td>
</tr>
<tr>
<td>Stability of food supply</td>
<td>Reliable supply of food products available for all people at all times</td>
<td>Is the food system stable, thus ensuring that the households and individuals are food secure at all times?</td>
</tr>
</tbody>
</table>

1.2 Food Security and Its Dimensions 3
physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO 2001). This definition introduces a new element: the social aspect of food access. This aspect refers to the necessity of also considering food accessibility according to factors such as ethnicity, religion, and political affiliation. These factors affect the quantities of food consumed, dietary diversity and the intake of nutrient-rich foods (see, for example, Briones Alonso 2015).

Food utilisation, the third pillar of the 1996 World Food Summit definition of food security, concerns the proper biological use of food required to provide sufficient energy and essential nutrients, potable water and adequate sanitation. The concept implies some knowledge within the households of storage and processing techniques, basic principles of nutrition, proper child care and illness management (FIVIMS 2003; Riely et al. 1999; Thomson and Metz 1996). In other words, people must have the knowledge and the access to basic sanitary conditions that allow them to choose, prepare and distribute food in a way that results in good nutrition (Feed the Future 2010). The most adopted policy interventions to enhance food utilisation are improved food preservation and preparation technologies; the establishment of proper food standards; the enhancement of public health; the provision of safe drinking water; the improvement of sanitation and hygiene and nutrition education; and increased awareness at the community level.

All three of the abovementioned pillars of food security must be satisfied simultaneously to achieve food security. In fact, food availability is necessary but not sufficient for access, and access is necessary but not sufficient for utilisation. The hierarchical nature of food security moves in the opposite direction. Food utilisation is an input to achieve food access for all, for example, through the consequences of an inappropriate diet on health, nutrition and more generally human capital. Access, in turn, is the basis of food availability; otherwise, natural, human and capital resources are likely subjected to depletion (Webb and Rogers 2003).

The fourth dimension of food security is the stability of food availability, access, and utilisation, which is reached when a reliable supply of food products is available for all people at all times (FIVIMS 2003), meaning that individuals must be food secure now and in the future.

The availability, access and utilisation pillars provide a static picture of food security. The stability pillar introduces the dynamic nature of the concept. Consequently, food security policies should be based not only on the current level of food security but also on the expectations for this state in the future (Fig. 1.1).

Given these considerations, the literature has introduced two dimensions of food security that have found practical applications in policy and programme design and implementation: the fear or the perception that there will be not enough food to eat (Maxwell 2001) and the risk that one of the three basic dimensions of food security can be disrupted. The latter is considered a cross-cutting issue: it can affect all the core pillars underpinning food security (Webb and Rogers 2003). In this respect, the following two concepts are key from a policy and programming perspective: vulnerability and resilience.
1.2.1 Vulnerability

People vulnerable to food insecurity are those who are capable of maintaining an adequate level of food intake today but who may be at risk of becoming food insecure in future (FAO 2008).

Vulnerability refers to the full range of natural factors or to factors resulting from human activity that puts individuals or households at risk of becoming food insecure. Some examples of these factors are provided in Table 1.2 by the degree of covariance.

The possible sources of risk operate at different levels: at the micro level, which is related to the individual and environmental characteristics of the family; at the meso level, which is at the community, village, or state level; and at the macro level, which includes factors acting at the global level.

Starting from a certain food security status at time $t_0$ in Fig. 1.2, the degree of vulnerability of an individual or a household to food insecurity is determined by three elements: the exposure to risk factors during a certain period ($t_0$–$t_1$), the ability to cope with or withstand such shocks over the same period ($t_0$–$t_1$), and the expected outcome in terms of the food security dimensions at time $t_1$ (Heitzmann et al. 2001; Devereux 2002).

Therefore, vulnerability can be addressed through risk management interventions. Following Holzman and Jorgensen (2001), these interventions consist of actions that can occur:

- Ex ante, i.e., before the realisation of the risk event; or
- Ex post, i.e., after the manifestation of the risk event.
The former group is of particular importance in fighting food insecurity because it prevents the risk of its manifestation. The interventions can be formal or informal, with the latter group being adopted by households or communities.

### Table 1.2 Possible sources of risk

<table>
<thead>
<tr>
<th>Category</th>
<th>Micro</th>
<th>Meso</th>
<th>Macro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td>Rainfall, landslides, volcanic eruptions</td>
<td>Earthquakes, floods, drought, strong winds</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>Illness, injury, disability</td>
<td>Epidemics</td>
<td></td>
</tr>
<tr>
<td>Life cycle</td>
<td>Birth, old age, death</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>Crime, domestic violence</td>
<td>Terrorism, gangs</td>
<td>Civil strife, war, social upheaval</td>
</tr>
<tr>
<td>Economic</td>
<td>Unemployment, harvest failure, business failure</td>
<td>Resettlement</td>
<td>Balance of payment, financial or currency crisis, terms of trade shocks</td>
</tr>
<tr>
<td>Political</td>
<td>Ethnic discrimination</td>
<td>Riots</td>
<td>Political default on social progress, coup d’état</td>
</tr>
<tr>
<td>Environmental</td>
<td>Pollution, deforestation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source Holzman and Jorgenson (2001)*

**Fig. 1.2** Vulnerability to food insecurity

The former group is of particular importance in fighting food insecurity because it prevents the risk of its manifestation. The interventions can be formal or informal, with the latter group being adopted by households or communities.
Ex post risk management strategies can be organised into three categories:

- Risk prevention strategies (or risk reduction strategies), which prevent or reduce the likelihood of a risk occurring. They relate to block A in Fig. 1.2 and include policies regarding macroeconomics, the environment, health, education and training, the promotion of less risky production, and migration;

- Strategies to cope with (or lessen) risk exposure, which reduce risk exposure by helping the food insecure cope with the residual effects of the risk event so that they do not suffer irreversible negative effects. These strategies pertain to block B in Fig. 1.2 and include social assistance, subsidies, public works, household borrowing from banks, and charity;

- Risk mitigation strategies, which compensate for expected losses based on the expected outcome. In other words, they reduce the negative consequences associated with a risk event (block C in Fig. 1.2). They act on the “portfolio” of vulnerable people investing, for example, in the physical, financial, human and social capital and in the pension system. This investment has a double aim: the promotion of portfolio diversification via formal and informal insurance mechanisms aimed at sharing risk, such as marriage, shared tenancy, and insurance for old age; and hedging based on risk exchange, for example, among the extended family or stipulating a labour contract.

People are highly vulnerable to food insecurity when they are exposed to multiple shocks, when their incomes are low and uncertain, and when they own few assets (Maliro 2011). Therefore, strengthening people’s sources of income and assets reduces their vulnerability to future adverse events.

These interventions are part of the resilience strategies aimed at improving the ability of people, communities or systems affected by disasters or crises to withstand damage and to recover rapidly (FAO 2008).

1.2.2 Resilience in a Food Security Context

Following to the food crisis of 2008, the research interest in resilience has increased, and many definitions have been developed.

For example, according to the United Nations (UN) International Strategy for Disaster Reduction (United Nations International Strategy for Disaster Reduction 2009), resilience is the “ability to prevent disasters and crises as well as to anticipate, absorb, accommodate or recover from them in a timely, efficient and sustainable manner. This includes protecting, restoring and improving livelihoods systems in the face of threats that impact agriculture, nutrition, food security and food safety”.

For the European Union, resilience is “the ability of an individual, a household, a community, a country or a region to withstand, to adapt, and to quickly recover from stresses and shocks” (European Commission 2012).

The United States Agency for International Development defines resilience as “the ability of people, households, communities, countries, and systems to mitigate,
adapt to and recover from shocks and stresses in a manner that reduces the chronic vulnerability and facilitates inclusive growth” (USAID and DFID 2012).

These definitions have some elements in common; they recognise resilience in terms of the following three dimensions:

- Absorptive capacity, which refers to coping strategies that households and communities use to buffer themselves against shocks or to moderate the impact of shocks on their livelihoods and basic needs to enable them to continue in their current way of life;
- Adaptive capacity, which is the ability to learn from one’s experience and to adapt one’s responses to the impacts of a shock or stress that exceeds the absorptive capacity without making major qualitative changes in function or structure;
- Transformative capacity, which refers to the capacity to create a fundamentally new system (or way of life) when ecological, economic, or social conditions require it; when a severe shock occurs, the changes associated with adaptive capacity are not sufficient to prevent the collapse of livelihood systems (Béné et al. 2012).

Figure 1.3 shows the three capacities of resilience, the outcome they provide and their link with the intensity of shocks and stresses.

Béné et al. (2012) emphasise that building resilience requires interventions that strengthen the absorptive, adaptive and transformative capacities not only at the
individual or household level but also at multiple levels, including the community, county, and regional levels.

Based on the dimensions of the concept of resilience, organisations have elaborated their own strategies and actions in a food security context. For example, the resilience strategy adopted by the FAO is based on enabling the environment, watching to safeguard, applying prevention and mitigation measures to disasters and crises, and preparing and responding (http://www.fao.org/emergencies/how-we-work/resilience/en/) (Box 1.A).

Box 1.A—The four pillars of the FAO resilience strategy

With the four pillars of its resilience strategy, the FAO aims to achieve the following:

– To enable the environment, which suggests institutional strengthening and the governance of risk and crisis in agricultural sectors in order to maximise the food and nutritional impact of measures designed to improve resilience;
– To watch to safeguard, which promotes the greater integration of information on food and nutrition security and transboundary threats through early warning systems to better monitor threats, situation and context analysis and causal analysis;
– To apply prevention and mitigation measures to disasters and crises, which indicates the need for actions aimed at the protection, prevention, mitigation and building of livelihoods with technologies, approaches, and practices across all agricultural sectors;
– To prepare and respond, which recommends designing preparedness and response interventions, especially with regard to crises in agriculture, livestock, fisheries, and forestry, to ensure that the national and international response to the shock is adequate, timely and effective. (http://www.fao.org/emergencies/how-we-work/resilience/en/).

This strategy reflects the five priorities set by the Hyogo Framework for Action 2005–2015 (http://www.unisdr.org/files/1037_hyogoframeworkforactionenglish.pdf): ensuring that disaster risk reduction is a national and local priority with a strong institutional basis for implementation; identifying, assessing and monitoring disaster risks and enhancing early warnings; using knowledge, innovation and education to build a culture of safety and resilience at all levels; reducing underlying risk factors; and strengthening disaster preparedness for effective responses at all levels (International Strategy for Disaster Reduction 2007). This framework was adopted at the World Conference on Disaster Reduction in 2005, binding 168 governments to adopt a 10-year plan to reduce vulnerabilities and risks to hazards.
1.3 Levels of Analysis of Food Security

Food security can be analysed at the global, national/regional, household, or individual level (Table 1.3). Each level of analysis requires a specific policy answer. Moreover, food security at one level does not imply food security at a lower level (FIVIMS 2003; Thomson and Metz 1996).

Food security at the global level describes a situation in which sufficient food is produced in the world.

National/regional food security occurs when a satisfactory balance exists between food demand and supply at reasonable prices. In other words, this concept describes a situation in which no major upheavals have occurred in the food market in the recent past, food availability is adequate, and most of the population has access to food. According to the literature, most of the population is food secure when hungry people account for less than 5% of the total population.

Food security at the household level is reached when the household’s entitlements are greater than or equal to its food needs in terms of energy requirements. This definition is based on two key concepts. The first concept is that of entitlements, which Sen introduced to indicate “the set of alternative commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she faces” (Sen 1981).

Sen (1981) distinguishes between four categories of entitlements:

- Trade-based entitlements, which consist of what a person can buy with the commodities that he or she owns and with cash;
- Production-based entitlements, which are represented by the right to own what a person produces with his or her resources;
- Labour entitlements, which refer to the sale of a person’s labour power;
- Inheritance and transfer entitlements, which relate to the right to own what is willingly given by others.

The second component of the definition of household-level food security is the concept of energy requirements. This concept is fundamental in characterising food security from a theoretical perspective and in measuring its state. The report of the FAO/WHO/UNU Expert Consultation on Energy and Protein Requirements defines energy requirements at the individual level as “the level of energy intake from food

<table>
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<tr>
<th>Level of food security</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Global</td>
<td>Sufficient food produced at the global level</td>
</tr>
<tr>
<td>National/regional</td>
<td>A satisfactory balance between food demand and supply at reasonable prices</td>
</tr>
<tr>
<td>Household</td>
<td>Household entitlements greater than or equal to food needs in terms of energy requirements</td>
</tr>
<tr>
<td>Individual</td>
<td>Individual food consumption meets individual food needs in terms of energy requirements</td>
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that will balance energy expenditure when an individual has a body size and composition and level of physical activity, consistent with long-term good health; and that will allow for the maintenance of economically necessary and socially desirable physical activity. In children and pregnant or lactating women, the energy requirement includes the energy needs associated with the deposition of tissues or the secretion of milk at rates consistent with good health” (FAO/WHO/UNU 1995).

This definition underlines the three basic components of food requirements. 1

They refer to the energy

– Expended for the functioning of an individual in a state of complete rest (the basal metabolic rate);

– Needed to digest food, to metabolise food and to store and increase food intake; and

– Required to perform physical activities related to both work and non-work2 (Naiken 2002).

In the case of children, the energy required for growth should be added to the abovementioned components, and in the case of pregnant and lactating women, the energy required for the deposition of tissue and the secretion of milk should be considered to increase food requirements.

The final level of the analysis of food security is the individual level. At this level, food security is defined as a situation in which individual food consumption meets individual food needs, which are also expressed in terms of the energy requirements.

The FAO definition of food security stresses the individual level of analysis (“all people”) because of an important paradigm shift (Table 1.4). As argued by

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1 In practice, the food requirement level employed is a normatively specified minimum energy consumption level given a minimum acceptable body weight for healthy people per age and sex group, as recommended by the WHO or other health agencies. These levels are periodically reviewed.

2 The energy requirement components also change according to an individual’s age, sex, body weight, body consumption, disease state, genetic traits and activity level.

<table>
<thead>
<tr>
<th>Decade</th>
<th>Focus</th>
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<tbody>
<tr>
<td>1970s</td>
<td>Focus on supply, national self-sufficiency, and world food stocks or import stabilisation schemes (see, for example, United Nation 1975)</td>
</tr>
<tr>
<td>1980s</td>
<td>Importance of access and entitlement (see, for example, Sen 1981; Berg 1973; Joy 1973) but ambiguities about whether the unit of analysis should be the individual or the household</td>
</tr>
<tr>
<td>Since the 1990s</td>
<td>Prioritisation of access to food by individuals in the household and intra-household resource allocation</td>
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Source Author’s elaboration from Maxwell (1996, 2001)
Maxwell (1996, 2001), over time, concerns regarding issues of global and national food supply have gradually shifted towards problems related to household and individual access to food.

1.4 Food Insecurity Typologies According to Time

The FAO definition of food security (“at all times”) draws an important distinction between chronic and transitory food insecurity (Table 1.5). To address this issue, we must first define food insecurity. According to the FAO (2002), it is “a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active, healthy life”. In other words, food insecurity occurs when food security is limited or uncertain.

Food insecurity is chronic in a situation of long-term inadequate access to sufficient food, which is associated with enduring conditions of poverty combined with a lack of coping mechanisms due to complex emergencies or a lack of assets and inadequate access to productive or financial resources (FIVIMS 2003; Thomson and Metz 1996). Chronic food insecurity may have several manifestations, including a lack of food access and food stocks, inadequate dietary rations throughout the year, malnutrition in children under five years of age, food purchases in small amounts and outstanding household debts.

This type of food insecurity can be overcome using the long-term development measures normally introduced to address poverty, including interventions aimed at improving education, access to productive resources, especially credit, and access to food to enable the chronically food insecure to increase their productive capacity (FAO 2008).

Food insecurity is transitory when inadequate access to food is temporary or occurs in the short term.

It can be temporary—when sudden and unpredictable shocks affect household entitlements—or cyclical (also called seasonal)—when there is a regular pattern of inadequate access to food (FIVIMS 2003; Riely et al. 1999; Thomson and Metz 1996).

Temporary food insecurity may be the result of natural disasters (e.g., hurricanes, floods, and earthquakes) or other short-term negative shocks and fluctuations in food availability and food access due to variations in domestic food production, food prices and household incomes. Typical manifestations include temporary displacement from one’s home, although livelihoods are intact (e.g., crops are

<table>
<thead>
<tr>
<th>Table 1.5</th>
<th>Food insecurity and time</th>
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<tr>
<td>Typology</td>
<td>Definition</td>
</tr>
<tr>
<td>Chronic</td>
<td>Long-term inadequate access to sufficient food</td>
</tr>
<tr>
<td>Transitory:</td>
<td>Temporary inadequate access to food</td>
</tr>
<tr>
<td>– Temporary</td>
<td>Household entitlements affected by sudden and unpredictable shocks</td>
</tr>
<tr>
<td>– Cyclical</td>
<td>Regular pattern of inadequate access to food</td>
</tr>
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</table>
destroyed, but livestock and possessions are intact), and the sale of surplus assets (i.e., bulls and goats) rather than productive assets (i.e., cows).

The relatively unpredictable nature of temporary food insecurity makes planning and programming more difficult in these situations, requiring specific capacities and types of interventions that differ from those adopted for chronic food insecurity. Early warning capacity and safety net programmes are among the tools used to address temporary food insecurity (FAO 2008).

The main causes of cyclical or seasonal food insecurity are the inadequacy of household production to sustain the household for the entire year in poverty-stricken areas with one primary growing season. Such inadequate production is associated with seasonal fluctuations in the climate, cropping patterns, work opportunities and disease (FAO 2008). Therefore, seasonal food insecurity is predictable as chronic food insecurity and lasts for a limited period as temporary food insecurity.

Box 1.B provides an example of seasonal food insecurity for the case of Malawi.

**Box 1.B—Seasonal food insecurity in Malawi**

As described in Sassi (2015a, b), food consumption in Malawi is generally characterised by a significant risk of malnutrition. Most of the population depends on agriculture for income and food. Maize is the predominant crop and represents the main staple food that defines the country’s food security situation. The price of maize serves as a proxy for the price of food, and its fluctuations are significantly affected by the dynamic seasonal structure of production (Sassi 2015a, b).

Figure 1.4 shows the crop and seasonal calendar for maize in Malawi, showing the hunger season from December to March every year.

The single main harvest each year does not provide adequate food to last from one season to the next. Thus, a large portion of the population depends on market food purchases when the stock is depleted. In this period, the maize price increases because of supply shortages and excess demand. The country suffers from seasonal food insecurity. The hunger season coincides with the onset of the rainy season when water quality deteriorates (Cornia et al. 2016). In fact, rain facilitates surface contamination of customary water sources, which increases the risk of waterborne diseases. In addition, stagnant water increases the risk of malaria transmission. The hunger season is also characterised by the beginning of the planting season when labour demand intensifies. In this period, women are also involved in agricultural practices and often leave their infants with grandparents or older children during the working day. This practice results in children’s increased exposure to poor feeding and childcare practices.

Figure 1.5 explains the trend described above, showing the direct correlation between the seasonal component of the price of maize and underweight age under five years of age.
By contrast, a sharp decline in the price of maize is registered in the period immediately following the harvest when most households are forced to sell their produce to repay the debts accumulated in prior months to buy food and non-food items. In this period, there is a tension between the retention and extraction forces at the household level (Devereux 2008). In fact, households must balance the need to retain food for subsistence production and the need to sell it to meet non-food needs. In Malawi, the need to sell maize at a low price compromises the household’s capacity to buy maize on the market when stocks are depleted and reduces the potential amount of maize stocked, thereby favouring the insurgence of the seasonal food insecurity.

The manifestations of cyclical food insecurity are rationed food or the consumption of unpalatable foods during the hunger season; reduced spending on non-food items, such as school fees, and the postponement of funerals and weddings; out-migration on seasonal basis, which is reversed during the planting season; and high malnutrition rates throughout the hunger season, which returns to normal levels after the harvest. Another typical response of households during the hunger season is to sell its livestock or assets, to increase its casual labour and to borrow to acquire food.
Selling assets often gives rise to the so-called exchange entitlement decline. Devereux (2008) provides an example of such a decline in Ghana, comparing the trend in the price of millet, the country’s staple food, and goats, an important asset for farmers (Fig. 1.6).

The price scissors between the two prices indicates a decline in the terms of trade between the asset value and the food price.

More generally, during seasonal food insecurity, the effective demand for food is also constrained by the decline in the price of assets due to excess supply in the assets market.

In some cases, during seasonal food insecurity, households introduce survival strategies or desperate or negative coping mechanisms. For example, some engage in transactional sex and theft. Moreover, children are often taken out of school to join their parents in searching for casual labour opportunities, and this activity can last several weeks. These survival strategies destroy or reduce the production capital of the households.

Therefore, when not properly addressed, cyclical food insecurity is one of the main causes of chronic food insecurity.

Therefore, Devereux (2009) suggests an integrated intervention framework to fight seasonal hunger (Fig. 1.7).

The framework is articulated by three levels of intervention. The emergency assistance level is directed towards people who need immediate help because they are affected by seasonal hunger. The second group of interventions, social protection safety nets, prevents households from becoming food insecure. The last set of measures includes agricultural development interventions. These initiatives aim to improve access to key inputs in order to promote increased agricultural productivity. The final aim of these interventions is to allow the households to reach a stable level of income in order to avoid the need for social protection safety nets.
1.4.1 Severity of Food Insecurity

To determine the nature, extent, and urgency of the assistance needed by hungry people, the understanding of the time dimension of food insecurity should be combined with information regarding the severity of the problem.

Analysts have developed different classifications, scales and phases to identify the intensity of food insecurity (European Commission and FAO Food Security Programme 2008). For example, the Integrated Food Security Phase Classification (IPC) is part of a global effort to develop a common approach to food security analysis and response, which has been undertaken by 12 agencies: Action Against Hunger, CARE, the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS), the FAO, the Famine Early Warning Systems Network, the Food Security Cluster, the Intergovernmental Authority on Development, the Joint Research Centre of the European Commission, Oxfam, Save the Children, the Central American Integration System, and the World Food Programme (http://www.ipcinfo.org/ipcinfo-about/ipcinfo-partnership/en/).

The IPC offers two kinds of information to decision makers. In fact, this tool presents a rigorous analysis of food insecurity and suggests objectives for responses in emergency and development contexts (http://www.ipcinfo.org/).

The IPC is a set of standardised tools that provides a common approach to classifying the severity and magnitude of acute food insecurity situations. More

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3Acute food insecurity is a severe and life threatening situation.
recently, this approach has been complemented by that used to address chronic food insecurity situations. Both classifications are based on the analysis of a range of food insecurity outcomes, including food consumption levels, livelihood changes, nutritional status, and the mortality rate. The information is triangulated with several determinants of food insecurity and is analysed in local contexts (for more information, see www.ipcinfo.org).

In Table 1.6, the IPC categorises the severity of acute food insecurity at the household by area level and five phases: none or minimal, stressed, crisis, emergency, and humanitarian catastrophe or famine. Famine is the most extreme situation and is associated with substantial loss of life, starvation, and destitution. Table 1.6 also provides the suggested priority response objectives by phase.

The IPC classification levels for chronic food insecurity are presented in Table 1.7.

The IPC scale organises chronic food insecurity according to four levels: minimal, mild, moderate, and severe. As in the case of acute food insecurity, Table 1.7 highlights the top response objectives.

The IPC scales for acute and chronic food insecurity are not mutually exclusive. In fact, areas or population groups can be in an acute, chronic condition. In this situation, the combined analysis of acute and chronic food insecurity provides decision makers with a comprehensive understanding of the context, which is essential to realize effective responses (FAO-FSNAU 2006).

1.5 Food and Nutrition Security

Food security and nutrition were referred to as separate goals for a long time. However, a broad consensus has emerged regarding the need to consider optimal nutrition and food security as the cornerstones of development, which can be achieved using a comprehensive rights-based approach that covers food availability, access, utilisation, and stability (FAO 2013). In 2012, the Committee on World Food Security acknowledged that the term “food and nutrition security” best reflects the conceptual linkages between food security and nutrition security, stating that “food and nutrition security exists when all people at all times have physical, social and economic access to food, which is safe and consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life” (Committee on World Food Security 2012).

This definition adds the dimensions of adequate sanitation, health services, and care to the concept of food security (Fig. 1.8).

According to the World Health Organization (WHO), sanitation refers to the provision of facilities and services for the safe disposal of human urine and faeces and to the maintenance of hygienic conditions, such as the cleanliness of the
### Table 1.6 IPC scale for acute food security

<table>
<thead>
<tr>
<th>Phase name</th>
<th>Area classification</th>
<th>Household group classification</th>
<th>Priority response objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1</strong>&lt;br&gt;None/minimal</td>
<td>More than four in five households are able to meet essential food and non-food needs without engaging in atypical, unsustainable strategies to access food and income, including any reliance on humanitarian assistance</td>
<td>The household group is able to meet essential food and non-food needs without engaging in atypical, unsustainable strategies to access food and income, including any reliance on humanitarian assistance</td>
<td>Action required to build resilience and for disaster risk reduction</td>
</tr>
<tr>
<td><strong>Phase 2</strong>&lt;br&gt;Stressed</td>
<td>Even with any humanitarian assistance at least one in five households in the area have the following problems or worse: minimally adequate food consumption and the inability to afford some essential non-food expenditures without engaging in irreversible coping strategies</td>
<td>Even with any humanitarian assistance, the household group has minimally adequate food consumption and is unable to afford some essential non-food expenditures without engaging in irreversible coping strategies</td>
<td>Action required for disaster risk reduction and to protect livelihoods</td>
</tr>
<tr>
<td><strong>Phase 3</strong>&lt;br&gt;Crisis</td>
<td>Even with any humanitarian assistance, at least one in five households in the area have experienced the following or worse: the household has food consumption gaps with acute malnutrition that is high or higher than usual, or it is marginally able to meet minimum food needs, though only with the accelerated depletion of livelihood assets, which will lead to food consumption gaps</td>
<td>Even with any humanitarian assistance, the household group has food consumption gaps with acute malnutrition that is high or higher than usual or is marginally able to meet minimum food needs, though only with accelerated depletion of livelihood assets, which will lead to food consumption gaps</td>
<td>Urgent action required to protect livelihoods, reduce food consumption gaps, and reduce acute malnutrition</td>
</tr>
</tbody>
</table>

(continued)
household environment (http://www.who.int/topics/sanitation/en/). Health services include all services involving the diagnosis and treatment of disease or the promotion, maintenance and restoration of health (http://www.who.int/topics/health_services/en/). Better sanitation and health services can prevent and properly treat the impact on nutritional status of diseases and especially infections, such as diarrhoea, malaria, intestinal parasites, and HIV/AIDS.

**Table 1.6 (continued)**

<table>
<thead>
<tr>
<th>Phase name</th>
<th>Area classification</th>
<th>Household group classification</th>
<th>Priority response objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 4</strong></td>
<td>Even with any humanitarian assistance, at least one in five households in the area have experience the following or worse: large food consumption gaps resulting in very high acute malnutrition and excess mortality or an extreme loss in livelihood assets, which will lead to food consumption gaps in the short term</td>
<td>Even with any humanitarian assistance, the household group has large food consumption gaps resulting in very high acute malnutrition and excess mortality, or it experiences an extreme loss in livelihood assets, which will lead to large food consumption gaps in the short term</td>
<td>Urgent action required to save lives and livelihoods</td>
</tr>
<tr>
<td><strong>Phase 5</strong></td>
<td>Even with any humanitarian assistance at least one in five households in the area suffers from an extreme lack of food and other basic needs, and starvation, death, and destitution are evident [evidence of all three criteria of mortality, particularly CDR* &gt; 2/10,000/ day, wasting (GAM** &gt; 30%) and food consumption (near complete food consumption gap for &gt; 20% of the population)]</td>
<td>Even with any humanitarian assistance, the household group suffers an extreme lack of food and/or other basic needs even with the full employment of coping strategies. Starvation, death, and destitution are evident</td>
<td>Urgent action required to prevent widespread death and total collapse of livelihoods</td>
</tr>
</tbody>
</table>

*CDR = Crude Death Rate; **GAM = Global Acute Malnutrition

Source Adapted from FAO-FSNAU (2006)
The international community has recognised the importance of these achievements in its development goals. In 2000, Target 7c of the Millennium Development Goals (MDGs) aimed to “[h]alve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation”. In 2015, the Sustainable Development Goals introduced Target 6 to “[e]nsure access to water and sanitation for all”.

### Table 1.7 IPC scale for chronic food insecurity

<table>
<thead>
<tr>
<th>Phase name</th>
<th>Classification</th>
<th>Priority response objectives</th>
</tr>
</thead>
</table>
| **Level 1** Low chronic food insecurity | – Considering years when the area does not experience Phase 3, 4, or 5 of food insecurity, less than 10% of the households have an inadequate quantity and quality of food throughout the year; and  
  – The area has not had recurrent acute food security crises (or the equivalent) in the past 10 years | Objectives should be cross-cutting and holistic, addressing the structural and underlying causes of chronic food insecurity, and they should be tailored to the type of chronic food insecurity (ongoing, seasonal, and/or episodic acute crises) and causes (hazards and vulnerabilities). The higher the level is, the higher the geographic priority and level of investments required. Depending on the situation, more specific objectives can include  
  – Increasing food system productivity and resilience;  
  – Building and protecting livelihood assets and strategies;  
  – Implementing safety net programmes;  
  – Reducing disaster risk;  
  – Implementing micronutrient enhancement programmes;  
  – Ensuring the efficacy of policies and institutional structures;  
  – Ensuring adequate resources and political will through advocacy |
| **Level 2** Moderate chronic food insecurity | – Considering years when the area does not experience Phase 3, 4, or 5 of food insecurity, 10–20% of the households have an inadequate quantity and quality of food throughout the year; or  
  – The area has had occasional acute food security crises (or the equivalent) |                                                                                                  |
| **Level 3** High Chronic Food Insecurity | – Considering years when the area does not experience Phase 3, 4, or 5 of food insecurity, less than 20–40% of the households have an inadequate quantity and quality of food throughout the year; or  
  – The area has had frequent acute food security crises (or the equivalent) |                                                                                                  |
| **Level 4** Very high chronic food insecurity | – Considering years when the area does not experience Phase 3, 4, or 5 of food insecurity, more than 40% of the households have an inadequate quantity and quality of food throughout the year; or  
  – The area has had very frequent acute food security crises (or the equivalent) |                                                                                                  |

Source: Adapted from FAO-FSNAU (2006)
Today, Water, Sanitation and Hygiene (WaSH) programmes are a broadly adopted response in this area. They include interventions aimed at promoting the safe disposal of faeces, hand washing with soap, the drinking water supply, drinking water treatment and safe storage, and food hygiene.

Care practices are the ways in which the dependent members of a household or a community are looked after and fed. These practices are the basis of optimal survival, growth, and development. They include psychological care, food preparation, hygienic practices, and home health practices, especially during periods of vulnerability, eating habits, and intra-household food distribution (FAO-FSNAU 2005). Within households, mothers and daughters are responsible for a large part of the family care practices. For this reason, the improvement of women’s knowledge, education, and rights is vital to increase food and nutrition security (FAO 1997).

1.6 Food Security Versus Food Self-sufficiency

After the 2007–2008 food crisis, which resulted in higher and more volatile food prices, some governments in developing countries increased their interest in targeting food self-sufficiency. This target has been considered an effective way of

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4The acronym WaSH was introduced in 1988 by the United States Agency for International Development (USAID). At that time, the letter H stood for “health”, but it was changed to “hygiene” in December 2001 when the “Water, Sanitation and Hygiene Campaign For All” was launched at the Bonn Freshwater Conference.
improving the level of food security by reducing the country’s dependence on international markets (Clapp 2015).

Therefore, the concept of food security is often associated with that of food self-sufficiency.

The definition of food self-sufficiency can be approached in two ways. One approach is auto-centric, and the other is pragmatic.

According to the former perspective, food self-sufficiency is defined as the extent to which a country can satisfy its food needs (particularly in terms of staple food crops) from its domestic production rather than from imports. Based on this definition, food self-sufficiency and food security differ on two fundamental points:

- Food self-sufficiency considers domestic production as the sole source of supply, while food security considers commercial imports and food aid as possible additional sources of commodity supply;
- Food self-sufficiency only refers to domestically produced food available at the national level, while food security brings in the dimensions of the stability of supply and access to food by the population (Thomson and Metz 1996).

In other words, food self-sufficiency is linked to an overall perspective of development that emphasises the need for self-reliance. By contrast, food security is consistent with a view of development that incorporates international specialisation and comparative advantage. 5

Today, the extreme policy stance of food self-sufficiency does not apply in practice. In fact, we cannot find any country that has closed its borders to all food trade (imports and exports) and that has concentrated its efforts on the agriculture sector to produce enough food domestically to meet its requirements (Clapp 2015).

A more pragmatic definition of food self-sufficiency relates to a country that produces a proportion of its own food needs that approaches or exceeds its food consumption. This definition does not exclude trade. Instead, in a situation of food self-sufficiency, food production must be greater than or equal to consumption in terms of calories.

One of the most adopted indicators to measure this concept of self-sufficiency is the self-sufficiency ratio (SSR) adopted by the FAO. It is given by the following formula:

\[
SSR = \frac{Production}{Production + imports - exports} \times 100
\] (1.1)

The SSR is computed in calories or volume and distinguishes between net importer or exporter countries. A value below 100 means that a country is a net importer. A value greater than 100 means that a country is a net exporter.

---

5A country has a comparative advantage in producing a good or service when the opportunity cost of producing that good or service is lower than that for any other country. International specialisation is a situation in which countries produce the goods and services for which they have a comparative advantage.
As the concept of food self-sufficiency refers only to the availability pillar, an SSR above 100 does not indicate a food security situation. In fact, food security depends also on accessibility, utilisation, and stability. Therefore, the SSR only expresses the capacity of a country to produce a sufficient quantity of food.

1.7 Food Insecurity and Poverty

Food insecurity is a cause and a manifestation of poverty (Committee on World Food Security 2000). However, these two interrelated concepts are very different (Clay et al. 1998). As the FAO definition of food security explains, food insecurity concerns something that determines a particular weakness that people have in relation to their access to food. By contrast, according to the 1995 UN definition, (absolute) poverty is “a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education, and information. It depends not only on income but also on access to services” (United Nations 1995).

Therefore, poverty describes a situation in which people are relatively short of almost every basic good and service, and they must choose between to buy food items or other goods and services (e.g., clothing, medical care, education) on a daily basis.

As illustrated in Fig. 1.9, food insecurity and poverty are deeply interrelated. Poverty contributes to low nutrition, causing poor physical and cognitive development, which is the basis of a decreased ability to work. This latter condition, in turn, fuels poverty.

Fig. 1.9 Interdependency between food insecurity and poverty
The fact that food security is a cause and a manifestation of poverty has important implications for action. Fighting food insecurity is “instrumental to the eradication of other dimensions of poverty” (Committee on World Food Security 2011). Therefore, specific interventions aimed at addressing food insecurity are needed to overcome the problem.

By contrast, if poverty reduction is perceived as an essential condition to eliminate hunger, the priority interventions should be directed towards eradicating the causes of poverty over the short and medium term. With these interventions, even food insecurity should be addressed.

1.8 Food Insecurity, Undernourishment, Undernutrition, Malnutrition and Hunger

The terms food insecurity, undernourishment, undernutrition, malnutrition, and hunger are often used loosely and interchangeably, although they are distinct concepts (Fig. 1.10).

Undernourishment is a state, meaning that a person is unable to acquire enough food to meet his or her daily minimum dietary energy requirements over a period of at least one year (http://www.fao.org/hunger/en/).

The outcome of undernourishment is undernutrition. In fact, undernutrition is the result of a prolonged low level of food intake and/or poor absorption of food consumed due to repeated infectious diseases, irrespective of whether any specific nutrient deficiency is present. In other words, undernutrition depends on both the food intake level and health, sanitation, and care conditions. The manifestation of undernutrition includes being underweight for one’s age, too short for one’s age, dangerously thin for one’s height and deficient in vitamins and minerals (http://www.fao.org/hunger/glossary/en/).

Fig. 1.10 Relationship between undernourishment, undernutrition, malnutrition and hunger

<table>
<thead>
<tr>
<th>Undernourishment</th>
<th>A state</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undernutrition</td>
<td>A result of undernourishment</td>
</tr>
<tr>
<td>Hunger</td>
<td>A sensation related to undernourishment</td>
</tr>
</tbody>
</table>

One side of malnutrition
Undernutrition is one side of malnutrition. In fact, malnutrition results from a deviation from adequate nutrition, including undernutrition and overnutrition—the former determined by inadequate energy, protein and/or other micro and macro nutrients relative to the need (FAO 1999, 2000).

Finally, the meaning of hunger ranges from short-term physiological discomfort to a life-threatening lack of food and an uncomfortable or painful sensation caused by insufficient food energy consumption. In this latter aspect, hunger is referred to as food deprivation. For this reason, a hungry person is food insecure, but not all food insecure people are hungry. In fact, food insecurity can be determined by other causes, such as the poor intake of micronutrients (European Commission—FAO Food Security Programme 2008; Ballard et al. 2013).

1.9 The Right to Food and Food Sovereignty

The right to food is a human right first established in the Universal Declaration of Human Rights and subsequently included in many binding and non-binding instruments (Mechlem 2004). In 1996, the International Covenant on Economic, Social and Cultural Rights (ICESCR) defined (in Article 11) the right to adequate food as “the availability of food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances, and acceptable within a given culture; the accessibility of such food in ways that are sustainable and that do not interfere with the enjoyment of other human rights” (Committee on Economic, Social and Cultural Rights 1999). This definition was ratified by 156 states.

The right to food is based on the food security pillars of food availability, access, utilisation, and stability, but it complements the technical concept with legal aspects of human rights and its principles of human dignity, accountability, empowerment, non-discrimination, and participation. In addition, while the concept of food security is based on the government’s acknowledgement of the population’s needs, the right to food refers to the acknowledgement of human rights (Fig. 1.11), which has important implications. Whereas policy goals change according to the political environment, human rights are not negotiable.

The right to food gives rise to three legal state obligations: to respect, to protect and to fulfil (Article 2 ICESCR).

The obligation to respect the existing access to adequate food requires governments to not take any direct or indirect measures that arbitrarily deprive people of their access to food. The obligation to protect means that states should enforce appropriate measures to prevent third parties, including individuals and corporations, from violating individuals of their access to adequate food. The obligation to fulfil means that governments must take positive measures to facilitate and provide for individuals’ enjoyment of their food rights. More precisely, facilitation means that governments must pro-actively engage in activities intended to strengthen people’s livelihoods and access to and utilisation of resources to enable the achievement of their food security. On the provision side, governments have the
obligation to directly fulfil the right to food whenever an individual or group is unable to enjoy this right for reasons beyond their control.

Therefore, the rights-based approach to food security emphasises the rights of human beings to food and obligates governments to establish the adequate pre-conditions to feed all people and to directly protect those who are poor and hungry.

The right to food is promoted by the political proposal of food sovereignty. This concept finds its roots at the end of the 1996 World Food Summit when non-governmental organisations (NGOs) and civil society organisations (CSOs) proposed a new model for achieving food security, a model “based on decentralisation, answering to the challenges of the current model based on the concentration of wealth and power that now threatens global food security, cultural diversity and the very ecosystem that sustain life on the planet”.

In 2002, during the NGO/CSO Forum for Food Sovereignty held in parallel with the FAO World Food Summit: Five Years Later, this concept was defined as “a right of countries and peoples to define their own agricultural, pastoral, fishery and food policies which are ecologically, socially, economically and culturally appropriate. Food sovereignty promotes the right to food for the entire population, through small and medium-sized production, respecting: the cultures, diversity of peasants, pastoralists, fisherfolk, Indigenous Peoples and their innovation systems, their ways and means of production, distribution and marketing and their
management of rural areas and landscapes. Women play a fundamental role in ensuring food sovereignty” (FAO 2006).

In 2007, at the Nyéléni Forum for Food Sovereignty, the so-called six pillars of food sovereignty were defined (Food Secure Canada 2012). They are described in Table 1.8.

The distinctive feature of food sovereignty is the right of people and states to determine their own food and agricultural policy that prioritises small farming. Therefore, food sovereignty and food security are not antagonistic concepts, but the right to define one’s food policy goes beyond the concept of food security. It is one of the pillars of a modern state. On the other side, the emphasis on small farmers or, more generally, on how to production is a matter to be addressed through specific government policies (Gordillo 2013).

Table 1.8 The six pillars of food sovereignty

<table>
<thead>
<tr>
<th>1. Focuses on food for the people by (a) putting people’s need for food at the centre of policies; (b) insisting that food is more than just a commodity</th>
<th>4. Establishes control at the local level by (a) putting control in the hands of local food suppliers; (b) recognising the need to inhabit and share territories; (c) rejecting the privatisation of natural resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Values food providers by (a) supporting sustainable livelihoods; (b) respecting the work of all food providers</td>
<td>5. Promotes knowledge and skills by (a) building on traditional knowledge; (b) using research to support and disseminate this knowledge to future generations; (c) rejecting technologies that undermine local food systems</td>
</tr>
<tr>
<td>3. Supports localised food systems by (a) reducing the distance between suppliers and consumers; (b) rejecting dumping and inappropriate food aid; (c) resisting dependence on remote and unaccountable corporations</td>
<td>6. Works with nature by (a) maximising the contributions of ecosystems; (b) improving resilience; (c) rejecting energy intensive, monocultural, industrialised and destructive production methods</td>
</tr>
</tbody>
</table>

Source Adapted from Food Secure Canada (2012)

References


References


