

Agency for International Development  
Bureau for Food and Humanitarian Assistance  
Office of U.S. Foreign Disaster Assistance

---

## Famine Mitigation Strategy Paper

# *RAPID FOOD SECURITY ASSESSMENT*

*Prepared by*

*Timothy R. Frankenberger  
Office of Arid Lands Studies  
College of Agriculture  
University of Arizona*

1992

Prevention, Mitigation and Preparedness Division  
OFDA/USDA Famine Mitigation Activity PASA  
PASA # AFR-1526-P-AG-1129-00

## *Foreword*

The Famine Mitigation Strategy Papers have been developed as part of an effort by the United States Agency for International Development, Office of U.S. Foreign Disaster Assistance, Prevention, Mitigation and Preparedness Division to assist famine response agencies and personnel in developing and designing effective interventions to respond to extreme food insecurity and famine situations. In preparing these papers, input was solicited from a broad range of specialists from the international donor community, the academic community, governmental and non-governmental agencies, and independent specialists in the field. These papers provide policy makers, program planners, and project managers with basic background information and a range of approaches for developing programs and projects in the areas of early warning and response systems, rapid assessment methodologies, seeds and tools interventions, livestock interventions, water resources development, market interventions, food/cash for work programs, and in providing assistance under conflict situations.

It is becoming readily apparent that the most effective response strategies are those that identify deteriorating situations and initiate appropriate responses early on in an emerging or incipient famine process. Strategies that respond not just to the immediate symptoms of the emergency, but also to the underlying causes of this vulnerability provide the needed and often missing link between ongoing development, emergency relief, and recovery efforts. Many of the papers produced under this effort differ from traditional relief oriented approaches in that they bring a developmental approach to the provision and implementation of relief assistance.

In an era of declining emergency resources and increasing potential and actual food insecurity situations, it is imperative that we explore and test approaches that are more cost effective, provide rapid and positive impacts, strengthen and enhance local capabilities, and provide some level of sustainability once the initial resources are exhausted. Greater emphasis will also be placed on more effective monitoring of both the short term and the longer term impact of these types of interventions. We hope that these papers can serve, in part, as catalysts in the further development of policies, programs, and projects that better respond to the needs of those most vulnerable to the famine process.

Richard A. Record  
Program Coordinator  
OFDA/USDA Famine Mitigation PASA

## Executive Summary

Time-effective survey techniques are needed to determine the causes, dimensions, and characteristics of the food insecurity situation in a given area and to implement appropriate mitigation activities. Rapid food security assessments (RFSAs) are especially useful for this purpose. RFSAs are a type of rapid rural appraisal that provide a comprehensive sociocultural, economic and ecological assessment of a given area for planning and project implementation. They were developed because of the shortcomings of more costly formal methods. RFSAs are particularly useful for identifying: 1) the most food insecure groups in a given area; 2) the causes and magnitude of the food insecurity situation; 3) the location specific coping ability indicators for food security monitoring; and, 4) the appropriate mitigation interventions for alleviating the food deficit problem.

The targeting and timing of RFSAs will be triggered by early warning systems that identify specific geographical regions susceptible to food shortages. Vulnerability maps can be drawn up to identify areas and sections of the population that are most vulnerable to food insecurity. The development of such maps would be the first step in identifying districts or subregions where more location specific HFS information is necessary to collect for designing appropriate interventions.

Once a food insecure area has been designated, RFSAs can be carried out using multidisciplinary teams. Purposive sampling procedures are normally used for selecting villages to be surveyed. The general procedure followed in most assessments involves:

1. Reviewing secondary data to familiarize the team with the sociocultural, economic, and ecological attributes of the area;
2. Relying on detailed open-ended interview guides to insure that pertinent issues are covered (minimum data sets);
3. Making use of group, individual household and key informant interviews to gather information about the local situation;
4. Carrying out the survey in a time-effective manner;
5. Using triangulation, whereby diverse methods and information sources are used to improve accuracy;
6. Relying on extensive team interaction to maintain a multidisciplinary perspective; and,
7. Providing immediate feedback to decision makers after the completion of the survey.

In addition to conducting interviews, RFSAs use other techniques to gather information on food security issues. Interactive data gathering tools such as diagrams and ranking exercises are used to elicit peoples' perspectives on resources, constraints, social relations, wealth distribution, seasonal trends, and selection criteria.

Upon completion of a survey, contingency plans should be drawn up to link information to response. These contingency plans will consist of a decentralized household food security monitoring system and a set of pre-determined responses to implement when food security conditions change. This monitoring system would incorporate a small set of location specific indicators updated annually to detect changes in food entitlement and supply. The intervention responses would be triggered by the monitoring system. Responses would encompass development-type interventions to enhance the long-term sustainability of livelihood systems and household food security, mitigation-type interventions to enable households to retain their productive assets, and relief-type responses if immediate food aid distribution is warranted. To ensure that household food security interventions are appropriate, local community participation in the diagnosis and follow-up interventions should be encouraged. This will allow communities to manage their food security problems in a self sustaining way.

## Table of Contents

Foreword .....	ii.
Executive Summary .....	iii.
I. Introduction .....	i.
II. Rapid Food Security Assessments .....	2.
II.A. General Characteristics .....	2.
II.B. Methodology .....	4.
II.B.1. Sampling .....	5.
II.B.2. Unit of Analysis .....	7.
II.B.3. Data Collection Techniques .....	8.
III. Information Needs .....	9.
III.A. Household Food Security and Livelihood Security .....	9.
III.B. Coping Strategies .....	11.
III.C. Household Food Security and Environmental Degradation .....	15.
III.D. Indicators of Household Food Security .....	16.
III.E. RFSAs in Conflict Areas .....	22.
III.F. Information Relevant to Intervention Design .....	22.
IV. Development of Contingency Plans .....	23.
V. Conclusion .....	23.
VI. References Cited .....	25.
Annexes	
Annex 1. ....	31.
Annex 2. ....	35.
Annex 3. ....	37.
Annex 4. ....	45.
Annex 5. ....	47.

## I. Introduction

A population's survival is contingent upon preservation of lives in the short-term, and preservation of livelihoods in the long-term. Vulnerability to famine and food insecurity involves the risk of exposure to periodic shocks and disaster events in the short-term that can be life threatening (e.g., drought, civil unrest or war, market failure), and the ability to cope with these events in the long-term (e.g., access to alternative resources and entitlements, the effectiveness of government) (Borton and Shoham 1991, Hutchinson 1992).

Early warning systems have done a good job since the mid-1970s in helping governments and relief agencies target food emergencies to save lives. However, food relief only treats the short-term dimension of vulnerability. Food emergencies recur in the same areas because long-term vulnerability has not been addressed and livelihood strategies continue to erode.

To avoid costly relief programs and to sustain livelihoods, interventions must be designed and implemented that protect the productive asset base and the coping ability of a given population. Timely implementation of such interventions is tied to detection of entitlement changes at the local level that signal worsening food security conditions. Entitlements involve how households gain access to food from their own production, income, gathering of wild foods, community support, claims, assets, and migration. Detecting these changes and designing appropriate responses is contingent upon a good understanding of the socioeconomic characteristics of the target population and their coping strategies.

Early warning systems have been effective in identifying areas that are at risk of food shortages, but have not been very effective in describing the coping ability of different populations to these risks. This is primarily because such systems were set up to monitor food supplies and production. This food supply orientation has persisted because this information is the easiest to obtain and well suited to aggregate analysis (Buchanan-Smith et al. 1991).

Although food supply information is useful for determining regional trends in food availability, it is often too aggregated to detect pockets of vulnerability in a given area. During the food crisis in Africa in the mid-1980s, governments and donors began to realize that food insecurity occurred in situations where food was available but not accessible because of an erosion of people's entitlements to food. Thus, food availability and stable access are both critical to household food security (HFS).

Time-effective survey techniques are needed to determine the causes, dimensions, and characteristics of the food insecurity situation in a given area to identify and implement appropriate mitigation activities. Rapid food security assessments (RFSAs) are especially useful for this purpose. The targeting and timing of RFSAs will be triggered by early warning systems identifying specific geographical regions susceptible to food shortages (through vulnerability mapping). RFSAs will be used to determine the most vulnerable groups, the causes and magnitude of the food insecurity situation, help identify location-specific coping ability indicators for food security monitoring, and determine appropriate mitigation interventions that will alleviate the food deficit problem.

The purpose of this paper is to describe what rapid food security assessments are and how they can be used in famine mitigation and food security monitoring. This discussion begins with a general overview of rapid appraisal techniques, followed by a description of types of data that should be gathered in such assessments. Finally, this discussion focuses on the development of contingency plans from RFSAs that encompass decentralized food security monitoring and interventions.

## II. Rapid Food Security Assessments

### II.A. General Characteristics

Rapid food security assessments are a type of rapid rural appraisal (RRA). RRAs employ a set of data collection techniques adapted from social science interviews and survey methods used in farming systems research and extension for providing comprehensive sociocultural, economic, and ecological assessments of a given area for planning and project implementation (Molnar 1989) (see Annex 1 and 2). They bridge the gap between formal surveys and non-structured interviewing. RRAs are used to collect data on values, opinions, and objectives as well as on biophysical and economic factors (Ibid 1989). They neither generate statistically sound survey information nor provide an indepth understanding comparable to long-term qualitative research methods used by anthropologists (Ibid 1989).

RRAs were developed because of the shortcomings of other more formal methods, which included: 1) the time lag to produce results; 2) the high cost of administering a survey; 3) the low levels of data reliability due to interview bias and questionnaire-based errors (i.e., non-sampling errors); and 4) the irrelevance of many questions for specific implementation purposes (Molnar 1989). In addition, formal survey methods rarely generate interdisciplinary dialogue among researchers, planners, decision-makers, and beneficiaries.

The time lag to produce results from formal surveys is partially due to the lack of processing capacity on the part of governments (Dixon 1992). Thus, the usefulness of information from such surveys for mitigation programs is reduced when considerable time is required for any analysis (Eklund 1990). Information required to help administrators make decisions becomes valueless, however accurate, if it is provided after the decisions are made (Casley and Kumar 1988).

Other approaches used for timely assessing household food security issues for a specific area have problems as well. For example, reliance on secondary data sources to extrapolate information for a given area is questionable because such data tend to be biased toward major crops, accessible areas, and dry season characterization (Dixon 1992; Chambers 1985). Such biases are problematic in identifying and targeting vulnerable food insecure households for whom useful and accurate information is often sparse (Dixon 1992). Short field visits or "development tourism" is also likely to result in impressionistic reporting that is unreliable in the absence of good data (Eklund 1990; Chambers 1985). Thus, a more systematic, time effective approach is needed.

The major objective of RRAs is to gain maximum knowledge of the target area with a minimum amount of time and resources (Eklund 1990). The major distinguishing features of such approaches include the following (taken from Franzel 1984):

1. Interviews are conducted by researchers themselves, not by enumerators as in formal surveys.
2. Interviews are essentially unstructured and semi-directed with emphasis on dialogue and probing for information. Questionnaires are never used; however, some researchers use topical guidelines to ensure that they cover all relevant topics on a given subject.
3. Informal random and purposeful sampling procedures are used instead of formal random sampling from a sample frame.
4. The data collection process is dynamic and interactive, that is, researchers evaluate the data collected and reformulate data needs on a daily basis.
5. RRAs are generally conducted over a period of one week to two months.
6. To deal with accuracy/timeliness trade-off, a process of triangulation is used whereby diverse methods and information sources are used to improve accuracy (similar to early warning systems).
7. RRAs rely on multi-disciplinary teams to carry out surveys.

To summarize, the major advantages of RRAs are that they are: 1) *rapid* -- that is, results can be made available to decision makers quickly; 2) *interdisciplinary*; 3) *eclectic* in techniques aimed at capturing a *holistic* picture of the local situation; 4) rely more on open-ended interview techniques that reduce non-sampling error; and 5) allow for valuable interaction between investigators and the target population (Molnar 1989).

RRAs have been employed in food security monitoring as a way to provide a systematic overview of the diet and strategies for acquiring food in the target area while using a minimum amount of survey time and resources (Frankenberger 1990). They can be effectively used in carrying out pre-harvest surveys and food systems inquiries in the initial stages of setting up an information system (Davis et al. 1991). Such surveys have helped identify the critical regional food resources that need to be sustained and managed (Valarde 1991). These surveys can also help identify food-insecure groups in detail in order to plan food security interventions (Maxwell 1989).

In addition to being used in food security monitoring, RRAs have been used at various stages throughout the project cycle. They can provide exploratory information (e.g., agroecosystem analysis), be used to focus on one specific topic, involve local people in research and planning, monitor and evaluate a research and development activity, or deal with conflicting differences between different groups (McCracken et al. 1988; Frankenberger 1991). The focus of this paper is primarily on how RRAs are used in rapid food security assessments and monitoring.

Despite the multiple advantages of RRAs, it is important to recognize the limitations of such approaches. Researchers cannot be certain that households interviewed in the survey are representative of most households in the region (Frankenberger 1992). Time constraints usually do not allow for systematic sampling procedures to be followed. Thus, RRA techniques should be viewed as complementary to other research methodologies such as formal surveys and indepth anthropological studies. RRAs can even be combined with the formal interview process to correct biases. For example, random sampling procedures could be introduced halfway through field visits once hypotheses have been identified that need to be tested (Molnar 1991).

Given time constraints, RRAs may also have trouble targeting the least visible food-insecure target groups such as landless, rural poor, women, and isolated ethnic groups. To compensate for this, RRA teams can focus on degraded resource areas and smaller marginal farmers while interviewing households (Molnar 1991).

The quality of the results from an RRA depends heavily on the quality of the team and their experience in picking up on key issues. If the confidence of the interviewed households is not obtained, measurement or non-sampling errors will occur, especially on sensitive issues. For this reason, adequate training in RRA interview techniques is necessary to ensure that the team collects accurate data.

The major intention of RRAs used in food security monitoring is to allow researchers to understand the diversity of food procurement strategies and corresponding constraints that are distributed within a given target area. This will enable the team to identify the most vulnerable populations, the extent of the food security problems and their causes, and possible interventions. Once this diversity and complexity are understood, specific villages can be selected which are representative of a wider array of villages so that further diagnoses and community-based interventions can be carried out. It is at this point that participatory rural appraisals should be conducted.

Participatory rural appraisals (PRA) also involve multidisciplinary teams that gather HFS information in a systematic, yet semi-structured, way; however, they tend to focus on one village rather than the region; and community participation is considerably more active (WRI 1989). PRA is intended to help communities mobilize their human and natural resources to define problems, consider successes, evaluate local capacities, prioritize opportunities, prepare a systematic and site specific plan of action, and a means for facilitating community self-help initiatives (Ibid 1989). It brings together the development needs as defined by the community with the resources and technical skills offered by the government, donor agencies and NGOs. Although some of the techniques used in PRA are applicable in RRAs, this review will primarily focus on RRAs.

## II.B. Methodology

A systematic way for determining where to conduct rapid food security assessments is to develop vulnerability maps (Hutchinson 1992). In countries where national early warning systems already exist (e.g., crop forecasting, food balance sheets, nutrition surveillance), information supplied by these systems can help develop vulnerability maps for each region. Vulnerability maps are maps which identify the areas and sectors of the population that are most vulnerable to food insecurity. These maps highlight the regions that need to be monitored more closely, and identify factors to

take into consideration in designing interventions for vulnerable areas (Borton and Shoham 1991). An earlier version of vulnerability mapping used in the 1970s was "functional classification" of under-nourished populations as a basis for food and nutrition planning (Joy 1973). Pioneering efforts in vulnerability/risk mapping have also been carried out in Bangladesh and Sudan under WPF support (Borton and Shoham 1991). In addition, the USAID-funded Famine Early Warning Systems project has contributed significantly to this conceptual development (Downing 1990).

Vulnerability to food insecurity is an aggregate measure for a given population of the risk of exposure to different types of shocks (e.g., drought) or disaster events (war, market failures) and the ability to cope with these events (Borton and Shoham 1991) (see Matrix 1). Mapping vulnerability involves assessing the *baseline vulnerability* (the contextual factors encompassing food insecurity events over the previous years), *current vulnerability* (the shocks overlying the baseline), and future vulnerability (trends associated with long-term food security risks (Hutchinson 1992, Frankenberger 1992).

Vulnerability maps have great potential for national governments and donors in assisting with decisions regarding the allocation of resources across regions. The development of such maps could ideally be a first step in identifying districts or subregions where more location-specific HFS information is necessary to collect for designing appropriate interventions. Rapid food security assessment teams would be used for this purpose. Decentralized HFS monitoring systems could then be developed in these designated areas.

The approach for carrying out a RFSA is outlined in detail in Annex 3. The general procedure followed in most surveys involves: 1) reviewing secondary data to familiarize the team with the sociocultural, economic, and ecological attributes of the survey area; 2) relying on detailed open-ended interview guides to ensure that pertinent issues are covered (minimum data sets); 3) making use of group, individual household, and key informant interviews to gather information about the local situation; 4) carrying out the survey in a time-effective manner; 5) using triangulation whereby diverse methods and information sources are used to improve accuracy; 6) relying on extensive team interaction to maintain a multidisciplinary perspective; and 7) providing immediate feedback to decision makers after the completion of the survey (Molnar 1989; Eklund 1990).

To encourage interdisciplinary team interaction, team members ideally split up into pairs during each day of the field visit, rotating the composition of the pairs so that each discipline interacts with all of the others on a one-on-one basis (Molnar 1989; Hildebrand 1981). The team members also meet regularly as a whole to redefine their objectives, discuss emerging hypotheses, and make decisions about scheduling. This interactive procedure remains more of a principle than a reality due to the difficulty of implementing this under actual field conditions (Molnar 1989).

II.B.1. Sampling: One of the most controversial areas concerning RFSAs is the sampling procedure used in selecting villages and households. Qualitative techniques are criticized because they do not generate statistically sound survey data (Molnar 1989). Formal sampling procedures reduce the chances that investigators will pick a certain set of individuals over another, coming out with a skewed impression of the local situation (Ibid 1989). However, structured surveys using formal sampling techniques are criticized because many feel that what is gained in the reduction of

Matrix 1

HOUSEHOLD VULNERABILITY ASSESSMENT MATRIX

Risk of an Event	Ability to Copu			
Shocks/Trends	HH Characteristics	Access to Resources	Production/Income Opportunities	Support Structures
<p><b>Baseline Vulnerability</b>  <i>Crop Production and Livestock Risks</i>                      drought episodes                      soil conditions                      pest infestations  <i>Market Risks</i>                      market infrastructure                      price fluctuations (assets, food, cash crops, livestock)                      food shortages                      access to employment  <i>Political Risks</i>                      conflict/war</p>	<p>composition (age dependency ratio)                      education                      health status                      out migration</p>	<p>access to land                      access to labor                      liquid assets                      productive assets                      credit                      common property resources (for wild foods and other products)                      food stores</p>	<p>crop/livestock production                      other income sources                      seasonal migration</p>	<p>community support mechanisms (claims)                      NGOs                      government policies                      access to social services</p>
<p><b>Current Vulnerability</b>  <i>Crop Production and Livestock Risks</i>                      current drought                      pest attack  <i>Market Risks</i>                      market infrastructure                      price fluctuations (assets, food, cash crops, livestock)                      food shortages                      access to employment  <i>Political Risks</i>                      conflict/war</p>	<p>composition (age dependency ratio)                      education                      health status                      outmigration</p>	<p>access to land                      access to labor                      liquid assets                      productive assets                      credit                      common property resources (wild foods and other products)                      food stores</p>	<p>crop/livestock production                      other income sources                      seasonal migration</p>	<p>community support mechanisms (claims)                      NGOs                      government policies                      access to social services</p>
<p><b>Future Vulnerability (Trends)</b>                      Environmental Degradation                      Land Pressure                      Out Migration</p>	<p>demographic changes</p>	<p>land tenure changes</p>	<p>employment trends</p>	<p>support structure changes</p>

Future Migration Scenario Paper: Rural Food Security Assessment

random sampling error is lost through non-sampling error. Non-sampling errors are derived from poorly worded questions, poor choice of question order, lack of sufficient attention to the context, and the timing of the interview (Ibid 1989). As Molnar (1989) states, "Random sampling gains the researcher nothing if the interviews selected through the random process are poorly conducted."

Even in situations where formal sampling procedures are desired, they may be difficult to implement. To draw a good sample, the first thing required is a good sampling frame. Unfortunately, in many rural areas where HFS problems exist, sampling frames are not easy to come by, or they are inaccurate and incomplete (Eklund 1990).

RFSAs normally use purposive sampling techniques in the selection of villages to interview people of different classes, ethnicity, age, gender, and with different access to resources (Molnar 1989). Because they attempt to gain maximum knowledge of the target area with a minimum amount of time and resources, they are primarily exploratory tools that rely on small samples to understand processes of change (Eklund 1990). RFSAs seek to understand the systematic relationships between components in a household's livelihood system and what likely effect interventions may have on these (Ibid 1990). Precise point estimates of yields and production parameters are not the major objective. Smaller samples are justified because "the deeper one wants to probe the intricacies of a phenomena, the smaller has to be the size of the sample" (Puetz 1992). Non-sampling error is reduced through indepth, open-ended interviews (Molnar 1989).

To correct the bias of purposive sampling, a number of techniques have been used. Through stratification, the less visible target groups are represented and the more remote agroecological zones are visited. The seasonal aspect of food insecurity can be taken into account by ensuring that surveys are carried out during the wet season when food shortages are likely to occur (Longhurst 1987). Random sampling procedures may also be used in selecting individual households (Eklund 1990). A minimum number of randomly selected observations will permit statistical inference to the to the households in the village, even though the sample will not be representative of the population in the area (Ibid 1990). This will allow for some exploration of relationships between variables upon which data are collected. Some survey teams will also follow up informal RFSAs with small formal surveys to test the hypotheses emerging from the RFSAs (Molnar 1989).

Decisions on sampling will be influenced as much by cost and time considerations as by the required precision in estimators (Eklund 1990). Other factors to take into account are the size of the population to which one wants to generalize, the heterogeneity of the population, the number of subgroups within the population, and how accurate one wants the sample statistics to be (Bernard 1988). There will always be a trade-off between greater accuracy and greater economy in sampling. Although the degree of accuracy may be reduced, smaller, more cost-effective samples will still provide administrators some notion of the trends that are occurring in the area (Eklund 1990).

II.B.2. Unit of Analysis: In rural surveys, the choice of the unit of analysis can be a problem (Drinkwater 1992). In many surveys, the most common measurement units are the village and the household. However in many areas, households are not always easily identifiable entities. This problem is often addressed in RFSAs by operationalizing the household unit as including only those

people who eat out of the same pot. This procedure delineates the main consumption unit but does not adequately capture the other social and resource relationships that are so vital to food security. Thus in RFSAs, we should also collect information on the cluster of relationships in which people in the village are imbedded to understand the social buffering mechanisms that characterize the village. Cluster analysis allows the RFSAs team to understand the informal resource exchanges that constitute a vital part of people's livelihood strategies (Drinkwater 1992).

**II.B.3. Data Collection Techniques:** In most RFSAs exercises, a number of different types of open-ended interviews are conducted. These are summarized below.

*Group Interviews*

Group interviews are conducted to provide village-wide information on infrastructure, land tenure arrangements, sources of credit, marketing, typical labor arrangements, and government programs in the area. These interviews allow the team to collect data on area-specific trends in resource endowments, cultivation practices, and market access which raises considerably the value of information obtained from individual households (Eklund 1990). Such inquiries could be carried out when the team first meets with the villagers. Trends to focus on would include land use, rainfall variation, yields, and grazing patterns.

*Focus Group Interviews*

Focus group interviews can be used to gain in-depth information about particular issues (Molnar 1989). Interviews are conducted with homogeneous groups of local people to obtain different perspectives from different types of villagers (landless, women, herders, etc.).

*Key Informant Interviews*

Good background information about the area can be obtained from knowledgeable personnel such as local government officials, extension personnel, school teachers, and other resource persons in the area. These resource persons can provide the team the local knowledge categories so that inquiries are understandable and appropriate.

*Household Interviews*

It is useful to interview the whole family, not just the male members of the households. This is because one member cannot speak accurately for all the rest (Molnar 1989). Women have different knowledge and opinions than men, and are the most familiar with local cultural categories, time intervals, and measurement. Women also are more likely to know more about harvest quantities, processing values, storage losses, and consumption patterns. If possible, both the husband and wife should be available for the interview. In addition, women-headed households should be included in the survey sample. In many countries, women are primarily responsible for the food security of the household.

Interviews conducted with households should be done away from the rest of the village to avoid biased answers.

In addition to conducting interviews, RFSA's use other techniques to gather information on food security issues. Interactive data gathering tools can be used to elicit people's perceptions of resources, constraints, social relations, wealth distribution, seasonal trends, and selection criteria. For example, *diagrams* have been used effectively to stimulate questions and responses, allowing the household's knowledge to be made more explicit (Conway 1989). Diagrams can simplify complex information, making it easier to communicate and analyze. Five different types of diagrams derived from agroecosystems analysis are often used. *Maps* are used to identify different parts of the farm or village and its relation to basic resources and land forms. *Transects* tend to be drawn by survey teams that walk from the highest point to the lowest point in the immediate environment accompanied by the local people. Consulting people in each zone, transects can help identify major household food security problems and opportunities in the agroecosystem and where they are located (Conway 1989). *Calendars* are used to indicate seasonal features and changes and are useful for allowing farmers to identify critical times in the crop production cycle with regard to changes in climate, cropping patterns, labor access, food procurement strategies, diet, and prices (Ibid 1989). *Flow diagrams* are used to present events in a cycle of production, marketing, and consumption. *Venn diagrams* can be used to understand the institutional relationships in a village. Such information could be critical to understanding the informal social mechanisms (e.g., claims) that buffer households from periodic shocks.

Ranking and scoring exercises elicit people's own criteria and judgements (Chambers 1985). These exercises can be used in wealth ranking of households as well as for determining selection criteria for crop varieties and coping strategies.

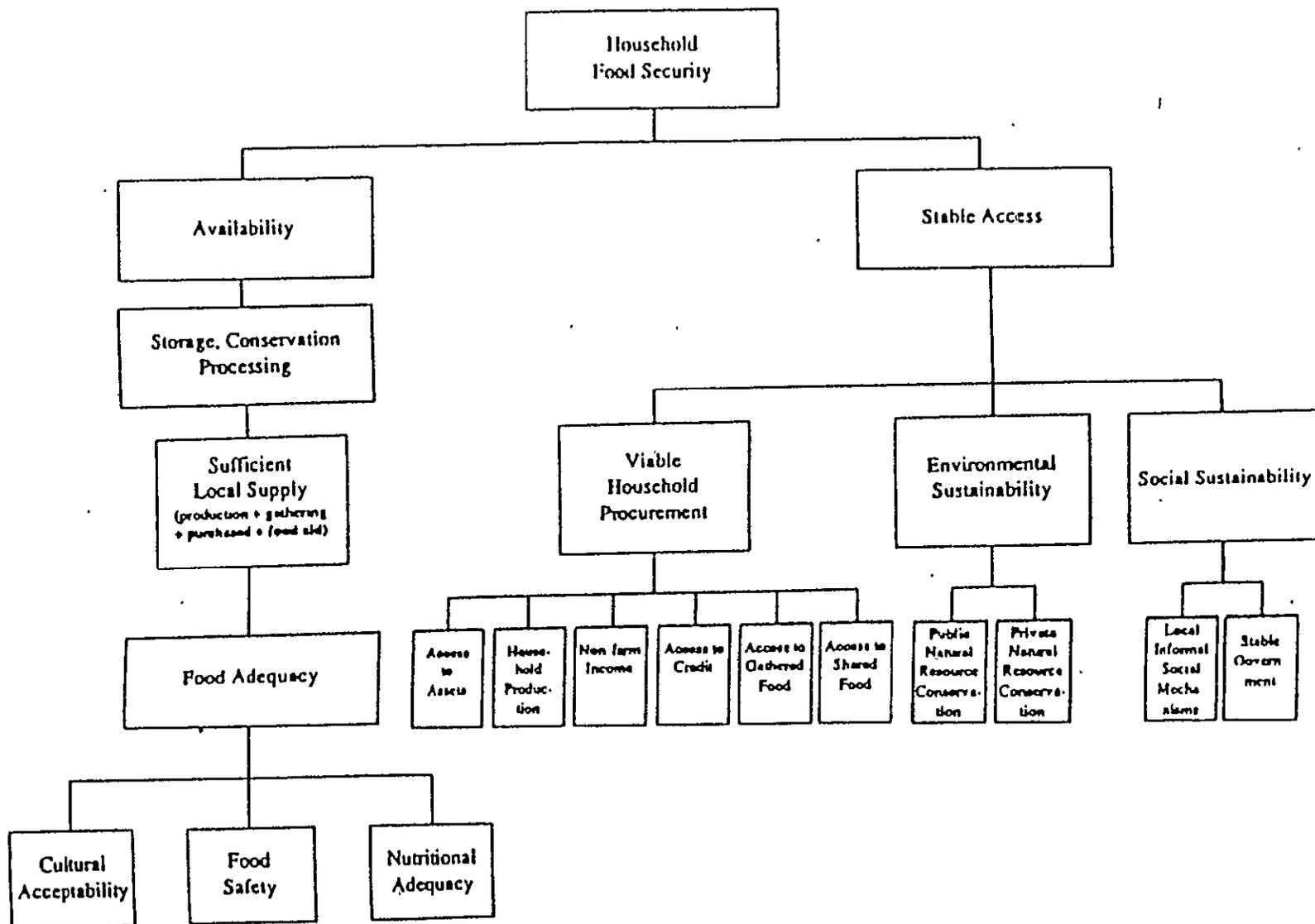
Although these interactive data-gathering tools are extremely valuable for eliciting more in-depth information on food security issues, they are often very time consuming to carry out. Most of these techniques are more likely to be used in participatory rural appraisal (PRA) exercises which provide guidance to community-based interventions. Recognizing the value of these techniques, RFSA teams should use them if time permits.

### III. Information Needs

#### III.A. Household Food Security and Livelihood Security

To determine what types of data are necessary to collect in a RFSA, we must identify the factors that contribute to food-insecure situations for households. Food security is defined by the World Bank (1986) as "access by all people at all times to enough food for an active and healthy life." Operationalizing the concept at the national level is not the same as at the household level. At the national level, food security entails adequate food supplies through local production and food imports. However, adequate availability of food at the national level does not necessarily translate into even distribution across the country, nor equal access among all households.

Figure 1. Conceptual Framework for Household Food Security



In the past 15 years, much conceptual progress has been made in our understanding of the processes that lead to food insecure situations for households (Frankenberger 1992). We have moved away from simplistic notions of food supply being the only cause of household food insecurity to assessing vulnerability of particular groups in terms of their access to food. Thus, food availability at the national and regional level and stable access are both keys to household food security (see Figure 1). Access to food is determined by food entitlements which may include viable means for procuring food (either produced or purchased), human and physical capital, assets and stores, access to common property resources, and a variety of social contracts at the household, community, and state level (Maxwell et al. 1992). The risk of entitlement failure determines the level of vulnerability of a household to food insecurity (ibid 1992). The greater the share of resources devoted to food acquisition, the higher the vulnerability of the household to food insecurity.

Households are food-secure when their livelihoods are sustainable. A livelihood comprises the adequate stocks and flows of food and cash to meet basic needs (Chambers 1989). It is made up of a range of on-farm and off-farm activities which together provide a variety of procurement sources for food and cash (Drinkwater and McEwan 1992). Thus, each household can have several possible sources of entitlement which constitute its livelihood (ibid 1992). These entitlements are based on the endowments that a household has, and its position in the legal, political, and social fabric of society (ibid 1992).

A livelihood is sustainable, according to Chambers and Conway (1992), when it "can cope with and recover from stress and shocks, maintain its capability and assets, and provide sustainable livelihood opportunities for the next generation..." (cited in Drinkwater 1992). Unfortunately, not all household livelihoods are equitable in their ability to cope with stress and shocks. Under such conditions, household food security for some households may be threatened.

Poor people balance competing needs for asset preservation, income generation, and present and future food supplies in complex ways (Maxwell et al. 1992). People may go hungry up to a point to meet another objective. For example, DeWaal (1989) found during the 1984-85 famine in Darfur, Sudan that people chose to go hungry to preserve their assets and future livelihoods. People will put up with a considerable degree of hunger to preserve seed for planting, cultivate their own fields, or avoid selling animals (Maxwell et al. 1992). Similarly, Corbett (1988) found that in the sequential ordering of behavioral responses employed in periods of stress in a number of African and Asian countries, preservation of assets takes priority over meeting immediate needs until the point of destitution (Corbett 1988 cited in Maxwell et al. 1992).

Given the importance of livelihood security to households in risk prone areas, risk avoidance and entitlement protection must be addressed in any proposed interventions. To do this effectively, RFSAs must understand the coping strategies households use to protect their livelihoods.

### III.B. Coping Strategies

Households do not respond arbitrarily to variability in food supply. People who live in conditions that put their main source of income at recurrent risk will develop self-insurance coping strategies to minimize risks to their HFS and livelihoods (Longhurst 1986; Corbett 1988). Examples of such

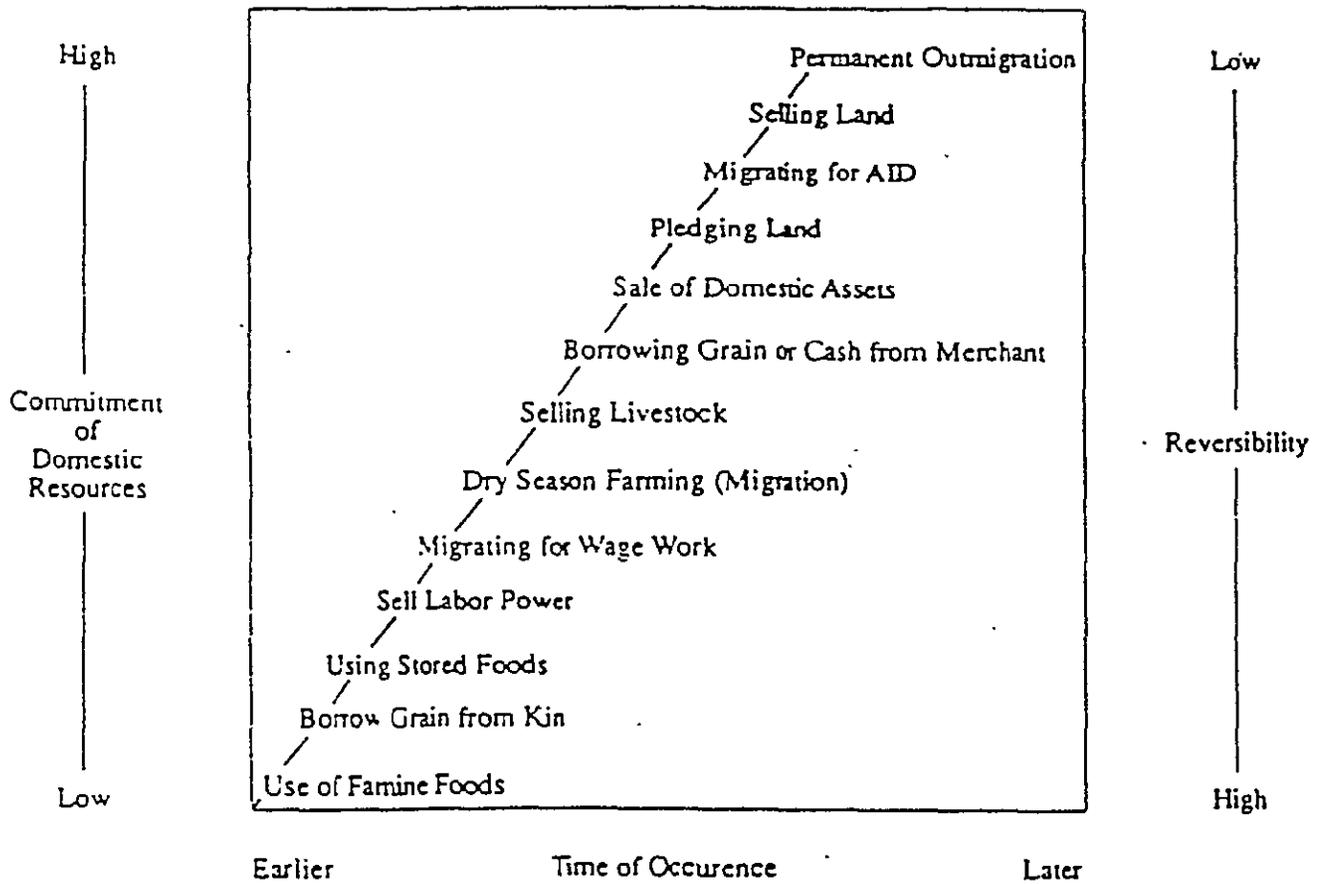
strategies are dispersed grazing, changes in cropping and planting practices, migration to towns in search of urban employment, increased petty commodity production, collection of wild foods, use of inter-household transfers and loans, use of credit from merchants and money lenders, migration to other areas for employment, rationing of current food consumption, sale of possessions (e.g., jewelry), sale of firewood and charcoal, consumption of food distributed through relief programs, sale of productive assets, breakup of the household, and distress migration (Corbett 1988 cited in Frankenberger and Goldstein 1992). In general, coping strategies are pursued by households to ensure future income-generating capacity (i.e., livelihood) rather than simply maintaining current levels of food consumption (Corbett 1988; DeWaal 1988; Haddad et al. 1991). These strategies will vary by region, community, social class, ethnic group, household gender, age, and season (Chambers 1989; Thomas et al. 1989). The types of strategies employed by households will also vary depending upon the severity and duration of the potentially disruptive conditions (Thomas et al. 1989).

In analyzing varieties of coping strategies, it is important to distinguish two types of assets that farmers have at their disposal. Assets that represent stores of value for liquidation (liquid assets) are acquired during non-crisis years as a form of savings and self-insurance; these may include small livestock or personal possessions such as jewelry (Corbett 1988; Frankenberger and Goldstein 1992). A second set of assets are those that play a key role in generating income (productive assets). These are less liquid as stores of value and are much more costly to farm household in their disposal. Households will first dispose of assets held as stores of value before disposing of productive assets (Corbett 1988). A household's access to assets is often a good determinant of its vulnerability (Chambers 1989; Swift 1989a).

Swift has also identified claims as another type of asset used by households to assure their food security. Claims refer to the ability of households to activate community support mechanisms. Claims also may encompass government support mechanisms or the international donor community (Borton and Shoham 1991).

Most initial responses to actual or potential food shortages are extension of practices conducted in some measure during normal years to adapt to rainfall variability (Longhurst 1986; Watts 1988). Traditional methods of handling risk can be divided into routine *risk-minimizing practices* and *loss management mechanisms* (Walker and Jodha 1986). *Risk-minimizing practices* are adjustments to production and resource use before and during a production season. These involve such practices as diversification of resources and enterprises, and adjustments within cropping systems. Crop-centered diversification can include choice of crop with varying maturation periods, different sensitivities to environmental fluctuations, and flexible end use products (Ibid 1986). Farmers also will reduce production risks by exploiting *vertical*, *horizontal*, and *temporal* dimensions of the natural resource base. *Vertical adjustments* involve planting at different elevations in a topographical sequence. *Spatial risk-adjustments* include planting in different micro-environments or intercropping. *Temporal risk adjustments* involve staggering planting times (Ibid 1986). Adjustments also may include extension of farming to marginal areas or overuse of a particular plot; practices that can have a destructive effect on the natural environment.

Figure 2



A Model of Responses to Food Shortage

(Adapted from Watts, 1988)

*Loss management mechanisms* include farmers' responses to lower-than-expected crop production caused by natural hazards (Ibid 1986). Reductions in crop production can be compensated for through non-farm income, the sale of assets, the management of stocks and reserves, seasonal migration, and reciprocal obligations among households. Overexploitation of certain resources (forest reserves, for example) for market sale also may be part of this loss management strategy.

In communities marked by landholding and income inequalities, household responses occur differently along the lines of wealth and access to resources (Longhurst 1986; Tobert 1985). Identical climatic conditions can affect households of varied economic levels to different degrees. Seasonal shortages for some families produce famine conditions for others. Poorer households, including many women-headed households, having smaller holdings and a weaker resource base, are more vulnerable to stress than are wealthier households, and begin to suffer earlier when food shortages hit (Frankenberger and Goldstein 1990). The poor resort to early sales of livestock, pledge farms, incur debt, sell labor, and borrow grain at higher interest rates (Watts 1988). In essence, crop failures and other shocks reveal rather than cause the fragile nature of HFS among vulnerable rural families. At the same time, prosperous households buy livestock at deflated prices in conditions of oversupply, sell or lend grain to needy farmers, purchase wage labor at depressed rates, and purchase land (Watts 1988). Thus, during a food crisis, a cycle of accumulation and decapitalization can occur simultaneously within a single community, depending on the depth of the current crisis.

Patterns of coping strategies can be diagrammed to show the sequence of responses farm households typically employ when faced with a food crisis (Figure 2, Watts 1988). These sequences of response are most frequently divided in the literature into three distinct stages (Corbett 1988). In the earliest stages of a food crisis (*stage one*), households employ the types of risk-minimizing and loss-management strategies discussed above. These typically involve a low commitment of domestic resources, enabling speedy recovery once the crisis has eased. As the crisis persists, households are increasingly forced into greater commitment of resources just to meet subsistence needs (*stage two*). There may be a gradual disposal of key productive assets, making it harder to return to a pre-crisis state. At this stage, a household's vulnerability to food insecurity is extremely high. *Stage three* strategies are signs of failure to cope with the food crisis and usually involve destitution and distress migration (Corbett 1988).

Recent studies have found that the range of coping strategies pursued by farm families in drought-prone areas may be changing over time (Downing 1988; Thomas et al. 1989). Three major trends appear to be developing. First, risk minimizing agricultural strategies appear to be narrowing in some locations (e.g., in Kenya) as repeated sale and reacquisition have depleted domestic and productive asset levels (Frankenberger and Goldstein 1992). In these areas, agricultural coping strategies are being replaced by strategies that diversify income sources through off-farm employment and non-agricultural production (Mead 1988; Swinton 1988). Some of these non-farm strategies include practices that are known to be environmentally damaging, but that provide a last resort in crisis conditions. Second, strategies that relied on social support and reciprocity for overcoming food deficits are eroding due to the integration of individual households into the cash economy (Thomas et al. 1989). Third, a shift has been observed in the responsibility for coping with drought from the individual household and local community toward the national government

through drought and famine relief programs (Frankenberger 1990). This trend is due in large part to the reduction in response flexibility of small farm households (Frankenberger and Goldstein 1992).

### III.C. Household Food Security and Environmental Degradation

Although coping strategies may be seen in the short term as functional adaptations to uncertain conditions and hence beneficial, some commonly practiced strategies may have dire consequences for the natural environment in the long run (Frankenberger and Goldstein 1992). Particularly for poorer farmers with limited resource endowments, the process of maintaining household viability may be exacted at the expense of the natural surroundings. Poor people often occupy ecologically vulnerable areas such as marginal drylands, tropical forests and hilly areas (Davis et al. 1991). As drought conditions worsen and conditions of food insecurity persist, the range of options available to resource-poor farmers becomes more limited and inflexible. In such situations, questions of long-term environmental sustainability become secondary. Day-to-day survival demands the use of any food procurement strategy available.

The exploitation of common property resources (CPRs) is particularly important for resource-poor farmers for meeting household food security needs. Wild leaves, roots, grains, bushmeat, and forest products provide additional food sources, buffer seasonal shortages, and provide alternative sources of income (Davis et al. 1991). These resources are relied upon heavily during times of stress (Jodha 1986). Therefore, the degradation of CPRs and loss through the encroachment of privatized agriculture has disproportionately affected the food security of the poor (Davis et al. 1991).

Women are often more vulnerable to the effects of environmental degradation than men because they are often more involved in the collection of common property resources (Davis et al. 1991). Since women often make a greater contribution to household food security than men, a decline in women's access to resources may have a significant impact on the nutritional status of the household.

Coping strategies that may promote environmental degradation include cutting trees to make charcoal, over-harvesting of wild foods, over-grazing of grasslands, and increased planting in marginal areas. All of these strategies may degrade soil conditions and augment problems of soil erosion (Norman 1991). Farmers often realize the damage their actions have on the environment upon which their livelihood depends. However, as drought conditions worsen and food insecurity persists, the range of options becomes limited to such desperation strategies.

Thus, vulnerability to food insecurity usually means vulnerability to environmental degradation. However, development activities attempting to pursue both household food security and environmental objectives must consider the short- and long-term trade-offs associated with these dual objectives. Long-term sustainable, natural resource management initiatives will not be successful if they ignore the short-term food security needs of the local population. Likewise, sustainability will be compromised if long-term environmental concerns are sacrificed for immediate food needs. For development goals to be achieved, a balance must be struck between these two objectives.

### III.D. Indicators of Household Food Security

As stated earlier, food availability and stable access are both critical to HFS. For this reason, any RFSAs must gather both food supply/production data and access/entitlement data from a targeted area (see Annex 4). Vulnerability to food insecurity is location-specific, therefore, indicators are needed that measure supply and food entitlement changes at the local level.

A number of different indicators can be used for delineating HFS. These can be divided into *process indicators* that reflect both food supply and food access, and *outcome indicators* which serve as proxies for food consumption (Frankenberger 1992) (see Matrix 2). Indicators that reflect food supply include inputs and measures of agricultural production (agrometeorological data), access to natural resources, institutional development and market infrastructure (prices), and exposure to regional conflict and its consequences. Most of these data may already be available through secondary sources and be aggregated into the vulnerability maps. Indicators that reflect food access are the various means or strategies used by households to meet their HFS needs. These strategies will vary by region, community, social class, ethnic group, household, gender, and season. Thus, their use as indicators is location-specific (see below). These coping ability indicators are normally not available for use in vulnerability maps and have to be collected through RFSAs. Outcome indicators can be grouped into direct and indirect indicators. Direct indicators of food consumption include those that are closest to actual food consumption rather than marketing channel information or medical status (e.g., household consumption surveys). Indirect indicators are generally used when direct indicators are either unavailable or too costly (in terms of time and money) to collect (e.g., storage estimates, nutritional status assessments).

As indicators that reflect food access, the generalized patterns of coping strategies find practical application as tools for local food security monitoring (Frankenberger and Goldstein 1992). Building upon the work of the World Food Program (WFP), there are three types of indicators that can be monitored for changing coping responses, thus suggesting worsening conditions and heightened food insecurity. *Leading indicators* (WFP refers to these as *early indicators*) are changes in conditions and responses prior to the onset of decreased food access. Examples of such indicators are: 1) crop failures (due to inadequate rainfall, poor access to seed and other inputs, pest damage, etc.); 2) sudden deterioration of rangeland conditions or conditions of livestock (e.g., unusual migration movements, unusual number of animal deaths, large numbers of young female animals being offered for sale); 3) significant deterioration in local economic conditions (e.g., increases in the price of grain, unseasonal disappearance of essential food stuffs, increases in unemployment among laborers and artisans, unusual low levels of household foodstocks; and 4) significant accumulation of livestock by some households (due to depressed prices caused by oversupply). Leading indicators assessed through vulnerability mapping can provide signs of an impending problem and may call for a RFSAs to determine the extent of the problem, causes, and need for monitoring. These indicators are a combination of process indicators dealing with both availability and access vulnerability (Frankenberger 1992).

*Concurrent indicators* (WFP calls these *stress indicators*) occur simultaneously with decreased access to food. Examples of such indicators are: 1) a large number of able-bodied family members in search of food or work; 2) appearance in the market of unusual amounts of personal and capital

Matrix 2  
HOUSEHOLD FOOD SECURITY INDICATORS

Indicator	Availability	Sources of Information and Collection Method	Measurement	Level of Aggregation	Limitation
<b>Food Supply Indicators</b>					
<i>Meteorological Data</i> (rainfall)	readily available	government reports monitoring stations satellite remote sensing	cumulative amount/average change from average onset	national regional district	number of stations timing of rains may be false indicator
<i>Information on Natural Resources</i> (includes grazing resources)	readily available	periodic assessments government, NGOs satellite imagery government and donor studies	dekadal values dekadal value/previous dekadal dekadal average/long-term dekadal average	national regional district	access to remote sensing
<i>Agricultural Production Data</i> (crops and animals)	readily available	government reports crop cutting on sample plots remote sensing farmer reports	seasonal kg/capita departure from average kg/capita % change from past years	national regional district	limited information on other crops besides staple
<i>Agroecological Models</i>	not readily available	monitoring stations soil assessments	FAO Crop Specific Soil Water Balance Model	national regional district	computer capability for analysis
<i>Food Balance Sheets</i>	readily available	secondary sources government reports	production-consumption requirements (opening stocks, production, imports, domestic per capita requirements, exports and closing stocks)	national regional	underestimate nontraded crops
<i>Information on Pest Damage</i>	moderately available	field assessments government reports	seasonal kg/capita for crops % of change from last year	national regional	frequency of assessment
<i>Market Information</i> (prices)	readily available	price data market surveys	value of crop prices, livestock prices monthly value/average monthly value for previous year	national regional local	interpretation of sales and price
<i>Regional Conflict</i>	not readily available	key informants NGOs	# of incidents influx of refugees	regional local	collection of data in conflict zone

Frankenberger, 1992

HOUSEHOLD FOOD SECURITY INDICATORS  
(continued)

Indicator	Availability	Sources of Information and Collection Method	Measurement	Level of Aggregation	Limitation
<b>Food Access (Effective Demand or Entitlement)</b>					
<i>Risk Minimizing Strategies</i>					
land use practices	limited	RRA formal surveys	changes in crop mix changes in time of planting	HH/village	location specific
diversification of livestock	limited	RRA formal surveys	changes in livestock mix early movement to alternative range # animal deaths	HH/village	location specific
<i>Loss Management Strategies</i>					
dietary change (both quantitative and qualitative)	limited	RRA HH surveys in-depth interviews	reduction in # of meals decreased dietary diversity shifts from preferred to lower status food	HH/village	location specific
change of food source	limited	RRA HH surveys	increased dependence on wild foods # of HH dependent on reserves grain price increases	HH/village	location specific
diversification of income sources	limited	RRA HH surveys	changes in petty marketing patterns changes in wage rates increase # of HH seeking off-farm employment	HH/village	location specific
access to loans/credit	limited	RRA HH surveys	increase # of people seeking assistance from relatives # of people seeking credit	HH/village	location specific
livestock sales	available	market surveys secondary data	increase sale of livestock/season decline of livestock prices	national regional local	location specific
seasonal migration	limited	RRA HH surveys	large # of people migrating for work	village HH	location specific
sale of production assets	limited	RRA HH surveys	appearance in market of unusual amounts of personal and capital goods (jewelry, farm implements, draft animals) sale of young female animals	village HH	location specific
distress migration	limited	RRA HH surveys government records NGOs	# of whole families moving out of area	regional village HH	location specific

**HOUSEHOLD FOOD SECURITY INDICATORS**  
(continued)

Indicator	Availability	Sources of Information and Collection Method	Measurement	Level of Aggregation	Limitation
<b>Outcome Indicators</b>					
<i>Direct Indicators</i>					
household budget and consumption surveys	limited	national surveys	price per unit of food or caloric per unit of food conversion factor/capita	national regional district	high cost
household perception of food insecurity	limited	RRA in-depth interviews	# of months of self provisioning from household production and receipt of in-kind as perceived by the household	village HH	local population may distort data
food frequency assessments	limited	HH surveys 24-hr recall	# of meals per day and types of ingredients in meals # of times per day a nutrient-poor gruel was served as main meal	village HH	difficult to aggregate at regional or national level limited level of precision culturally specific
<i>Indirect Indicators</i>					
storage estimates	limited	HH surveys RRA	# of months food stores will last as perceived by the HH	village HH	difficult to obtain due to cultural beliefs difficult to aggregate
subsistence potential ratio	readily available	HH surveys	size of farm, expected yield and age and sex composition of household Amount of food produced/food required	village HH	difficult to aggregate assumes all farm land used for food production
household food security card	limited	HH surveys	food available from main crop compared to HH requirements on monthly basis	village HH	only useful in areas where most food is grown by the household
nutritional status assessments	readily available	government health department formal surveys anthropometric measures	weight/age height/age weight/height arm-circumference	national regional local	nutritional status influenced by sanitary conditions, care age assessment question

Family Affair Report Series: Adapted from Survey Assessment

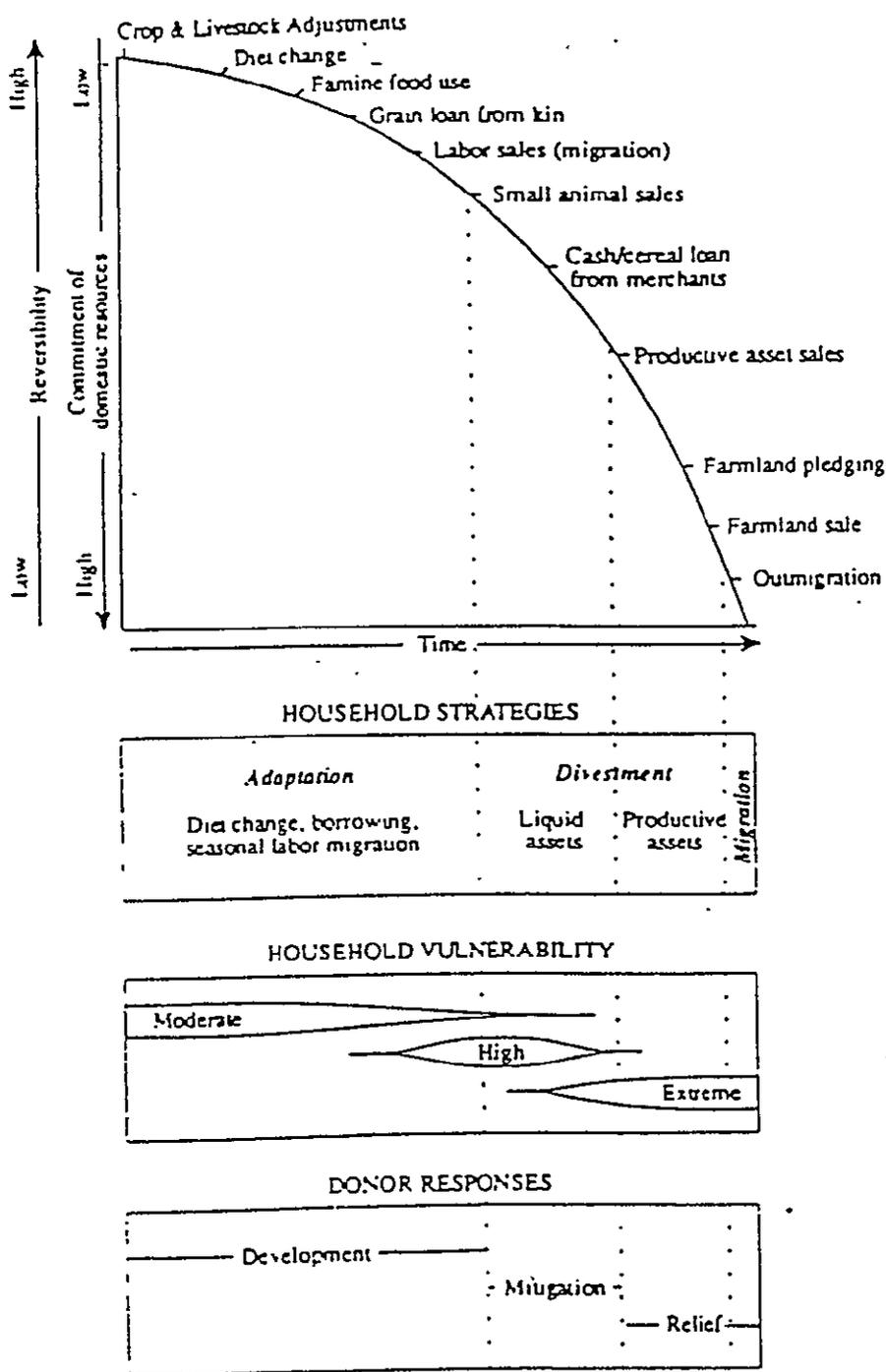
goods, such as jewelry, farm implements, livestock (draft animals); 3) unusual increases in land sales or mortgages; 4) increases in the number of people seeking credit; 5) increased dependence on wild foods; 6) reduction in the number of meals; and 7) increased reliance on interhousehold exchanges. Concurrent indicators can be assessed while carrying out a RFSA. These indicators are primarily access/entitlement related. Once the nature and extent of the problems have been confirmed, interventions can be introduced that focus on the causes or mitigate the effects.

*Trailing indicators* (WFP calls these *late outcome indicators*) occur after food access has declined. They reflect the extent to which the well being of particular households and communities have been affected. In addition to signs of malnutrition and high rates of morbidity and mortality, trailing indicators include increased land degradation, land sales, consumption of seed stocks and permanent outmigration. All of these indicators are signs that the household has failed to cope with the food crisis (Frankenberger and Goldstein 1992).

An understanding of farmer coping strategies can be essential in guiding the design and implementation of interventions to increase HFS. As Figure 3 illustrates, the types of coping strategies employed by households not only indicate household vulnerability to food shortage, but also correspond to different types of government and donor responses. Household coping strategies that do not involve divestment normally indicate moderate vulnerability, and government/donor response is more appropriately oriented toward longer-term *development* efforts. Such responses can be targeted to enhance the long-term sustainability of HFS, especially in those areas where vulnerability is likely to increase. In regions where divestment is beginning to occur, household vulnerability becomes high and mitigation should be considered the appropriate response. *Mitigative* interventions are those that: 1) abate the impacts of the current emergency while reducing vulnerability to future emergencies; 2) target the conservation of productive assets at the household level; and 3) reinforce and build upon existing patterns of coping (Hutchinson 1991). In areas where productive asset sales and permanent outmigration have begun to occur, the population is extremely vulnerable to famine. Such indices would call for immediate *relief* action on the part of the government and donors. Thus, an appropriately designed HFS monitoring system could be flexible enough to serve all three purposes. Presently most Early Warning Systems operating in Africa are only used for food aid planning (i.e., the relief function) (Hutchinson 1992).

Given their usefulness in identifying vulnerable households, it is important to also recognize the limitations of these food access indicators. First, socioeconomic variables mean different things in different contexts (Borton and York 1987). Researchers and development practitioners should understand the locational specificity of socioeconomic variables so that they are not misinterpreted. Second, the raw data used as indicators can be misleading. Hesse (1987) demonstrated that regional livestock market data from Mali could easily be misunderstood because individuals were buying and selling the same stock repeatedly in the same day. Thus, the quality of the data needs to be properly validated before being incorporated into a monitoring system. Third, without a baseline for determining what is "normal" behavior for a given population, it is difficult to make valid interpretations of trends displayed by indicators (Borton and York 1987). Fourth, given the locational specificity of socioeconomic indicators, it is difficult to make comparisons across regions, or to aggregate the data.

Figure 3



Responses to household food shortages (after Watts, 1983)  
 The types of coping strategies employed by households indicate household vulnerability to food shortage, and correspond to different types of government and donor responses  
 Office of Arid Lands Studies, The University of Arizona, 1991.

To minimize inaccuracies derived from the use of socioeconomic indicators, multiple indicators should be used whenever possible. The convergence of evidence will instill confidence in those agencies responsible for addressing food security problems. In addition, attempts should be made to pre-test indicators to determine whether local factors may distort an indicator's validity and reliability (Haddad et al. 1991). Efforts also should be made to limit food access indicators to a manageable number. Haddad et al. (1991) have provided an excellent summary of these indicators (See Annex 5).

### III.E. RFSAs in Conflict Areas

In food-insecure regions plagued by conflict, RFSAs will collect additional types of information. Such information will include the geographical delineation of conflict zones, level of violence and kind (i.e., targeted or passive), freedom of movement, condition of access to conflict zones, existence and organizational capabilities of local non-governmental institutions, existence and activities of partisan (i.e., governmental and rebel) organizations involved in humanitarian relief and rehabilitation, physical resources and availability for famine mitigation actions (i.e., logistical resources, supply and storage facilities, operational facilities), and planned interventions by national governments, international, private, and voluntary organizations, and coordination structure to be used (e.g., who will coordinate which activities by who for whom) (Frankenberger 1991).

### III.F. Information Relevant to Intervention Design

In addition to collecting information relevant to the delineation of food-insecure groups, RFSAs will make recommendations regarding the most appropriate interventions that should be implemented in the area. These interventions would encompass *development-type* interventions that enhance the long-term sustainability of HFS, *mitigation-type* interventions that enable HFS to retain their productive assets and existing entitlements and *relief-type* responses if immediate food aid distribution is warranted (Hutchinson 1991; Frankenberger 1992). Information relevant to implementing these interventions will be necessary to collect. For example, food-for-work/cash-for-work programs aimed at allowing households to retain their productive assets by providing alternative employment opportunities are better designed if particular types of information are made available. If such programs are implemented to promote the restoration of degraded resources through efforts in soil conservation, water harvesting, or re-establishment of forest reserves, it would be useful to know something about common property management practices, land tenure, group decision making situations and labor arrangements, seasonal labor requirements, and local knowledge of existing resources (Molnar 1989). Similarly, information about the cropping and livestock systems and their current status will help determine whether agpaks should be oriented toward maintenance, rehabilitation, or diversification/risk reduction (see Caldwell 1992). Market interventions aimed at stabilizing prices for grain and livestock may need information on the feasibility of establishing livestock banks or village grain banks in the local area.

One of the most important types of information to consider for intervention design will be the institutional and staff capability of the organizations responsible for implementing the interventions. RFSAs should attempt to assess the local level functioning of these agencies or organizations, their priorities, and the quality of their staff. This assessment will help determine what type of

monitoring system and interventions are feasible, given the availability of the local level resources. The financial, personal, institutional, and infrastructural resources available will set the boundaries within which such systems should operate.

#### IV. Development of Contingency Plans

The RFSAs report will feed directly into the development of a district or subregional contingency plan, similar to the system set up in Turkana, Kenya (Swift 1986). Run by the Turkana Drought Contingency Planning Unit, this system alerts authorities of deteriorating food security by monitoring local coping strategies as well as quantifiable data provided by other government departments (Buchanan-Smith et al. 1991).

The contingency plan will consist of a decentralized household food security monitoring system and a set of pre-determined responses that would be implemented when food security conditions change (Frankenberger and Coyle 1992). This monitoring system would incorporate a small set of location-specific indicators that would be updated annually that detect changes in food entitlement and supply. The intervention responses that will be triggered by the monitoring system would encompass development-type interventions, mitigation-type interventions, and relief-type responses. Responsibilities for these various actions will be negotiated and assigned, if possible, to government agencies, donors, and local NGOs prior to the onset of the food crisis to improve response timing. Where possible, participation of local communities in information gathering and responses should be encouraged.

#### V. Conclusions

Food availability and stable access are both critical to household food security. Therefore, time-effective survey techniques are needed that take both of these factors into account in assessing the food security situation of a targeted area. Rapid food security assessments are especially useful for this purpose.

The targeting and timing of RFSAs will be triggered by early warning systems that identify specific geographical regions susceptible to food shortages. Vulnerability maps can be drawn up to identify areas and sections of the populations that are most vulnerable to food insecurity. The development of such maps would be the first step in identifying districts or subregions where more location specific HFS information is necessary to direct for designing appropriate interventions.

Once a food insecure area has been designated, RFSAs can be used to identify: 1) vulnerable groups; 2) the causes and magnitude of the food insecurity situation; 3) location specific coping ability indicators for food security monitoring; and 4) to determine appropriate mitigation interventions for alleviating the food deficit problem. Using purposive sampling techniques, information would be gathered through open-ended interviews with groups and individuals and through interactive data gathering tools such as diagrams and ranking exercises. Multidisciplinary teams would be used for this purpose.

Upon completion of the survey, contingency plans should be drawn up to link information to response. Responses would encompass development-type interventions that enhance the long term sustainability of livelihood systems and HFS, mitigation-type interventions that enable households to retain their productive assets, and relief-type responses where immediate food distribution is warranted. To ensure that HFS interventions are appropriate, it is important to involve local communities in the diagnosis and design process. This participation will allow communities to manage their HFS in a self-sustaining way.

REFERENCES CITED

- Bernard, H.R. 1988. *Research Methods in Cultural Anthropology*. Newbury Park, California, USA: SAGE Publications, Inc.
- Borton, J. and J. Shoham. 1991. *Mapping Vulnerability to Food Insecurity: Tentative Guidelines for WFP Offices*, mimeo. Study Commissioned by the World Food Programme. London: Relief and Development Institute.
- Borton, J. and S. York. 1987. *Experiences of the Collection and Use of Micro-Level Data in Disaster Preparedness and Managing Emergency Operations*, mimeo. Report on the workshop held at the London School of Hygiene and Tropical Medicine, January 1987. London: Relief and Development Institute.
- Buchanan-Smith, M., S. Davies and R. Lambert. 1991. *A Guide to Famine Early Warning and Food Information Systems in the Sahel and Horn of Africa. A Review of the Literature*. Volume 2 of a Three Part Series. IDS Research Reports Rr 21. Brighton, U.K.: University of Sussex, Institute of Development Studies.
- Caldwell, R.M. 1992. *AgPaks as a Famine Mitigation Intervention*. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies; supported by the U.S. Agency for International Development, Office of Foreign Disaster Assistance, and the Office of International Cooperation and Development, Washington, D.C.
- Casley, D.J. and K. Kumar. 1988. *The Collection, Analysis, and Use of Monitoring and Evaluation Data*. Baltimore, Maryland, USA: The Johns Hopkins University Press (for The World Bank).
- Chambers, R. 1989. Editorial introduction: vulnerability, coping and policy. *IDS Bulletin* 2(2):1-7.
- Chambers, R. 1985. Shortcut Methods of Gathering Social Information for Rural Development Projects. In M. Cernea, ed., *Putting People First*. New York: Oxford University Press.
- Chambers, R., A. Pacey, and L.A. Thrupp, eds. 1989. *Farmer First: Farmer Innovation and Agricultural Research*. London: Intermediate Technology Publications.
- Conway, G. 1989. Diagrams for Farmers. In *Farmer First: Farmer Innovation and Agricultural Research*. R. Chambers, A. Pacey, and L.A. Thrupp, eds., 77-86. London: Intermediate Technology Publications.
- Corbett, J. 1988. Famine and Household Coping Strategies. *World Development* 16(9):1009.

- Davies, S., M. Buchanan-Smith and R. Lambert. 1991a. *Early Warning in the Sahel and Horn of Africa: The State of the Art. A Review of the Literature*. Volume 1 of a Three Part Series. IDS Research Reports Rr 20. Brighton, U.K.: University of Sussex, Institute of Development Studies.
- Davies, S., M. Leach, and R. David. 1991b. *Food Security and the Environment: Conflict or Complementarity?* IDS Discussion Paper. Brighton, U.K.: University of Sussex, Institute for Development Studies.
- de Waal, A. 1989. *Famine that Kills: Darfur, Sudan, 1984-1985*. Oxford, U.K.: Clarendon Press.
- de Waal, A. 1988. Famine Early Warning Systems and the use of socio-economic data. *Disasters* 12(1): 81-91.
- Dixon, J.M. 1992. *Food Policy: Household Economics and Farming Systems*. Draft paper, FAO.
- Downing, T.E. 1990. *Assessing Socioeconomic Vulnerability to Famine: Frameworks, Concepts, and Applications*. FEWS Working Paper 2.1. Washington, D.C.: USAID, Famine Early Warning System Project.
- Downing, T.E. 1988. *Climatic Variability, Food Security and Smallholder Agriculturalists in Six Districts of Central and Eastern Kenya*. Ph.D. dissertation. Clark University.
- Drinkwater, M. 1992. *HFS in FSR: An Introduction to the Use of Informal Methods*. A paper presented to the Southern and Eastern Africa Regional Workshop on Household Food Security in Farming Systems Research, Mansa, Zambia, 10-14 August, 1992.
- Drinkwater, M. and M.A. McEwan. 1992. *Household Food Security and Environmental Sustainability in Farming Systems Research: Developing Sustainable Livelihoods*. A paper presented to the Adaptive Research Planning Team (ARPT) Biannual Review Meeting, Mongu, 13-16 April 1992.
- Eklund, P. 1990. *Rapid Rural Assessments for Sub-Saharan Africa: Two Case Studies*. The Economic Development Institute of The World Bank.
- Frankenberger, T.R. 1992. *Indicators and Data Collection Methods for Assessing Household Food Security*. Tucson, AZ: The University of Arizona, Office of Arid Lands Studies; supported by the International Fund for Agricultural Development (IFAD), Rome and UNICEF.
- Frankenberger, T.R. and P.E. Coyle. 1992. *Integrating Household Food Security into Farming Systems Research-Extension*. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies; supported by the U.S. Agency for International Development, Office of

Foreign Disaster Assistance, and the Office of International Cooperation and Development, Washington, D.C.

Frankenberger, T.R. 1991. Rapid Food Security Assessment. In *Famine Mitigation: Proceedings of Workshops Held in Tucson, Arizona, May 20-May 23, 1991 and Berkeley Springs, West Virginia, July 31-August 2, 1991*. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies; supported by the U.S. Agency for International Development, Office of Foreign Disaster Assistance, and the Office of International Cooperation and Development, Washington, D.C.

Frankenberger, T.R. 1990. *Production-Consumption Linkages and Coping Strategies at the Household Level*. Paper presented at the Agriculture-Nutrition Linkage Workshop, Bureau of Science and Technology, USAID, Washington, D.C., February 1990.

Frankenberger, T.R., and D.M. Goldstein. 1992. The Long and the Short of It: Relationships Between Coping Strategies, Food Security and Environmental Degradation in Africa. In *Growing Our Future*, K. Smith, ed. New York: Kumarian Press.

Frankenberger, T.R., and D.M. Goldstein. 1990. Food security, coping strategies, and environmental degradation. *Arid Lands Newsletter* 30: 21-27.

Frankenberger, T.R. and J. Lichte. 1985. *A Methodology for Conducting Reconnaissance Surveys in Africa*. Farming Systems Support Project Networking Paper #10. Gainesville, Florida, USA.

Frankenberger, T.R., S. Franzel, M. Odell, M. Odell and L. Walecka (eds). 1987. *Diagnosis in Farming Systems Research and Extension*, Volume I. Farming Systems Support Project Training Units Series. Gainesville, Florida, USA: University of Florida, Institute of Food and Agricultural Sciences.

Franzel, S. 1984. *Comparing the Results of an Informal Survey with those of a Formal Survey: A Case Study of Farming Systems Research/Extension (FSR/E) in Middle Kirinyaga, Kenya*. A paper submitted to the Farming Systems Research/Extension Symposium, Manhattan, Kansas.

Haddad, L., J. Sullivan and E. Kennedy. 1991. *Identification and Evaluation of Alternative Indicators of Food and Nutrition Security: Some Conceptual Issues and an Analysis of Existant Data*. Washington, D.C.: International Food Policy Research Institute.

Hesse, C. 1987. *Livestock Market Data as an Early Warning Indicator of Stress in the Pastoral Economy*. Pastoral Development Network, Discussion Paper No. 24f. London: Overseas Development Institute.

Hildebrand, P. 1981. Combining Disciplines in Rapid Appraisal: The Sondeo Approach. *Agricultural Administration* 8(6):423-32.

- Hutchinson, C.F. 1992. *ShortFEWS: Early Warning and Vulnerability Assessment for Famine Mitigation*. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies; supported by the U.S. Agency for International Development, Office of Foreign Disaster Assistance, and the Office of International Cooperation and Development, Washington, D.C.
- Hutchinson, C.F. 1991. Famine and Mitigation. In *Famine Mitigation: Proceedings of Workshops Held in Tucson, Arizona, May 20-May 23, 1991 and Berkeley Springs, West Virginia, July 31-August 2, 1991*. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies; supported by the U.S. Agency for International Development, Office of Foreign Disaster Assistance, and the Office of International Cooperation and Development, Washington, D.C.
- Hutchinson, C.F., P.T. Gilruth, R.A. Hay, S.E. Marsh, C.T. Lee. 1992. *Geographic Information Systems Applications in Crop Assessment and Famine Early Warning*. Tucson, Arizona, USA: University of Arizona, Arizona Remote Sensing Center and Advanced Resource Technology Program. (Prepared for the Food and Agriculture Organization of the United Nations)
- Jodha, N.S. 1986. Poor in dry regions of India. *Economic and Political Weekly* XXI(27):1169-81.
- Joy, L. 1973. Food and nutrition planning. *Journal of American Economics* XXIV, January.
- Longhurst, R. 1987. Rapid Rural Appraisal. *Food and Nutrition* 13(1):44-47.
- Longhurst, R. 1986. Household food strategies in response to seasonality and famine. *IDS Bulletin* 17:27-35.
- Lynham, M.B., T.R. Frankenberger, W. Phelan, H. N'Gaide, P. Stone, J.A. Tabor and H. N'Dongo. *Farming Systems Along the Senegal River Valley: A Rainy Season Food Consumption Survey in Guidimaka, Gorgol and Brakna Regions*. Mauritania Agricultural Research Project II. USAID Nouakchott. January. Report No. 6. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.
- Maxwell, S. 1989. Rapid food security assessment: a pilot exercise in Sudan. *RRA Notes*, no. 5. London: International Institute for Environment and Development.
- Maxwell, S. and M. Smith with contributions by S. Davies, A. Evans, S. Jaspars, J. Swift and H. Young. 1992. *Household Food Security: A Conceptual Review*. Brighton, U.K.: University of Sussex, Institute of Development Studies; supported by the International Fund for Agricultural Development (IFAD), Rome and UNICEF.

- McCracken, J.A., J.N. Pretty, and G.R. Conway. 1988. *An Introduction to Rapid Rural Appraisal for Agricultural Development*. London: International Institute for Environment and Development (IIED).
- Mead, D.C. 1988. Nonfarm Income and Food Security: Lessons from Rwanda. Pages 331-338, In *Household and National Food Security in Southern Africa*, G.D. Mudimu and R.H. Bernstein, eds. Proceedings of the Fourth Annual Conference on Food Security Research in Southern Africa, October 31-November 3, 1988. University of Zimbabwe/Michigan State University Food Security Research Project, Department of Agricultural Economics and Extension, Harare, Zimbabwe.
- Molnar, A. 1991. Rapid Rural Appraisal Methodology Applied to Project Planning and Implementation in Natural Resource Management. In *Soundings: Rapid and Reliable Research Methods for Practicing Anthropologists*. J. Van Willigen and T. Finan, eds. National Association for the Practice of Anthropology Bulletin 10.
- Molnar, A. 1989. *Community Forestry: Rapid Appraisal*. Rome: Food and Agricultural Organization of the United Nations.
- Norman, D.W. 1991. *Soil Conservation: Using Farming Systems Development as an Aid*. Paper prepared for the Farm Management and Production Economics Service, Agricultural Services Division, Food and Agriculture Organization (FAO), Rome.
- Puetz, D. 1992. *The Potential of Small-Scale Surveys, Focused on Specific Food Policy Issues*. A paper prepared for the IFPRI Workshop on Data Needs for Food Policy in Developing Countries: Directions for Household Surveys, Washington, D.C., September 1-2, 1992.
- Swift, J. 1989. Why are rural people vulnerable to famine? *IDS Bulletin* 20(2): 8-16.
- Swift, J. 1989b. Planning Against Drought and Famine in Turkana: A District Contingency Plan. In *Coping with Drought in Kenya*, T.E. Downing, K.W. Gitu and M.K. Crispin, eds. Boulder and London: Lynne Rienner.
- Swinton, S.M. 1988. Drought Survival Tactics of Subsistence Farmers in Niger. *Human Ecology* 16:123-144.
- Thomas, R.B., S.H.B.H. Paine, and B.P. Brenton. 1989. Perspectives on Socio-Economic Causes of and Responses to Food Deprivation. *Food and Nutrition Bulletin* 11:41-54.
- Velarde, N. 1991. *The Zambian Farming Systems Approach to Studying Household Food Security*. Paper presented at the Working Seminar on Dependency on Forest Foods for Food Security, March 13-15, 1991. Uppsala, Sweden: Swedish University of Agricultural Sciences, International Rural Development Centre.

- Walker, T., and N. Jodha. 1986. How Small Farm Households Adapt to Risk. In *Crop Insurance for Agricultural Development: Issues and Experience*, P. Hazell, ed. Baltimore, Maryland: The Johns Hopkins University Press.
- Watts, M. 1988. Coping with the Market: Uncertainty and Food Security Among Hausa Peasants. In *Coping with Uncertainty in Food Supply*, I. De Garine and G.A. Harrison, eds., 260-290. Oxford: Clarendon Press.
- World Bank. 1986. *Poverty and Hunger: Issues and Options for Food Security in Developing Countries*. Washington, D.C.: World Bank, A World Bank Policy Study.
- World Resources Institute, Center for International Development and Environment. 1989. *Participatory Rural Appraisal Handbook: Conducting PRAs in Kenya*. Washington, D.C.: World Resources Institute.

## Annex 1

### Rapid Rural Appraisal<sup>1</sup>

#### Why use RRA?

To avoid the problems of long and costly formal surveys, including:

- too much data collected;
- irrelevant data collected;
- late and inappropriate results produced;
- too little/no participation by the local people.

To avoid the risks of quick and unstructured development tourism surveys, including:

- obtaining only a snapshot picture of the area or topic;
- relying heavily on previous assumptions;
- working without a framework to guide the collection and analysis of information.

To help overcome the biases of:

- meeting only the more accessible and well-to-do individuals and groups;
- looking for only the quantitative, apparent data and missing the more qualitative, in-depth information and insights;
- dealing with the local population in a 'top-down' manner.

To encourage participation of local people in the process of development by:

- investigating local insights resulting in more effective research information being collected;
- involving local people in research and design to increase commitment and empowerment.

#### What are the principles behind RRA?

- We can involve local people and increase participation and empowerment;
- We can learn from the local people, use local classifications and terminologies;
- We can limit the amount of information we collect (optimal ignorance);
- We can explore the range of circumstances, rather than get a statistical sample;

---

<sup>1</sup> Produced by the Sustainable Agriculture Programme, International Institute for Environment and Development, London.

- We can investigate each issue in different ways and from different angles (triangulation);
- We can adopt an informal approach, and change it as we go (iterative);
- We can learn better in teams, with people from different backgrounds and with different areas of expertise (interdisciplinary);
- We can do much of the work in-the-field.

### **What are the techniques of RRA?**

The RRA approach provides a basket of choices of different techniques. Any RRA exercises will make use of a particular combination of these techniques, depending on the available resources and the desired output. The choices include:

- Secondary data review: learning from existing official records, census reports, survey documents, maps, photographs, etc.
- Direct observation: looking first-hand at the conditions, the agricultural practices, the people, the relationships, the problems, etc.
- Semi-structured interviewing: informal discussions, based on a flexible checklist of topics. Respondents could be individual villagers or key informants (people with specialist knowledge, for example, the schoolteacher, village leaders, health officer). Interviewing can be done with the individuals or in groups. Taking casual notes during the interviews. A learning experience for the interviewer.
- Group interviewing may be in focus groups (for investigation of interest groups or specialists' attitudes) or open group workshops (for general discussion or feedback).
- Diagramming: producing diagrams, often in the field, to help communication and learning. For example, maps, transects, seasonal calendars, flow diagrams, cartoons. Roughly drawn on paper or scratched in the ground.
- Ranking: Investigating decision-making preferences and why people make choices can be done in ranking games. Preference ranking: ranks items through pairwise comparisons. Direct matrix ranking ranks decision criteria. Wealth ranking is a tool for investigating local perceptions of wealth and is a rapid way of stratifying the population.
- Games and role playing: playing learning games, such as adaptations of traditional board games (e.g. the Ayo to investigate attitudes, strategies and preferences), futures possible (to find people's ideas for opportunities), and the Why? game (to find people's perceptions of the root causes of problems). Informal dramas by the RRA team, or the local people, or both, for communicating and learning, and stimulating discussion.

- Stories and portraits: as part of the RRA report, recording interesting stories told during interviews, and describing portraits of households with interesting or unusual situations.
- Workshopping: brainstorming, analysis and presentation session in the field or in the meeting room.

**Who uses RRA?**

- Anyone involved in development and research can; it is best carried out by local people.

**Where has RRA been used?**

- Mostly in less developed countries (but also in developed).
- Mostly in rural situations but also in urban).
- Mostly in the agricultural field (but also in others, for example, economics, health, nutrition, forestry, energy).
- Mostly at the village level (but also as larger scale exercise).

**When is RRA used?**

The RRA approach can be used throughout the project cycle:

- When exploring an area to learn of the key problems and opportunities to help plan research or development projects (Exploratory RRA, for example Agroecosystem Analysis);
- When investigating one specific topic, question or problem (Topical RRA);
- When involving local people in research and planning (Participatory RRA);
- When monitoring and evaluating a research or development activity (Monitoring and Evaluation RRA);
- When dealing with conflicting differences between different groups (Conflict Resolution RRA).

**Limitations of RRA**

- RRA techniques are complementary to other research methodologies (statistical surveys, long-term anthropological study, etc).
- RRA techniques may be rapid, but the process of development is not.
- Participatory approaches to research may raise local expectations; follow-up is necessary.

- RRA techniques may not be cross-culturally transferable; they need to be adapted to local situations.
- Appropriate use of RRA techniques requires the training of facilitators and participants.
- RRA produces questions, hypotheses or "best bets" for development - not final answers.

## Annex 2

### Rapid Rural Appraisal Techniques: The "Basket of Choices"<sup>2</sup>

There are a variety of categories for the RRA techniques, methods or tools. These are as follows:

**Secondary Data Review** - secondary data and information are published or unpublished data acquired by other people at an earlier time that are relevant to the topic or system under study.

**Direct Observation** - this encompasses any direct observation of field objects, events, processes, relationships or people that are recorded by the team in note or diagrammatic form.

**Map** - bold and schematic to obtain an overview of the resources of all types in the PA.

**Transect** - a representation of spatial differences that includes the major distinguishing features, including soils, crops, trees, livestock, wildlife, tenure and institutional issues.

**Seasonal Calendar** - a single diagram containing between-season changes in related components of the system under study, including climate, crop sequences, pests and diseases, perennial and wild harvest, labor demand, prices, human diseases, social events, income/expenditure, consumption of food, etc.

**Historical Profile** - major events recalled by informants and obtained from the secondary data.

**Venn Diagrams** - in which key institutions and individuals responsible for decisions are represented by circles with differing degrees of overlap in order to investigate local perceptions of institutional control and decision-making.

**Other Diagrams** - other diagrammatic representations of flows or decisions can be useful for demonstrating hypotheses or summarizing interview information.

**Preference Rankings** - pairwise comparisons to investigate decision-making criteria between various items, e.g., trees, crop varieties, fruits, vegetables.

**Direct Matrix Rankings** - in which the items under investigation are ranked by informants according to favorable and unfavorable characteristics.

**Wealth Rankings** - in which the perceptions of informants are used to rank households within a village or portion of a village according to overall wealth.

**Key Informant Interviews** - in which informants with special knowledge or who hold a position of interest are identified and interviewed on these topics.

---

<sup>2</sup> Produced by the Sustainable Agriculture Programme, International Institute for Environment and Development, London.

**Focus Group Discussions** - different groups in the community are gathered for open-ended discussion on key issues.

**Community Workshops** - open discussion sessions where research issues can be explored or results fed back to the community. Either managed with one group or with break-up into smaller discussion groups with plenary feedback.

**Analytical Workshops** - these are a means of bringing people together, including the field team and outsiders introduced for their skills and experience, to participate actively in reviewing, analyzing and evaluating the information gathered. Workshops are typically fairly intensive, switching between plenary and group work, and aim to arrive at a consensus of opinion over priorities for action.

Any Rapid Rural Appraisal exercise uses a selection of these techniques to generate and crosscheck information. The choice of techniques is dependent on the objectives of the exercise. RRAs combine short, intensive periods of field work interspersed with analytical workshop sessions.

### Annex 3

#### A Procedure for Conducting Rapid Food Security Assessments

Rapid food security assessments (RFSAs) are generally conducted over a period of one week to two months, often during the growing season when food supplies are scarce. Aspects which the survey team should address prior to, during, and after the survey is conducted are presented below (adapted from Frankenberger and Lichte 1985, and Frankenberger et al. 1987).

##### A. Determine What Are the Objectives of the Study

This should be done in collaboration with all participating organizations and institutions involved or directly affected by the findings. This step helps insure that all groups involved understand the goals of the survey and that information which is given high priority is collected by the team. Possible objectives for such surveys could include: 1) determining the most vulnerable groups in a targeted area; 2) determining the causes and magnitude of the food insecurity situation; 3) identifying location-specific indicators for food security monitoring; and 4) determining appropriate mitigation interventions that will alleviate the food deficit problem.

##### B. Composition of the Survey Team

The make-up of the survey team will vary depending upon the resources available and the context of the assessment. Useful considerations for devising such teams are as follows:

- i. The size of the team will vary depending upon the number of geographical areas that need to be covered and the complexity of the environmental/sociocultural setting. A good number is 6 team members per specific geographical region. This is about all that can fit comfortably into a landrover or land cruiser.
- ii. The team should consist of an equal distribution of social scientists and physical/biological scientists. A good mix of disciplines would include agricultural economists, anthropologists, crop specialists, and animal scientists. Local scientists and extension personnel should be used as much as possible rather than expatriates. In addition, the team should include female researchers to ensure that female farmers are interviewed, especially in situations where male researchers are not allowed to interview the females of the household.

##### C. Review Secondary Data

A RFSAs team begins planning a survey by examining existing information concerning the area. One of the main problems with such surveys is allocating adequate time for background literature review. The review process should take one week prior to going to the field. This review would also include securing maps and aerial photographs of the area.

##### D. Key Informant Interviews

Good background information about the area to be surveyed can be obtained from knowledgeable personnel such as local government officials, extension personnel, school teachers, and other resource persons in the area. These contacts will likely allow the team to tap into a network of knowledgeable persons and materials which can provide useful information of the area. These

resource persons can also provide the team the local knowledge categories so that questions asked in the survey will be understandable and appropriate.

E. Obtain Maps and Letters of Introduction from the Appropriate Officials

Maps of the area to be surveyed can usually be obtained from geological survey offices in the capitol city. Sometimes updated maps can be obtained from projects working in the area to be studied. It may also be useful to have letters of introduction from ministry officials to facilitate collaboration with regional officials and to ensure access to the study area.

F. Interviewing Guidelines

Topical lists or minimum data sets are important for guiding interviews. These lists assist team members in addressing topics and aspects of a topic which they may otherwise omit. Important considerations for constructing such a topical outline are the following:

- i. Consult other topical guides to ensure that major topical areas are considered (see Food Security Checklist in Annex 4).
- ii. Use secondary data sources to devise the topical list. Topics may be derived from sources such as: 1) written reports; 2) interviews with resource persons; 3) information needs of implementing agencies; 4) previous knowledge of team members; and 5) prior survey experience.
- iii. Much of the information collected in surveys has a degree of accuracy that is not necessary (Eklund 1990). Chambers (1985) has described two principles that should be applied under such circumstances. The first principle is optimal ignorance. We should not try to find out more than what is needed. This is why the notion of minimal data set is important. The second principle is proportionate accuracy. We should not measure more accurately than is necessary.
- iv. Consensus should be reached among team members on every topic included in the outline.
- v. The development of a topical outline or food security checklist can be a crucial team-building exercise. This process allows each participant to contribute to the list, emphasizing topics of relevance to his/her own particular discipline. Survey priorities are established before going to the field and the team begins to function as a single unit or entity.
- vi. The topical outline should be tested prior to going to the field. This procedure allows the team to determine the appropriate manner in which to ask some questions and helps them refine their interviewing techniques. Appropriate interviewing procedures, which put the farmer at ease and which are conducive to collecting accurate information, are critical to the success of a RFSA. Among the topics which a team should discuss before going to the field are:
  - i. how to introduce oneself to the household,

2. the advantages and disadvantages of group interviews versus individual interviews,
  3. how to handle translation,
  4. how to avoid asking biased questions,
  5. how much time to spend with each interviewee, and
  6. how to handle sensitive topics.
- vii. Tables can be constructed from the topical list which allow for the transfer of data from field notes to a comparative format. These tables allow for continuous comparisons among households which help focus the discussion among team members. They also provide a means for evaluating or checking the completeness of the field notes. However, sometimes team members will not want to pursue all of the topics on the list in order to obtain more detailed information on a particular aspect. In such cases, the tables will deliberately be incomplete.
- viii. Team members may want to combine a structured format and an unstructured format in informal interviews. Topical lists could be used by some team members while others interview households without such lists. Such a combination would provide comparative information across villages as well as indepth information on some topics (see Lynham et al. 1987).

#### G. Target Area Selection

In countries where national early warning systems already exist (e.g., crop forecasting, food balance sheets, nutrition surveillance), information supplied by these systems can help develop vulnerability maps for various regions (Frankenberger 1992). These vulnerability maps should be based upon both food supply type indicators and access/entitlement indicators as much as possible to avoid designating an area as vulnerable which may not be. RFSA teams would not be necessarily responsible for creating these maps, but would use them to target future survey activities.

The vulnerability maps can then be used for designating areas where more location-specific household food security information can be gathered (Frankenberger 1992). Important points to consider when choosing a target area are:

- i. Consider what can be reasonably covered in the time allotted. Coverage will be influenced by such factors as environmental uniformity, technological development, socioeconomic conditions, infrastructural development, and  
  
access during the rainy season. The team should plan to spend more time in regions where the agricultural systems are more diverse/variable than in regions where they are more uniform.
- ii. Draw up a schedule specifying the number of days to be spent in each area as well as for travel time, review, and write-up. This schedule should be flexible.

- iii. When the team arrives in the region to be surveyed, they should first contact local officials to establish collaborative links and to elicit their help. These officials can help select potential villages to be surveyed. The information needs of regional administrators can also be elicited.

#### H. Village Selection

In terms of sampling, RFSA normally use purposive sampling techniques in the selection of villages to interview people of different classes, ethnicity, age, gender, and with different access to resources (Molnar 1989). Factors that should be taken into account when selecting villages to be surveyed might include: 1) location in relation to base of operation; 2) size; 3) access to roads; 4) institutional complexity (e.g., infrastructure development); and 5) ethnic distribution. Contacting villagers prior to the survey may or may not be necessary and advantageous. The survey team should use its best judgement on this matter.

#### I. Interviewer Procedures

Recognizing that interviewing procedures may vary depending upon the sociocultural context, a useful set of procedures to follow are outlined below:

- i. Upon arrival in the village, the team should first meet with the village leaders and explain to them and other villagers present the purpose of the study. In this meeting the team can explain who they represent, what the results will be used for, and why so many questions will be asked. General inquiries can be directed to the group about village infrastructure, land tenure arrangements, sources of credit, marketing, typical labor arrangements, and government programs in the area. These interviews allow the team to collect data on area-specific trends in resource endowments, cultivation practices and market access which raises considerably the value of information obtained from individual households (Eklund 1990). Such inquiries would focus on trends in land use, rainfall variation, yields, and grazing.
- ii. After the initial inquiries with the assembled villagers, the team should split up into groups of two to conduct interviews with individual households. In general, team members will seek to interview a range of households across the area which they are surveying. Random sampling is sometimes used (but not always) in selecting individual households (Eklund 1990). A minimum number of randomly selected observations will permit statistical inference to the households in the village, even though a sample will not be representative of the population in the area. This will allow for some exploration of relationships between variables upon which data are collected.

However, it is often more practical to use informal, random procedures such as deciding to visit the fourth farmer to the right along a selected path. The team may also want to deliberately interview some households with particular characteristics. This will ensure that the less visible food-insecure groups are interviewed such as landless, rural poor, women, and isolated ethnic groups (Molnar 1989). RFSA teams may also want to focus on degraded resource areas and smaller marginal farmers to ensure that the food-insecure households are included in the survey.

Sometimes the team may not have a choice in the selection of households because the village leaders are making the choices. In such situations the team should respect the village leaders' decisions and conduct abbreviated interviews with these households. After this, the team can conduct interviews with other households they consider more appropriate.

- iii. Team members should also conduct interviews with local key informants other than targeted households who interact frequently with them (e.g., traders, teachers, crop processors, extension agents, etc.).
- iv. Attempts should be made to interview the whole family, not just the male member of the household. It is important not to assume that one member of the household can speak for all the rest (Molnar 1989). Women have different knowledge and opinions than men, and are the most familiar with local cultural categories, time intervals, and measurements. They are likely to know more about harvest quantities, processing values, storage losses, and consumption patterns. If possible, both the husband and wife should be available for the interviewer. In addition, women-headed households should be included in the survey sample. In many countries, women are primarily responsible for the food security of the household.
- v. Interviews should be conducted with households away from the rest of the villagers. This will allow team members to obtain answers and opinions specific to the family being interviewed rather than the group consensus. Often in rural areas, these interviews can be carried out in the farm household's field away from the village.
- vi. Team members should not work with the same partner every day (Hildebrand 1981). Rotating team members daily gives each person an opportunity to work with and learn from the other team members. This facilitates the exchange of ideas and helps better communication among team members. Ideally, one social scientist and one physical/biological scientist will be matched up in each pair.
- vii. In addition to conducting group and individual interviews, other techniques can be used to gather information on food security issues. Focus group interviews can be used to gain indepth information about particular issues. Interviews are conducted with homogeneous groups of local people to obtain different perspectives from different types of villagers.

Interactive data-gathering tools can also be used to elicit people's perceptions of resources, constraints, social relations, wealth distribution, seasonal trends, and selection criteria. For example, diagrams have been used effectively to stimulate questions and responses, allowing the households' knowledge to be made more explicit (Conway 1989). Diagrams can simplify complex information, making it easier to communicate and analyze. Five different types of diagrams derived from agroecosystem analysis are often used. Transects tend to be drawn by survey teams that walk from the highest point to the lowest point in the immediate environment accompanied by the local people. Consulting people in each zone, transects can

help identify major household food security problems and opportunities in the agroecosystem and where they are located (Conway 1989). Calendars are used to indicate seasonal features and changes and are useful for allowing farmers to identify critical times in the crop production cycle with regard to changes in climate, cropping patterns, labor access, food procurement strategies, diet, and prices (Ibid. 1989). Flow diagrams are used to present events in a cycle of production, marketing, and consumption. Venn diagrams can be used to understand the institutional relationships in a village. Such information could be critical to understanding the informal social mechanisms (e.g., claims) that buffer households from periodic shocks.

Ranking and scoring exercises elicit people's own criteria and judgements (Chambers 1985). These exercises can be used in wealth ranking of households as well as for determining selection criteria for crop varieties and coping strategies.

Although these techniques are extremely valuable for eliciting more indepth information on food security issues, they are often very time consuming to carry out. Most of these techniques are more likely to be used in participatory rural appraisal (PRA) exercises which provide guidance to community-based interventions. PRAs tend to focus on one village rather than the food security situation in a region, and community participation is more active (WRI 1989). PRA is intended to help a community mobilize its human and natural resources to define problems, evaluate local capacities, prioritize opportunities, and facilitate self-help initiatives. Recognizing the value of these techniques, RFSA teams should use them if time permits.

- viii. After interviews are completed for a selected village, the team members should get together to formulate hypotheses about the food security situation that characterizes that region. It is important to remember that at least as much time is needed to review and evaluate the content of the interviews as to conduct them. This procedure helps summarize the important attributes, constraints, and opportunities characterizing the food security situation and provides a basis for comparison when the survey work is started in other villages. These reviews will help revise topical outlines for further interviews. This process can be a crucial team-building exercise.
- ix. Once the survey is completed, hypotheses should be formulated regarding the major food security constraints and vulnerable groups found in the surveyed areas. In addition, the team members should also derive a series of intervention recommendations to help alleviate the identified constraints. Interventions will be aimed at helping people sustain their livelihoods. This may be achieved through: 1) a focus on retaining productive assets at the household level; 2) expanding alternative economic activities through food-for-work or cash-for-work programs; 3) stabilizing markets during food shortages; and 4) devising appropriate interventions in conflict situations (Caldwell 1992). Team consensus should be reached on all constraints and recommendations proposed. This activity gives the team members

---

an opportunity to combine their various disciplinary expertise in formulating possible solutions. In some cases, the team may be called upon to prioritize these recommendations.

When recommendations are drawn up, the team should also take into account the institutional and staff capacity in the area to implement interventions. Such an assessment should consider the organizational priorities and existing duties, and the existing relationship of the organization with the target population (Molnar 1989).

J. Written Reports

The results of the rapid food security assessment should be written up in a time-effective manner. To facilitate this write-up, the team leaders should assign each member a portion of the report to be written. The report should identify: 1) the most food-insecure groups in the surveyed area; 2) the causes and magnitude of the food-insecure situation; 3) location-specific indicators for food security monitoring; and 4) appropriate mitigation interventions that will alleviate or lessen the food deficit problem. Upon completion, the report should be distributed to all participating organizations and institutions that will be implementing the recommendations.

K. Contingency Plans

The RFSA report will feed directly into the development of a district or sub-regional contingency plan, consisting of a decentralized household food security (HFS) monitoring system and a set of pre-determined responses that would be implemented when food security conditions change. This monitoring system would incorporate a small set of location-specific indicators that would be updated annually that detect changes in food entitlement and supply. The intervention responses that will be triggered by the monitoring system would encompass development-type interventions that enhance that long-term sustainability of HFS, mitigation-type interventions that enable households to retain their productive assets and existing entitlements, and relief-type responses if immediate food aid distribution is warranted (Hutchinson 1991; Frankenberger 1992). Responsibilities for these various actions will be negotiated and assigned, if possible, to government agencies, donors, and local NGOs prior to the onset of the food crisis to improve response timing. Whenever possible, participation of local communities in information gathering and response should be encouraged.

## Annex 4: Food Insecurity Information Checklist<sup>3</sup>

### *Introductory Note:*

The purpose of this checklist is to help you gather the information you need to write up short case studies of individuals or families thought to be food insecure. It is not a questionnaire. This means it is not necessary to present questions in the order asked, nor use the exact phrasing in the checklist. However, you should try to cover all points listed in the checklist and present your report in the order of the questions.

The questions on the checklist fall into four main sections:

- a. Information on the community
- b. Background information on the family
- c. Current sources of livelihood; and
- d. Food issues.

### A. The Community

(NB: These questions can often be answered by community leaders at the beginning of the visit)

1. History of settlement
2. Size and composition of population (ethnic, family structure, occupations)
3. Social/political leadership
4. Government and voluntary agency programs
5. Community problems and needs.

### B. Background Information

1. Location
2. Name of respondent
3. Family composition (adults, including children over fifteen; children; other dependents)
4. Length of time in present location
5. Place of origin, date of leaving, reason for leaving
6. Occupation in place of origin
7. Future plans to stay or move

### C. Current Livelihood

1. Resources available to the family (land, land improvements - including trees), labor, animals, machinery, equipment, household goods, cash, gifts/zakat
2. Security of tenure
3. Description of housing (materials, size, cooking facilities)

---

<sup>3</sup> Taken from: Maxwell, S. 1989. *Rapid Food Security Assessment: A Pilot Exercise in the Sudan RRA Notes*. International Institute for Environment and Development - Sustainable Agriculture Program.

4. Activities undertaken (amount and description, including seasonality, location and who in the family does what): agriculture, herding, employment, self-employment, trading, etc.
5. Estimate of income earned, per period, by person
6. Level of risk and coping strategies in times of hardship; illness, theft, physical security, natural disasters; changes to normal pattern of activity
7. Access to services (health, education, transport)

**D. Food Issues**

1. Level of nutrition of family members
2. Composition of diet, by family member and time of year
3. Sources of food: production, purchase, exchange, free distribution
4. Problems of availability of food in the market (especially bread, sugar, sorghum)
5. Ownership/validity of ration card
6. Prices paid for food in most recent purchase, especially sugar, bread, sorghum, beans, etc.
7. Source and price of water; quantity consumed; storage
8. Source and price of fuel for cooking
9. Views on food security issues.

Annex 5: *Potential Indicators of Household Food Security from the Broader Literature (Socio-Economic Indicators Related to Food Access)*

<u>Household</u>	<u>Indicator</u>	<u>Comments</u>
Demographic	Household size/composition	Household's size/composition is not static, but changes with household biological life cycle (Caldwell, Reddy, and Caldwell 1986). Adjustment of household size/composition to recurrent food insecurity is a common strategy (Messer 1989a; Norris 1988; Nabarro, Cassels, and Pant 1989; von Braun and Pandya-Lorch 1991). During prolonged economic crisis the trend is toward smaller consumption units (Scaman and Holt 1980; Taal 1989; Shipton 1990; Chambers 1989). Larger/extended households are more likely than smaller/nuclear households to be associated with greater diversification of assets, income sources and crop cultivation (Toulmin 1986; Taal 1989; Nabarro, Cassels, and Pant 1989), and less vulnerable to illness/death of breadwinners (Toulmin 1986; Lipton 1983a; Caldwell, Reddy, and Caldwell 1986). However, the poorest households tend to have large young families (Lipton 1983b). Households with female heads are often, but not always, disadvantaged (Peters and Herrera 1989; Kennedy and Haddad 1991; Louat, Grosh, and van der Gaag 1991).
	Migration	Distinguish between seasonal migration of able-bodied adults prior to/during peak agricultural labor periods and migration during dry season (de Waal 1988; Campbell and Trechter 1982; Autier et al. 1989). Rural Ethiopians could predict six months in advance whether household members would have to migrate in search of wage labor (de Waal 1988). Distress migration of whole families is usually the last in a sequence of household responses and a clear indication that other coping strategies failed (Corbett 1988; Watts 1983).
	Ethnicity/region	Certain ethnic or caste groups may be historically or geographically more vulnerable to seasonal or chronic food insecurity (O'Brien-Place 1988). Welfare levels often vary distinctly by region (Haddad 1991).
Factor Market	Income sources	Smallholders spread risks through diversification of income sources most notably off-farm employment (Downing 1988; Shipton 1990; Caldwell, Reddy, and Caldwell 1985; Merryman 1984; Reutlinger 1987). The riskier the environment, the more diverse the economic activities relied upon will be (Reardon, Matlon and Delgado 1988; Staatz, D'Agostino and Sundberg 1990). The distribution of income sources within a given community may be U-shaped implying that income diversification has different purposes and consequences for the most and least vulnerable households (Castro, Hakansson, and Brokensha 1981; von Braun and Pandya-Lorch 1991). The source and/or control of income may be more important than total income in influencing household-level food security (Kennedy 1989).
	Changes in income/income sources	Changes in petty marketing patterns of rural households may indicate anticipated food insecurity (McCorkle 1987; Cutler 1984). Increasing income within communities is associated with different diets but not necessarily improved nutrition (DeWalt et al. 1990; Behrman and Deolalikar 1987). The transition from subsistence to cash-cropping has been associated with increased vulnerability and increased malnutrition among children (Dewy 1981; Thomas, Paine, and Brenton 1989) and with increased household caloric intake (Kennedy 1989) or increased food expenditures (von Braun Hotchkiss and Immink 1989; von Braun de Haen and Blanken 1991). The effect of commercialization of semi-subsistence agriculture on food consumption and nutritional status of vulnerable groups has shown mixed results (von Braun and Kennedy 1986).

(Taken From: Haddad et al. 1991)

Annex 5 cont.

Potential Indicators of Household Food Security from the Broader Literature  
(Socio-Economic Indicators Related to Food Access)

<u>Household</u>	<u>Indicator</u>	<u>Comments</u>
	Income flow	Income received seasonally in large sums will more likely be spent on lump-sum expenditures or consumer goods than on improved diets and other nutrition-related investments (Alderman 1986; Guyer 1980; Dewey 1979).
	Access to loans/credit	Nearly half of rural South Indian households took loans during a recent drought, and most felt these had been a considerable factor in maintaining minimum living conditions (Caldwell, Reddy, and Caldwell 1986). Access to traditional lines of credit through merchants collapses as collateral (for example, livestock) disappears during drought (Cutler 1986).
	Land ownership/control	Number of different plots may be a more sensitive indicator than total acreage since households with fragmented landholdings can take advantage of different micro-climates more than households with larger but often less diverse landholdings (Dei 1990; Colson 1979; Paterson cited in Castro, Hakansson, and Brokensha 1981; Dewey 1981; Downs 1988, cited in Shipton 1990). Access to seasonally flooded lowlands is an important buffering mechanism in drought-prone areas (Longhurst 1986).
	Land use practices	Intensification of land-use practices is one of the earliest responses in a sequence of adjustments to stress by Indian farmers (Jodha 1975, 1978). Intercropping, multiple seed strains with different maturation periods/resistance to disease, and braced mixtures of available cultivars are important diversification strategies of African farmers to minimize the risk of crop failure and enhance food security (Shipton 1990; Taal 1989; Smith 1986). Access to good-quality land and alternative employment sources may be more important in determining nutritional status of rural populations than choice of crop (DeWalt et al. 1990).
	Sales of land	Distress sales of land is a desperate measure and tends to occur much later in the belt-tightening process (Caldwell, Ready, and Caldwell 1986; Corbett 1988). If land is a household's only asset, it will only be sold if there is no other way to survive; often the land is first mortgaged (Nabarro, Cassels, and Pant 1989). One of the more common reasons for land to come into markets in India was wedding and/or funeral expenditures (Srinivasan 1975 cited in Castro, Hakansson, and Brokensha 1981).
	Trees	Access to communal or private reserves of trees can significantly decrease the poor's vulnerability to contingencies (Chambers and Leach 1989; Chambers and Longhurst 1986). The percentage of cultivated land planted to tree crops can be used as a proxy for agro-climatic conditions, and was positively associated with child's height in Cote d'Ivoire (Strauss 1988). ✓
	Livestock	Diversified herds with different pasture needs are less vulnerable to drought and infection than more homogenous herds that may produce more meat or milk (Colson 1979; Cutler 1986). The importance is not between small versus large herds, but between owning no animals at all and having at least some (de Waal 1988). Access to milk is indicated by having a female animal (de Waal 1988). Donkeys and mules are highly valued during famine because they help travel (Shipton 1990). Lack of access to resources, primarily oxen, makes women particularly vulnerable to drought in Ethiopia (McCann 1987).

(Taken from: Haddad et al. 1991)

Annex 5 cont.

Potential Indicators of Household Food Security from the Broader Literature  
(Socio-Economic Indicators Related to Food Access)

<u>Household</u>	<u>Indicator</u>	<u>Comments</u>
	Sales of livestock	The ability to market livestock for grain commonly determines who will survive a famine and who will not (Shipton 1990). The sale of male animals before their optimum weight or of females before the end of their reproductive period is an indicator of insecurity (White 1986). Livestock sales occur normally, and do not necessarily imply a reduction of future productivity (Swinton 1988). Indicators related to livestock sales, prices or market demand/supply are difficult to interpret, and reliable data are hard to obtain in Chad and Mali (Autier et al. 1989).
	Sales of assets	Important to distinguish sales of key productive assets from sales of assets which are primarily forms of insurance/saving (Corbett 1988). Successfully surviving drought depends upon a household's ability to retain intact all its productive assets (including family labor supply) solely by cutting back on ceremonial forms of consumption and by liquidating nonproductive assets (Jodha 1978). Poor people become poorer by disposing of productive assets (Chambers 1989). The income and assets owned by the richest and poorest quintiles is one of 20 suggested indicators of human welfare (Anderson 1990).
	Sales of food	The conversion of surplus food into durable valuables which can be stored and traded for food in emergencies is an important strategy for reducing vulnerability to risk (Colson 1979). The very poor in India cannot afford to consume their own home products and must sell them to obtain cash (Bhattacharya et al. 1991).
	Capital equipment	The number or diversity of assets may be a more useful indicator than net-worth of assets; households with low number and diversity of productive assets may be more vulnerable to external shocks and contingencies (Chambers 1989; Swift 1989). But low asset status is not necessarily synonymous with greatest poverty (Swift 1989). Some landless peasants in Tanzania actually owned tractors (which they hired out) and sewing machines (Pipping 1976, cited in Castro, Hakansson, and Brokenska 1981). Wells have become crucially important assets to Malian farmers for producing a regular grain surplus (Toulmin 1986).
	Consumer durables/semi-durables	Determine whether household owns enough cooking utensils to avoid borrowing plates or pots from relatives or neighbors (Lewis 1951). Determine whether Indian women own more than one sari or blouse (Bhattacharya et al. 1991).
Proximate	Ill health	The main asset of most poor people is their bodies (Chambers 1989). All producers are vulnerable to sickness and disability (Toulmin 1986). Work-disabling accidents and/or morbidity of household's breadwinners are often the pivotal events which impoverish households, making them useful indicators (Corbett 1989; Pryer 1989).
	Education	✓ Few households with at least one educated member starve (Swift 1989). Women's schooling, even after adjusting for income, has a higher elasticity of nutrient demand than those for household size or income (Behrman and Wolfe 1984). Years of child schooling could be used as an easily-measured proxy for household's living standards (Birdsall 1982; Anderson 1990).

(Taken from: Haddad et al. 1991)

Annex 5 cont.

Potential Indicators of Household Food Security from the Broader Literature  
(Socio-Economic Indicators Related to Food Access)

<u>Household</u>	<u>Indicator</u>	<u>Comments</u>
	Food stores	Ability to store food post-harvest and availability of stored food pre-harvest are important indicators to monitor (Chambers 1989; Thomas, Paine, and Brenton 1989). Having two years household consumption requirements in store is seen as desirable in Sudan (Maxwell, Swift, and Buchanan-Smith 1990). Estimates of number of months stored grain will last are usually more accurate and culturally sensitive than asking farmers for volume estimates of stored quantity (Frankenberger 1985; O'Brien-Place 1988).
	Qualitative dietary changes	Shifts from preferred to lower status foods (starchy tubers or grain ground with stalks/husks/bran) and unconventional foods (wild foods, insects or game; poorer products, e.g., broken rice grains) are a normal occurrence in areas facing seasonal food deficits, but may also indicate anticipated stress (Ogbu 1973; Colson 1979; Cutler 1986; Caldwell, Ready, and Caldwell 1986; Corbett 1988; Shipton 1990). Local sharing between families or households often intensifies when food is scarce (Shipton 1990; Maxwell, Swift and Buchanan-Smith 1990). The importance and intensity of wild food use depends upon severity and length of food shortages, the location of households with respect to wild food areas, and available household labor to collect them (DeWalt 1983; Zinyama, Matiza, and Campbell 1990). Households producing for auto-consumption are more likely to have greater dietary diversity than households producing primarily for the market (Fleuret and Fleuret 1980; Dewey 1979; Smith 1986). The correlation between dietary diversity and socioeconomic status is positive (Bentley 1987; DeWalt 1983; Schiff and Valdes 1990 b).
	Quantitative dietary changes	Fluctuation in consumption of main staple (Bhattacharya et al. 1991) or in meal patterns are indicative of food insecurity (Beck 1989; Taal 1989; Campbell and Trechter 1982; Oshaug and Wandel 1989; Galvin 1988). Food consumption reduction is part of a deliberate and early strategic household's response (Corbett 1988; Cutler 1984; Shipton 1990). The number of meals per day was not found to be a useful indicator in Chad and Mali (Autier et al. 1989), and missed meals did not necessarily imply food unavailability in India due to frequent eating outside the home or at work (Bhattacharya et al. 1991). Most agrarians derive the bulk of calories from one to three grain staples which could easily be monitored (de Garine 1988, cited in Shipton 1990). There was a drastic reduction in consumption of pulses in India during the 1967 drought (Rao 1989). Determine if household has recently participated in food aid programs (Cutler 1986; Beck 1989; O'Brien-Place and Frankenberger 1988).

(Taken from: Haddad et al. 1991)