

# Part I

## Household Food Security: A Conceptual Review

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## Summary

The purpose of the paper is to clarify concepts and definitions of household food security. The literature on food security has spiralled since the 1970s and the paper is based on a review of more than 180 items dealing with concepts and definitions.

In the 1970s, “food security” was mostly concerned with national and global food supplies. In the 1980s, the focus shifted to questions of access to food at household and individual levels. This interest has continued: 80% of the literature reviewed dates from the period 1986-91.

The paper finds that there are four core concepts, implicit in the notion of “secure access to enough food all the time.” These are (a) sufficiency of food, defined mainly as the calories needed for an active, healthy life; (b) access to food, defined by entitlement to produce, purchase or exchange food or receive it as a gift; (c) security, defined by the balance between vulnerability, risk and insurance; and (d) time, where food insecurity can be chronic, transitory or cyclical.

Beyond the core concepts, the literature on household food security has developed to take account of parallel developments in other fields. First, the household itself is a problematic concept and individual members of a household will experience different food security risks and often follow different food security strategies. Secondly, food security is a necessary but not sufficient condition for adequate nutrition, the other conditions being care and health; but the two are closely related, not least because of the genetic, physiological and behavioural adaptations people make to nutritional stress. Thirdly, it is misleading to treat food security as a fundamental need, independently of wider livelihood considerations: people may go hungry to preserve assets or meet other objectives and it is important to study food security in the context of livelihood security. Fourthly, in so doing, the sensitivity, resilience and sustainability of livelihood systems are crucial: interventions should support the adaptability and flexibility of vulnerable livelihood systems. Fifthly, people’s own perceptions of vulnerabilities and risk predominate in food security strategies, in order to remove the fear that there will not be enough to eat; cultural values are also important in determining the quality of food entitlement, rather than just the quantity. Sixthly, whatever people’s own perceptions, efficiency and cost-effectiveness are legitimate objectives and will be pursued within the household and by the state. Finally, the right to food imposes obligations on states to respect, protect, fulfil and promote food security.

These findings suggest some general conclusions about the treatment of household food security in the 1990s. Flexibility, adaptability, diversification and resilience are key words. Perceptions matter. Intra-household issues are central. Importantly, household food security must be treated as a multi-objective phenomenon, where the

identification and weighting of objectives can only be decided by the food insecure themselves.

Policy should be directed to enlarging the scope of choice by food insecure individuals, for example by developing self-targeting interventions rather than imposing standard, centrally-administered programmes. Data collection and analysis should so far as possible favour a locally-based, learning process approach.

## **I. Introduction**

In the second half of the 1980s, food security became an important “organising principle” in development. It generated a large academic literature; conceptual and organisational innovation by aid agencies; and many regional, national and local programmes in developing countries, especially in sub-Saharan Africa. Interest has continued to grow in the 1990s<sup>1</sup>.

The roots of concern with food security can be traced back to the world food crisis of 1972-74; and, beyond that, at least to the Universal Declaration of Human Rights in 1948, which recognised the right to food as a core element of an adequate standard of living (UN 1948). However, the surge of interest in the 1980s can be attributed to three contemporary factors: the impact of the African famine of 1984-85; a concern with deteriorating basic needs during structural adjustment<sup>2</sup>; and the fruits of an intellectual progression, which stretched from multi-sectoral nutrition planning in the 1970s<sup>3</sup>, through entitlement theory in the early 1980s<sup>4</sup>, to household food security in the second half of the decade. Figure 1.1 lists some of the main initiatives related to food security over the last five decades.

As the topic has grown, it has also become more complex. On conceptual and definitional issues alone, Smith et al have assembled a bibliography of over 180 items, 80% deriving from the period 1986-1991. The main cause of increasing complexity is a shift in the level of analysis: from a primary concern in the 1970s with national and international food security, defined in terms of the level and reliability of aggregate food supplies; to a focus in the 1980s on individual and household food security, with the emphasis on access, vulnerability and entitlement. Here, as we shall see, the links spread widely: to nutrition planning, rural development and even environmental sustainability.

The eclectic and wide-ranging character of “food security” makes it a powerful tool of integration and synthesis — but also creates the possibility of conceptual confusion. As Smith et al show, the term is used in many different ways. These sometimes reflect a desire for product differentiation between agencies (Maxwell 1990: 2), but also stem from differences in level of analysis, geographical focus, conceptual starting point or programmatic priority.

Our purpose in this paper is to clarify the concepts and definitions at the household level, where interest is now centred and where the literature has grown fastest. This is not to deny the importance of other levels of analysis, and we make connections where appropriate. Nor is it to deny the programmatic heterogeneity of food security initiatives: we try to explicitly recognise the rich diversity of the literature.

The structure of the paper is as follows: in Section II, we establish core concepts in household food security, especially those concerned with access and risk. In Section

Figure 1.1

**Initiatives Related to Food Security, 1943-90**

- |             |   |   |
|-------------|---|---|
| <b>1943</b> | - | Hot Springs Conference on Food and Agriculture  |
| <b>1945</b> | - | FAO established   |
| <b>1946</b> | - | UNICEF established  |
| <b>1948</b> | - | Universal Declaration of Human Rights   |
| <b>1963</b> | - | World Food Programme established  |
| <b>1966</b> | - | International Covenant on Economic, Social and Cultural Rights  |
| <b>1967</b> | - | First Food Aid Convention   |
| <b>1974</b> | - | World Food Conference: Universal Declaration on the Eradication of Hunger and Malnutrition  |
|             | - | World Food Council established  |
|             | - | FAO Committee on World Food Security established  |
| <b>1975</b> | - | FAO Global Information and Early Warning System (GIEWS) established   |
|             | - | International Emergency Food Reserve (IEFR)   |
| <b>1976</b> | - | Club du Sahel established in OECD   |
| <b>1978</b> | - | FAO Regional Food Plan for Africa   |
| <b>1980</b> | - | OAU Lagos Plan of Action  |
| <b>1981</b> | - | European Community "Plan of Action to combat hunger in the world" and initiation of food strategies in four countries                           |
|             | - | IMF Compensatory Financing Facility extended to cereals   |
| <b>1983</b> | - | Broadened concept of food security adopted by FAO   |
| <b>1984</b> | - | Lome III convention gives central place to food security  |
| <b>1985</b> | - | USAID Famine Early Warning System (FEWS) established World Food Security Compact (FAO)  |
| <b>1987</b> | - | Mandate of FAO Food Security Assistance Service broadened to focus more on national policy  |
| <b>1988</b> | - | World Bank task force report "The Challenge of Hunger in Africa: a call to action and initiation of World Bank food security studies in Africa" |
| <b>1989</b> | - | Convention on the Rights of the Child adopted by the General Assembly of the United Nations   |
|             | - | Initiation of FAO food security planning in four African countries  |
|             | - | Bellagio Declaration: Ending half the world's hunger by the year 2000   |
|             | - | WFC Cairo Declaration and Programme of Cooperative Action   |
| <b>1990</b> | - | Food Aid Charter for the countries of the Sahel   |
|             | - | World Summit for Children (UNICEF)  |

Source: Adapted from Phillips et al (1991)

III, we take up a series of issues connected to the core concepts: the household, nutrition, livelihood, sustainability, cultural acceptability, efficiency and human rights. Finally, in Section IV, we synthesize the main conclusions and comment on issues of measurement.

## **II. Core Concepts in Household Food Security**

### **Introduction**

As the literature has spiralled, many definitions and conceptual models of household food security have been presented, not all necessarily labelled as such. Smith et al review the field; here we present, in Appendix 1, some 30 definitions which have either been influential in the literature or which summarise agency views. The series begins with the report of the World Food Conference of 1974 and gathers momentum through the 1980s: the fact that over a third of the entries date from the past two years is testimony to continued interest in the topic. Some of the definitions have been especially influential: Siamwalla and Valdes (1980), FAO (1983) and World Bank (1986) (itself derived from work by Reutlinger (1982, 1985a,b)) fall into this category.

Much of this paper will be concerned with the nuances separating the various approaches to household food security. We think it important to begin, however, by stressing the similarities. The many definitions and conceptual models all agree that the key defining characteristic of household food security is secure access at all times to sufficient food. We deal in turn with (a) sufficiency, (b) access, (c) security and (d) time.

### **Sufficiency: What is “Enough”?**

The concept of “enough food” is presented in different ways in the literature: as a “minimal level of food consumption” (Reutlinger and Knapp 1980); as a “target level” (Siamwalla and Valdes 1980); as “the basic food (needed)” (FAO 1983) or as the food “adequate to meet nutritional needs” (Barraclough and Utting 1987). In more descriptive formulations, Kracht (1981) refers to “enough (food) for life, health and growth of the young and for productive effort;” the World Bank (1986) to “enough food for an active, healthy life” and Sahn (1989) to “enough food to supply the energy needed for all family members to live healthy, active and productive lives.” From these definitions, and the others listed in Appendix 1, four aspects of the question can be distinguished.

First, the unit of analysis in these definitions is the individual, not the household. Where the household is referred to, as by Phillips and Taylor (1990), it is usually as an aggregation of individuals whose food needs must be satisfied. Only rarely (Eide et al (1985, 1986), Jonsson and Toole (1991b), Frankenberger and Goldstein (1991))



is the household considered as a unit. We discuss this question in more detail in the section "*Intra-Household Issues*."

Secondly, although the definitions mostly refer to "food," the main concern is with calories (e.g. Heald and Lipton 1984) and not with (a) protein, (b) micro-nutrients or (c), more generally, food quality and safety (though see Eide 1986, 1990). This is mainly because analysts operate on the principle that other needs are usually satisfied when calorie intake is satisfactory. We discuss these issues in more detail in the section "*Household Food Security and Nutrition*."

Because it is difficult to estimate precise calorie needs for different groups in the population, Pacey and Payne have concluded that all estimates of nutritional requirements have to be treated as value judgements:

Something which is specifically excluded . . . is the notion of an "optimum" state of nutritional health, achievement of which might be the criterion for a requirement level . . . Any views of "desirable" or "optimal" food intakes for human individuals or groups can only be value judgements. (Pacey and Payne *ibid*:70-1)<sup>5</sup>

We take up in the section "*Perceptions and Cultural Acceptability*" the question of whether subjective assessments of food insecurity by the food insecure themselves may be a better route to follow.

Finally, and notwithstanding the difficulty of measurement, an important aspect of assessing whether people have access to "enough" food is to ask how far they fall below the threshold. This is something not much discussed in the recent food security literature, though Heald and Lipton (1984) talk about "proportionate shortfalls" in access to calories and Maxwell et al (1990) introduce the idea of the "intensity" of food insecurity. In the earlier literature on malnutrition, however, and in the current literature on poverty, the size of the gap is an important theme.

As far as malnutrition is concerned, Reutlinger and Selowsky (1976:2) began with FAO calorie requirements and calculated what proportion of people by geographic region fell (a) up to 250 calories per day below requirement and (b) more than 250 calories per day below requirement. They calculated for 1965 that 56% of the population of developing countries had a calorie deficit of over 250 calories a day and another 19% deficits of up to 250 calories per day. The total deficit was equivalent to 4% of world cereal production in the mid-1960s (*ibid*:3).

In calculating the extent of poverty, the World Bank (1990:29) has distinguished between the "poor" (defined as those with an income below \$370 p.a. in 1985) and the "extremely poor" (with an income below \$275). Similarly, Lipton (1983) has distinguished between the poor and the "ultra-poor." Making an explicit link to nutrition, he defined the latter as those unable to procure 80% of calorie requirements

with 80% of income, the so-called “80/80 rule.” Lipton argues that the ultra-poor behave differently to the poor and are at sharply greater risk due to hunger and illness.

Taking these various considerations together, we find that the concept of enough food is problematic. Nevertheless, it appears to make sense (a) to concentrate initially on calories, (b) to define needs not just for survival, but also for “an active, healthy life,” (c) to assess not just the fact of a shortfall but also its gravity, and (d) to begin with individual needs and build up to the household. We return to some of these issues in later sections.

## **Access and Entitlements**

The second of our core concepts is “access,” the question of whether individuals and households (and nations) are able to acquire sufficient food. It is often argued that the focus on access is a phenomenon of the 1980s, largely resulting from the pioneering work of Amartya Sen (1981) on food “entitlements.” However, the interest in whether and how people acquire food has a longer pedigree and is rooted in nutrition planning.

In 1973, for example, Joy developed the idea of a “functional classification” of malnourished people and argued that

food and nutrition planning starts not from the measurement of nutrient and food supply “gaps” but from the identification of who it is that is poorly nourished and why. (Joy 1973:170)

Many similar analyses were incorporated in nutrition studies during the 1970s (Berg 1973, Berg, Scrimshaw and Call 1973, Levinson 1974, Kielmann et al 1977). In the light of later debates, it is interesting that Joy’s functional classification included ecological, demographic and economic factors (Figure 1.2).

An access approach was also incorporated in food policy analysis. Thus, Clay (1981) argued that:

‘food security is a problem most often conceptualised as a macro phenomenon — deviations from trend in aggregate consumption.’ However, as a human problem, it is primarily one of the welfare vulnerability of distinct categories of people within the population . . . the urban poor, the rural landless and small or marginal farmers (ibid:5).

Sen’s entitlement framework provides a systematic approach to the definition and assessment of vulnerability. An individual’s entitlement is rooted in his/her endowment — the initial resource bundle — which is transformed via production and trade into food or commodities which can be exchanged for food. If the entitlement set does not include a commodity bundle with an adequate amount of food, the person must go

Figure 1.2

**Illustrative Outline of "Functional Classification"  
of Undernourished Population as Basis for Food and Nutrition Planning**

1. *Regional Divisions* — based on administrative structure
2. *Ecological sub-zones*  
including, e.g. urban  
rural accessible — irrigated; unirrigated  
rural inaccessible — arable; grazing  
as well as subdivisions by cropping areas
3. *Economic status fo sub-groups of population*  
including, e.g.
  - urban — migrants, recently arrived
  - poor, stable employment — in large firms
  - in small firms
  - poor; unstable employment or unemployed
  - income above subsistence
  - rural — settled farmers — "surplus" farmers
  - "deficit" farmers
  - nomads
4. *Demographic categories within subgroups*  
including, e.g.
  - mother — child (infants)
  - pre-school children
  - school-aged children
  - adults — male
  - female
  - elderly
5. *Deficiency pattern*  
chronic  
seasonal  
occasional
6. *Nutrient deficiency (or problem)*
  - protein-calorie
  - vitamin A
  - riboflavin
  - vitamin C
  - calcium
  - iron
  - iodine
  - (lathyrism)

Source: Joy 1973:173

hungry; in Sen's terminology, the individual has suffered an entitlement failure. In a private ownership market economy, the entitlement relations of individuals are determined by what they own, what they produce, what they can trade, and what they inherit or are given.

Using the entitlement framework, Sen demonstrated that a decline in food availability was neither necessary nor sufficient to create hunger. He showed that famine could

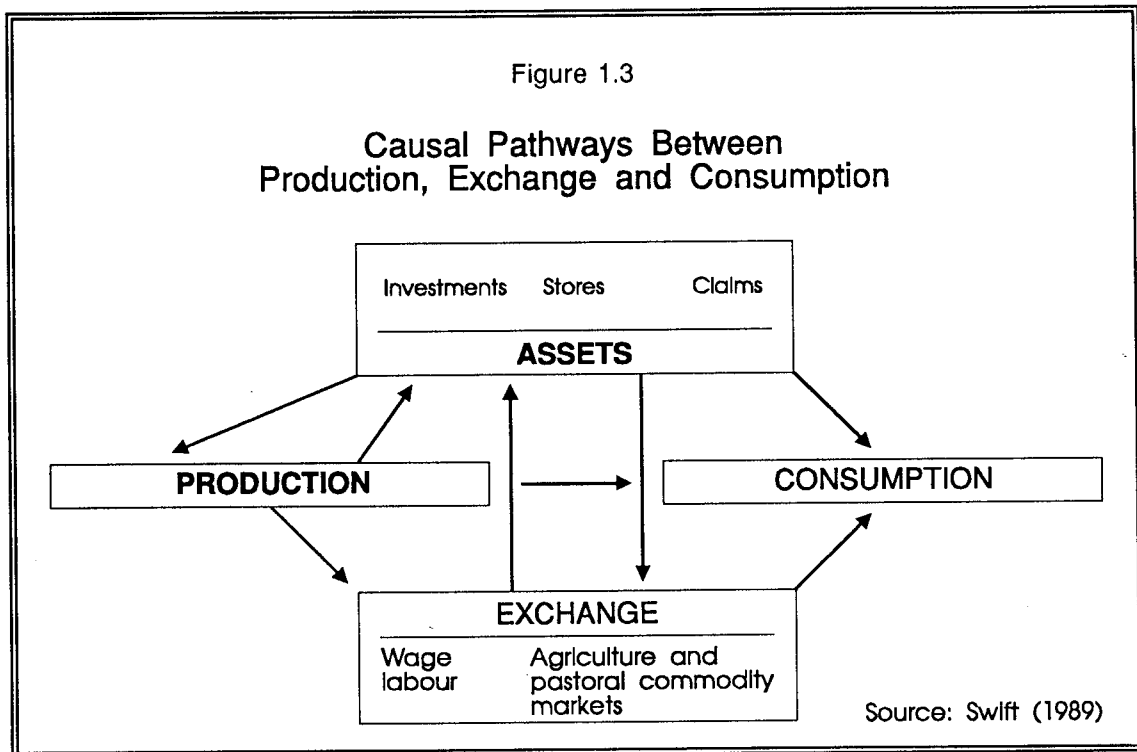
occur in the absence of any change in production, if the value of people's production and work activities declined relative to the cost of staple food.

As Sen himself agrees, and as critics (e.g. Devereux 1988) have pointed out, an approach which emphasises Food Entitlement Decline (FED) is not necessarily inconsistent with one that emphasises Food Availability Decline (FAD), since a food production crisis may lead both to reduced nominal incomes and higher food prices. Food availability remains a key issue in food security. Nevertheless, food availability decline is not a necessary condition for food entitlement decline.

Sen's analysis has been extended in subsequent writing in at least five ways. First, the original analysis omits all nonlegal transfers of resources and hence the role of violence and social disorder leading to entitlement collapse. Secondly, the analysis is household centred. This means not only that the unequal distribution of food among household members receives no attention, but also that the non market rights and obligations of the household are neglected, because of a failure to embed the entitlement relations of the household into the social and political fabric of the wider community. Thirdly, because death is presumed to derive from inadequate food consumption, the role of disease in determining famine mortality is not addressed. Fourthly, no attention is given to the significance of cultural preferences and tastes in determining voluntary under-consumption when entitlement is adequate. Finally, and perhaps most important of all, the original entitlement framework has no temporal dimension. Consequently, the analysis is ahistorical and cannot account for changing vulnerability to entitlement failure.

An important extension to entitlement theory is provided by Swift (1989 and Figure 1.3). Swift's analysis focuses on the role of investments, stores and social claims in determining household vulnerability to famine. He assumes that when households are able to generate a surplus over and above their basic food requirements, the excess resources are diverted into assets of these three kinds which can be drawn down when households face a crisis. In this model, potential support from the community is an important asset which households can use as a buffer against entitlement failure.

Swift's analysis concludes that household vulnerability to famine can thus be understood with respect to the inadequacy, not only of immediate entitlements, but also the paucity of household assets. As the poorest households tend to have the fewest assets, they will be the most vulnerable. Clearly, successive crises deplete the scale and depth of buffers available to the household. As a consequence, the vulnerability of the household will be a function of both immediate entitlement failure and the extent to which existing buffers have been exhausted; the latter a function of the frequency, intensity, and duration of previous crisis exposure.



## Security

The third main concept is that of “security:” secure access to enough food. This builds on the idea of vulnerability to entitlement failure introduced in the previous section, focusing more clearly on risk.

The notions of risk and risk avoidance have been central to definitions of food security, since the term came into use in the 1970s. However, the scope of risk analysis has widened as the scope of food security itself has widened, to focus increasingly on individual and household level analysis.

The World Food Conference identified the risk of “acute food shortages in the event of widespread crop failure, natural or other disasters,” as well as the risk of fluctuations in production or prices (UN 1975:14); and many subsequent analyses similarly concentrated on risks to national food supply and the Balance of Payments (Minhas 1976, USDA 1977, Valdes and Konandreas 1981, FAO 1983). At the same time, others began to look more closely at welfare vulnerability (Clay 1981), short term variability in entitlements (Chisholm and Tyers 1982) and the ability of household food systems to resist “crises threatening to lower the achieved level of food consumption” (Oshaug 1985). By the mid-1980s, “analysis of risk of inadequate access (had become) an important concern” (World Bank 1989) and food insecurity was more often defined in terms of risk: by Phillips and Taylor (1990) as resulting “from an unfavourable balance between risk and insurance;” by the SCN as being at

“undue risk of losing access to the food needed for a healthy life;” and by Von Braun (1991) as “the risk of an ongoing lack of access by people to the food they need.”

Linking the discussion of risk to the discussion of entitlements in the previous section, it is necessary to identify the risks to food entitlements. These can originate from many sources and include variability in crop production and food supply, market and price variability, risks in employment and wages, and risks in health and morbidity. Conflict is also an increasingly common source of risk to food entitlements.

This question is explored in Figure 1.4. The rows in the table identify the different sources of entitlement to food: productive and non-productive assets; human capital; social claims; and income-earning activities which translate assets into command over food. The columns identify the different types of risk: natural; market; state; community; or other. Thus, drought, for example, mainly affects the capacity of households to turn productive assets into command over food: it therefore qualifies as an income risk. However, it may also affect productive capital, for example by lowering the water-table or causing livestock deaths. By the same token, conflict can undermine

food security in a number of ways. For example, it may disrupt markets, cause labour to be withdrawn from productive activities or, in extreme cases, bring about the disruption and displacement of entire communities.

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. The most food insecure households will be those facing the greatest probability of an entitlement failure with the least assets. If the risks should materialise, these households will have no choice but to bear the costs of an entitlement failure in the form of reduced dietary intake, either in the current time period or in the future. Even where asset holdings are larger, households may be reluctant to dispose of productive assets to safeguard current food consumption, because of the opportunity cost in terms of future food access. However, there will come a point when it is no longer rational to protect future entitlement by under-consumption if the household will not survive the current period by so doing.

The link between risks and assets has been illustrated diagrammatically by Jonsson and Toole (1991) (Figure 1.5). Here, the most food secure households are those which achieve adequate access to food while using only a small proportion of available resources; the most food insecure, those most at risk, fail to achieve adequate access even by devoting a large proportion of available resources to food.

To summarize the implications of this analysis for models of food security, we think it important to distinguish between the risks of entitlement failure and the costs borne in the event of failure. This has a number of advantages when trying to operationalise the concept of food security.

First, the distinction suggests a framework within which accepted indicators of food insecurity can be developed. For example, threshold probabilities and asset holdings could be used to classify households, with a series of probabilities being used to distinguish between the mildly, moderately, and severely insecure.

Secondly, the focus on risks highlights the critical choices facing food security planners, particularly those in resource poor countries. Public policy can concentrate on alleviating the costs of entitlement failure — what Dreze and Sen (1989) have termed “entitlement protection” — or focus on reducing the likelihood of entitlement failure — “entitlement promotion.”

Thirdly, the concept of risk emphasises the time dimension of the food security problem. Households may allocate their resources over time in ways which optimise the adequacy of food access, without sacrificing stability in that access; in other words, they try to ensure current access without jeopardising future food consumption. This introduces the idea of choice into the analysis, which permits dietary inadequacy to be seen as both the cost of entitlement failure and the opportunity cost of investments in entitlement promotion.

Finally, by separating out risks and outcomes, the links between food security and nutrition can better be delineated. A food secure environment is clearly an important determinant of adequate dietary intake. Whether this translates into good nutritional status, however, will depend on a range of other issues, such as health and sanitary factors, methods of food preparation and the adequacy of general child care. Secure access to enough food to meet household food needs is a necessary but not sufficient condition for good nutritional status.

## **Time**

Finally, we come to “time:” secure access to enough food at all times. The topic is not much discussed in the literature. However, following the lead of the World Bank (1986), it has become conventional to draw a distinction between chronic and transitory food insecurity. Chronic food insecurity means that a household runs a continually high risk of inability to meet the food needs of household members. In contrast, transitory food insecurity occurs when a household faces a temporary decline in the security of its entitlement and the risk of failure to meet food needs is of short duration. Transitory food insecurity focuses on intra- and inter-annual variations in household food access. It has been argued that this category can be further divided into cyclical and temporary food insecurity (CIDA 1989:21). Temporary food insecurity occurs for a limited time because of unforeseen and unpredictable circumstances; cyclical or seasonal food insecurity when there is a regular pattern in the periodicity of inadequate access to food. This may be due to logistical difficulties or prohibitive costs in storing food or borrowing.

Figure 1.4

Sources of Risk to Household Food Security

Sources of Entitlement	Types of Risk				
	Natural	State	Market	Community	Other
Productive capital(land, machinery, tools, animals, farm buildings, trees, wells, etc.)	Drought contamination (for example, of water supplies) Land degradation Fire Flooding	Land or other asset redistribution/ confiscation	Changes in costs of maintenance	Appropriation and loss of access to common property resources	Loss of land as a result of conflict
Non-productive capital (jewellery, dwellings, granaries, some animals, cash savings)	Pests Animal disease	Compulsory procurement Villageisation Wealth tax	Price shocks (for example, falls in value of jewellery and livestock) Rapid inflation	Breakdown of sharing mechanisms (for example, communal granaries)	Loss of assets as a result of war Theft
Human capital (labour power, education, health)	Disease epidemics (for example AIDS) Morbidity Mortality Disability	Declining public health expenditures and/or introduction of user charges Restrictions on labour migration	Unemployment Falling real wages	Breakdown of labour reciprocity	Forced labour Conscription Mobility restrictions Destruction of schools and clinics during war
Income (crops, livestock, non-farm and non-agricultural activity)	Pests Drought and other climatic events	Cessation of extension services, subsidies on inputs or price support schemes Tax increases	Commodity price falls Food price shocks		Marketing channels disrupted by war Embargoes
Claims (loans, gifts, social contracts, social security)		Reductions in nutrition programmes (for example school feeding, supplementary feeding)	Rises in interest rates Changes in borrowing capacity	Loan recall Breakdown of reciprocity	Communities disrupted/displaced by war



Figure 1.5

Resources utilized in pursuing household food security strategies		
	Household food secure	Household food insecure
Uses a small proportion of available resources	Best off	Not too difficult to improve
Uses a large proportion of available resources	Food secure, but at great risk	Worst off

Source: Jonsson and Toole 1991b

In practice, chronic and transitory food insecurity are closely linked. Successive exposure to temporary, but often severe, stress may increase the vulnerability of the household to chronic food insecurity, by causing households to liquidate assets in their efforts to stabilise food consumption.

## Conclusion

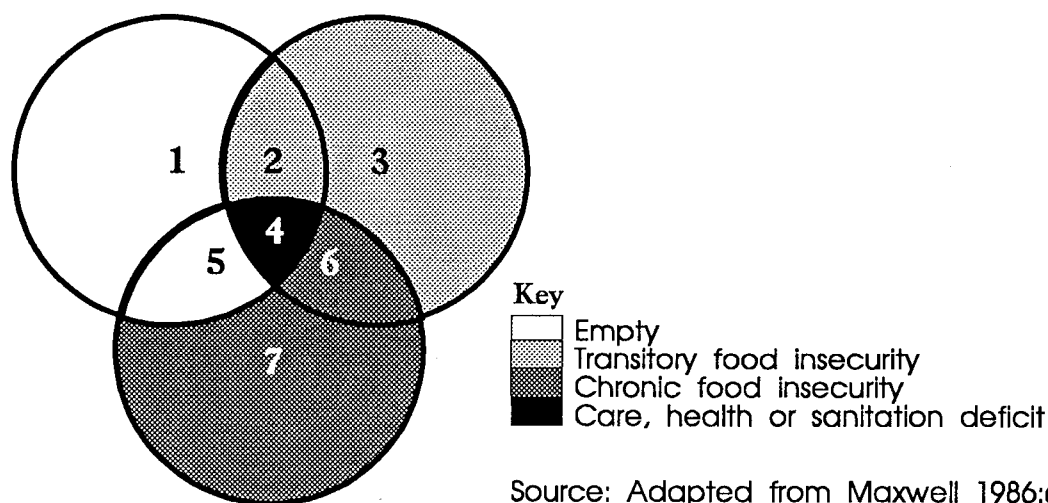
It is already clear that the notions of poverty, undernutrition and vulnerability are closely intertwined in definitions of food insecurity. The relationship between these has been explored by Maxwell, in a diagram reproduced here, in modified form, as Figure 1.6. This shows poverty, malnutrition (for which read undernutrition) and vulnerability as three overlapping circles, implying that it is possible, in principle, to experience the three conditions alone or in any combination: to be vulnerable, for example, without currently being either poor or malnourished; or poor and vulnerable, without being malnourished; or simultaneously poor, malnourished and vulnerable.

In practice, some simplification is possible. As with all Venn diagrams, some areas are likely to be empty. Thus, in the real world, it can be assumed that all people who are poor are also vulnerable, in the sense that they are susceptible to “large fluctuations in real income over relatively short periods, coupled with the absence of off-setting mechanisms to stabilise purchasing power or nutritional intake” (Maxwell 1989:24). Logically, therefore, the areas marked 1 and 4 in Figure 1.6 will be empty.

Focusing on the rest of the figure, transitory food insecurity will be found where poverty and vulnerability exist but where undernutrition, temporarily, does not (areas 2 and 3); and chronic food insecurity will be found where poverty, vulnerability and undernutrition coincide (area 5). Where undernutrition is found among populations that are not poor (areas 6 and 7), the most likely explanation is a failure of care, health or environmental sanitation (see Figure 1.7).<sup>6</sup>

Figure 1.6

### Poverty, Vulnerability and Malnutrition: A Model of Food Insecurity



The recent literature on food security has moved outside the boundaries of the four core concepts to tackle other issues. In so doing, it has been enriched by development in related literatures, particularly in nutrition, livelihood security, household models and ecological sustainability. In the section Section III, we review the implications for conceptual models of household food security.

## III. Conceptual Issues in Household Food Security

### Introduction

It is already clear that there are many conceptual problems with contemporary definitions of food security. Here we focus on seven sets of issues:

- 1) Intra-household issues;
- 2) Household food security and nutrition;
- 3) Household food security and livelihood;
- 4) Sustainability, resilience and sensitivity;
- 5) Perceptions and cultural acceptability;

- 6) Efficiency and cost-effectiveness; and
- 7) Household food security and human rights.

The main findings are summarised in the section “*Summary of Conceptual Issues*” and conclusions are drawn in Section IV.

## **Intra-Household Issues**

A first set of issues concerns the household as a unit of analysis. Operationalising a concept of “household food security” requires making a series of assumptions about household structure and organisation in order to identify the activities, relationships and processes essential to improving food security and to maintaining adequate nutrition status. In the nutrition literature, children and pregnant and lactating women are often identified as priority vulnerable groups, implying a disaggregation of the household. However, a more systematic analysis of intra-household relations is provided by household studies.

In the theoretical literature on economic models of household behaviour, all household members are assumed jointly to maximise some household level welfare function. Essentially, as long as the household remains intact, it may be treated as if it acts as a single individual. All resources are pooled and then reallocated according to some common rule (Becker 1981).

The implications of this model of household behaviour for food security issues are: (a) household members share a common set of preferences in resource allocation; (b) household income and food resources are pooled and allocated to maximise collective welfare — income under the control of different household members has the same impact on outcomes such as child health, nutrient intake, fertility; (c) households with similar endowments respond similarly but independently to price, income and other exogenous changes — hence “average” demand/supply responses are meaningful for research and policy purposes.

In fact, the underlying model of the household is open to serious question and the implications are also doubtful. There is now an emerging consensus that:

(i) conventional economic analysis of household behaviour inadequately accounts for the heterogeneous preferences of different household members, the constraints faced by different decision-makers and actors within the household in guiding resource allocation and the contribution they make to individual and household food security (Thomas 1991, Behrman et al 1990, Evans 1991, Kabeer 1991, Folbre 1986a, 1986b, Berry 1984 ); and

(ii) the assumption that households are discrete entities, adjusting to changes in economic and environmental variables independently of other households and wider social/political institutions (kin, lineage, “community,” “state”) is seriously at variance

with reality, at least in most agrarian contexts (Hart 1986,1989, Guyer 1981, Friedmann 1979).

If this new consensus is correct, an operational concept of the “household” for food security purposes must go beyond standard economic analysis to accommodate what Friedmann (1979) has termed, a “dual specification” of households, as internally diverse organisations, embedded within and shaped by wider structures. There are three important implications for food security analysis.

First, economists have in recent years turned to questions of intra-household resource allocation and its impact on economic behaviour. The extent of “latitude” household members face in allocating labour and non-labour resources differs, depending on the “caste/class” position of households (Bardhan 1984). In very poor, landless households, women and men may be less circumscribed in allocating their labour to all kinds of (low-income, low productivity) activities regarded by less poor households as “demeaning” or “unsuitable.” In less poor households there may be more intense pressure to emulate cultural/ideological norms regarding work befitting class/caste/gender status; and risk-diversification takes on different forms — early marriage of sons, male migration etc ... to diversify risk.

Diversity of food and income sources (cash and kind, farm and non-farm) is considered to be one of the main “buffers” households can develop against risk in agrarian environments. It is vital, therefore, to any understanding of household coping and survival strategies and ultimately to the effective design of food security strategies, that the relative importance of different income sources, the characteristics of these income sources in terms of seasonal fluctuations, sustainability etc. and the responses of individuals and households to these characteristics, be well understood. Von Braun notes that in Africa:

.. diversification may entail a fair amount of specialisation within the household according to gender or age. In the Gambia, for instance, most subsistence crops are produced by males, and most income from craft-work and services is generated by specialised individuals in the extended household system ... women cultivate around 30 percent of the cash-crop fields (groundnuts). In Rwanda, subsistence crops are produced mostly by women, whereas wages are generated mostly by men. Service and trading incomes are substantially generated by women. (Von Braun 1989:12).

Secondly, there are important questions about the allocation and control of household income. Thomas (1991), working on urban Brazilian data, has shown that the effect of unearned income on child health depends largely on who controls that income. Maternal income effects on family health are generally 4 to 8 times bigger than paternal income effects; for child survival probabilities the effect is almost 20 times bigger.

Similarly, Behrman & Deolalikar, working in rural South India, find that intra-household allocation of food means that the implications of price and income changes for particular types of individuals may differ substantially from those for household averages. For example, there was significant evidence of differential adjustment in male and female food intake to changes in food prices:

The more negative food price elasticities that we observe for females imply that the nutritional burden of a rise in food prices, which typically occurs in the lean agricultural season or during a drought year, falls disproportionately on female members within households. By the same token, however, women and girls enjoy a disproportionate share of the nutritional reward or bonus from falling food prices ... to the extent that the general risk of malnutrition or starvation is greatest during times of food shortage (when food prices are likely to increase) the relatively great vulnerability of female members at these times could be characterised as gender discrimination. (Behrman and Deolalikar 1990:693).

This finding suggests that periods of food insecurity precipitated by sudden food price rises may have differential outcomes for male and female household members. Such outcomes may be the result of female members “compensating” for the price shock by adjusting-down their own food consumption (to a greater extent than men) in order that male intakes (adults and children ) remain somewhere closer to the household “average.” These compensations may be involuntary and are very likely to have negative welfare consequences (Sen 1984, Sen and Sengupta 1983).

Thirdly, and despite the importance of disaggregation, cross-cultural diversity in household forms does yield some important regional regularities. For example, there would appear to be a higher incidence of corporate forms of householding, organised around the conjugal<sup>7</sup> bond in North Africa, South Asia and the Middle East, than in parts of the Caribbean, Latin America and sub-Saharan Africa, where the conjugal unit appears to be less cohesive and less of a focal point in household organisation. Kabeer (1991) argues that patterns such as these suggest that the conjugally organised nuclear family is a useful unit for empirical analysis in much of the Indian sub-Continent, but in sub-Saharan Africa is inappropriate given the widespread prevalence of units of production, reproduction, consumption and residence which do not overlap<sup>8</sup>. Tracing the composition, activities and relationships between various units and identifying where key activities — for example food production and processing — are located<sup>9</sup> is therefore central to understanding the institutions and processes through which scarce resources are allocated (Kabeer 1991).

The impact of these conceptual advances can be illustrated by considering the differential impact on household members of shocks associated with food insecurity. Gittinger et al identify the main causes of household food insecurity in terms of:

variations in the amount of food provided by the work and wealth of the household. The level of food consumption can vary because of shocks in

work, in production or in assets. The shock can change the quantity available or change in the price (Gittinger et al 1990:13).

- (a) **Work shocks:** these occur when the quantity/availability of work changes abruptly, for example because of illness or the effect of drought on wage employment. Work shocks will affect household members differently depending on their status as self-employed, unpaid-family or waged (casual/permanent/migrant) labour. Women and men in casual agricultural wage employment may be more vulnerable to abrupt changes in labour demand than men (rarely women) engaged in permanent farm jobs. Women may find it difficult to hire-in additional labour to compensate for a drop in family labour supply (perhaps due to illness or migration), because of limited capital or restricted access to local labour markets. A drop in the casual wage rate may be a much more serious event for a female head of household reliant on her sole income, than a male head of household who has the subsistence income of his wife or wives to fall back on. A drop in male farm or off-farm employment may have serious implications for women reliant on remittances for purchasing vital food resources and/or health care. Loss of waged work may also entail direct loss of food resources, if food is provided by employers as part payment for work.
- (b) **Output shocks:** the quantity of output produced may fall or the price of output may suddenly drop. Effects will vary depending on the composition of household output (food/non-food crops, non-farm products), who contributes the most labour and who controls the proceeds of the sale of output. Depending on the portfolio of economic activities of household members, the effect of output shocks can be mediated by different household members adjusting their profile of activities accordingly. The capacity of individual members to do this will depend on their “allocative flexibility,” access to new or existing resources and decision-making control. For example, women and men may be able to switch their labour time to more profitable or less insecure activities more-or-less easily, because of rigidities in the division of labour (women’s domestic overhead) or asymmetrical access to land, water resources and other inputs.
- (c) **Food shocks:** lack of availability of food in markets, sudden price rises. The food entitlement of household members may be based on own-production, their capacity to exchange labour for a wage or a payment in kind, or their ability to call on familial and kin food-sharing arrangements. These entitlements are not fixed, they are subject to negotiation and bargaining, even over-ruling by “powerful” household/kin members. So, in periods of increased insecurity, food entitlement may be compromised for some members more so than others. Women may find their entitlement to food sharing arrangements dries up during periods of food stress, or that their “separate” access to land is denied by male household members seeking to “hedge” against further food stress by maximising the sale of cash-crops. Meanwhile, male household members may experience a drop in entitlement as rising food prices devalue the “real” wage in the casual labour

market and possibly reduce the nutritional value of the portion of the wage paid directly in food (meals during the day).

- (d) **Asset shocks:** unanticipated drop in the quantity of assets e.g.: death of livestock, theft, debt seizure or a fall in the value of liquid assets due to rapid inflation or due to excessive selling-off during times of stress. Women and men hold assets in different forms and during periods of stress they may each attempt different strategies for protecting their assets or be forced to relinquish them at different times and in different ways. The effect of disinvestment or “asset stripping” on food and nutritional outcomes in the short-run may be different, depending on the convertibility of different assets into food and food-related products. Whereas women may be inclined to convert assets directly into food products for short-term consumption purposes, the “lumpier” assets owned by men may be more difficult to convert into food resources (less liquid) or they may be sold off only when conditions worsen in the medium term. The extent to which these strategies complement or conflict with one another and the costs incurred for individual members need to be examined.

There is a further shock which is likely to be of major importance in African households for the foreseeable future and that is the effect of AIDS. In many ways it cuts across the shocks listed above. Nonetheless its effect will be highly interactive with other shocks that might occur.

- (e) **AIDS shocks:** AIDS is likely to generate some very significant shocks on productive capacity, purchasing power and per capita food availability. Disruption and even dissolution of family structures because of AIDS is likely to increase food insecurity and malnutrition. Extended families that take in orphans could find their food resources spread more thinly. The evidence from Africa increasingly shows that women are more likely to be infected than men and at an earlier age. This suggests that the links between AIDS, household food security and individual nutritional status may be significant.

To conclude, this framework is clearly advantageous for pulling together household level and intra-household information, but it remains rather imprecise. Kabeer (1990) suggests operationalising the idea of the “food cycle.” The food cycle refers to the sequence of events by which food enters households (purchased or produced) and is transformed, first into consumable form and then into nutritional intake but itself at some nutritional cost. By locating food cycle activities in the wider context of activities and processes that reproduce labour resources on a daily and generational basis (including health-care/sanitation activities), it is possible to identify the cost and benefits to individuals. Kabeer emphasises the importance of tracing household labour inputs to food cycle activities, because the imbalance between production and use of human energy is one major contributing factor in individual nutrition shortfalls, especially for women.

## **Household Food Security and Nutrition**

A second set of issues concerns household food security and nutrition. We have already argued that many of the core issues in food security are derived from the earlier concerns of nutrition planning; and to the extent that food is central to both, there is clear overlap. However, recent work has helped to clarify the relationship between food security processes and nutrition outcomes. There have also been important contributions on diet quality, especially with respect to micro-nutrients, and on nutrition adaptation: these also have considerable implications for food security.

The debate about food security and nutrition is concerned with the question of whether under-nutrition, usually measured by growth faltering in children or possibly by reduced body-mass in adults (Martorell et al forthcoming), is an adequate proxy or indicator of food insecurity. At one extreme, it can be argued that under-nutrition is synonymous with food insecurity; at the other, that undernutrition can be, for practical purposes, independent of food insecurity. The debate has important consequences for food security monitoring and famine early warning, not least because anthropometric data is so frequently used as a key indicator.

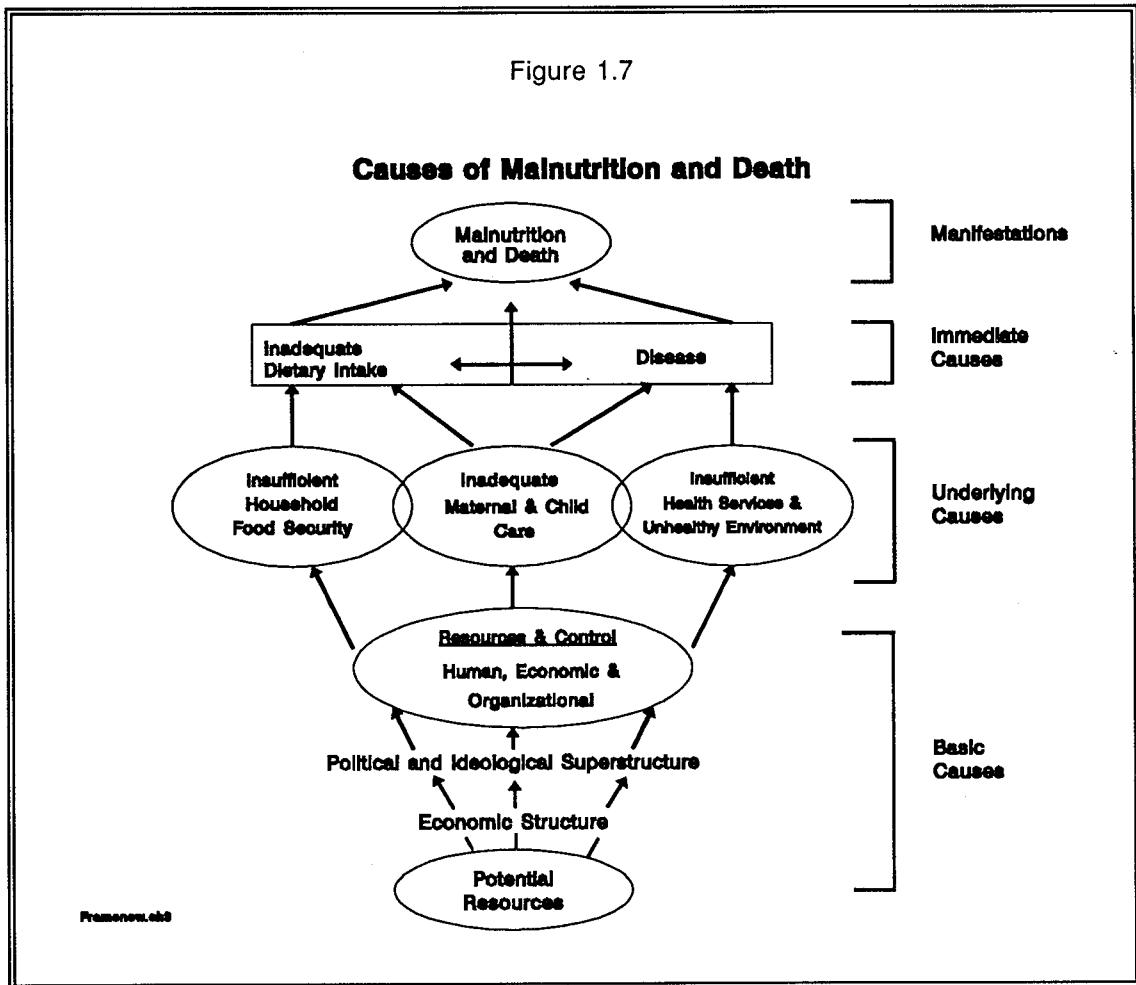
A way into the debate is to examine the causes of under-nutrition. Several causative models illustrating the aetiology of malnutrition have been developed (Mason et al 1984; Pacey and Payne 1985; Beghin et al. 1988; UNICEF 1990). The most recent of these, by UNICEF, is reproduced in Figure 1.7. It shows that malnutrition and death are caused by a combination and interaction (Tomkins and Watson 1989) of (a) inadequate dietary intake and (b) disease. These, in turn, are seen to be caused by a combination of three inter-related factors: insufficient household food security, inadequate maternal and child care and insufficient health services and unhealthy environment. These three factors, food security, health and care, are each necessary but none sufficient on its own for adequate nutritional status to be achieved.

The model summarised in Figure 1.7 has gained wide acceptance (Gillespie and Mason 1991, ACC/SCN 1991). It implies that household food security is necessary but not sufficient for adequate nutrition; and, in turn, that growth faltering cannot necessarily be ascribed to a failure of household food security. From this, it is said to follow that a deterioration in anthropometric indicators cannot be interpreted on its own as identifying a decline in food intake, let alone in food security. Even if it can, poor anthropometric results, especially stunting, may well reflect a history of past under-nutrition rather than any current problem (Beaton 1989, Payne 1990). By the same token, acceptable anthropometric results do not necessarily demonstrate adequate food security: risk levels, for example, may be high.

There is certainly empirical evidence to support the notion that failures in caring capacity or environmental sanitation are associated with growth failure among children (Gillespie and Mason *ibid*, ACC/SCN *ibid*). Indeed, a "health crisis" model has been proposed as the main cause of death in famines (de Waal 1989). Nevertheless, others have argued that the relative importance of health and care may be less important than



Figure 1.7



suggested in Figure 1.7, especially for adults and in non-famine situations. If, for example, environmental conditions remain stable over time, then there may well be a direct relation between changes in food security status and nutritional outcomes (Young and Jaspars, forthcoming). The implication for food security would seem to be that anthropometry is not a universally reliable indicator of (changing) food security status, but that it may, in certain circumstances and with information on the other factors, be possible to interpret anthropometric data with respect to food security.

A second issue has to do with diet quality. As noted in the section “*Sufficiency: What is ‘Enough’*,” the food security literature has concentrated principally on calories, reflecting a movement away from concerns with protein quantity and quality in the 1970s (Joy 1973:165ff). However, a number of definitions of food security stress food quality as an objective (Commission of European Community 1988, Mudimu 1988, Bryceson 1990) and this is consistent with a renewed emphasis in the 1990s on the composition of the diet, especially with respect to micro-nutrients.

The new emphasis on micro-nutrients is said to stem from two factors:

first, the increasing understanding of the extent and far-reaching consequences of micro-nutrient deficiencies, especially iron, iodine and vitamin A . . . (and secondly) the existence of proven and low cost methods for preventing these deficiencies (ACC/SCN 1991:16ff).

The extent and consequences of micro-nutrient deficiency are reviewed elsewhere (Chen 1990, Millman 1991, ACC/SCN forthcoming). The implication for food security is that more attention needs to be paid to the potential quality of diet than has recently been the case.

The third issue is concerned with adaptation to nutritional stress and connects closely with later discussions on the management of livelihood strategies and sustainability and resilience. There are many common themes.

Households facing regular episodes of food insecurity have developed complex strategies for coping with these events. Although coping strategies vary with local conditions, there is a common pattern in the sequence of responses (Corbett 1988). As the severity of food insecurity increases, the household responses become progressively more serious and threatening to livelihoods. One of the first responses is to reduce food intake, in order to preserve essential assets.

There are three types of nutritional adaptations to reduced food intake or energy stress; genetic, physiological and behavioural (Waterlow 1985; Payne and Lipton 1990). Payne and Lipton (1990) use the term "adaptive response" in its evolutionary sense; it increases the probability of survival and subsequent reproduction. Whether this adaptation is acceptable is another question and is essentially a value judgement, based on the costs incurred or risks involved.

First, the genetic make-up of the individual determines the extent to which physiological adaptations are possible. The capacity for physiological adaptations will influence the social adaptations that are necessary (Waterlow 1985).

Secondly, with regard to physiological adaptation, the most common single adjustment to energy stress is reduction in body size and growth. Other examples of physiological adjustments include metabolic adaptations, such as reductions in basal metabolic rate, and reduced fertility (Payne and Lipton 1990). Mild early growth retardation in children is adaptive, as it results in significant cumulative energy savings, which may be crucial to the household's overall survival. The state of being small may not put the child at any current or future risk in terms of health, but the process of becoming small is unacceptable, because it leads, for example, to smaller mothers, increased episodes of disease and possible mental impairment (Beaton 1989).

Growth failure carries significant health risks. Most studies which relate growth failure to risk of mortality have suggested that there is a range of growth status over which the risk of dying changes only slightly, with a lower threshold below which mortality rises steeply (Kielman and McCord 1978; Chen 1980; Heywood 1982; Katz 1989).

However, recent analysis (Pelletier 1991) suggests that a sharp threshold does not exist and that even mild to moderate undernutrition is associated with increased risk of mortality. Severe malnutrition also increases the incidence, duration and severity of infectious disease (Tomkins and Watson 1989). The pattern of morbidity and mortality is a result of environmental factors that influence transmission of disease, such as crowding, water supply, sanitation, and climatic factors.

Food insecurity may prompt responses that increase risks to health and even health crises. For example, distress migration and the formation of camps are associated with higher than normal mortality rates (Toole and Waldman 1990). The risks associated with growth failure are likely to vary depending on whether people are home based or have migrated and settled among other destitutes. Therefore, what may be considered a successful adaptation amongst a home-based population, may be unsuccessful in different circumstances, such as camps, because of the additional health risks.

Thirdly, behavioural responses to energy stress are probably much more important than physiological responses. The main behavioural responses are reductions in energy expenditure, ergonomic adaptation, which is substituting uncomfortable for energetic work by adults, and reduced play and work by children (Payne and Lipton 1990). The very poor will be less able to reduce their energy expenditure at times of energy stress as they must spend most of their time and effort securing sufficient food or income. During famine, it is not only the poor who must increase their efforts, and hence reducing energy expenditure may not be an option even for the less poor.

In balancing these various options, people's choice of response will involve trade-offs depending on their priorities and perceptions of the costs or risks involved. This relates to both current and future food security. For example, children may go hungry in drought or may be denied schooling, so that they may earn or preserve energy, long before the household is prepared to sell assets (Jodha 1975). In such a case, acceptance of some degree of hunger or under-nutrition is in order to preserve future food security (Corbett 1988). Thus, pursuing the goal of future household food security may have a markedly negative impact on nutrition and may be mis-interpreted as a lack of household care or as ignorance of the nutritional needs of different household members.

This discussion has important implications for food security. Following Gillespie and Mason 1991 and ACC/SCN 1991, the food intake of the household is more closely related to household food security than is growth failure as measured by anthropometry of children under five. Food intake is not only an outcome of current and past household food security, but is also part of the process of ensuring future household food security: the fear of not having enough food in the future may lead to reductions in current food consumption. However, in practical terms, and given the scope for adaptation, it is extremely difficult to establish a reliable minimum energy requirement below which a household may be considered food insecure. There are also additional problems of measuring food intake not considered in this review.

## **Household Food Security and Livelihood**

As already made clear, the analysis of access and entitlement is central to food security, identifying the risks facing particular social groups and mapping their vulnerabilities. In so doing, it has been a common assumption that the food sub-sector can be treated independently of others and usually as the first priority of the food insecure.

Conventionally, food is supposed to be one of the most basic human needs within a hierarchy of concerns (Maslow, cited in Handy 1985: 30)<sup>10</sup>. Within this hierarchy,

lower-order needs (physiological and safety) are dominant until satisfied, whereupon the higher order needs come into operation ... If you are starving, your needs for esteem or status will be unimportant; only food matters. (Handy 1985: 30).

Much food security literature has assumed this logic and the urgency to satisfy food needs which it implies, such that these needs are met by poor households before and in preference to all others. Hopkins, for example, argues that

food security stands as a fundamental need, basic to all human needs and the organisation of social life. Access to necessary nutrients is fundamental, not only to life per se, but also to stable and enduring social order (Hopkins 1986:4).

In recent years, these assumptions have been questioned. Food security has been seen as only one dimension of the broader concept of livelihood security; the food security strategies of poor people have been interpreted in the context of their complex and dynamic livelihood strategies; and, in the process, the preeminence of food security has had to be reevaluated.

A starting point for the discussion is Chambers' (1988:1)<sup>11</sup> definition of sustainable livelihood securities in which:

Livelihood is defined as adequate stocks and flows of food and cash to meet basic needs. Security refers to secure ownership of, or access to, resources and income-earning activities, including reserves and assets to offset risk, ease shocks and meet contingencies. Sustainable refers to the maintenance or enhancement of resource productivity on a long-term basis.

In this framework, the achievement of food security is but one sub-set of objectives and food 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.

There is empirical evidence to support a focus on livelihood security. De Waal (1989) found in the 1984/85 famine in Darfur, Sudan, that people chose to go hungry in order to preserve their assets and future livelihoods. He argued that “people are quite prepared to put up with considerable degrees of hunger, in order to preserve seed for planting, cultivate their own fields, or avoid having to sell an animal” (de Waal 1991:68). Furthermore, “avoiding hunger is not a policy priority for rural people faced with famine” (ibid). Similar findings are cited from Ethiopia (Turton 1977).

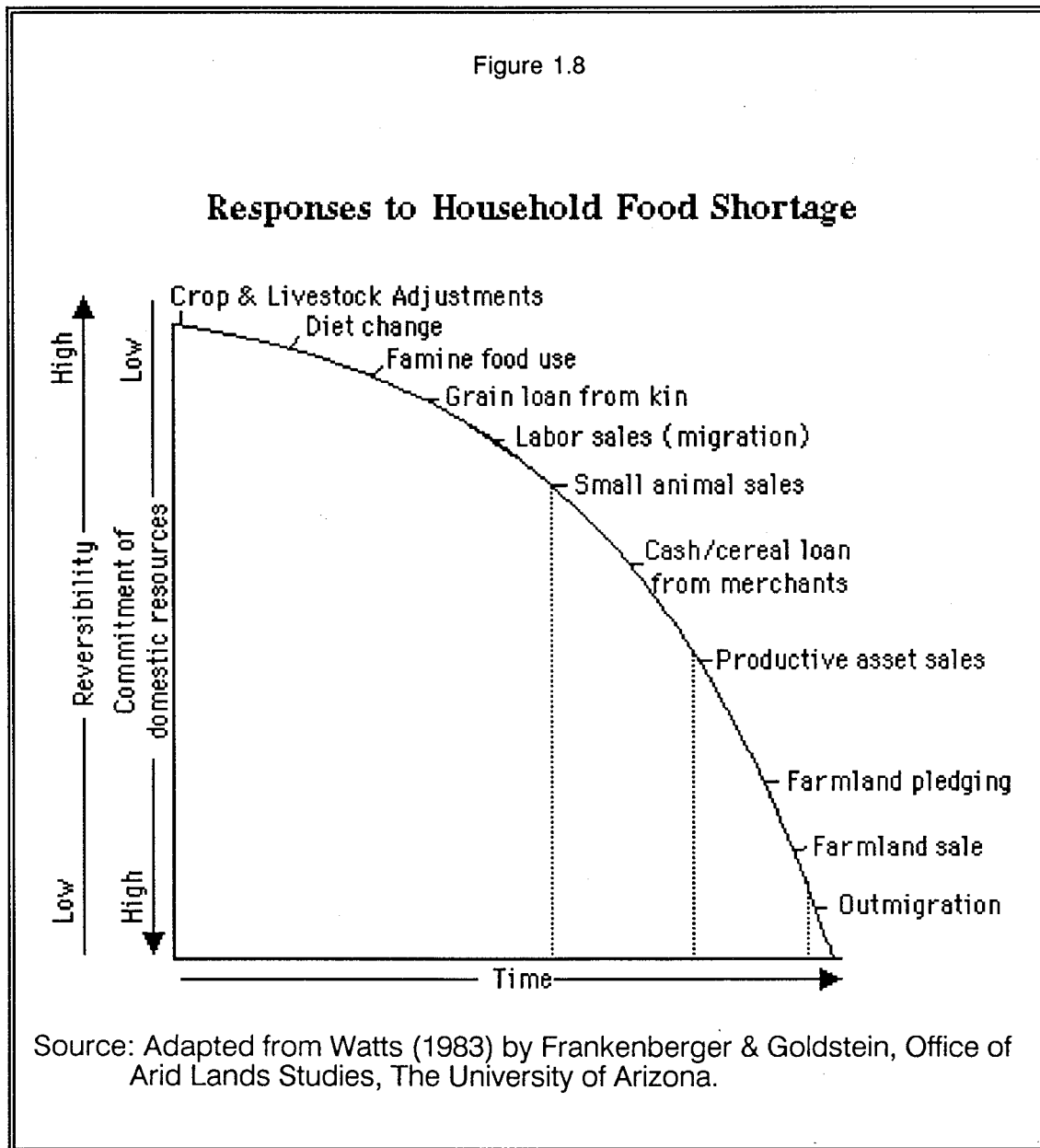
Equally, in comparing the sequential use of coping strategies employed in periods of food stress in a number of African and Asian cases, Corbett (1988) found that preservation of assets takes priority over meeting immediate food needs until the point of destitution, when all options have been exhausted.

Frankenberger and Goldstein (1990) have taken the role of coping strategies one step further, distinguishing between various types of risk management and patterns of coping behaviour (e.g. asset depletion, breakdown of community reciprocity, non-farm coping strategies), as well as different types of household assets which will play different roles in the process of coping (Figure 1.8). On this basis they argue that “the dilemma facing small-farm households ... involves a trade-off between immediate subsistence and long-term sustainability” (ibid, 22). But, as yet, there is little evidence to show how this trade-off works in the long-term, or to what extent coping strategies are successful in striking a balance between meeting immediate food needs and longer-term livelihood sustainability. To find out about this, coping strategies, the reasons for and timing of their use, and their success or failure, need to be tracked over much longer periods than a single cycle of famine and rehabilitation.

Riely adds an important qualification to this conclusion. Examining the coping strategies of food insecure communities in Kordofan, Sudan, he finds that the experience of drought itself changes the scope for coping with the next food crisis, for example because of asset redistribution or changes in markets. He concludes that it may be very difficult to predict from studying coping strategies during one cycle what will happen during the next — and hence very difficult indeed to interpret early warning data on livelihood changes (Riely 1991). In many such cases, “coping” may be a misleadingly positive word, implying that food insecure households survive periods of high risk unscathed: in fact, households may survive only at the cost of significant impoverishment.

Pursuing the dynamics of coping strategies, Davies (forthcoming) argues that there is conceptual confusion between the use of the term “coping strategies” to describe fall-back mechanisms during periods when habitual food entitlements are disrupted, and its use to describe long-term, irreversible changes in local food security systems. She suggests a distinction between “coping” and “adapting:” the former is a short-term response to an immediate and inhabitual decline in access to food; the latter, in contrast, involves a permanent change in the mix of ways in which food is acquired, irrespective of the year in question.

Figure 1.8



Work on food security and the environment also supports the importance of a livelihood approach. It is often argued that food security is achieved at the expense of environmental degradation, but Davies et al (1991b) find that poor people do not distinguish so clearly between food entitlements and “environmental entitlements” (Leach and Mearns 1991). They have a vested interest in conserving their natural resource base, for food security and livelihood reasons, and will do so if given the opportunity (Chambers 1988).

In terms of definitions of food security, livelihood has largely been an implicit theme, expressed in terms of the close relationship between food insecurity and the “secular problems of poverty” (Chisholm and Tyers 1982), the “real family income of

vulnerable groups” (Muhammed 1987) or “household strategies for exploiting available food resources” (Eide 1990b). Maxwell, however, has made the link to livelihood explicit, arguing that

food security will be achieved when equitable growth ensures that the poor and vulnerable have sustainable livelihoods (Maxwell 1988 and 1991:22).

He also argues, citing de Waal (1988 in Maxwell 1989, 1991,), that “poor people will modify their attitudes to food in order, for example, to preserve their asset base or in other ways protect their livelihoods.” (Maxwell 1990:4).

Davies (forthcoming) has taken the argument one step further. Locating food security within the broader context of livelihood security, she begins by asking not how people fail to feed themselves and become food insecure, but rather about the positive strategies they follow to feed themselves. This leads her to ask what people do (e.g. what production systems they are part of and on what terms they participate), where people fit into local resource management systems, and what kind of flexibility their overall livelihoods provide them with (e.g. can they migrate into neighbouring production systems, do they have reciprocal links with kin in neighbouring production systems, do they have reciprocal links with kin in urban or more productive agro-ecological zones?). She argues that this livelihood approach mirrors some of the preoccupations of farming systems research with classification (Maxwell 1986:66), but with a greater emphasis on cultural variables. Davies’ livelihood security approach to food security is contrasted with a “Food First” approach in Figure 1.9.

This kind of analysis has three important implications for food security. First, it reinforces the point that food cannot be seen as a unique and objectively defined need at a particular point in time, independently of people’s other priorities at that point in time and their inter-temporal decision framework. There is thus an additional incentive to establish food security norms on a participative basis, rather than imposing them externally.

The second implication is that information systems need to be concerned not just with food flows, but also with wider issues of livelihood, in particular with coping strategies and long-term adaptation to food stress. Since the livelihood and coping strategies of different groups are continually evolving, not least in response to episodes of food insecurity, the implication is that the evaluation framework also needs to change so that data can be used in a meaningful way.

Finally, it is apparent that addressing food security in the context of livelihood security opens a Pandora’s Box of data and interpretation. Data requirements multiply rapidly. It may be more appropriate to recognise complexity and diversity in such a way as to maximise the choice and freedom of manoeuvre of the food insecure themselves, rather than trying to impose a small number of indicators from outside. This is a theme to which we return in Section IV.

Figure 1.9

**Differences Between a Narrow “Food First” Approach and a Wider “Sustainable Livelihood” Approach to Household Food Security**

<b>Livelihood</b>	<b>“Food First” Approach</b>	<b>“Sustainable Livelihood” Approach</b>
Objective	access to food	secure and sustainable livelihood
Point of departure	failure to subsist	success in feeding, living
Priorities	food at the top of a hierarchy of needs	food one part of a jigsaw of livelihood needs
Time preferences	food needs met before and in preference to all others	food needs met to the extent possible given immediate and future livelihood needs
Entitlements	narrow entitlement base (current and past consumption)	broad entitlement base (includes future claims, access to CPRs etc.)
Vulnerability	lack or want of food	defencelessness, insecurity, exposure to risk, shocks and stress
Security	opposite of vulnerability is enough food, irrespective of the terms and conditions on which it is acquired	opposite of vulnerability is security
Vulnerable groups	based on social, medical criteria	also based on economic, cultural criteria
Coping strategies	designed to maximise immediate consumption	designed to preserve livelihoods
Measuring and monitoring	present and past consumption	livelihood intensity
Relationship to food security and the environment	degrade environment to meet immediate food needs	preserve environment to secure future

Source: Adapted from Davies 1992 (forthcoming)



## **Sustainability, Resilience and Sensitivity**

The food security literature is sometimes accused of being more concerned with the current state of food insecurity than with changes over time and underlying processes. However, resilience, sensitivity and sustainability have played an important part in the literature on household food security, developing from the key notion of risk discussed in the section "*Security*." There are also many connections to the discussion of livelihood security.

In 1985, for example, Oshaug argued that

a society which can be said to enjoy food security is not only one which has reached the Food Norm . . . but which has also developed the internal structures that will enable it to sustain the Norm in the face of crises threatening to lower the achieved level of food consumption. The internal structures form the basis of the capacity to endure . . . (and endurance can be defined as) the capacity of a given social system/unit to undergo a perturbation without a decline in the degree of progress made towards the Food Norm. (ibid:5-13)

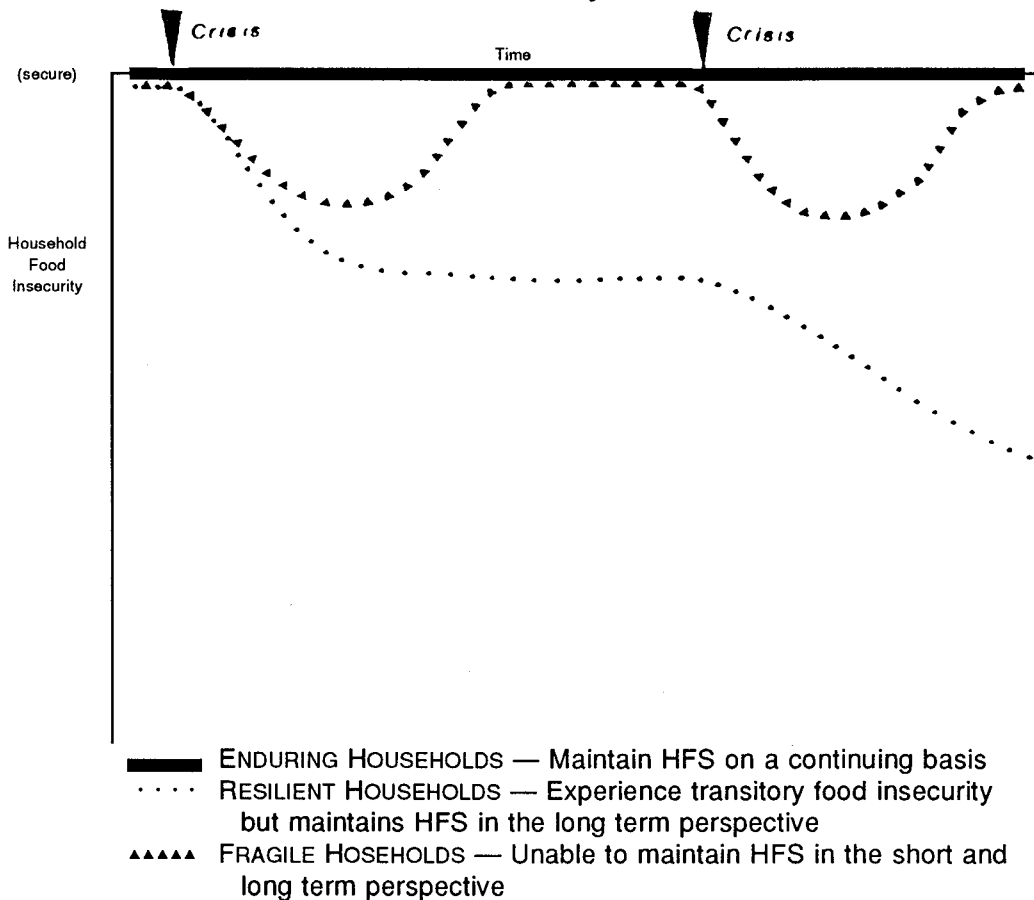
Oshaug identified three kinds of households, "enduring households," which maintain household food security on a continuous basis, "resilient households," which suffer shocks but recover quickly, and "fragile households," which become increasingly insecure in response to shocks (Figure 1.10).

Similar approaches are found elsewhere. Benson, Clay and Green (1986) analyse household food security in terms of three main elements: average household incomes, the magnitude and probability of seasonal and annual fluctuations around the average, and the value and form of stocks a household can maintain to protect itself against income shortfalls. Barraclough and Utting (1987) suggest that long-term sustainability is one of five key characteristics of food security, achieved by preserving and improving the ecosystem within which food is produced; reliability is another characteristic, meaning that seasonal and cyclical variations in access to food are minimized. Maxwell (1988) identifies sustainable livelihoods as a necessary condition of food security. And Phillips and Taylor (1990a,b) focus specifically on the balance between food security risks and current insurance. These ideas can be combined and modified in the light of recent work on resilience, sensitivity and sustainability in ecological systems and studies of livelihood security.

The ecological literature originates from just those marginal and sensitive environments where food insecurity is greatest. Ecosystems and livelihoods are seen as sustainable if they persist over time despite shocks and long-term adverse trends, but persistence does not necessarily mean either lack of change or the successful maintenance at all times of a particular type or form of system. In ecosystem science, based on original work by Holling (1978) and extended to agricultural ecosystems by Blaikie and Brookfield (1987), sustainability is analysed in terms of sensitivity and

Figure 1.10

**Characteristics of Households' Ability to Withstand Crisis to Preserve Household Food Security on a Sustainable Basis**



Source: Oshaug, 1988 (personal communication, cited in Eide (1990))

resilience. Sensitivity is defined as

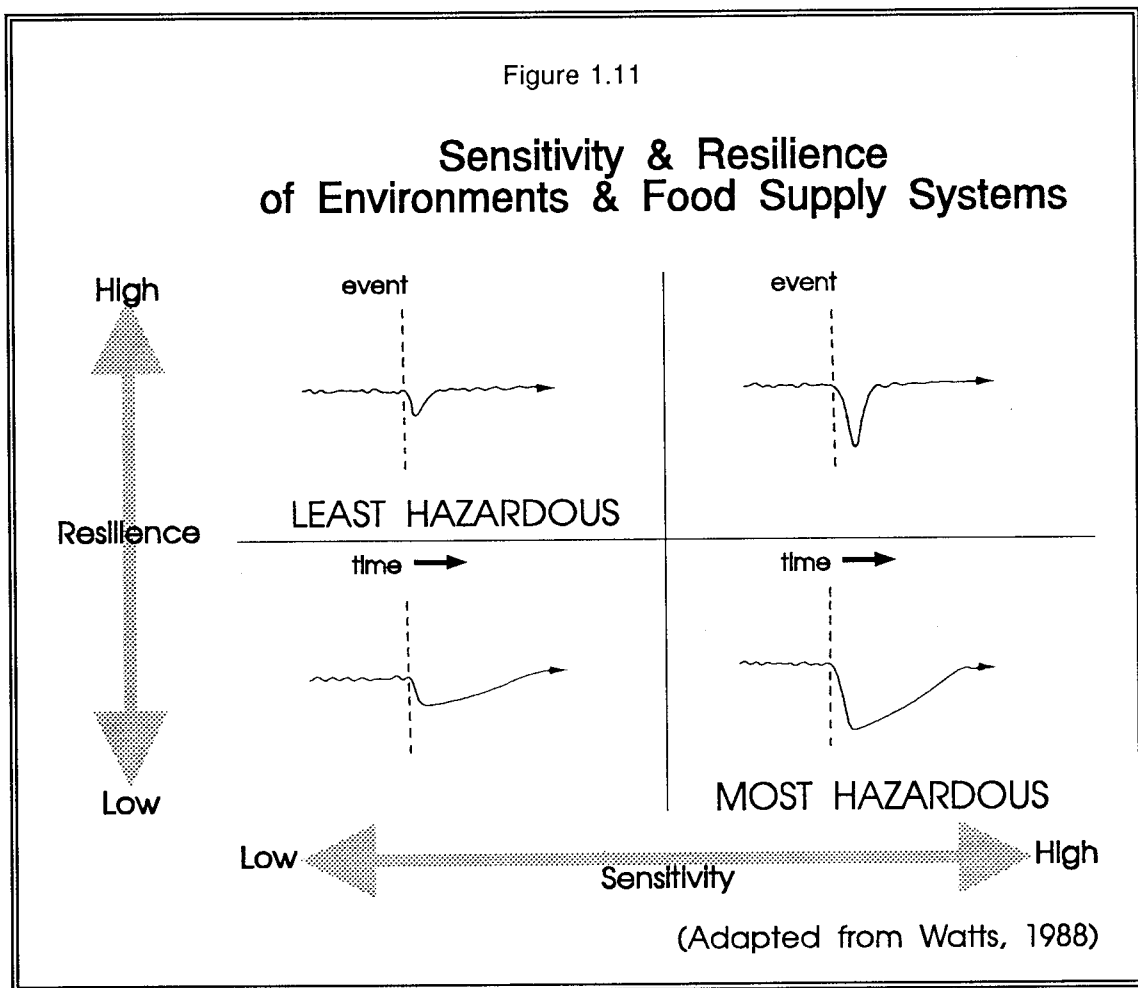
the degree to which a given land system undergoes changes due to natural forces, following human interference.

Resilience on the other hand refers to the capacity of land to absorb change; it is defined as

the ability of land to reproduce its capability after interference ... where resilience is high, it requires a major disturbance to overcome the limits to qualitative change in a system and allow it to be transformed rapidly into another condition.

(both definitions from Blaikie and Brookfield (1987: 10-11).

A simple 2x2 matrix (high/low sensitivity, high/low resilience) gives four broad categories of ecological system, each with different sustainability characteristics: (i) systems of low sensitivity but high resilience, which are generally of low productivity but which are easily sustainable and only degrade under persistent abuse; (ii) systems of high sensitivity and high resilience, which respond well to productivity-enhancing inputs degrade easily, but also react well to land management designed to restore capability; (iii) systems of low sensitivity and low resilience, which are initially resistant to degradation but once thresholds are passed are also resistant to restoration of capability; and (iv) systems of high sensitivity but low resilience, the least sustainable, which degrade easily and do not respond to efforts at restoration (Blaikie and Brookfield 1987: 11). These different categories are presented diagrammatically by Bayliss-Smith (1991 and Figure 1.11).



A further, important, dimension of ecological resilience and sustainability is furnished by recent work on non-equilibrium ecological systems. In such environments, events like droughts or fire may trigger changes not simply to a lower point in a fixed

vegetation succession, which is then simply pushed back towards the previous climax, but to a very different but also stable vegetation association (Ellis and Swift 1988, Behnke and Scoones 1991). Such non-equilibrium ecosystems seem to be characteristic of the dry areas associated with high food insecurity.

All this suggests a different way of looking at sustainability in household food and livelihood security. Swift (1989) classified the proximate factors in food insecurity (that is, the actual potential triggers of acute episodes of famine risk) into three categories: those relating to production, to exchange and to the system of assets and claims households are able to mobilise. Variability and risk can arise in any or all of these, and historically the greatest food insecurity results from failure of all three mechanisms simultaneously.

The conventional view is that this variability, and the resulting risk of future food consumption shortfalls, must be dampened and insured against. In this view, sustainability means maintaining constant levels of consumption, and comes from stabilising and making more reliable each of the proximate factors. This is achieved, for example, by investment in agricultural capital, such as irrigation or soil conservation, by economic diversification, through stabilising staple food grain markets by the use of intervention stocks, or through insurance mechanisms. Stability means minimising variability around the mean values of production levels, terms of trade, or assets and claims. Such interventions are often very costly, and may be of doubtful efficiency. It is worth asking, in the light of the discussion about sustainability in ecological systems, whether there are alternatives.

By analogy with the ecosystem characteristics discussed earlier, livelihood systems also show varying degrees of sensitivity and resilience, and the outcome of the interaction between these determines the sustainability of the livelihood system. Livelihood systems are sensitive if they respond rapidly to interventions, whether endogenous or exogenous, positive or negative, and whether those changes become self-fuelling. High sensitivity is an important part of many agricultural ecosystems, and the aim of development innovations is often to enhance their sensitivity, for example by creating conditions under which crops can use irrigation water and fertiliser more effectively. But high sensitivity also means a capacity for rapid degradation, triggered by a small initial change. In food security terms, high productivity livelihood systems can be vulnerable, because of their susceptibility to rapid change. However, because of their ability to respond positively to innovation they can often generate rapid economic surpluses, which can be channelled into food security mechanisms, including stores of food or wealth, and insurance.

Resilient systems, on the other hand, tend to absorb change without serious modification; they revert easily to their previous state, and are not easily shifted, for example to new levels of productivity. However, resilient systems are not easily destroyed, maintaining themselves by a range of strategies; they adapt to threats, often not by attempting to maintain a population *in situ* at previous levels of consumption, but by movement, migration. In resilient livelihood systems, human populations adapt

to variable resources with great flexibility, exploiting a wide range of environments and economic possibilities.

Paradoxically, fragility and vulnerability in human livelihood systems, are often associated with resilience, a quality which ensures persistence and sustainability. Mortimore (1989) describes "uncertainty-as-norm" as the normal state of the dry areas of west Africa, contrasting it with "uncertainty-as-aberration." Farmers and herders sustain themselves in these difficult environments through resilience in their ecological, economic, social and political systems. This is not achieved by a well-protected stability in production or exchange of the sort that is achieved elsewhere by secure irrigation systems or interventionist markets, but by what Mortimore calls "resilient instability:" an ability to adapt rapidly to very adverse conditions, such as droughts, by mobility, population movement, changing economic strategies, and social and political networks. In the driest areas, the desert edge, where variability and risk were greatest, geographical and occupational mobility were also greatest. When a major drought struck, local livelihood systems responded with great flexibility, the economy tracking the downturn in the ecology by contraction, sloughing off people to other production systems and other places where the drought was less severe, activating wide geographic and political networks of support; when the environment improved again, these changes were reversed. The livelihood system was not stable or in equilibrium; on the contrary its great resilience depended on the possibility of large and sometimes sudden changes in economic activities, behaviours and expectations.

This suggests that in pursuing food security, households have to strike a balance between two types of strategy. The first is the defence of the *status quo*, and consists of all those behaviours which seek to maintain current consumption and current economic and social norms. Efforts to make production more secure against environmental variations such as drought, the many types of food storage, food sharing, insurance, risk-spreading, the networks of social and political ties — friendship, kinship, political alliances or dependence — all contribute to this end. But the cost of such strategies is often high, and rises very rapidly indeed in certain circumstances, to the point at which they become exhausted.

At such moments, a second type of strategy may be engaged. Efforts to defend existing consumption patterns in the familiar ways are abandoned, and rapid changes take place. The goal becomes one of more nearly adapting the livelihood system to the extremely reduced circumstances of the moment, of "battening down the hatches," in ways which preserve its ability to recover rapidly when the crisis has ended. A key component of such a strategy is for example to preserve productive assets such as livestock for the recovery, as de Waal (1989) recorded in Darfur in 1984, even at the cost of food consumption levels reduced to the point of greatly increased risk of mortality. Occupational mobility is another key response, with people leaving farming or herding for other occupations. Households may break up at this point, and new groupings emerge as women, children and old people move to refugee camps or settlements where there is a hope of neighbourly charity or relief, while young men

migrate long distances in search of work; a few young men may stay behind to look after the remaining assets, especially livestock, of a village or kinship group, grouped into a single unit.

Although this may often seem to be less a rational strategy than the break up of a livelihood system, in fact such types of behaviour may allow the survival of most household members and the rapid reconstitution of a livelihood system when the worst of the crisis has passed.

Sustainability of livelihood systems, and of the food security of their members, is in practice most often achieved by a combination of such defence strategies as food storage and sharing, and resilience in the economic and social system, which allows the system itself to contract and expand in response to variations in resource availability and external shocks. Interventions to reinforce food security should seek to strengthen both types of strategy, although rather different types of intervention are needed. Most contemporary intervention policies are aimed at supporting the defence strategies of food insecure households, and more thought is needed about ways to bolster resilience.

Three general points may be made about supporting resilience. First, the geographic scale and livelihood system scope of plans to reinforce resilience may have to be unusually large: as risks increase, the size of the geographic area or the economic networks needed to offer livelihood flexibility also increases. Interventions in favour of food security should make it easier for people to move and to activate such networks.

Second, a resilience strategy draws attention to the importance of the recovery phase after a crisis. Resilience is usually achieved by surviving the crisis with enough resources to take rapid advantage of post-crisis ecological and economic potentials. Governments and donors can assist in this process by packages of measures to support rural people's own resilience strategies, notably guaranteeing secure access rights to resources, and to productive capital such as livestock and farm inputs such as seed and equipment.

Last, household livelihood security depends in large part on strategies, networks and collective action at levels above that of the household. The household food security literature is curiously silent about this, its analysis usually jumping straight from the household to the nation, or at best to some large sub-national geographic region. However the most useful livelihood strategies, whether for defence or resilience in the way these terms have been used in this section, depend crucially on the way household actions are coordinated within wider social and economic frameworks. This is especially true of resilience strategies, where units of social organisation above the household often play a crucial role. Policies to improve food or livelihood security at household level should recognise this role of community organisation, and seek to strengthen it.

## **Perceptions and Cultural Acceptability**

In a previous section, we have argued that the core concepts of access, entitlement and risk have to be modified to take account of individual and household livelihood strategies: because food is only one of many priorities people pursue, their attitude to food and the relative priority they accord it become important factors. We need now to expand on that idea. This can be done in four steps.

The first step is to reiterate the spurious precision of most definitions of food security in terms of levels of food, or, more usually, calorie intake. Estimates of calorie requirements for average adults and children with average activity patterns in average years are subject to constant revision (Payne 1990). But, in addition, the calorie requirements of individuals vary with season, year, activity pattern and adaptation strategy (Payne and Lipton 1990). Some writers on food security avoid reference to specific calorie levels by referring boldly but ambiguously to “target levels of (food) consumption” (Siamwalla and Valdes 1980, Roumasset 1982, Malambo 1988) or “food supply at an acceptable level” (McIntire 1981).

The second step extends the conventional concern with technical food quality (EC 1988, Mudimu 1988, Bryceson 1990) into a broader emphasis on consistency with local food habits (Oomen 1988) and “cultural acceptability” (Oshaug 1985, Eide et al 1985, 1986, Teller et al 1991). Oshaug, in particular, explores the cultural importance of food as vehicle for self-realisation, communication and the maintenance of social relations. He argues that

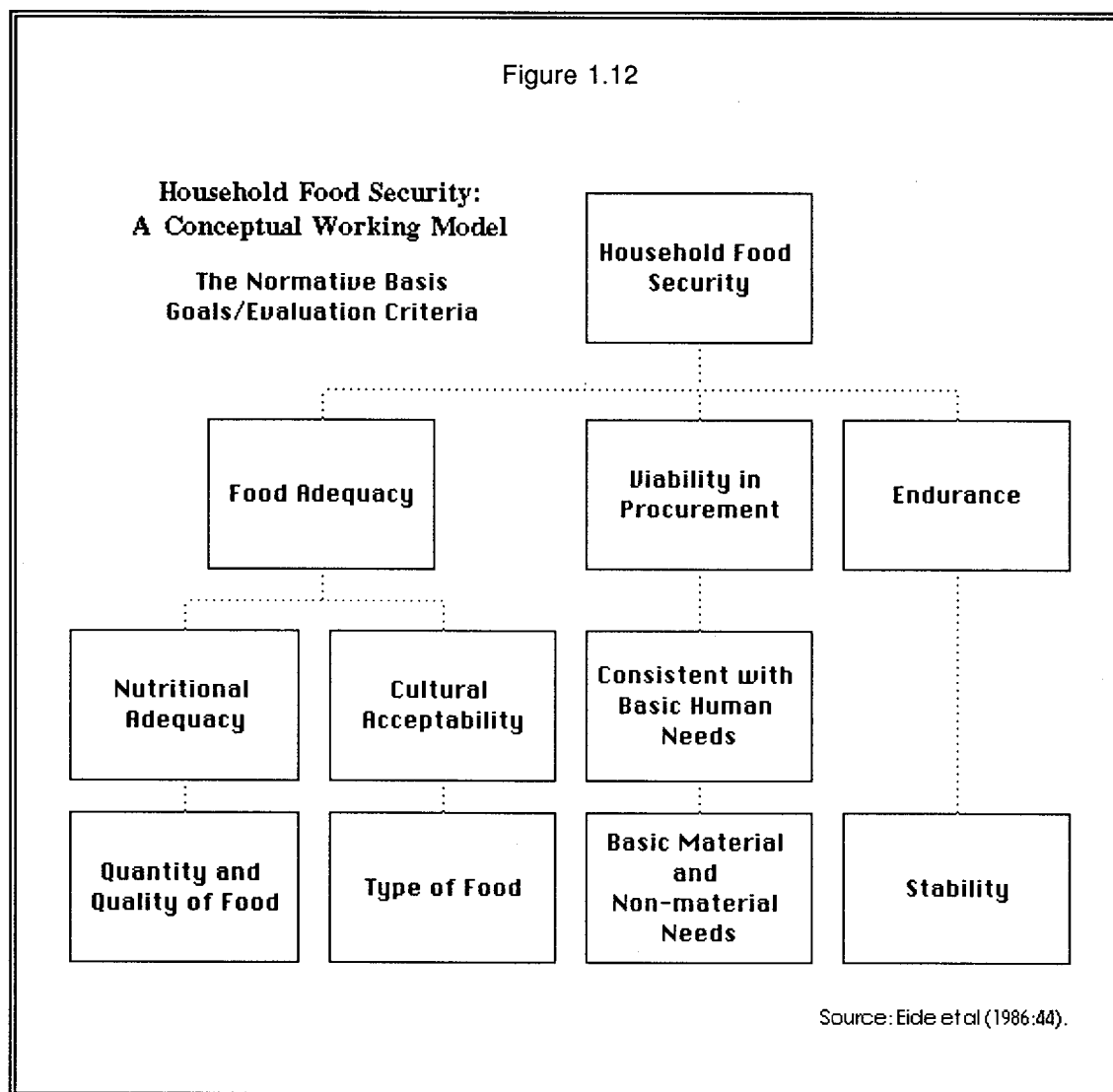
efforts to direct changes in food patterns for optimal nutritional conditions should always take the indigenous food culture and food production pattern of a society as a starting point. The aim should be to involve people and their traditions rather than debase them through forcing them to eat food that is culturally unacceptable (ibid:5-9,10).

The implication of these arguments is that nutritional adequacy is a necessary but not sufficient condition for food security: cultural acceptability is also required (Eide et al 1985:9-2).

A third step in the argument is also introduced by Oshaug. He presents the dimension of “human dignity” as a further condition of food security, suggesting that it depends on (a) self-respect, (b) freedom of choice and action and (c) mutually beneficial exchange (Oshaug 1985: 5-10). This led Eide et al (1986) to conclude that viable procurement of food must be consistent with the satisfaction of other basic material and non-material needs (Tilakaratna 1986). They link food adequacy with viable food procurement and sustainable supply in a “normative” model of household food security, reproduced in Figure 1.12.

Similar ideas are used by others with a greater interest in national level food security, but have relevance also to the household level. Thus, Barraclough uses a different

Figure 1.12



terminology to capture some of the same ideas, arguing that food systems offering food security should, inter alia, offer maximum “autonomy and self-determination,” reducing vulnerability to international market fluctuations and external political pressures (Barraclough and Utting *ibid*:2, see also Barraclough and Scott 1988, Barraclough 1991). Similarly, Africa Leadership Forum (1989) refer to reduced dependence (in their case on imports and food aid) as a component of food security.

The final step in the argument develops these ideas to focus more directly on the perceptions and actions of the food insecure themselves. Leslie and Rankine (1987:1) refer to “wise food choices and desirable nutrition practices” as a component of household food security; and Scott (1987:355) writes that “food security for the majority implies broad popular participation by the majority . . .” Pinstrup-Andersen (1983) distinguishes between the availability of food, the ability of the household to obtain food, the desire of the household to obtain food and the intra-household distribution of food.



These ideas are developed by Maxwell (1988, 1989, 1991) who makes them central to a definition of food security:

A country and people are food secure when their food system operates in such a way as to remove the fear that there will not be enough to eat. In particular, food security will be achieved when the poor and vulnerable, particularly women and children and those living in marginal areas, have secure access to the food they want (Maxwell 1988:10, emphasis added).

People's own perceptions of food needs is here the defining characteristic of food security.

Taken together, these ideas suggest two important modifications to the core concepts discussed in Section II. The first is that it is not just the quantity of food entitlement that matters, but also the "quality of entitlement." Thus, the highest state of food security requires not just secure and stable access to a sufficient quantity of food, but also access to food that is nutritionally of adequate quality, culturally acceptable, procured without any loss of dignity and self-determination, and consistent with the realisation of other basic needs. This transforms food security from a uni-dimensional to a multi-dimensional objective and immediately raises problems of measurement. How are these different objectives to be measured and weighted? And are there trade-offs between them? For example, how is an increase in the quantity of entitlement for people at different levels of existing access to food, to be traded-off against loss of quality? Presumably, loss of quality becomes a progressively more important consideration as quantity increases above bare subsistence.

The balance between quantity and quality cannot be decided without reference to food insecure people themselves, and the second modification is precisely to give greater weight in definitions of household food security to the perceptions of the food insecure. In this view, food insecurity is not an objectively defined level of access to food or quality thereof, but rather the level or quality that people perceive to be inadequate. Again, there are obvious implications for measurement. In India, for example, subjective questions have been included in the National Sample Survey to ask whether respondents consider their food intake adequate (Minhas 1990, reported in Gillespie and Mason 1991:31).

It is perhaps worth noting that this tension between quantitative and qualitative models is found also in current discussions about poverty. On the one hand, "poverty" is defined and measured as the shortfall from an objectively determined level of income or consumption (Lipton 1983, World Bank 1990, 1991). On the other, it is conceptualised as a multi-faceted mix of economic and social factors (Chambers 1988). Chambers, in particular, warns against a "bias to the measurable" and argues that "poverty-line thinking, with its single-scale numerical definition of poverty according to reported levels of income or consumption, misses much and can mislead" (ibid:29).

## **Efficiency and Cost-Effectiveness**

The issues of efficiency and cost-effectiveness are absent from most of the literature on household food security, implicit in part and explicit in only a small proportion. However, they deserve greater prominence, because of the implications for resource allocation by households and external agencies.

The implicit discussion is found in the many references in the literature to “sustainability,” reviewed in the section “*Sustainability, Resilience and Sensitivity.*” Sustainability can be technical, financial, political or environmental and implies some attention to efficiency and cost-effectiveness.

Explicitly, efficiency issues are most often raised in connection with national food security. Thus Balaam (1986) discusses the “food security-efficiency dilemma” largely in terms of the debate about national self-sufficiency versus import dependence; and Davies and Witter (1986:1) suggest that food security implies “an efficient distribution system for both imports and domestic production.” FAO (1991:1) makes a similar point: “it is necessary to have an efficient distribution system, including processing, storage, transportation and marketing.”

More generally, Badiane (1988) argues that food security can exist in the form of excessive costs incurred by the economy to ensure food availability; and Kennes (1990:67) argues that a necessary condition for achieving food security is that resources be “used well.”

The strongest statement on this subject is by Maxwell (1988), who argues that “food security requires the efficient and equitable operation of the food system.” He defines a food system as “the combination of agro-ecological and socio-economic processes which determine the production, marketing and consumption of food” and goes on to define “efficient” and “equitable:”

“Efficient” means that all stages in the food chain, from production to final consumption, should be efficient in a social welfare sense. Production policies should take account of dynamic comparative advantage; marketing margins should provide no more than normal profits in the long term; and consumer prices should reflect real scarcity values. “Equitable” means that the benefits of production should be equally distributed and that food should be available to all (Maxwell 1988)<sup>12</sup>.

This formulation begs a number of questions: about possible trade-offs between efficiency and equity; about the efficiency of marketing systems; and about how to manage consumer subsidies without distorting prices. However, it raises two important questions for household food security. Should efficiency issues form part of a conceptual model? And, if so, what are the implications for household decision-taking?

On the first question, it is clearly possible to argue that efficiency is no more than a second-order objective, so that it is desirable to be efficiently food secure but possible to be inefficiently food secure, that is food secure only at unreasonably high cost. In a conceptual model focusing on vulnerability, risk and insurance, inefficiency would arise if the risk premium paid for "food security" (for example in the form of non-productive assets easily translatable into cash to buy food) exceeded the "expected benefit." The expected benefit, in turn, would depend on the likelihood of food insecurity occurring and the expected cost: for example the likelihood of not being able to produce sufficient food.

On the other hand, the case for making efficiency central to food security is that it (a) increases the chances of sustainability and (b) focuses on questions of resource allocation. Since food security planning is principally concerned with this latter question, it seems sensible to include it.

In dealing with national food security, efficiency issues arise in connection with the debates about: growth versus equity trade offs in national development strategies; food self-sufficiency versus trade; liberalisation of cereal markets; the design of targeted consumer subsidies; and many others.<sup>13</sup>

The essential elements of national food security are availability of food supplies, stability in those supplies, and access to supplies on the part of all members of society. Efficient economic growth will help to ensure the supply of food, either from domestic agricultural production or through external trade and imports. Growth, however, may by-pass households whose incomes are already insufficient for meeting food needs, for example, those households, often female-headed, with an absolute labour shortage. Here, a package of food and nutrition interventions will be required, preferably targeted or self-targeted on the poor and financed by taxing the non-poor (Pinstrup-Andersen 1988).

At the household level, efficiency issues arise in production and in distribution. As far as production is concerned, risk is central. Households may incur additional costs for two reasons. First, missing savings and loan markets may induce households to invest in unproductive liquid assets, storage, and other activities for smoothing consumption, which are costly. Secondly, the absence of insurance markets for spreading risks means households must bear the full brunt of production variability. This leads them to attach a higher priority to reducing variability in household income rather than maximising expected income; in other words, they accept lower average incomes in exchange for stability. As a consequence, all production decisions are, in principle, assessed partly in terms of the extent to which they increase/reduce the risk faced by the household thereby, leading to underinvestment in risk-prone activities at the expense of higher long-run incomes. Thus a situation may arise in which inefficient production ensures secure access to food.

When it comes to distribution, the issue is more complicated. In household economics, the question of intra-household distribution and the inadequacy of an undifferentiated

utility function has generated a large literature (see the section *Intra-Household Issues*). Distribution is now seen to result less from the application of economic principles and more from the outcome of bargaining within the household. Furthermore, production and consumption decisions are closely intertwined.

There are several consequences for food security, explored in more detail in the section "*Inter-Household Issues*." Even if we assume that the household can be treated as a single unit which maximises a joint utility function and allocates consumption resources accordingly, the pattern of consumption which emerges may be efficient, but impose high welfare costs on some individuals. For example, it may be efficient to allocate food resources to household members with the highest marginal value product of labour because it increases the aggregate income of the household. However, the functional and psychological costs borne by other members as a consequence of this skewed distribution may be very high (Gross and Underwood 1971). In addition, when we relax the assumption of the household as a single consumer, we introduce the possibility that decisions emerge as the result of conflict and bargaining across generations and gender. Thus, the incentive for household members to participate in production activities which maximise household income are weakened when the benefits from higher income are not shared.

The implications of all this for household food security would seem to be as follows: (a) efficiency is a legitimate objective to pursue, especially with regard to production decisions. Higher income at national and household levels creates resources for use in food security. In addition, sustained growth may raise households sufficiently above minimum thresholds so as to eliminate the risk of inadequate access to food. However, (b) efficiency considerations will be modified by others, especially risk avoidance and entitlement protection, and again at both national and household levels. In these cases, the objective will be to reach multiple goals in a cost-effective way. Furthermore, (c) in practice, both production and distribution decisions by households will reflect a process of bargaining between different household members with different interests and different views of cost-effectiveness.

## **Household Food Security and Human Rights**

A final discussion concerns food security and human rights. Few human rights have been referred to as often as the right to food. In this section we review existing formulations of the right to food in international law and indicators that might be used to monitor whether this right has been implemented. The topic has particular importance because of the increasing role of conflict as a source of food insecurity. (Messer 1990)

The Universal Declaration of Human Rights adopted by the General Assembly of the United Nations in 1948 recognised economic, social, and cultural rights in articles 22 to 27. In the words of Article 25, the right to an adequate standard of living includes:

food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood... (*United Nations 1948*).

The right to food is more explicitly elaborated in the International Covenant On Economic, Social, and Cultural Rights which was adopted by the UN General Assembly in 1966. The Covenant was ratified or acceded to by nearly one hundred nations by 1987. Article 11 of the Covenant enshrines the right to food in the following manner:

The States parties to the present Covenant, recognising the fundamental right of everyone to be free from hunger, shall take, individually, and through international cooperation, the measures, including specific programmes, which are needed:

- (a) To improve methods of production, conservation, and distribution of food...
- (b) ... to ensure an equitable distribution of world food supplies in relation to need. (*United Nations 1966*)

In addition to these provisions of the Universal Declaration and the International Covenant, the concern of the world community for the right to food was reaffirmed by the World Food Conference in 1974 which adopted the Universal Declaration on the Eradication of Hunger and Malnutrition. Endorsed by the General Assembly in the same year, the first paragraph of the Declaration proclaims:

Every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop fully and maintain their physical and mental faculties. (*United Nations 1974*)

Despite these legal commitments, little effort has been made to elaborate the content and the duties corresponding to these provisions. This neglect stands in stark contrast to the efforts of the international community with respect to civil and political rights (Van Hoof 1984 and Saksena 1991). In addition, there has been an ongoing debate about the legitimacy of economic and social rights, of which food is one. Thus, Cranston (1962) concludes that such rights are invalid because, although they may pass the test of "paramount importance," they are impractical. He argues that civil and political rights require governments merely to enact legislation whereas social and economic rights require access to "great wealth." Raphael (1967) accepts the validity of such rights but argues that they are only weak universal rights, leaving responsibility for their implementation with individual governments. Shue (1980) concludes that economic rights are basic, human rights because the absence of economic subsistence precludes the enjoyment of any other right.

However, when we confront the role of governments, the distinction between civil and political rights and economic and social rights can be said to dissolve. The work of

van Hoof (1984), Alston and Eide (1984), Eide (1989) and Eide et al (1991) has resulted in a typology of responsibilities for the state, the state being required to (a) respect, (b) protect and (c) to fulfil human rights. Once it is recognised that these obligations are applicable in respect of both categories of rights, the alleged distinction disappears.

These obligations can be correlated with the right to food. The obligation to respect requires the state not to do anything which will weaken the ability of individuals to provide for their own needs. This issue has far reaching significance during periods of conflict, for it is during such periods that the realisation of this right is so frequently hampered. The state or its agents can undermine the ability of individuals to self-provide by appropriation and destruction of the individual's resource base and by establishing controls which displace individuals from alternative systems of food acquisition.

The obligation to protect implies a duty on the part of the state to protect individuals from being deprived of their means of livelihood. The use of such resources may be invested in the individual through ownership or because of membership of a particular kinship or community. The state has a responsibility to ensure that rights to resources, whether or not they are protected by laws of ownership, are not threatened. In consequence, it has a duty to safeguard the interests of its citizens in common property resources; for example, in the physical environment. Eide (1989) has further argued that the duty to protect extends to enacting legislation which protects consumers from harmful food products or prohibits the promotion of food practices detrimental to the well being of the community.

The obligation to fulfil requires the state to provide assistance for members of society unable to meet their own food needs. Indeed, this obligation is implicit in Article 25 of the Universal Declaration quoted above. The duty to fulfil transcends periods of conflict or other emergencies. Thus if a state does nothing to avert a famine, it is violating its duty to provide.

Following a similar line of approach, Tomasevski (1984) argues that the norm for a human right to food can be established with respect to three levels of attainment. At the lowest level, "freedom from hunger" regards widespread starvation as a failure of a fundamental human right. Monitoring this standard requires the identification of the incidence of severe under-nutrition. On the next rung of the ladder, the "right to food" reflects the quantity and quality of food consumed by individuals. The "full-fledged" norm encompasses the entire range of human rights by recognising that the right to material wants cannot be bought at the cost of other freedoms. Thus proposed indicators of this standard require the evaluation of both material needs and political freedoms. The tripartite division allows for the progressive realization of the right to food while adhering to the notion of a universal set of criteria for its satisfaction. Thus a universally applicable minimum standard is established which, nevertheless, recognizes the limitations of resources in determining what is immediately achievable.

Putting the various lines of analysis together, Figure 1.13 summarises possible obligations for realising the right to food. It defines a framework of state action within which individuals and households can pursue their own food security.

Figure 1.13

**Obligations for Realising the Right to Food**

Type of Obligation	Questions to be asked
<b>To Respect</b>	<ol style="list-style-type: none"> <li>1. Is the state a signatory to international treaties on human rights?</li> <li>2. Is the right to food recognised in national development plans?</li> <li>3. Has the state enacted legislation which recognises the significance of existing patterns of food acquisition?</li> <li>4. Does the state recognise the role of NGO institutions in crisis management?</li> </ol>
<b>To Protect</b>	<ol style="list-style-type: none"> <li>1. Has legislation been enacted which will protect individuals' access to food or resources for producing food?</li> <li>2. Does legislation recognise traditional systems of resource distribution?</li> <li>3. Does the state protect the common physical environment against degradation?</li> <li>4. Does the state monitor the introduction of new food sources and new habits, and does it disseminate information on these issues?</li> <li>5. Has national legislation on food safety been enacted?</li> </ol>
<b>To Fulfil</b>	<ol style="list-style-type: none"> <li>1. Has a nationwide system of monitoring been established?</li> <li>2. Have policies been designed and executed which provide assistance to those individuals in need?</li> <li>3. Has a nationwide system of food control and inspection been implemented?</li> <li>4. Have plans and programmes been established which support existing institutions for crisis management?</li> </ol>

Source: Adapted from Tomasevski (1984), Eide 1989 and Eide et al (1991).

Taking food security into consideration with human rights requires (a) that the human rights community recognizes the validity of economic and social rights, (b) that international efforts to develop supervisory mechanisms in respect of these rights be intensified, (c) that states draw up frameworks for the monitoring of their own efforts along the lines suggested in the table, and (d) that the international community provides assistance to households and states who are unable to realize this right through their own efforts.

## **Summary of Conceptual Issues**

It is apparent from this discussion that the concept of household food security draws on and interacts with literatures in many other sectors. We began with a discussion of the four core concepts implicit in the formulation “secure access to enough food all the time.” This generated four main conclusions:

- i. First, “enough” food is mostly defined in the food security literature at the individual rather than household level, with the emphasis on calories, and requirements defined in terms of calories needed for an active, healthy life rather than simple survival — although this assessment may in the end be subjective.
- ii. Secondly, access to food is determined by food entitlements, which are derived from human and physical capital, assets and stores, access to common property resources and a variety of social contracts at household, community and state level.
- iii. Thirdly, the risk of entitlement failure determines the level of vulnerability and hence the level of food insecurity, with risk being greater, the higher the share of resources normally devoted to food acquisition.
- iv. And finally, food insecurity can exist on a permanent basis (chronic), on a temporary basis (transitory) or in cycles.

From the additional material discussed in this section, the following twelve further conclusions may be drawn:

- v. With regard to the household, it is misleading to assume that household members share common preferences with regard to (a) the allocation of resources for income generation and food acquisition or (b) the distribution of income and food within the household.
- vi. Furthermore, households cannot be analysed as discrete entities with respect to food behaviour, independently of other households and wider social/political institutions.
- vii. It follows that food security shocks (work, output, food, asset, AIDS) will affect different kinds of household and members of individual households in different ways.
- viii. With regard to nutrition, food security is a necessary but not sufficient condition for adequate nutritional status, which may also be affected by caring capacity, health and environmental conditions, as well (where stunting is present) as past nutritional history.



- ix. In considering nutrition, more attention needs to be paid to diet quality, especially micro-nutrients, and within this category to Vitamin A, iron and iodine.
- x. The relationship between nutritional stress and nutritional outcome is also modified by the adaptation strategies of individuals and households, which may be genetic, physiological or, most importantly, behavioural.
- xi. A similar conclusion is reached by examining livelihood strategies. Food insecure groups balance competing needs for asset preservation, income generation and present and future food supplies in complex ways: people may go hungry, up to a point, to meet some other objective.
- xii. It follows that the priority is to understand livelihood and coping strategies, how people gain access to food rather than how they fail to do so.
- xiii. The analysis of livelihood strategies can be extended by drawing on ecological analysis, where the core concepts are sensitivity and resilience: the most vulnerable systems are high in sensitivity but low in resilience. Vulnerable human livelihood systems are often best understood as highly resilient and adaptable, in situations where uncertainty is the norm. Interventions should support this flexibility.
- xiv. It follows from much of the above that a new priority also needs to be accorded to people's own perceptions of food security and insecurity, in order to remove the fear that there will not be enough to eat and provide food with human dignity and in a culturally acceptable way. This can be described in terms of the quality of food entitlement.
- xv. Whatever people's own perceptions, issues of efficiency and cost-effectiveness arise at national and household level. Efficiency is a legitimate objective to pursue, especially with regard to production decisions; but it may need to be modified by others, especially with regard to risk avoidance and entitlement protection; and will in any case be subject to bargaining between individuals with different interests.
- xvi. Finally, the right to food imposes obligations on states to respect, protect and fulfil food security.

We turn in section IV to the task of synthesizing general conclusions from these findings.

## **IV. Conclusion**

The development of the concept of food security since the 1970s can best be characterised as vigorous. The concept was launched at that time with a relatively clear focus on national and international food supply. In the past twenty years, it has gradually acquired new dimensions and new levels of analysis. In the 1990s, the main focus is on questions of access to food by households and individuals. Here, as the review has shown, there coexist a bewildering number of paradigms and points of view. There are, however, common themes which cut across the discussions on intra-household bargaining, nutrition adaptation, livelihood security, ecological resilience and questions of culture and perception.

The first theme is substantive. It is that food insecure people implement highly complex livelihood strategies in which food security plays an important but not always predominant role. The key words are flexibility, adaptability, diversification and resilience. Perceptions matter as much as objective reality. Intra-household issues are central.

The second theme follows. Food security can no longer be considered uni-dimensional, but must be treated as a multi-objective phenomenon. This is necessarily true if all the many definitions reviewed in these pages are to be valid simultaneously, which would not be impossible. It is even true, however, if the definition is reduced to its simplest: the core definition "secure access to enough food at all times" already implies multiple objectives, including most obviously present and future access to food.

In practice, the simplest definition has been shown to be incomplete, precisely because it oversimplifies: intra-household issues are ignored, the relationship of food security to livelihood security is not explored and many questions of sustainability, cultural acceptability and self-perceived security are left out of account. One way to demonstrate the gaps is to gather together the key words used by different authors to define household food security. This is done in Figure 1.14.

It is probably not useful to construct a new definition of food security which encompasses all these ideas. A more important point to make is that there will inevitably be trade-offs between different objectives in food security. For example, it may be possible for a household to increase the current supply of food, but only at the cost of increasing vulnerability in the future, perhaps by over-exploiting the natural resource base or certain family members. Alternatively, the quantity of food available may increase, but at the cost of a reduced quality of entitlement, for example through increased dependence on the state or on powerful groups within a community.

The problem of multiple objectives is already familiar from food security planning, where interventions may be judged not only by cost-effectiveness, but also by scale, speed, compatibility with government policy, administrative feasibility and sustainability (Maxwell 1990:6). Multi-criteria tables, which allow for differential weighting of different objectives, have been used to rank alternative interventions

Figure 1.14

**Key Words in Definitions of Household Food security**

- |                          |  |
|--------------------------|--|
| ■ Present security       | ■ Efficient  |
| ■ Future security        | ■ Resilient  |
| ■ Perceived security     | ■ Sustainable  |
| ■ Buffered against risks | ■ Consistent with livelihood strategy                    |
| ■ Entitlement            | ■ Equitably distributed within the household             |
| ■ Culturally acceptable  | ■ A diet adequate in quality                             |
| ■ Procured with dignity  | ■ Adaptable to uncertainty                               |
| ■ Cost-effective         | ■ Rights respected, protected and fulfilled by the state |

(Huddleston 1990). Perhaps a similar approach is needed to help establish the key defining characteristics and priorities for intervention in household food security in particular contexts. This will enable models to avoid reductionism and exploit the complexity and diversity of the concept.

A third theme follows from this. It is that the precise combination of objectives and their relative weighting will depend on context and cannot be imposed from outside. Concepts of food security need to be “people-driven.” Different people can be expected to have different sets of priorities; and individual priorities will change over time, not least in response to changes in other components of livelihood strategy. For example, the development of a community or state-sponsored safety-net to protect food entitlements may change the relative importance individuals attach to risk-minimising production strategies within the household.

There are implications here for both policy and information collection. As far as policy is concerned, the emphasis on complexity and diversity would seem to militate against highly administered or centralised food security interventions, in favour of those which food insecure people themselves can activate as needed. This may mean opting for self-targeting interventions, like free-access work sites at wages slightly below the market rate, where people choose whether or not to participate. Alternatively, it may mean large-scale decentralisation to community-based schemes, like community nutrition programmes. In either case, the emphasis is on choice by individuals and flexible support by the state, to protect and promote food security.

As far as information is concerned, participative and multi-objective models of food insecurity present major problems in defining indicators, especially indicators which are reasonably stable over time. It is apparent that many conventional indicators — national food production or availability, anthropometric data, even current income and food consumption — may give a poor picture of food security in its new and wider sense.

Davies et al (1991:53ff) address this problem in the context of early warning. They review the wide scope of information needed for accurate and timely early warning of food crises and conclude that a “learning process approach” may be necessary, focusing on local monitoring systems and making use of data collected by rapid and participatory rural appraisal as well as more traditional methods. Nevertheless, data still need to be aggregated at national and international levels to ensure resources are made available for interventions.

A final point to make is that the new and more multi-faceted models of household food security represent an important advance over earlier uni-dimensional concepts. They complicate data collection and probably complicate policy. But they also reflect more accurately the complex and diverse lives of the food insecure themselves; and in so doing are more likely to have a positive effect.

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## **Appendix**

### **Definitions of Food Security and Insecurity, 1975-1991**

1. "Availability at all times of adequate world supplies of basic food-stuffs . . . , to sustain a steady expansion of food consumption . . . and to offset fluctuations in production and prices" (UN 1975)
2. "A condition in which the probability of a country's citizens falling below a minimal level of food consumption is low" (Reutlinger and Knapp 1980)
3. "The ability to meet target levels of consumption on a yearly basis" (Siamwalla and Valdes 1980)
4. "Everyone has enough to eat at any time — enough for life, health and growth of the young, and for productive effort" (Kracht 1981)
5. "The certain ability to finance needed imports to meet immediate targets for consumption levels" (Valdes and Konandreas 1981)
6. "Freedom from food deprivation for all of the world's people all of the time" (Reutlinger 1982)
7. "Ensuring that all people at all times have both physical and economic access to the basic food they need" (FAO 1983)
8. "The stabilisation of access, or of proportionate shortfalls in access, to calories by a population" (Heald and Lipton 1984)
9. "A basket of food, nutritionally adequate, culturally acceptable, procured in keeping with human dignity and enduring over time" (Oshaug 1985 in Eide et al 1985)
10. "Access by all people at all times to enough food for an active and healthy life" (Reutlinger 1985)
11. "Access by all people at all times to enough food for an active, healthy life" (World Bank 1986)
12. "Always having enough to eat" (Zipperer 1987)

13. "An assured supply and distribution of food for all social groups and individuals adequate in quality and quantity to meet their nutritional needs" (Barraclough and Utting 1987)
14. "Both physical and economic access to food for all citizens over both the short and the long run" (Falcon et al 1987)
15. "A country and people are food secure when their food system operates efficiently in such a way as to remove the fear that there will not be enough to eat" (Maxwell 1988)
16. "Adequate food available to all people on a regular basis" (UN World Food Council 1988)
17. "Adequate access to enough food to supply the energy needed for all family members to live healthy, active and productive lives" (Sahn 1989)
18. "Consumption of less than 80% of WHO average required daily caloric intake" (Reardon and Matlon 1989)
19. "The ability . . . to satisfy adequately food consumption needs for a normal and healthy life at all times" (Sarris 1989)
20. "Access to adequate food by and for households over time" (Eide 1990)
21. "Food insecurity exists when members of a household have an inadequate diet for part or all of the year or face the possibility of an inadequate diet in the future" (Phillips and Taylor 1990)
22. "The ability . . . to assure, on a long term basis, that the food system provides the total population access to a timely, reliable and nutritionally adequate supply of food" (Staatz 1990)
23. "The absence of hunger and malnutrition" (Kennes 1990)
24. "The assurance of food to meet needs throughout every season of the year" (UNICEF 1990)
25. "The inability . . . to purchase sufficient quantities of food from existing supplies" (Mellor 1990)
26. "The self-perceived ability of household members to provision themselves with adequate food through whatever means" (Gillespie and Mason 1991)
27. "(Low) risk of on-going lack of access by people to the food they need to lead healthy lives" (Von Braun 1991)

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28. “A situation in which all individuals in a population possess the resources to assure access to enough food for an active and healthy life” (Weber and Jayne 1991)
29. “Access to food, adequate in quantity and quality, to fulfil all nutritional requirements for all household members throughout the year” (Jonsson and Toole 1991)
30. “Access to the food needed for a healthy life for all its members and . . . not at undue risk of losing such access” (ACC/SCN 1991)
31. “Enough food available to ensure a minimum necessary intake by all members” (Alamgir and Arora 1991)
32. “The viability of the household as a productive and reproductive unit (not) threatened by food shortage” (Frankenberger and Goldstein 1991)

## Notes

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1. The literature on food security has expanded considerably during the last 10 years. Likewise, policy statements and corresponding agency guidelines have been developed by numerous international organizations. The annotated bibliography contained in Section 3 identifies most of the publications, outlining the different conceptual approaches developed. Some key publications in chronological order are the following: CIDA (1989); EC (1988); FAO (1983, 1988); Hindle (1990); Huddleston (1990); Hutchinson and Frankenberger (1992); Kennes (1990); Phillips (1991); Phillips and Taylor (1992); Smith et al (1992); von Braun (1992); World Bank (1986, 1988).
2. Cornia et al (1984), Hindle (1990).
3. Joy (1973), Berg and Austin (1984).
4. Sen (1981), Drèze and Sen (1989).
5. See also Payne and Lipton 1990, Payne 1990: 15ff.
6. This is a slightly different interpretation to that found in the original presentation, where it was assumed, with qualifications, that malnutrition was unlikely to be found among populations that were not poor or vulnerable (Maxwell 1985:5 and footnote 4). The new interpretation gives greater weight to care and sanitation factors. See Maxwell (1989) for an empirical illustration of the original model with data from North Sudan.

7. Conjuality refers to the marital relationship which is widely considered to be the “key” to any householding arrangement.
8. Guyer & Peters (1987) — household forms in the African context are identified in terms of (a) “overlapping memberships” where some but not all of the members of the minimal unit belong to a single all encompassing unit and (b) “nesting memberships” where each unit is totally assimilated into a larger unit.
9. For example, in the mother-child unit of a polygamous family grouping, or in the conjugal-unit of a nuclear household.
10. These are: self-actualisation needs; esteem needs; belonging and love needs; safety needs; and physiological needs (ibid).
11. Report of the Advisory Panel on Food Security, Agriculture, Forestry and Environment to the World Commission on Environment and Development, cited in Chambers (1988: 1).
12. Also published in Maxwell (ed) (1991).
13. For a review of these debates, see Maxwell (1990), von Braun (1991), Phillips et al (1992).