

## FOOD SECURITY AND NUTRITION

Micheline Beaudry

Directora de la Ddivisión de Nutrición. UNICEF

### INTRODUCTION

Reducing hunger and malnutrition is, and should be, a fundamental concern of the state and several agencies and institutions such as ours, that seek to help states to fulfill their obligations. That the causes of hunger and malnutrition are multisectorial is no longer debated, nor that such problems do require actions on several fronts and cannot be solved by anyone discipline or sector. However, for such actions to be complementary in the most effective way, it is necessary to have a common perception and understanding of the problems and of their major causes.

At the time of the World Food Conference in 1974, the debate on the causes of malnutrition focused on food supply and population growth (National Research Council, 1977). However, in the last few years, an international consensus has been emerging around the importance of three underlying factors as causes of malnutrition, factors related to food, health and care (UNICEF, 1990; ACC/SCN, 1991; Maxwell and Frankenburger, 1992). The most recent international affirmation of this consensus is the International Conference on Nutrition (ICN) which recommended that, in order to achieve nutrition objectives, each country develop strategies related to food (improving food security and food safety), preventing and managing infectious diseases, and improving breastfeeding and the care of vulnerable groups (FAO/ WHO, 1992). The Declaration and Plan of Action for nutrition which emerged from the Conference were adopted by 159 Member States.

Since the World Food Conference, and increasingly throughout the 1980s, there has been a proliferation of literature around food security with the implicit or explicit goal of contributing to the reduction of hunger and malnutrition (Maxwell and Frankenburger, 1992). As the topic grew, it also became more complex. Maxwell and Smith (1992) point out that its eclectic and wide-ranging character makes it a powerful tool of integration and synthesis but that it also creates the possibility of conceptual confusion. To contribute to a common understanding of related issues among policy-makers and programme planners and hence to the development of complementary activity towards the crucial goal of reducing hunger and malnutrition, this paper summarizes the views of UNICEF and of some other UN and development agencies on the concepts of «nutrition» and «food security» and their major interrelationships, focusing on household food security.

### NUTRITION AS AN OUTCOME

Malnutrition is frequently associated with young children and they are among the most vulnerable groups in society (along with pregnant and lactating mothers). In young children, poor nutritional status affects physical growth, activity, morbidity and mortality, and

psychological development. The most readily measurable of these is child growth, thus estimating growth faltering by anthropometry gives a fundamental measure of young child nutritional status even though anthropometric information per se is non-specific and does not identify the causes of growth faltering. Recent research (Pelletier, 1994) indicates that 56% of all child mortality in developing countries is linked to malnutrition as indicated by underweight, and that most of this (83%) is linked to mild and moderate malnutrition, not to severe malnutrition. A severely malnourished child has a much higher risk of dying than a mild/moderate malnourished one, but because of the fact that so many more children are mildly/moderate malnourished than severely malnourished children, makes the total impact of mild/moderate malnutrition larger.

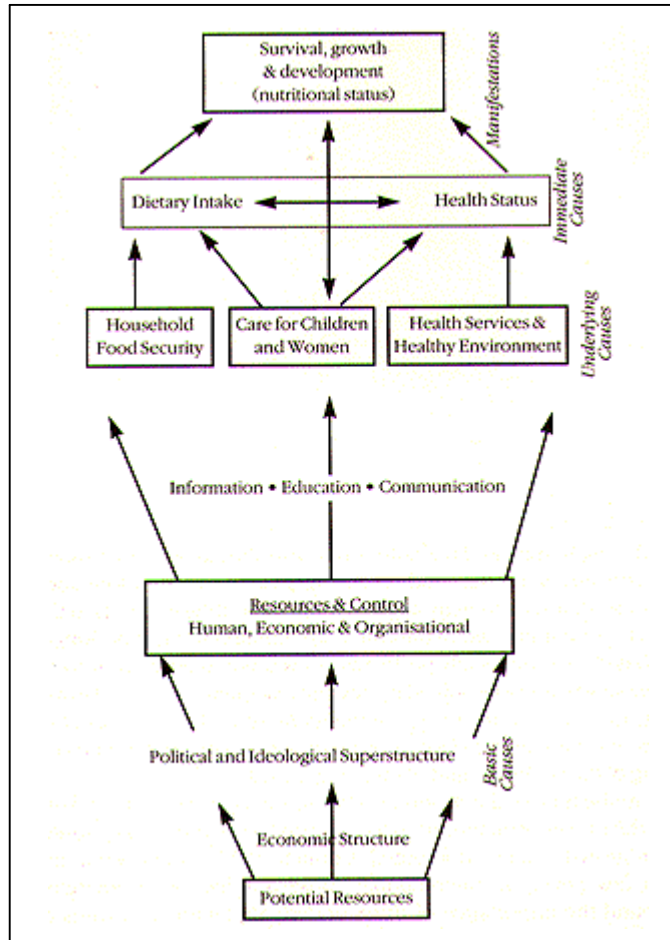
In adults, except for growth and psychological development, the effects of inadequate nutrition are similar to those for children, with physical activity perhaps being the most affected by undernutrition. In women, reproductive success is also importantly affected. To help illustrate some of the important relationships between household food security and nutrition, this paper will focus on the problem of young child malnutrition, although similar relationships are also relevant to the study of malnutrition in others groups.

Nutrition is not a sector in the way that health and agriculture are; nutrition is an outcome of processes in those and others sectors. To improve nutrition it is therefore essential to start with a good assessment and analysis of the causes of malnutrition in a given situation to determine where action will be the most effective. Is food insecurity the major constraint to better nutrition (or an important constraint) and if so, how? To carry out such an assessment and analysis, it is useful to know what to look for, to have a conceptual framework of what are the major accepted determinants of nutritional status.

#### MALNUTRITION: IMMEDIATE CAUSES

Inadequate dietary intake and suffering from illness are two immediate causes of malnutrition, for which growth faltering in children is a marker (Fig. 1). This outcome thus refers to physiological processes, influenced by both diet and illness. The diet-infection cycle is well known: inadequate nutrient intake results in lowering of immunity. This leads to increased incidence, severity and duration of illness. At the same time, disease processes both increase nutrient requirements and exacerbate loss of nutrients, and/or are associated with a loss of appetite, cycling back to further lower nutrient intake (Tomkins and Watson, 1989). This diet-infection cycle reflects some of most important relationships which account for the high morbidity and mortality characterizing many poor communities.

FIGURE 1.UNDERLYING CAUSES OF MALNUTRITION



### MALNUTRITION: UNDERLYING CAUSES

The two immediate causes of malnutrition, inadequate dietary intake and illness, are in turn the result of three major categories of underlying causes (see Fig. 1). Dietary intake is affected by food available and accessible to the household (most people, including vulnerable groups, get their food by being part of household); illness depends on access to health services and a healthy environment (e.g. immunizations, clean water and sanitation facilities). And both of these are importantly modified by the household's capacity to meet the special care needs of women and young children (e.g. someone must prepare the right food for young children and feed it to them it must be hygienic, children must be loved).

While food and health have always been recognized to have a role in nutrition, it is only recently that we have begun to understand the role of care and the different factors it brings together in a coherent and practical manner (Engle, 1992; Longhurst and Tomkins, 1995; UNICEF, 1996a). Care in general refers to the provision in the household and the

community, of time, attention and support to meet the physical, emotional, intellectual and social needs of the growing child and other family members. It leads to the optimal use of human, economic and organisational resources. Care, in terms of child nutrition refers to facilitating the optimal use of household food resources for child feeding, and the optimal use of parental (or other) resources to protect from infection and care for the sick child, or for other vulnerable members (e.g. pregnant and lactating women, the disabled, elderly).

Care in the form of stimulation, affection and support can also have a direct effect on growth in the young child.

This broader view of malnutrition underscores the need to consider factors related to food, health and care if one wants to improve nutrition. Viewed in this way, household food security is a necessary but insufficient condition to assure adequate nutritional status or nutritional security, in the same way that health and care are each necessary but insufficient conditions.

#### MALNUTRITION: BASIC CAUSES

The three underlying causes of malnutrition are in turn the result of more basic causes; examining the former from the perspective of the household, where many decisions are made that will affect individuals, is not meant to dismiss these more basic causes. The latter relate to the availability and control of human, economic and organizational resources in a society, themselves the result of previous and current technical and social conditions of production together with political, economic and ideological-cultural factors (see Fig. 1). Food security is frequently discussed at this level and it is useful to examine the distinction between global or national food security and household food security to better understand the relationship between food security and nutrition.

#### FOOD SECURITY: FROM GLOBAL TO HOUSEHOLD FOOD SECURITY

The roots of concern with food security in global fora can be traced back at least to the world food crisis of 1972-74, although the Universal Declaration of Human Rights in 1948 also recognized the right to food as a core element of an adequate standard of living (UN, 1948). In 1992, Smith et al. assembled a bibliography on conceptual and definitional issues of food security; and encountered over 180 items, 80% of which deriving from the period 1986-1991 (reported by Maxwell and Smith, 1992). The term «food security» was used in many different ways, sometimes reflecting a desire for product differentiation between agencies, but also stemming from differences in level of analysis, geographical focus, conceptual starting point or programmatic priority.

While in the 1970s «food security» was mostly concerned with national and global food supplies, in the 1980s, much new thinking emerged on the question of access to food at household and individual levels. This was stimulated by the growing realization since the World Food Conference in 1974, that improvements in nutrition did not parallel improvements in food production. Consider for example, that while the numbers of underfed

in the world<sup>1</sup> are estimated to have declined steadily in parallel with increases in food production, from nearly 1,000M in 74/76 to about 800M in 88/90, the numbers of malnourished children are estimated to have risen from 164M in 1980 to 184M in 1990 (even though their proportion decreased steadily in all regions except in Sub-Saharan Africa) (ACC/SCN, 1992). The existence of an adequate supply of food at national, local and household levels is not sufficient to ensure that everyone will have enough to eat, nor even that everyone who has enough to eat will be able to maintain a healthy nutritional status.

Global or national food security tends to be defined in terms of the level and reliability of aggregate food supplies, or the ability of a country (or some politico-geographical entity) to ensure the availability of sufficient amounts of quality foods to meet either the theoretical nutritional needs of its population (generally assessed in terms of calories), or in some cases, to meet the effective demand. The key defining characteristics of household food security are secure access at all times to sufficient food (Maxwell and Smith, 1992) This includes four «core» concepts (i) sufficiency, (ii) access, (iii) security and (iv) time, they are briefly reviewed below to better capture their links with other determinants of nutrition. Building on these concept UNICEF is now trying to summarize some recent thinking on indicators of household food security and their use to highlight methods and measures that may be useful for UNICEF programmes (UNICEF, 1996b). However the discussion here will be limited to the concepts pertinent for programming.

(i) The concept of «sufficiency» or «enough food» is presented in many different ways in the literature, but these revolve around four different aspects (Maxwell and Smith, 1992). First, the unit of analysis is generally the individual, not the household. This brings in the question of intra household allocation of food and resources: who determines how food is distributed in the household, and on what basis? Do physiological needs correspond to the demands of culture and tradition? Second, although the definitions mostly refer to «food», the main concern has generally been with calories, because analysts operate on the principle that other needs are usually satisfied when caloric intake is satisfactory. However if better nutrition is the intended outcome, such an assumption may increasingly be questioned (see, for example, Golden, 1995) and other elements of quality including micronutrients, and food safety, may be equally relevant. Third the gravity of the shortfall may also be important to assess, not only that there is a shortfall; and finally «sufficient for what» seems to bring consensus that it is «for an active and healthy life», and not just for «simple survival».

(ii) The concept of access or whether individuals and households are able to acquire sufficient food and how, is rooted in the era of nutrition planning in the 1970s (for example, see Joy, 1973). However it has benefited considerably from the work of Amartya Sen (1981) on food «entitlements» which provides a systematic approach to the definition and assessment of vulnerability. To paraphrase Sen, an individual's or a household's entitlement is rooted in his/her endowment - the initial resource bundle (human and physical capital, assets and stores, access to common property resources and a variety of social contracts at household, community and state level) - which can be transformed via production and trade into food, or into commodities which can be exchange for food. Legitimate access to food is thus gained by households in a limited number of ways (i) through their own production; (ii) by

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<sup>1</sup> Those people Whose food consumption averaged over one year is inadequate to support more than light activity, defined as 1.54 X Basal Metabolic Rate, and maintain bodyweight (FAO 1992)

exchanging their work force or other legitimately held assets, for food, or for cash to buy food; (iii) by being part of a kinship or social network that has access to food; or (iv) through government transfers (as part of food aid or income/food subsidy programmes). Using this framework, it is clear that improving food availability is neither necessary, nor sufficient to improve nutrition.

(iii) The concept of security focuses more clearly on the risks to food entitlements; it has benefited considerably from the work of Watts (1988). Risks can originate from many sources and include variability in crop production and food supply, market and price variability, risks in employment and wages, as well as risks in health and morbidity such as that associated with the recent spread of AIDS. Conflict is also an increasingly common source of risk to food entitlements. The risk profile of individual households and communities will be determined by the channels through which their access to food is normally mediated and by the assets which are available to them as buffers (see ii above). The most food insecure households will be those facing the greatest probability of an entitlement failure with the least assets. This is well illustrated in Table 1 reproduced from Jonsson and Toole (1991).

TABLE 1.  
SITUATION OF HOUSEHOLDS REGARDING USE OF RESOURCES AND DEGREE OF FOOD SECURITY

	HOUSEHOLD FOOD SECURE	HOUSEHOLD FOOD INSECURE
Uses a large proportion of available resources	HFS, but at great risk (vulnerable)	Worst off
Uses a large proportion of available resources	Best off	Not too difficult to improve

Source: Jonsson and Toole, (1991).

It seems important to distinguish between the risks of entitlement failure and the costs borne in the event of failure. For example, households may allocate their resources over time in ways which optimise the adequacy of food access, without sacrificing stability in that access; inadequate nutrient intake may ensue (e.g. switching to lower cost and less nutritious foods) but stability of access will be maintained (there will be enough «food» - although not necessarily enough calories or other nutrients - to eat every day until the next harvest comes in). This introduces the idea of choice into the analysis, or that of coping strategies. Davies (1993) goes further and positions food security as one dimension in the broader concept of livelihood security: while until recently a «food first» logic prevailed in the food security literature, this is increasingly questioned as evidence is accumulating showing that food is one of a whole range of factors which determine why the poor take decisions and spread risk, and how they finely balance competing interests in order to subsist both in the short and longer term (Maxwell and Smith, 1992; Davies, 1993; Gervais, 1993). The three underlying determinants of malnutrition, food, health and care, can be understood as aspects of livelihood security at the household level.

(iv) Finally the concept of time is part of the definition of «household food security»: secure access to enough food at all times. The distinction is generally made between chronic and transitory food insecurity, the latter being frequently divided into cyclical and temporary food insecurity: temporary food insecurity occurring for a limited time because of unforeseen and unpredictable circumstances, whereas cyclical or seasonal food insecurity implies a regular pattern in the periodicity of inadequate access to food. Each will have a different impact on nutrition.

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Examining these different dimensions of «household food security» has pointed to several potential links with nutrition. Recognizing that the links from food availability to access, to consumption, to nutritional are not automatic, the challenge for food policy makers is to understand how these are linked to one another, how closely they are related in different contexts, and what the other important intervening variables are. Examining these issues through empirical findings from studies in Africa (Kenya, Zimbabwe and Rwanda), Diskin (1994) suggests that gains in food access, consumption, and nutritional status may depend more on how gains in food availability, access, and consumption are achieved than on whether they are achieved. Increased food availability, for example, may not increase access to food if achieved by means that reduce family income; increased access may not increase consumption if the allocation of time or income by food providers, usually women, is adversely affected; and increased consumption may not improve nutrition if the means by which consumption gains are realized have negative health effects that impair the body's ability to absorb and utilize ingested nutrients. This underscores the need to consider the relationship between household food security, health and care, if one wants to improve nutrition.

Questions to consider in the design of household food security activities would thus include the following (UNICEF, 1996b):

- Do the household food security activities result in demands on child caregivers that compromise their ability to ensure good care or appropriate use of health services for children and themselves?
- Do the activities make significant energy demands on women and other caregivers to the degree that their own nutritional status may be compromised?
- Are the activities associated with reduced resource availability for health and care? e.g. the use of scarce water that takes away from water for household sanitation and hygiene and good food preparation?
- Do the activities result in access to (nutritional) higher quality foods as well as a higher quantity of food?
- Do the activities pose any direct health risk, such as exposure to toxic pesticides or increased exposure to accident or injury?
- Are the activities compatible with sustainable uses of natural resources?
- Do the activities allow for control by women of food or revenue acquired?

It needs to be recognized for example, that while young children actually need very small amounts of foods in addition to breastfeeding, these must be appropriate foods and

must be fed several times a day; thus if no one is available to do this, to provide the necessary care, nutrition cannot improve. Similarly, the caregiver needs time to take children to the health center to be immunized for protection from infection; and so on. Several income generating activities directed at women that purport to improve household food security via better incomes, may in fact take the mother away from such important activities with the result that malnutrition increases while household income also increases. On the other hand, the introduction of labor saving technology for women may increase their time for such activities and contribute to better child nutrition without necessarily improving incomes.

Breastfeeding is a natural sustainer of all three underlying determinants of malnutrition, it is food, health and care for the young child and an important element of women's post-partum health. Women's ability to exercise their right to breastfeed their young children should not be compromised by household food security related demands on their time and resources. In several industrialized countries for example, maternity legislation has been introduced to provide maternity leave which takes into account the need to protect and support breastfeeding for adequate young child nutrition.

Women in developing countries (and probably in most of the world) play a crucial role in meeting the food and nutrition needs of their families. They are pillars in all major sources of food entitlements: A FAO report in 1985 suggested that women accounted for more than half the labor required to produce the food consumed in the developing world and perhaps three-fourths in Sub-Saharan Africa. According to Joeekes et al (1988), women are estimated to produce about 40% of all food in Latin America and approximately 80% in Africa. Women are also responsible for most of domestic production and reproduction, from the collecting of fuelwood and water to preparing food and providing other care components to household members (tasks which take up several hours per day). But they do so with inadequate resources.

If the constraints confronting women farmers were removed and women were granted access to the resources available to male farmers, they could make significant contributions to eradicating the food insecurity faced by so many (Quisumbing et al, 1995). Removing the constraints includes improving access to education and training, and increases their ability to generate and control income as well as their decision-making authority. But it also includes better health and nutrition of women themselves so that they are able to fulfill their productive and reproductive roles (women's nutritional status is a key determinant of the nutritional status of the newborn), as well as for their own self-realization. In planning for such programmes, focus should be on those that increasing women's income-earning potential, and or control over resources, while reducing the energy or time intensity of their activities. When women do have additional income, they tend to spend it more for the welfare of the household members, especially in low-income households (Haddad, 1992; Pena et al, 1996). This can translate into better nutrition if care and health are also protected. It will require, and be enhanced by, changes in the attitudes of men and in their contribution to household responsibilities.

Two recent studies illustrate the relative importance of care and food security for nutritional status. In a national level study in Ethiopia, Pelletier et al. (1995) found high rates of chronic malnutrition in all parts of the country, and some of the highest rates were found in food surplus regions. The associations between child nutritional status and cultivated area



among cereal growers (their proxy for household food security) were particularly weak among younger children (6-23 months). However, in this age group, there was a strong association between delayed introduction of foods to complement breast feeding (timely complementary foods is one of the components of care) and the prevalence of stunting (indicator of nutritional status). While lack of food had been assumed to be the major cause of malnutrition, it was in fact care practices that were most strongly with malnutrition.

In a study of urban farming in Uganda, Maxwell (1995) reported that the amount of time mothers could directly care for their children was one of the three major variables that mediated the relationship between urban farming and the nutritional status of their children: women involved in urban farming seemed to have more time to take care of their children, which was associated with better nutritional status.

Understanding care issues enables a more effective understanding of (i) food as a commodity to be consumed and as a resource to be used for improving livelihoods and family welfare and (ii) of the health environment and health services in the context of existing family practices and resources. Resources for improving care exist at the household level: income, food, time, attitudes, relationships and knowledge. If activities that intend to improve food security actually protect and enhance these resources for adequate care, and health, nutritional status is likely to improve. But the opposite is also true. It is therefore important to understand the determinants of malnutrition in a specific context so that activities or programmes planned to improve food security may actually enhance care and health instead of competing with them to improve nutrition.

## PARTICIPATORY ASSESSMENT AND ANALYSIS

A correlate of this understanding of the determinants of nutritional status is the need to include people's own perception of the problem when designing actions, and further to include those at risk of household food insecurity and malnutrition as key actors in the process of assessment and analysis that leads to new actions. As indicated earlier, evidence is accumulating showing that food is one of a whole range of factors which determine why the poor take decisions and spread risk, and how they finely balance competing interests in order to subsist both in the short and longer term (Davies, 1993; Maxwell and Smith, 1992; Gervais, 1993).

Chambers (1995) emphasizes that poor people have far greater abilities to present and analyse the diverse complexity of their conditions and to act than had been supposed, a fact also recognized in the UNICEF Nutrition Strategy (1990). He asserts that (i) the biggest obstacle to enhance poor people's own analysis and action is the superior beliefs, behavior and attitudes of professionals; (ii) enabling professionals to «unlearn» and change, especially their behavior, needs new approaches and methods; and (iii) facilitating organizations and bureaucracies must also be transformed into participatory, learning organizations. Chambers challenges us to give priority to this new agenda if we are to be serious about food security and better nutrition for the poor.

In summary, when the objective is to improve nutrition, it must first be assessed that food insecurity is a major constraint, before planning a programme to address it. If it is, household food security objectives must be pursued in ways that do not compromise the realisation of goals such as universal access to adequate health services and the capacity of households to

provide special care for young children and other vulnerable members. This will be best realized through participatory processes of assessment and analysis of the determinants of malnutrition, where the poor and those at risk of food insecurity and malnutrition, are also key actors, so as to lead to appropriate and relevant action.

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