# Part IV

# A Selected Annotated Bibliography on Indicators with Application to Household Food Security

compiled by
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## Introduction

This annotated bibliography contains a selection of works dealing with indicators for assessing food security. While it contains some references on indicators used at the national or regional level, the major focus is oriented towards those that can help identify villages or households with food insecure situations. It was compiled as a background document and as supplement to a report on *Indicators Used for Assessing Household Food Security* prepared for the International Fund for Agricultural Development and UNICEF.

The scope is necessarily broad so that it covers topics of related interest including: rapid appraisals; coping strategies, remote sensing applications, indigenous solutions to food stress, nutritional surveys, and Early Warning Systems. However, it does not attempt to include everything on all of these subjects, but cites only those with some applicability to food security assessments.

In addition, the bibliography draws upon a number of other bibliographic works for many of the references and annotations included. These are referenced here in full and, in the bibliography, in a parenthetical statement at the end of an annotation. They are:

Hassin-Brack, Jeanette. 1988. *Rapid Rural Appraisal Annotated Bibliography*, Vol. 2. Areport prepared for the Nutrition in Agriculture Cooperative Agreement. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

Lambert, R., M. Gershon, M. Buchanan-Smith, and S. Davies. 1991. *Famine Early Warning and Food Information Systems in the Sahel and Horn of Africa: An Annotated Bibliography*. Development Bibliography Series, 6. Brighton, U.K.: University of Sussex, Institute of Development Studies.

Mack, Maura D., Sandra Saenz de Tejada. 1988. *Nutrition in Agriculture Annotated Bibliography*, Vol. 1. A report prepared for the Nutrition in Agriculture Cooperative Agreement. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

Wood, Anita and Jennifer Shumaker. 1990. *Household Food Security Annotated Bibliography*, Vol. 3. A report prepared for the Nutrition in Agriculture Cooperative Agreement. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

Finally, while most acronyms are spelled out in full within the bibliographic text, a few of the most common ones are not. They are:

**FAO** — Food and Agricultural Organization of the United Nations
**FEWS** — Famine Early Warning System (USAID Project)
**UNDP** — United Nations Development Programme
**USAID** — United States Agency for International Development

1. ACC/SCN
   1991 *Some Options for Improving Nutrition in the 1990s [Draft Brief].* Report of the ACC/SCN's Ad Hoc Group on Policies to Alleviate Underconsumption and Malnutrition in Deprived Areas, 12-14 November, 1990. Geneva: United Nations Administrative Committee for Coordination, Subcommittee on Nutrition (ACC/SCN).

   The first section of this paper provides a short history of global interests in nutrition and current development policies related to nutrition. The second defines household food security and describes possible assessment strategies. Policy options for household food security include promotion of small-scale agricultural production, development of income generating projects, initiation of credit programs, investment in infrastructure, public stockpiling of food, food price stabilization, food price subsidy and rationing policies, food- and cash-for-work programs, free distribution of food to selected groups, food quality and safety control, timely warning and intervention systems, and specific micronutrient programs. The third section discusses concerns impacting nutrition and infectious disease control such as dietary management and prevention of infection and measurement issues. The caring capacity of a household is illustrated in section four. General constraints to adequate care are viewed as lack of knowledge, lack of time, and lack of control over resources. Possible interventions include education and literacy, access to health and related services, improved infrastructure and technology, women's property and income rights, access to credit, employment, home productivity and control of resources, and social security for women. The final section looks at specific programs to control micronutrient deficiencies, specifically, iodine, iron, and vitamin A.

2. ACC/SCN
   1988 *Nutrition in Times of Disaster.* Report of an International Conference Held at the World Health Organization Headquarters, Geneva, 27-30 September, 1988. Geneva: United Nations Administrative Committee for Coordination, Subcommittee on Nutrition (ACC/SCN).

   This report contains summaries of discussion papers presented on the topics of preparedness and early warning, assessment and monitoring, food rations, logistics and distribution, and the transition from emergency to development. Each paper is followed by review comments and recommendations of working groups. Issues which achieved consensus among the participants included: 1) response is the key for gathering preparedness and assessment information; 2) information systems need to be reviewed periodically; 3) affected communities should participate in all relief activities; 4) socioeconomic, health, and nutrition information should be used for

assessment and monitoring; 5) food security should be constantly monitored in famine-prone areas; 6) international standards should be used as a guide for setting ration levels; 7) food aid needs to be distributed equitably, quickly, and with consideration to local food habits; and, 8) strategies for making the transition from relief to development should be formulated at the beginning of the response. Issues for further research also are listed.

3. Agricultural Planning Unit (Darfur, Sudan)
   1990 *Results of North Darfur Pre-Harvest Survey*, October 1989, mimeo. Darfur Regional Government.

   A similar methodology to the 1988 harvest survey is described. An overview of the food and agricultural situation in North Darfur is presented, as well as a more detailed commentary for each Area Council. The prospective grain harvest is estimated, and food security conditions are assessed also taking into account on-farm grain storage, market, livestock and production indicators. The results show a very poor grain harvest, and it is expected that some areas will face acute food insecurity during the coming year. Recommendations are made for targeted relief assistance, within the context of long-term food security planning. (Famine Early Warning Bibliography)

4. Agricultural Planning Unit (Darfur, Sudan)
   1988 *Results of North Darfur Pre-Harvest Survey*, October 1988, mimeo. Darfur Regional Government.

   The survey methodology is described, based on rapid rural appraisal and key informant survey techniques. The crop production prospects for each Area Council are presented and compared with estimated consumption requirements. Pasture conditions, the agricultural labour market, and pest damage, primarily locusts and millet headworm, are reported upon. Food security status for the province is assessed, taking into account other factors than simply food production. The best harvest for a number of years is forecast. A relief programme is not required, but recommendations are made to build up a regional strategic grain reserve, to strengthen the food security of the region in the long-term. (Famine Early Warning Bibliography)

5. Arnould, E.J. and T.R. Frankenberger
   1990 *Guidelines for Including Nutrition and Food Security in Agricultural Projects [Draft]*. A Report Prepared under the Nutrition in Agricultural Cooperative Agreement. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

This document provides technical guidelines for incorporating food consumption and nutritional concerns in USAID-funded projects. It first looks at the linkages between agricultural production and food consumption which include: governmental policies; household resource endowments; crop diversity; seasonality of production; distribution of production/consumption tasks by gender; market prices; structure and organization; the time value of household labor; and, form and functions of the productive unit. It is demonstrated that linkages between agricultural policy and development, consumption, and nutrition are complex and indirect making broad generalizations for setting policy inappropriate. In addition, it is suggested a critical step to improving food security at the household level is to support indigenous coping strategies. The second section of the document walks through the planning process for incorporating food consumption/food security issues into Mission portfolios including planning stages and information needs, sources of information, data collection methods, key questions for planners and evaluators, nutritional indicators, and guidelines for providing strategic support to coping mechanisms.

6. Attwood, D.A.

"Why aggregate food supply information remains an important early warning indicator of famine." *Food Policy* 16(3): (forthcoming).

While the shift away from traditional supply-side theories of famine is appropriate, this article comments that aggregate food availability data are a critical, if not sufficient component of an Early Warning System. The food balance sheet is the most common way of assessing food supply, although it has received criticism for being too general to highlight specific areas or groups at risk. While accepting its serious limitations, it is important to see that it may offer one of the earliest signs of impending crisis, and is often the principal tool used by host governments and international donor agencies. Use of case studies from Botswana, Kenya, Ethiopia and Mali show how an accurate estimate of food supply can serve as an important complement to entitlement information in anticipating and responding to food crises in a timely way. (Famine Early Warning Bibliography)

7. Autier, P.

1988 "Nutrition assessment through the use of a nutritional scoring system." *Disasters* 12(1): 70-80.

In 1984 and 1985, Chad was affected by a large scale drought. In order to ensure rapid decision making for the allocation of food and because of the practical problems encountered when using the

classical nutritional survey methods, a Nutritional Score System (N.S.S.) was developed. This method was based on the use of social, economic, and nutritional indicators and allowed comparison of nutritional status between communities. The nine indicators used were: cause of displacement; number of displaced people; type of displaced or threatened people; mortality; nutritional status of the population; homogeneity of the families; type of food consumed; food reserves of the families; and, existence of avitaminosis A. This paper discusses how the N.S.S. was developed and applied, and how it compared with the classical survey methods. A conclusion drawn was that although the N.S.S. represented a reliable nutritional evaluation method, it should substitute for the classical methods only if certain rules regarding their development are respected and if one validates them by comparison with the classical methods. (Adapted from author's abstract)

8. Autier, P., J. D'Altilia, J. Delmalle and V. Vercruysse.
1989 "The food and nutrition surveillance systems of Chad and Mali: the "SAP" after two years." *Disasters* 13(1): 9-32.

Summarises the operational and methodological lessons learned after two and a half years of experience of the Systemes d'Alerte Precoce (SAPs) in Chad and Mali. Their aim is to detect food shortages as early as possible in drought-prone areas of each country. They are based on the concept of "rising-risk monitoring," which involves the assessment and follow up of the level of risk to which any one group is exposed. This requires a multi-disciplinary strategy, taking into account indicators from all important domains associated with food and nutritional conditions. The validity of indicators is based upon the criteria of relevance, usability and reliability. SAPs are integrated within governmental structures yet they include some innovative concepts, like the "participative information network." SAP's procedures should permit progressive improvement in the ability of the system to analyse and interpret the food security situation. (Famine Early Warning Bibliography)

9. Autier, P., J. D'Altilia, B. Callewaert, B. Tamboura, J. Delamalle and V. Vercruysse.
1989 "Migrations and nutritional status in the Sahel." *Disasters* 13(3): 247-254.

Aims to assess whether the departure of peasant households from their native villages is associated with higher levels of malnutrition among the migrating families, based upon the routinely performed socioeconomic/nutritional surveys carried out by the SAP in Mali. In areas affected by food shortages, it was found that as the number

of recently abandoned houses in a cluster increased, the prevalence of malnutrition decreased. Malnutrition is already known as a late indicator for early warning purposes; the migration of those most "at risk" tends to exacerbate this late characteristic. However, it is noted that the data were collected in the dry season; that exceptions to the phenomenon can occur; and that other forms of nutritional surveys may pick up a deterioration in nutritional status. Also gives a brief description of current migration patterns in the Sahel, and the effects of drought on them. (Famine Early Warning Bibliography)

10. Bashir, L.O.
    1991 *Famine Codes in Sudan.* Paper presented at the Conference on The Future of Food Security, 25-27 July, 1991, Institute of Development Studies. Brighton, U.K.: University of Sussex, Institute of Development Studies.

    Why famine codes in Sudan? India might have experienced the same drought problems as Africa had it not achieved success in famine prevention through the application of famine codes. The main factors that led to India's success story were its strong administration, its well developed infrastructure, its agricultural production policy, and a carefully planned public works programme. On the other hand, the adoption of famine codes in Sudan in the 1920s had limited results because the British government depended on non-professional native administration whose legitimacy was questioned, and the infrastructure and information system were both weak and inappropriate. The project failed because these differentials were not taken into account. Recent attempts at famine prevention in Sudan are ad hoc with the government seemingly caught by surprise at each crisis even though the process is usually long, slow, and predictable. Recent experience shows that response is often *too little and too late.* Thus, a contingency plan to create a situation of preparedness and automatic response is essential, if not to prevent famines, then to reduce the severity. (Adapted from author's abstract)

11. Bernard, H. Russell
    1988 *Research Methods in Cultural Anthropology.* Newbury Park, California, USA: Sage Publications, Inc.

    This step-by-step guide lays out the major methods for designing research and collecting and analyzing data in a systematic, scientific fashion. Part I provides a basic foundation for field research preparation including a discussion of the experimental method, sampling, site selection and conducting a preliminary literature search. Part II focuses on collecting data through participant observation, various interview techniques, questionnaires, and by

direct and unobtrusive observation. The various methods for analyzing data are covered in Part III including qualitative, quantitative, bivariate and multivariate analysis.

12. 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.

This report, prepared for World Food Programme (WFP), seeks to identify ways in which WFP can build on its experience in mapping vulnerability to food insecurity and famine, taking account of developments in food security and the way in which famines are now conceptualised. The intention is to explore ways in which WFP Country Offices might incorporate notions of food-related vulnerability into their programming and monitoring exercises. Sudan is used as a case study. The report examines the concept of vulnerability and reviews WFP's experience in vulnerability mapping in Bangladesh and Sudan and that of USAID's Famine Early Warning System (FEWS). It also offers a methodology for preparing vulnerability maps tested in Sudan. (Famine Early Warning Bibliography)

13. Borton, J. and J. Shoham
1989 *A Review of the Sudanese Red Crescent Society's Drought Monitoring Programme*, mimeo. London: Relief and Development Institute.

A review was carried out during October-November 1988, of the Drought Monitoring Programme (DMP) implemented by the Sudanese Red Crescent Society (SRC), primarily in North Darfur Province. The DMP began as a pilot project in 1985, and was designed to test the feasibility of establishing a sustainable, low-cost information network, using local SRC branches to report on local conditions, according to selected socioeconomic indicators. The DMP has suffered from its inception from lack of technical and financial support. Although necessary modifications are identified in the review, it is recognised that this is one of the few projects in Africa using local communities to monitor for signs of food-related stress. Its main strengths are its excellent outreach, its sustainability as a result of its low operating costs, and its location within an indigenous Non-Governmental Organization (NGO). The SRC is able to provide far greater continuity than any of the international Non-Governmental Organizations. However, the DMP is not a stand-alone Early Warning System capable of triggering large scale response,

and needs to be linked closely to response capacities of the SRC and other institutions. (Famine Early Warning Bibliography)

14. Borton, J. and J. Shoham
    1985 *Risk Mapping and Early Warning Indicators: The Zambia Case Study*, mimeo. Report for the Food and Agricultural Organization of the United Nations. London: International Disaster Institute and London School of Hygiene and Tropical Medicine.

    Stresses the need for an Early Warning System to supply decision makers with clear and credible warnings when necessary. Early warning indicators are needed which can feed into the local administrative structures as far as is possible, in order to avoid creating a by-pass structure. With reference to Zambia, the report differentiates between: status indicators, which can be analysed in advance of a food emergency, and can give information on who and where the at-risk groups are; and dynamic indicators which give more detailed ongoing data about the at-risk groups. Crop forecasting is an early indicator, but focuses too much on aggregate production, whilst nutritional data are seen to be too late as an indicator. Examines the potential of "intermediate" indicators, and shows that price data might be the earliest of these. The final section examines the need to link early warning to response, and stresses the need for an Early Warning System to feed into a structure which is both willing and capable of responding. (Famine Early Warning Bibliography)

15. 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.

    The workshop was based on the premise that micro-indicators have a role to play in early warning and disaster preparedness. The role of "models" of the processes leading up to famine is discussed, and they are seen as abstractions of the process, rather than as predictive tools. They indicate the sequential nature of events, but fail to indicate their timing. More stress should be placed on "insider" models: the set of ideas, knowledge and perceptions held by those affected. The relative merits and problems of three types of indicators — meteorological/agricultural, socio-economic, and nutritional/health are briefly discussed. The proliferation of Early Warning Systems is indicated, and their variety illustrated by discussion of the four Early Warning Systems in Mali, the Sudanese

UNDP-United Nations Emergency Office of Sudan Early Warning System and by the two "social security systems" in place in Botswana and Turkana, North Kenya. Four areas of further investigation are raised: coordination and overlapping of systems; costs of monitoring systems; institution building; and donor response and decision making. (Famine Early Warning Bibliography)

16. Brooks, R.M., D. Abunain, D. Karyadi, I. Sumarno, D. Williamson, M.C. Latham, and J.P. Habicht
    1985 "A timely warning and intervention system for preventing food crises in Indonesia: applying guidelines for nutrition surveillance." *Food and Nutrition* 11(2): 37-43.

    The paper is concerned with an integrated nutritional surveillance programme in Indonesia, known as the "timely warning and intervention information system" (TWIIS). It was decided that the nutritional surveillance system should be established and used at the local level, because: it could be created at low cost by local officials; it could provide useful information for local level decision making; and, it could lead to the implementation of appropriate interventions which would alleviate food crises. Insufficient purchasing power was identified as the main problem, and the use of indicators adjusted accordingly. Lessons are drawn from the Indonesian experience. It concludes that the operational goal of coupling information to intervention decisions should be seen as the cornerstone of effective Early Warning Systems. (Famine Early Warning Bibliography)

17. Buchanan-Smith, M.
    1990 *Food Security Planning in the Wake of an Emergency Relief Operation: The Case of Darfur, Western Sudan.* IDS Discussion Paper No 278. Brighton, U.K.: University of Sussex, Institute of Development Studies.

    The differences are examined between an emergency relief operation and food security planning with a long-term perspective, which typically follows. The approach usually aimed for in the latter is almost the exact opposite to the approach adopted in emergency relief planning and therefore the transition between the two can be uneasy. A model is developed to show this and is applied to Darfur, Western Sudan, where a period of long-term food security planning followed the emergency relief operation launched in response to famine in the mid-1980s. Two years after the emergency, a smaller scale Western Relief Operation was launched. An attempt was made to shift away from the emergency style, but serious problems were encountered. These are analysed in the light of the model showing the different characteristics of emergency relief and long-term food

security planning. Recommendations are made on how to ease the transition in practice. (Based on the author's abstract.)

18. Buchanan-Smith, M. and H. Young
1991 *Recent Developments in Gathering and Using Early Warning Information in Darfur, Sudan*, mimeo. Brighton, U.K.: Institute of Development Studies.

The authors first suggest that socio-economic indicators cannot distinguish between different kinds of famine, secondly that they are complex to use and not early or accurate enough as indicators, and thirdly that they cannot predict excess mortality. These issues are considered in the light of the experience of Darfur's Early Warning System between 1987 and 1989. Socio-economic indicators are just one part of the jigsaw of the information system, in which agricultural and health data form the backbone. Grain market data have been particularly important to the Darfur Early Warning System, and simple and low cost methodologies have been developed for early warning. The case is made for strengthening local decentralised Early Warning Systems, although problems of the information response link are raised. (Adapted from Famine Early Warning Bibliography)

19. 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.

This guide provides information on all the major Early Warning Systems in the Sahel and Horn of Africa. Descriptions cover four different levels of Early Warning Systems: global, regional, national, and sub-national. Major characteristics of each Early Warning System are given followed by a factual description, including its history, objectives, institutional set up, methods and types of data collection, and any links with response mechanisms. A discussion of the relative merits, problems, successes, and failures of the Early Warning Eystem follows. The authors conclude that global, regional, and even national Early Warning Systems rely most heavily on food production/food supply data. Socio-economic indicators are often only incorporated at the local level. It is suggested that more decentralized monitoring units serving a central Early Warning System might provide the mechanism for coordinating both micro-level and macro-level data. Questions are raised about the increasing reliance on "high-tech" approaches to data collection and the dependence of EWS on donor funding. The importance of linking

Early Warning Systems to other uses such as development and planning needs and using indigenous organizations for providing information is indicated.

20. Burki, S.J.
1986 "The African food crisis: looking beyond the emergency." *Journal of Social Development in Africa* 1: 5-22.

This paper on the African food crisis is presented in four parts. The first section focuses on the current nexus of problems that has created an endemic economic crisis in many African countries, the background against which both the drought and certain domestic policies have operated. The second part introduces the concept of entitlement, a concept that is used to understand better the human response to a diminished ability to produce or purchase food. This section looks at the food crisis as an income and productivity crisis, rather than food shortages per se. In the third section, a formulation is introduced that describes three stages of disinvestment among affected people, stages that have been observed historically as a result of drought and famine. The last section examines possible solutions and the most appropriate national and international response to the various stages described. (Author's abstract)

21. Campbell, D.J.
1990 "Community-based strategies for coping with food scarcity: a role in African famine Early-Warning Systems." *GeoJournal* 20(3): 231-241.

The effectiveness of Famine Early Warning Systems being used in Africa is being questioned because they are unable to provide sufficiently accurate information on the specific locations vulnerable to food scarcity. The data currently used to assess the emergence of local deficits are criticized as being inaccurate or belated. This paper proposes the use of indicators, based on the observed responses of people vulnerable to food shortage, to improve the quality of Early Warning Systems. It argues that monitoring of peoples' coping behavior provides accurate and timely information at a spatial scale, the village level, which allows more effective interventions by relief agencies. Rural African societies employ a variety of strategies to reduce the impact of recurrent food deficits. These strategies differ from one society to another and, within societies their use can be differentiated by the gender, age, and economic status of individuals. Further, adoption of coping strategies follows a sequence from more to less palatable alternatives as a shortage intensifies, ultimately resulting in the liquidation of productive assets, abandonment of the rural economy and, if access to food becomes so difficult, death.

The paper concludes that the variety of coping strategies, and the complexity of the structure and sequence of their adoption, provides a basis for consideration of monitoring coping behavior as a component of Early Warning Systems. Such behavior reflects the actual status of food supply among specific groups of people. It is a sensitive indicator of food availability which could complement those used by existing Early Warning Systems and permit relief efforts to be focussed in a more spatially discrete and timely fashion than is currently possible. (Adapted from author's introduction)

22. Campbell, D.J.
1990 "Strategies for coping with severe food deficits in rural Africa: a review of the literature." *Food and Foodways* 4(2): 143-162.

Coping strategies have developed at the community level through interactions over time between social, political, and economic institutions and the physical environment. Prior to the colonial period, Africa's rural societies were relatively closed systems, and the pattern of life was largely determined by processes acting at the level of the village. Not all members of society had access to resources, but in many situations the wealthy had obligations to support the poor in times of difficulty. The structure of support was able to cope with most difficult circumstances, but in some cases where particularly severe conditions arose, breakdown of supportive structures occurred and hardship and death ensued.

Integration into the world market economy during the present century has made these systems more open and has increasingly distanced from the village the determinants of the systems' configuration. In both market and socialist economies centralized decision-making with a sectoral focus and a much more restricted planning horizon has replaced local decision-making, which incorporated a long-term perspective on the total people-environment system. As local structures have been forced to respond to sectoral institutions, so their ability to manage the interactive people-environment has weakened.

Among the strategies used by very different societies a number of common points exist. Firstly, such strategies are an integral part of the rural livelihood system. They are not unique measures resorted to only in times of stress but are elements that exist at all times and assume greater importance under difficult conditions. Being part of the system they undergo change as the society changes. Secondly, the strategies are adopted in sequence beginning with those that involve relatively little discomfort. The details of the strategies and their order differ from society to society, but the notion of a

sequence is common. Thirdly, a small number of studies indicate that resorting to coping strategies varies among individuals and households within a society, according to factors such as economic status, gender, and age. (Author's summary)

23. Campbell, D.J. and D.D. Trechter
1982 "Strategies for coping with food consumption shortage in the Mandara Mountains region of North Cameroon." *Social Science and Medicine* 16: 2117-2127.

Two major approaches to the question of food shortages in Africa have emerged. One discusses the food deficits of different communities and the other has focused on the provision of food relief from external sources. The success of those concerned with external relief has been constrained by the relative insensitivity of their warning systems to local food supply conditions. This paper draws on research in the Mandara Mountains region of Cameroon to argue that the monitoring of community-level responses to food shortage can provide an early warning of impending severe food deficits which may enable more rapid provision of external assistance. (Author's abstract)

The results of this survey show that men and women respond somewhat differently to food shortage. Women appear to be responsible for the seasonal shortages, while both men and women are active in overcoming the more severe problems. Seasonal shortage is managed mainly by selling/slaughtering livestock, borrowing food or money, and family assistance. But coping during unusually severe food deficit years is through family assistance, wild foods, food purchases, migration, selling stock, special plantings, and selling food. More women report planting special foods, while migration is more common among men. The timing of migration is an important indicator of impending food shortages, as is reduction in food consumption by missing meals or not eating for an entire day. (Household Food Security Bibliography)

24. 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).

A companion to the 1987 volume, *Project Monitoring and Evaluation in Agriculture* and successor to *Monitoring and Evaluation of Agriculture and Rural Development Projects* (1982), this volume outlines simple and inexpensive methods of collecting and analyzing data for monitoring and evaluating agricultural

projects. Chapters cover qualitative and quantitative methods of data collection, conducting group interviews, participant observation, structured surveys, sampling, crop measurement, exploratory analysis, statistical analysis, and data presentation. Examples of interview techniques and types of questions are given.

25. Casley, D.J. and K. Kumar
1987 *Project Monitoring and Evaluation in Agriculture.* Baltimore, Maryland, USA: The Johns Hopkins University Press (for The World Bank).

Project appraisal routinely includes monitoring the implementation of projects and evaluating their achievements. This book uses over thirty examples to illustrate the concepts of monitoring and evaluation as applied to agricultural and rural development projects. Chapters cover setting up management information systems, monitoring physical and financial progress, follow-up diagnostic studies, communication techniques, production measurement and types of evaluation.

26. Casley, D.J. and D.A. Lury
1987 *Data Collection in Developing Countries*, 2nd. ed. Oxford: Clarendon Press.

Although the authors consider a range of inquiry techniques, the major emphasis of the book is on data collection by sample survey. The special difficulties of conducting surveys in developing countries are outlined and techniques for dealing with them are discussed. Emphasis is placed on simplicity both in survey design and content. Chapters cover the case study; the questionnaire; data collection, processing and interpretation; household surveys; agricultural surveys; and monitoring and evaluation.

27. Casley, D.J. and D.A. Lury
1982 *Monitoring and Evaluation of Agriculture and Rural Development Projects.* Baltimore, Maryland, USA: The Johns Hopkins University Press.

Rural development projects are complex, seek to benefit large numbers of people in usually remote rural areas, and involve a variety of investments. The need for monitoring and evaluating them during implementation has been accepted in principle, but effective systems have been slow to be developed. This book provides a how-to tool for the design and implementation of monitoring and evaluation systems. It differentiates the concepts of monitoring and evaluation and sets out the issues that need to be considered in

designing systems to monitor and evaluate specific projects, emphasizing the timeliness of the monitoring functions for effective management. Also discussed are selection of indicators, selection of sample methodology, data analysis, and presentation.

28. Centre for Food Security
    1991 *Background Paper on Food Security: Draft Final.* Guelph, Ontario, Canada: University of Guelph, Centre for Food Security.

    This background paper attempts to synthesize current thinking on food security. Section 1 outlines the evolution of food security definitions and concepts over five decades. During the last decade the view of food security was to ensure both physical and economic access to food supplies. Section 2 examines the data and techniques currently being used to assess and measure evidence of food insecurity. Six levels of aggregated measures were considered. It was found that although the global level of world food stocks seem relatively secure, regional level trends in per capita food production for some regions, particularly Africa, are disheartening. At the national level new indicators of food insecurity, which capture both static and dynamic elements, suggested that the general trend in many developing countries is worsening national level food insecurity. Sub-national analyses also provided a bleak picture of some population groups facing extremely high food insecurity risk. Evidence of food insecurity at the household level provides a new means of mapping food insecurity trends. At the individual level nutritional deficiencies were found to be a major problem for many people, worldwide.

    Section 3 examines the relative merits and demerits of various food security strategies and associated instruments used to achieve food security objectives. It was discovered that alternate viewpoints and evidence exist regarding the impact of these instruments on food security. Furthermore, it was found that generalizable conclusions could not be reached from country specific evidence. Section 4 examines food security projects of six institutions. Projects funded in 1989-90 preferred strategies that increased the supply of food, increased access to food, and increased food security planning and coordination. Predominate investment sectors were agriculture and food aid. Thirty-eight percent of total budgetary allocations were applied to increasing access through food aid. (Adapted from Authors' Background Summary)

29. Chambers, R.
    1989 "Editorial introduction: vulnerability, coping and policy." *IDS Bulletin* 2(2): 1-7.

Considers the concept of vulnerability, which refers to exposure to contingencies and to stress. This is often neglected in analysis, or treated as being the same as poverty, when it is more appropriate to see it as another dimension of deprivation. Vulnerability is linked with net assets and it raises a number of neglected issues, such as poor people's own priorities and strategies in this respect. These have policy and research implications, drawing attention to the need to ensure that anti-poverty programmes do not increase vulnerability. Concludes that much remains to be known and understood about vulnerability and coping, and the approach must be humble. (Famine Early Warning Bibliography)

30. Chambers, R.
    1985 Shortcut methods of gathering social information for rural development projects. In *Putting People First: Sociology and Development Projects*, M. Cernea, ed., 399-415. Washington, D.C.: World Bank.

    The author presents a method of data collection that is more cost-effective than traditional methods. Inaccuracies in data can be avoided if researchers use collection methods which are sensitive to each situation and population. While there is neither a correct nor incorrect way of conducting rapid rural appraisal, it incorporates some of the following: a) using existing information; b) learning indigenous technologies; c) using key agricultural and economic indicators; d) using teams of social and agricultural scientists to conduct reconnaissance of rural areas; e) employing local researchers; f) using direct observation; g) conducting both formal and informal interviews with key persons and groups; and, h) conducting aerial inspection and surveys. (Nutrition in Agriculture Bibliography.)

31. Clay, E.J. and S. York, eds.
    1987 *Information and Emergencies: A Report on the 5th IDS Food Aid Seminar*, 21-24th April 1987. IDS Discussion Paper, No 236. Brighton, U.K.: University of Sussex, Institute of Development Studies.

    "What lessons have been learned during and since the 'African Emergency'?" was the question asked at the Seminar. The discussions were overshadowed by the massive relief operation just beginning in Mozambique, where there was minimal information to guide donor responses and the movement and targeting of assistance. Food aid donors and Non-Governmental Organizations (NGOs) rely on international information systems, supplemented by agency and in-country assessments. The growing influence of the media, and the

implications of the related information technology revolution are recognised, but imperfectly understood. The success of international information sharing during 1985-86 justifies further efforts at continued information pooling and preparedness for cooperative emergency action. It is crucial that national and NGO-based information systems are strengthened. (Based on author's abstract)

32. Cohen, J.M. and D.B. Lewis
1987 Role of Government in Combating Food Shortages: Lessons from Kenya 1984-85. In *Drought and Hunger in Africa: Denying Famine a Future*, M.H. Glantz, ed., 269-296. Cambridge, U.K.: Cambridge University Press.

Little specific literature exists on steps to anticipate and respond to food shortages. What does exist is fragmented, and commonly eschews consideration of the administrative and financial capabilities of governments to respond. However, four major categories of recommendations are drawn from existing publications of international agencies: 1) to establish permanent structures responsible for food security; 2) to carry out hunger-prevention activities during non-crisis periods; 3) to ensure rapid and effective response during crisis periods; and 4) to ensure rapid and effective post-crisis rehabilitation. The experience of Kenya in 1984-5 is analysed showing how the government drew upon the management and operational resources of existing systems. The authors differentiate this approach — the "functional standby strategy" — from the "permanent structure strategy" typically recommended by international agencies. The former is more likely to keep costs down, and to promote a flexible adaptive problem-solving capacity. (Famine Early Warning Bibliography)

33. Conelly, W.T. and M.S. Chaiken
1987 *Land, Labor, and Livestock: The Impact of Intense Population Pressure on Food Security in Western Kenya.* Paper presented at the 1987 Meeting of the American Anthropological Association, November 18-22, Chicago, Illinois, USA.

The results of a study of food consumption patterns in two areas of Western Kenya is the focus of this paper. While cash cropping and off-farm labor are determining factors in obtaining an adequate diet, population pressure is an important third variable in analyzing food security. Even in farming systems which exhibit a good balance of cash and food crop production, very high population densities will result in a decline in adequacy of diet and a decrease in food security. This data from Kenya showed that in the community of Masumbi, which experienced less reliable rainfall and lower

participation in the cash economy, consumption levels of both starch and protein foods was greater than in Hamisi, a village which has more favorable environmental conditions and a balanced economy. Intense population pressure in Hamisi has: 1) limited the availability of land for food crop production; 2) pressured farmers to seek off-farm employment and re-allocate labor to cash crops; and, 3) placed restrictions on the ability of farmers to maintain livestock. All of these factors have led to observed lower level of food consumption in the community. With rapid population growth in Kenya, attention needs to be paid to the relationship between population density and food security. (Household Food Security Bibliography)

34. Corbett, J.
1988 "Famine and household coping strategies." *World Development* 16:1099-1112.

Households faced with risks to their entitlement to food will plan strategically to minimize their impact. The task of doing this will be particularly demanding during famines. This paper reviews the evidence on household strategies for coping with famine in Africa and identifies some distinctive patterns in these strategies which can be used to examine household objectives at times of crisis, the management of resources to meet these objectives, and limits to the effectiveness of coping strategies. In particular, it examines the role of asset management and trade-offs between maintaining current food consumption levels and protecting the future income generating capacity of the household. (Author's abstract)

35. Cutler, P.
1987 "Early warning of famine: a red herring?" *Proceedings of the Nutrition Society* 46: 263-266.

Improving famine early warning systems poses several administrative and conceptual problems. Although data-collection systems are in place at the international level and to some extent at the national level, donor response was slow to respond to an identified potential crisis situation in 1983-84. In the case of the Ethiopian disaster, this is blamed partly on the disproportional weight given to faulty United Nations' assessments instead of the more accurate information supplied by the Ethiopian Relief and Rehabilitation Commission. To improve information gathering systems, the author suggests a need to identify both what indicators will prompt action and what response should be made at the initial stage of a crisis. In addition, donor agencies should give their representatives leeway to respond quickly to calls for assistance and they should provide a long-term funding commitment for providing relief and for building improved

Early Warning Systems. The importance of integrating information and response systems is stressed.

36. Cutler, P.
1987 *Micro-Agro-Economic Indicators of Food Crisis: Famine Early Warning and Response in Ethiopia and Bangladesh*, mimeo. London: London School of Hygeine and Tropical Medicine.

Investigates the famine early warning and response in Ethiopia and Bangladesh, during the 1983-85 period. Widely used methods of famine assessment, such as crop forecasting, food balance sheets, and nutritional surveillance are seen as unsatisfactory, having serious conceptual, methodological, and practical shortcomings. Data for early warning need to be either readily available, or able to be simply and cheaply collected. The information should be easy to use as distress indicators, amenable to quick analysis and presentation, and accessible to decision makers. The use of

socio-economic data is investigated in the Ethiopian and Bangladeshi contexts. However, even with good early information about famine, a response from government or aid agencies is not guaranteed. Political will is required to shift from reactive responses to terminal famine migration, to more timely initiatives to strengthen food entitlement. (Famine Early Warning Bibliography)

37. Cutler, P.
1985 "Detecting food emergencies: lessons from the 1979 Bangladesh crisis." *Food Policy* 10(3): 207-224.

Examines the experience of Bangladesh in 1979, when outright famine was narrowly averted, although there were excess deaths from starvation in some localities. The paper outlines the main features of the crisis and considers the use of available macro-economic indicators of stress, which could be a basis for future government action. Food availability at the national level cannot be taken as a reliable indicator, although a decline in food availability is important in its impact on market prices. Wage-price indices are not useful predictors, since the lead time is short, but may help identify distressed areas. Concludes with an outline of appropriate responses to food crisis in Bangladesh. (Famine Early Warning Bibliography)

38. Cutler, P.
1985 *Review of Progress Made Towards Instituting Technical and Institutional Improvements in the Early Warning System*, mimeo. Ethiopia/Sudan: Relief and Rehabilitation Commission and UNICEF.

Reviews problems and progress made with the Ethiopian Early Warning Ssystem since a workshop held in 1984. Focuses on improvements in report presentation, questionnaire design, and background information requirements. More collaboration is needed between relevant institutions, but better institutional links are compromised by lack of clear directives from senior personnel. Critical shortages of staff and resources exist, but can be met to some extent by reorganisation. Recent progress has included establishment of a pastoral area assessment programmes for lowland Ethiopia, not previously covered by the Early Warning System. (Famine Early Warning Bibliography)

39. Cutler, P.
1985 *The Use of Economic and Social Information in Famine Prediction and Response*, mimeo. Report for the Overseas Development Administration. London: Food Emergencies Research Unit and London School of Hygiene and Tropical Medicine.

This report aims to identify data sets available to food planners in Ethiopia and Bangladesh, which could form the basis for famine early warning and response systems. Seeks to uncover indicators which are relatively simple, inexpensive and accurate, which will be of relevance elsewhere. Establishes the necessity of recording experiences of drought conditions, especially the effects of crop failure on markets. As famine conditions develop, more people are drawn into the market in order to survive. While Bangladesh was found to be well-served with regional and centralised information, and could handle food crises, Ethiopia, despite the presence of an Early Warning System, had little information from the worst affected regions, did not know about peasant coping abilities, and gave low priority to famine and relief management. (Famine Early Warning Bibliography)

40. Cutler, P.
1984 "Famine forecasting: prices and peasant behaviour in Northern Ethiopia." *Disasters* 8(1): 48-56.

Various hypotheses and observations about food and livestock price behaviour during famine are tested. An hypothesis is developed to account for peasant and price behaviour under developing famine conditions. The main conclusions are: that high food prices are typical of famine zones, although food prices can behave relatively normally at the edge of these zones; that as migration takes place, there is a "ripple effect" as prices rise further from the epicentre of famine zones; that increased volume (rather than prices) of livestock sales may be a good famine indicator; that livestock-for-grain terms

of trade do not necessarily deteriorate; and that different "waves" of migration may characterise famine. (Adapted from Famine Early Warning Bibliography)

41. Cutler, P.
1984 "Food crisis detection: going beyond the balance sheet." *Food Policy* 9(3): 189-192.

There is a disquieting tendency for agencies and governments involved in food crisis monitoring to neglect both the practical lessons of the past and the widely disseminated recent academic research. One result of this is our inability to tackle adequately Africa's current food crises and famines. This article argues that we already know enough to devise viable strategies to deal with crisis, and that governments should be able to implement these without serious practical difficulty. The real difficulty lies in persuading officials in agencies and governments to view food crises as socioeconomic events, rather than purely as a result of climatological and agricultural catastrophes. (Author's abstract)

42. Davies, S.
1991 *What Can Markets Tell Us About Food Entitlements?*, mimeo. Brighton, U.K.: University of Sussex, Institute of Development Studies.

Using data from ten rural markets in the Malian Sahel and Inner Niger Delta, over a three year period, this article assesses utility of different market indicators in monitoring access to food. In addition to conventional market price indicators, levels of market activity, origin of buyers and sellers, mix of goods available for purchase, and volume of exchange are considered. It is argued, firstly, that if market price data are to be correctly interpreted, supplementary information must be collected in the marketplace; and, secondly, that more detailed market surveys can provide a range of useful early warning information not shown by prices alone. Methodological guidelines for conducting comprehensive market surveys are given. (Famine Early Warning Bibliography)

43. Davies, S.
1989 *Micro-Level Food Monitoring in the Sahel: The Food Information Project in Mali*, mimeo. Brighton, U.K.: University of Sussex, Institute of Development Studies.

This paper examines the food monitoring system, the Suivi Alimentaire Delta Seno (SADS), set up by Save the Children Fund (UK) in Mali, which collects and analyses information about how

people in the Sahelian zone and Inner Niger Delta gain access to food. Micro-level data are obtained through "listening posts" situated in the different production systems. Rather than try to provide early warning of impending crisis using conventional indicators, the approach is to study existing coping strategies, so that interventions can be planned which strengthen those coping strategies to raise people's food entitlements during critical parts of the year. The paper briefly reviews the food situation in the SADS zone between October 1987 and March 1989. It suggests that SADS, which is heavily orientated to local perceptions and needs, could help to identify ways of challenging the structural causes of food insecurity. (Famine Early Warning Bibliography)

44. Davies, S. and M. Buchanan-Smith
1990 *Can Local Communities in the Sahel Use Seasonal Rainfall Forecasts?*, mimeo. Report for the Climatic Research Unit, University of East Anglia. Brighton, U.K.: University of Sussex, Institute of Development Studies.

Report on the potential impacts of routine seasonal rainfall forecasts for local communities in the Sahel, divided according to various user groups. Examines the decision making processes within pastoralist, subsistence farmer, large- and small-scale cash cropper and fisherman groups. To be of use to the groups, forecasts must be accurate, timely, and relevant in relation to their decision making processes. Forecast data must be at least as accurate as indigenous information, and seen to complement rather than replace it. For all groups, potential direct benefits of forecast data are limited because of their imprecision, and restricted response capacity. Indirect benefits may result from initiatives in better food security planning by government and donors and, for example, in greater input provision. Greatest scope lies in linking forecasts to Early Warning Systems, contingency planning, and response mechanisms. (Famine Early Warning Bibliography)

45. Davies, S. and A. Thiam
1987 *The Slow-Onset of Famine, Early Warning, Migration and Post-Drought Recovery: The Case of Displaced Persons in Gao-Ville*, mimeo. Report No 1. Bamako, Mali: Save the Children Fund-Food Emergencies Research Unit, Early Warning Project.

Examines the potential of migration as an early warning indicator, in a study of displaced persons in Gao-Ville, Mali. The composition of the camps in the post-drought period is examined. A preliminary assessment is made of how displaced persons gain a livelihood, and of the implications of this for their food entitlements in the post-

drought period. Draws lessons from the 1984-5 experience for future interventions in a drought year. These include: distinguishing between different groups of producers, and the stage they are at in the downward spiral towards collapsed entitlements; and identifying coping strategies (including post-drought actions) to see whether these can be reinforced. (Famine Early Warning Bibliography)

46. Davies, S., M. Buchanan-Smith and R. Lambert
1991 *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.

A comprehensive review of the current literature dealing with all aspects of Early Warning Systems for famine conditions in parts of Africa. Chapter 1 defines food security and Early Warning Systems. Chapter 2 reviews five areas of indicators: meteorological, natural resource monitoring, agricultural production data, nutritional and health information, and socio-economic considerations. Chapter 3 looks at the role of indigenous knowledge systems. Chapter 4 discusses the factors involved in the design and implementation of Early Warning Systems. Chapter 5 lists the local, national, and international organizations responsible for Early Warning Systems. Institutional constraints and costs are covered in Chapters 6 and 7. Chapter 8 gives specific examples of response to Early Warning Systems in African and Asian countries. Chapter 9 outlines the political factors affecting early warning and Chapter 10 asks the question, "Is there a future for famine early warning?" In the conclusions, it is suggested that while there are limitations on the effectiveness of Early Warning Systems, they have been able to help identify why people have succeeded or failed to feed themselves. In addition, to work towards long-term sustainability it is important to incorporate indigenous knowledge into the response mechanisms triggered by the Early Warning System. The reference list correlates to Volume 3 which is an annotated bibliography on famine early warning and food information systems in the Sahel and Horn of Africa.

47. Davies, S., M. Leach, and R. David.
1991 *Food Security and the Environment: Conflict or Complementarity?* IDS Discussion Paper. Brighton, U.K.: University of Sussex, Institute for Development Studies.

This paper explores linkages between food security and the environment in terms of policy trade-offs between access to food and the conservation of natural resources. In historical perspective, these

concerns have alternately dominated development agendas but have only recently shared a prominent position. Conflicts and complementarities between food security and the environment are identified at international, national and local levels. These levels involve quite different actors and issues. Arguing that a single conceptual framework is unlikely to be found, the paper concludes by suggesting some useful analytical tools and indicating directions for future research.

48. Davies, S., A. Thiam, M. Bangaly, M. Karambe, A. Ag Hatalaya and M. Coulibaly
1990 *Elements a Suivre: Indicateurs Saisonniers de la Situation Alimentaire*, mimeo. Mopti, Mali: Suivi Alimentaire Delta Seno (SADS) Document de Reference; Projet Information Alimentaire, Save the Children Fund (Mali); and, Brighton, U.K.: University of Sussex, Institute of Development Studies.

Lists the indicators built up over two years and used by the SADS food information system (FIS) in the 5th Region of Mali, run by Save the Children Fund's "Projet Information Alimentaire." Indicators are listed by season (harvest, dry, hot, and rainy) and by production system (dry and wet-land cultivators, agro-pastoralists, agro-fishermen, transhumant fishermen, and transhumant pastoralists). The indicators cover an extensive range of socio-economic factors, including production issues, bartering and exchange, intra-rural and rural-urban migration, coping strategies and consumption levels, as well as some meteorological and pest infestation factors. (Famine Early Warning Bibliography)

49. Davies, S., A. Thiam, M. Bangaly, M. Karambe, A. Ag Hatalaya and M. Coulibaly
1990 *Calendriers d'Acces a la Nourriture*, mimeo. Mopti, Mali: Suivi Alimentaire Delta Seno (SADS) Document de Reference; Projet Information Alimentaire, Save the Children Fund (Mali); and, Brighton, U.K.: University of Sussex, Institute of Development Studies.

Presents the qualitative results of two years of monitoring of food entitlements of different production systems (dry and wet-land cultivators, agro-pastoralists) by season, in the zone covered by the SADS system in the 5th Region of Mali. This Food Information System is run by Save the Children Fund's "Project Information Alimentaire." Questionnaires showing how food entitlements are monitored by the system are included. (Famine Early Warning Bibliography)

50. De Waal, A.
1989 "Is famine relief irrelevant to rural people?." *IDS Bulletin* 20(2): 63-67.

Based on observations in Darfur, Sudan, between 1984 and 1985 this paper challenges the notion that famine relief in the form of food aid is of the utmost concern to famine victims. Rather, people place a higher priority on preserving the basis of their future livelihoods than on satisfying immediate consumption requirements. This is referred to as the use of "anti-destitution" rather than "survival" strategies. The indirect effects of food aid, such as avoiding the need to sell off productive assets, or to migrate to areas of greater health risk, may be greater than its role in directly saving lives. Concludes that attention should shift away from food aid towards other forms of famine relief. (Famine Early Warning Bibliography)

51. De Waal, A.
1989 *Famine that Kills: Darfur, Sudan, 1984-1985*. Oxford, U.K.: Clarendon Press.

Analyses events in Darfur in 1984-85, focussing on the perspective of the rural people who suffered. Challenges conventional views of famines which sees them as mass starvation events. Discusses the history of subsistence crises in Darfur, indigenous understanding of famine, and local people's responses. Emphasises that local concerns were with the preservation of their way of life, rather than with hunger itself. Argues that mortality was caused not by lack of food, but by health crises. Discusses relief programmes; local, governmental, and those of international relief agencies. The latter in particular were misconceived for whilst food aid helped some avoid impoverishment, other interventions would have been more effective. (Famine Early Warning Bibliography)

52. De Waal, A.
1988 "Famine Early Warning Systems and the use of socio-economic data." *Disasters* 12(1): 81-91.

Famine Early Warning Systems using socio-economic data suffer from several problems. One is that they cannot, and do not attempt to, distinguish between qualitatively different kinds of famine. The second is that they cannot predict these either accurately or early enough. This is because all the socio-economic indicators produce both false positives and false negatives, the indicators themselves are "late" and because interpretation of the data is complex and timeconsuming. The third problem is that within the context of a famine that is occurring, these indicators cannot predict excess

mortality. The argument is illustrated with examples from the 1984-5 famine in Darfur, Sudan. (Author's abstract)

53. Dowler, E.A. and Y.O. Seo
1985 "Assessment of energy intake: estimates of food supply versus measurement of food consumption." *Food Policy* 10(3): 278-288.

National consumption indicators are frequently compiled using food supply estimates in the absence of reliable household or individual intake data. The authors examine the relationship between these three level of information and, in particular, the potential "losses" of energy in the food system, comparing data from different countries and over time. They demonstrate the unreliability of supply estimates as proxy indicators of consumption and question their current usage in statements about global hunger and the links between health and food intake. (Authors' abstract)

54. Dowler, E.A., P.R. Payne, Y.O. Seo, A.M. Thompson and E.F. Wheeler
1982 "Nutritional status indicators: interpretation and policy making role." *Food Policy* 7(2): 99-112.

Measurements of nutritional status, usually based on the growth of children, have been suggested as potentially useful indicators of the health and welfare of communities, in addition to their value for screening individuals for curative treatment. The article discusses the limitations of these applications of nutritional data from a systems viewpoint. It should be recognized that numerical scales and critical levels of indicators reflect social valuations (of "bad" states or "good" states) and are not simply technical descriptions of physiological states. Properly understood and employed, nutritional indicators could be used for the planning and evaluation of programmes, not only in the health sector, but in all areas concerned with social development. (Authors' abstract)

55. Downing, T.E. and A.S. Feinstein
1990 *Assessing Socioeconomic Vulnerability to Famine: Frameworks, Concepts, and Applications.* FEWS Working Paper 2.1. Washington, D.C.: USAID, Famine Early Warning System Project.

This background paper addresses the questions: Who are vulnerable to famine? Where do they reside? Why are they vulnerable to famine? Why does famine occur? How many people are vulnerable to famine? What is the current likelihood of famine? After reviewing current research on vulnerability, a framework is proposed for assessing the causal structure of hunger, for identifying socioeconomic vulnerability to famine, and for monitoring indicators

of the prevalence of famine. Recommendations are made for how to incorporate an analysis of vulnerability into the Famine Early Warning Systems project (FEWS) of the USAID.

56. Downing, T.E., K.W. Gitu and M.K. Crispin, eds.
1989 *Coping with Drought in Kenya.* Boulder and London: Lynne Rienner.

This book is based on a project to document the effects of the severe 1984 drought in six districts of Kenya and to record the response of the government and Non-Governmental Organizations (NGOs). The aim is to collect the lessons learned during the drought in order to make future efforts at famine prevention more successful. The first part of the book identifies major themes discussed throughout the text before examining the background to the 1984 drought in Kenya. The rest of the book draws on various papers which assess drought forecasting and monitoring, document famine vulnerability and household coping strategies, and examine institutional drought management. These papers cite examples and case studies from the Kenyan experience and are followed by a review of issues about the future of drought policy in Kenya, and in Africa as a whole. (Famine Early Warning Bibliography)

57. Dreze, J. and, A.K. Sen
1989 *Hunger and Public Action.* Oxford, U.K.: Clarendon Press.

This is a study on the role that public action can play in eradicating hunger and famines. It covers a wide range of issues related to this theme, including the nutritional, economic, social and political causes of hunger, the strategy of famine prevention, the connections between economic growth and public support, the influence of class and gender conflicts, the role of adversarial politics, and the relationship between state action and public action. The book also includes a large number of case studies. (Publisher's abstract)

58. D'Souza, F.
1989 *Famine and the Art of Early Warning: The African Experience,* mimeo. Report for the Overseas Development Administration and the Save the Children Fund (U.K.). London.

Earlier hopes that relatively simple Early Warning Systems would accurately forecast famine have not been realised. Section 1 looks at the evolution of systems set up after the famines of the 1970s and the relative merits of different indicators. Case studies of Mali, Ethiopia, and Mozambique in Section 2 reveal how indicators must be chosen with sensitivity to local conditions. Section 3 notes that "stress indicators," which reflect economic and social behaviour,

offer the chance both to catch the earliest stages of crisis and to build upon local knowledge. Looks at the potential of "vulnerability profiling" to monitor pre-famine conditions. Concludes that collapse of local food systems is the crux of famine and provides recommendations to counter this occurrence. (Famine Early Warning Bibliography)

59. D'Souza, F.
1985 "Anthropology and disasters: a roundup after six years." *Anthropology Today* 1(1): 18-19.

This paper examines the role that anthropologists can play in informing governments and donor agencies about emerging famine conditions and what might constitute an appropriate relief response. Anthropologists are able to provide indicators of crisis, primarily predictive social information, as well as showing what kinds of intervention could help people become less vulnerable to future crises. Conventional agricultural data cannot tell us how people respond to crop failures, such as by selling assets and migrating, which was systematically recorded in Ethiopia up until the 1984 famine. As yet, social data do not have sufficient credibility as a basis for action, yet they could be the key to famine prevention. (Famine Early Warning Bibliography)

60. D'Souza, F. and J. Shoham
1985 "The spread of famine in Africa: avoiding the worst." *Third World Quarterly* 7(3): 515-531.

This article has two related themes: first a consideration of what kind of Early Warning System can be set up in the immediate future; and second, how major food aid bodies could be persuaded to act on the basis of early information. Both issues embody technical research as well as political difficulties that are in need of resolution. After examining the main causes of famine and definitions of vulnerability, conventional Early Warning Systems currently used are divided into two categories: agricultural/meteorological and health/nutrition based. The need for Early Warning Systems is discussed in the context of Sudan, and it is argued that development problems are of such an intractable nature that the implementation of an efficient Early Warning System should be a first priority. Over time, however, the Early Warning System structure could act as a channel for the delivery of long-term development aid. (Famine Early Warning Bibliography)

61. Eklund, P.

1990 *Rapid Rural Assessments for Sub-Saharan Africa: Two Case Studies.* The Economic Development Institute of The World Bank.

In the past, policies were formulated and projects were designed without sufficient relevant facts about how African farmers and their production systems operate. Consequently, increases in agricultural production have been much less than expected. This paper suggests that targeted rapid rural assessments (RRAs) within the context of farming systems research can provide the information necessary for redesigning effective programs.

RRAs can be cost-effective because they can be undertaken with limited manpower resources, are based on a single visit to selected locations, make use of small samples, and rely on farmers' capacity for recall which permits useful interviews with both households and groups of farmers. Nonsampling error is reduced because the enumerators used are few and their supervision is intensive. Two to three local assistants in each locality are trained on site. The cost of each RRA undertaken in the cases described for Zambia and Zaire was below U.S. $5,000. The cost did not include the salaries of staff.

The RRAs undertaken in Zambia and Zaire explored trends and constraints in farming systems. In Zambia, the results of the RRA selected areas contributed to changes to the national field crop recommendations in 1984/85 which introduced a low-input strategy. The survey in Zaire found soil fertility was declining across sampled areas faster than officials had expected. The survey emphasized the need for improved intercropping, rotations, and integration of trees with annual crops as a means of maintaining soil fertility. Both RRAs confirmed the feasibility of low-cost extension systems drawing upon farmers' own capacity for experimentation and testing.

62. Eldredge, E. and D. Rydjeski
1988 "Food crises, crisis response and emergency preparedness: the Sudan case." *Disasters* 12(1): 1-4.

In the semi-arid areas of the Sudan, people can be considered as normally permanently at risk of food crises. Every production system has developed ways of coping during critical periods, although these response mechanisms become swamped during major food emergencies. The paper argues that it is impossible to set up a sustainable food information system in a subsistence agricultural society totally lacking in infrastructure. It is better to address the normal pockets of need by strengthening the functioning mechanisms now in place, such as the market, through which subsistence farmers frequently try to supplement their incomes. During major crises,

however, it is believed that international relief assistance will continue to play crucial role. (Famine Early Warning Bibliography)

63. FAO
1990 *Strengthening National Early Warning and Food Information Systems in Africa*, Food and Agricultural Organization of the United Nations Workshop, Accra, Ghana, 23-26 October.

The precarious food supply situation in Africa means that the need to monitor national food supplies is greater than ever before. This report of the workshop reflects the increased priority given to national Early Warning Systems by FAO, to anticipate impending food supply problems and plan responses well in advance. The main objectives of the workshop were to share experiences and provide feedback from various national Early Warning Systems in Africa, and learn more of the new methods of early warning being developed. Papers from the workshop, included in the report cover: the role of national Early Warning Systems; the contribution of agricultural statistical services to crop forecasting; the role of satellite remote sensing; the use of food balance sheets; the incorporation of nutrition and socio-economic data; and, a proposal for the establishment of a technical network for Africa. Finally, a number of case studies of national level Early Warning Systems are included to present experience of integrating information from several sources. (Famine Early Warning Bibliography)

64. FAO
1990 Annex 4, "National early warning and food information systems — their purpose, method and use." *Strengthening National Early Warning and Food Information Systems in Africa*, Food and Agricultural Organization of the United Nations Workshop, Accra, Ghana, 23-26 October 1989.

There is now an impressive range of tools available to provide information on food supply prospects. The main aim of a national Early Warning System is to assist government in the implementation of food management policies by assembling data from different sources and providing a timely forecast of the food situation. The accuracy of forecasts depends on the ability of a multi-disciplinary team to correctly interpret the information it receives. It is also vital that the national Early Warning System is able to communicate its results to users, such as government departments, the private sector, and regional and global organisations. Because global forecasts can be no better than data supplied at the national level, the FAO has been active in supporting national Early Warning Systems, particularly in Africa. (Famine Early Warning Bibliography)

65. FAO
1990 Annex 7, "Satellite remote sensing in support of early warning and food information systems." *Strengthening National Early Warning and Food Information Systems in Africa*, Food and Agricultural Organization of the United Nations Workshop, Accra, Ghana, 23-26 October 1989.

Some of the limitations of ground observations of rainfall and agricultural assessments are outlined, and the advantages of using satellite remote sensing data are reviewed. Examples of remote sensing as used by the FAO Remote Sensing Centre are described, based on the ARTEMIS environmental monitoring system. Explanations are given of the workings of the METEOSAT imagery to monitor cold clouds and hence rainfall, and also of NOAA/AVHRR imagery for vegetation monitoring. The applications of remote sensing for collecting agricultural statistics, monitoring land use, and identifying crops are discussed. (Famine Early Warning Bibliography)

66. FAO
1990 Annex 9, "Use of food balance sheets for the estimation of deficits and surpluses." *Strengthening National Early Warning and Food Information Systems in Africa*, Food and Agriculture Organization of the United Nations Workshop, Accra, Ghana, 23-26 October 1989.

Describes how a food balance sheet can be used for estimating food deficits and surpluses as a component of national Early Warning Systems. Explains how to construct a 12 month food balance sheet based on six essential elements, which are all defined: opening stocks, production, and imports (supplies); and domestic utilization, exports, and closing stocks (disposals). This is based on the FAO Global Information and Early Warning System experience of the food balance sheet which is used to monitor 45 sub-Saharan African countries. (Famine Early Warning Bibliography)

67. FAO
1990 Annex 10, "Incorporating nutrition and socio-economic information into early warning and food information systems." *Strengthening National Early Warning and Food Information Systems in Africa*, Food and Agriculture Organization of the United Nations Workshop, Accra, Ghana, 23-26 October 1989.

A variety of nutritional and socio-economic indicators can be used to identify vulnerable groups and to provide EW of potential food security problems. Specific indicators to be selected will depend on local conditions, and the sequence of events leading to food

problems in that country. Nutritional surveillance is seen as an integral part of Early Warning, via different levels of indicators a different stages of the planning process. The needs of planners for information on national food supply, characteristics of vulnerable groups, detection of deteriorating socio-economic conditions, and safety-net information, require a broader definition of early warning than has traditionally been used, if the information system is not to be divorced from the planning process. (Famine Early Warning Bibliography)

68. FEWS (USAID)
1988 *Famine Early Warning System.* Project Paper, mimeo.

Describes the history and background to the FEWS project from 1985 to 1988, and proposes the strategy and design for the second phase. Some modifications are suggested, with greater attention given to strengthening early warning capability within the countries concerned. The three components of phase 2 are: internalising early warning within USAID; reinforcing early warning capability in host government systems; and promoting international collaboration and coordination in early warning. Systematising and standardising early warning data are stressed, and socio-economic indicators are to be given greater attention. (Famine Early Warning Bibliography)

69. Fleuret, A.
1986 "Indigenous Responses to Drought in Sub-Saharan Africa." *Disasters* 10: 224-229.

Drought is a frequent occurrence in contemporary sub-Saharan Africa, and the existence of periodic drought can be documented over hundreds of years. As a consequence of the routine rainfall shortages that affect them, agricultural and pastoral societies have developed a number of social institutions and mechanisms for bridging temporary food production shortfalls caused by drought. Drawing on the literature and field data from southeastern Kenya, this paper discusses a number of regular indigenous responses to short-term drought in sub-Saharan Africa. Changes in these patterns in the present day are also discussed. It is concluded that market-based responses are now the most important strategies, but that traditional institutions remain significant and contribute to the viability of drought-affected societies. (Author's abstract)

70. Francis, C. and R. Harwood
1985 *Enough Food: Achieving Food Security Through Regenerative Agriculture.* Pennsylvania, USA: Rodale Press.

Food security must be achieved by the use of systems that use local, renewable resources and human creativity while combining successful farmer's practices with potentials discovered through science. Practices such as rotations with overseeded legumes, pest control through cultural patterns, more efficient use of major nutrients, integration of crops and livestock, and use of biological interactions between plants, animals and microbes are having a significant impact on agriculture both in the Third World and in more developed regions. Constraints to food security are: the instability of the international marketplace, increasing costs of energy, population pressures, and the instability of the biological environment. Long-term solutions depend on our understanding of biological realities and adapting tomorrow's technologies to these realities. Policies must reflect a priority for food security, and farming systems must depend largely on renewable, internal resources. The paper ends with a checklist for measuring regenerative potential in a small trading area centered around weekly market activities. (Household Food Security Bibliography)

71. Frankenberger, T.R.
1990 Production-Consumption Linkages and Coping Strategies at the Household Level. In *Proceedings of the Agriculture-Nutrition Linkage Workshop*, Volume 2., papers presented at the Agriculture-Nutrition Linkage Workshop, 12-13 February, 1990, Arlington, Virginia. A report prepared for the Nutrition in Agriculture Cooperative Agreement. Washington, D.C.: USAID, Office of Nutrition; USDA, Office of International Cooperation and Development; and, Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

Understanding the linkages between production and consumption will help in the design of appropriate development alternatives for achieving household food security. Some linkages are: crop diversity or cash crops versus subsistence crops, household income, seasonality of production, role of women in production, crop labor requirements, food preferences, and market prices. The relative importance of these linkages is tied to the coping strategies farmers pursue to maintain food security. Three stages of coping responses to food crises are discussed: 1) risk minimizing and loss management insurance practices; 2) disposal of productive assets; and, 3) destitution/distress migration. By studying the relationship between production/consumption linkages and coping strategies, key food consumption/nutrition indicators can be identified. These include production estimates, storage estimates, subsistence potential ratio, access to non-farm income, access to liquid assets, anthropometric measures, and infant mortality and child death rates.

The paper concludes with an evaluation of rapid appraisals and formal surveys as techniques for data collection.

72. Frankenberger, T.R.
1985 *Adding a Food Consumption Perspective to Farming Systems Research.* Report prepared for USDA, Office of International Cooperation and Development, Nutrition Economics Group. Washington, D.C.: U.S. Department of Agriculture.

Methods in which the food consumption concerns of small farmers can be better integrated into each stage of farming systems research are presented, emphasizing the importance of food consumption to agricultural production. Considered first are production and consumption linkages of which farming systems research teams must be aware if they are to understand how a proposed production recommendation will affect household consumption — seasonality of production, crop mix and minor crops, income, the role of women in production, crop labor requirements, and market prices and their seasonality. Discussion is then given to data collection measures which can be implemented at each stage of the research process (target area selection, diagnostic surveys, recommendation domain definition, on-farm research, evaluation and extension) to incorporate consumption perspectives into farming systems research, and the kinds of data that can be collected. In conclusion, recent farming systems research projects which have attempted to implement such procedures are identified. (Nutrition in Agriculture Bibliography)

73. Frankenberger, T.R., and D.M. Goldstein.
1991 Linking Household Food Security with Environmental Sustainability Through an Analysis of Coping Strategies. In *Growing Our Future*, K. Smith, ed. New York: Kumarian Press.

Household food security entails stable access by household members to adequate supplies of food. Households will have stable access to food if they have viable means of procuring food that do not lead to environmental degradation. Researchers, intervention specialists, and donor organizations concerned with improving the household food security of small farmers should consider the ways in which these households respond to food crises. This paper identifies the various coping strategies that small farmers employ to deal with threats to household food security. For resource-poor farmers, such strategies often may include practices that provide for immediate subsistence needs but are destructive to the local environment and thus to the long-term productive potential of the farming system. Trends in coping responses can serve as indicators of impending famine, as farmers shift away from more sustainable strategies towards more

environmentally destructive practices. These trends are useful in identifying appropriate and timely interventions to assist farmers in meeting their short-term food needs while enabling longer-term natural resource management. Interventions that take both household food security and environmental issues into account must consider both the short- and long-term tradeoffs associated with these dual objectives. (authors' abstract)

74. Frankenberger, T.R., and D.M. Goldstein.
1990 Food Security, Coping Strategies, and Environmental Degradation. *Arid Lands Newsletter* 30: 21-27.

People who live in conditions that put their main source of income at recurrent risk develop self-insurance or coping strategies to deal with that risk. In small-farm households these coping strategies often have a detrimental effect on the environment. The dilemma faced by farmers is the trade-off between immediate subsistence and long-term sustainability. This article presents an analysis of farmer coping strategies and how they are employed in maintaining household food security. Recent trends in coping strategies are discussed, as well as their environmental impacts and potential use as indicators of impending food crisis. The authors suggest that coping strategies can be incorporated as part of an early warning system which relies on behavioral as well as natural indicators to identify the approach of famine.

75. Galvin, K.
1988 "Nutritional status as an indicator of impending food stress." *Disasters* 12(2): 147-156.

Famine Early Warning Systems benefit from a variety of indicators which together signal the initial stages of food stress for particular population groups. Anthropometry has been used as an indicator in Early Warning Systems, but there are inherent problems in its use which should be understood. Using data from Turkana pastoralists of northwest Kenya, this paper discusses the problems of: time lag between food shortages and changes in body size and composition; use of reference points; accurate age assessment; and, establishment of baseline data. Diet composition data are suggested to be an additional nutrition-orientated indicator of impending food stress and one in which problems associated with anthropometry are not inherent. Both measures may be useful in monitoring a population, but their strengths and weaknesses should be appreciated. (Author's abstract)

76. Gershon, M.

1990 *Building a Bridge from Prediction to Prevention: The Evolution of Famine Early Warning Systems in Sub-Saharan Africa*, mimeo. Unpublished MA thesis, School of Development Studies, University of East Anglia, Norwich, U.K.

This paper sets out to question the continuing inability to successfully predict and prevent the occurrence of widespread acute hunger. Considers the concept of famine and the range of theories for famine causation, which determine the indicators used in early warning. Shows that information is not by itself an alternative to action and that too little attention has been paid to the response part of information networks. The different levels at which Early Warning Ssystems are located are examined, with case studies of FAO's Global Information and Early Warning System (GIEWS), Sudan's national Early Warning System and the Save the Children Fund's Drought Monitoring Programme in Darfur. Tackles the issue of sustainability and considers the alternatives to a permanent structure dedicated to early warning. Finally, argues that future information systems should seek not just to prevent famine by appropriate relief, but also to strengthen year-round food security by highlighting interventions that merge relief and development objectives. (Famine Early Warning Bibliography)

77. Gillespie, S. and J. Mason

1991 *Nutrition-Relevant Actions: Some Experiences from the Eighties and Lessons for the Nineties*. ACC/SCN State-of-the-Art Series Nutrition Policy Discussion Paper No. 10. Geneva: United Nations Administrative Committee on Coordination — Subcommittee on Nutrition.

Based on the ACC/SCN Ad Hoc Group meeting held in 1990, this report presents and interprets nutrition-related experience. It's aim is to help in analyzing and grouping nutrition issues and in deciding the best approaches for dealing with these issues. It is not meant to be prescriptive, but a summary of options for improving nutrition adaptable to specific situations. The introduction addresses types of nutritional problems, potential solutions, and how to formulate policy. Household food security is covered in Chapter 2 including how to measure and promote it. Chapter 3 is about nutrition and its links with infectious disease and Chapter 4 contains a discussion of women's role in nutrition. It addresses social discriminations, improving women's resource control and increasing the effects of women's caring capacity. The final chapter summarizes the options discussed with a section on micronutrient deficiencies.

78. Gittinger, J.P., S. Chernick, N. Horenstein and K. Saito

1990 *Household Food Security and the Role of Women.* World Bank Discussion Paper No 96. Washington, D.C.: World Bank.

This paper reports on a symposium held in Zimbabwe which focused on the work women do, the constraints they face, and practical measures to reduce these. The aim was to promote a better understanding of the key gender issues for food security and to identify appropriate policies and programmes that could be implemented. Improving household food security in Africa means focusing on the role of women because they play a critical role as food producers and as income earners for their families. Women are therefore an integral part of the solution to increase agricultural productivity in particular, and household food security in general. This discussion paper draws on plenary sessions, panel discussions and structured working groups as well as papers presented by delegates at the symposium. (Famine Early Warning Bibliography)

79. Grandin, B.

1988 *Wealth Ranking in Smallholder Communities: A Field Manual.* Nottingham, U.K.: Intermediate Technology, Russell Press.

Wealth ranking is a technique which allows researchers to learn rapidly about the relative wealth status of households in selected rural communities, according to the community's own perceptions. It tries to overcome the usual unwillingness of people to provide information on such a sensitive subject. The book first looks at the definitions of wealth and its implications for households, and then examines the methodology of wealth ranking with reference to case studies from Kenya. Agricultural development must take into account differences in wealth among farmers so that interventions do not accentuate inequalities. Yet it continues to be assumed that all farmers in an area are essentially alike or have equal access to resources. Wealth ranking, involving a card-sorting technique to arrange households according to wealth as defined by that community, allows future samples to be representative of a community. (Famine Early Warning Bibliography)

80. Greer, J. and E. Thorbecke

1986 "A methodology for measuring food poverty applied to Kenya." *Journal of Development Economics* 24: 59-74.

This paper proposes a new way of establishing a food poverty line taking into account regional food preferences and prices. It uses this poverty line to derive a food poverty measure which satisfies the desirable fundamental properties of such measures and has the additional advantage of being additively decomposable. The

measurement of food poverty is further generalized to heterogeneous groups of households facing different sets of relative prices and exhibiting different food preferences. Finally, the above methodology is applied to the empirical estimation of food poverty among Kenyan smallholders, and the results contrasted with those obtained by two other methods.

81. Guha-Sapir, D. and M.F. Lechat
1986 "Information systems and needs assessment in natural disasters: an approach for better disaster relief management." *Disasters* 10(3): 232-237.

This paper addresses the issue of information system organisation in disaster relief. Planning, evaluation, and preparedness have been so far ignored in the management of disaster relief, with serious consequences. A multidisciplinary approach, with the stress on accuracy and appropriateness of data gathered, is the key to raising preparedness levels and the damage-absorption capacities at community level. The organisational network of information collection is presented, including staff composition and responsibilities. The main research issues are identified, which include preparation of strategies for disaster preparedness action, integrated with existing health care programmes. (Famine Early Warning Bibliography)

82. 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 Extant Data.* Washington, D.C.: International Food Policy Research Institute.

The objectives of this report are: 1) to identify nontraditional or "alternative" indicators of food and nutrition security; and, 2) to develop a conceptual framework in which to evaluate them. Traditional indicators of food and nutrition security — household calorie adequacy from recall and preschooler anthropometric indicators, for example — have been found difficult to incorporate into ongoing monitoring and evaluation systems. Using information from seven data sets, representing four countries, the authors' rank the ability of several promising indicators to locate the food and nutrition insecure as defined by the more traditional indicators. In addition, a conceptual framework for thinking about the utility of different alternative indicators is developed. The central message of the analysis is that relatively simple indicators perform well in locating the food and nutrition insecure. Comparable to more complex indicators, such as household income level and food

expenditure, indicators such as the number of unique foods consumed, the household's dependency ration, household rooms per capita, incidence of illness, vaccination status, age at weaning of the preschooler, and household drinking water and sanitation facilities — all coded with only two or three different values — were able, either singly or in combination, to identify households and preschoolers at risk of food and nutrition insecurity. The authors conclude that much better classification will likely be achieved in a location-specific setting, preferably in a participatory manner. (Adapted from authors' Executive Summary)

83. Harrison, G.G.
1988 *Nutritional Status Indicators: Their Use in Applied Agricultural Development.* Paper prepared for the Nutrition in Agriculture Cooperative Agreement. Washington, D.C.: USAID, Office of Nutrition; USDA, Office of International Cooperation and Development; and, Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

To be effective in raising the health and nutrition status of the poor, agricultural development projects must be aware of household food consumption patterns. This means that nutritional goals should be incorporated early in the project design and evaluation process. Reasons why nutritional status indicators have not been used more often to evaluate the impact of agricultural development include misconceptions as to the costs involved, whose domain nutrition falls under, and the mistaken assumption that increases in production automatically improve the food supply. It is suggested that nutritional status and dietary indicators can be used for targeting, selection of interventions, and project evaluation. Indicators for three types of malnutrition (protein-energy, iron deficiency, and vitamin A) and rapid assessment methods are discussed.

84. Healey, P. and P. Walker
1990 *Famine Early Warning Systems and Disaster Preparedness*, mimeo. Proceedings of a Workshop hosted by the Sudanese Red Crescent Society, Khartoum, Sudan, 17-23 May 1990, Institute of Development and Disaster Studies of the Ethiopian Red Cross Society.

Summarises the proceedings of a workshop which set out to improve the contribution of National Red Cross and Red Crescent Societies to early warning and response. Other objectives included a review of National Societies' experiences of famine and famine relief, and attempts to arrive at a better understanding of vulnerability and local coping mechanisms. There is a summary of the Save the Children's

Drought Monitoring Programme in Darfur, Sudan and an overview of the League of Red Cross and Red Crescent Societies' (LCRS) drought relief operations in Africa. Considerable advantage in coping with famine is seen to lie in the branch structure and volunteer membership of National Societies. (Famine Early Warning Bibliography)

85. Hervio, M.G.
1987 *Evaluation des Systemes d'Alerte Precoce mis en Oeuvre dans le Sahel: Resume*, mimeo. Paris: Organization for Economic Cooperation and Development, CILSS, Club du Sahel, Doc Sahel D (87) 308.

Summary report of an evaluation of existing Early Warning Systems in the Sahel, commissioned by the Club du Sahel. Covers four main themes: 1) the area of intervention of the Early Warning System, and of the information needs of decision makers; 2) a review of existing Early Warning Systems projects; 3) methodologies employed and institutional involvement; and, 4) evaluations of the various Early Warning System projects with recommendations. Divides Early Warning Systems into macro and micro systems, arguing that each act at different economic, geographical, and temporal levels, collect information for distinctly different uses, and employ different methodologies. (Famine Early Warning Bibliography)

86. 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.

Tests the hypothesis that livestock prices and the number of animals presented and sold on local markets constitute useful early warning indicators of stress in pastoral economies, using data from livestock markets in Mali. Starts from the premise that the pastoral sector is marginalised within Early Warning Systems, and that Early Warning Systems tend to address only food production, not social, political and economic factors relating to food acquisition. However, the extent to which the Malian livestock marketing data could be used as a warning indicator is questionable. No clear and consistent picture emerged of seasonal trends, nor was it possible to identify "breakpoints" heralding sustained deviations from a "normal" pattern. Some explanations for this are given. More work is required to investigate how to ensure that indicators are valid in terms of their advance warning capacity, replicability, sustainability, and sensitivity. (Famine Early Warning Bibliography)

87. Hindle, R.E.
1990 "The World Bank Approach to Food Security Analysis." *IDS Bulletin* 21(3).

The goal of the 1988 World Bank food security initiative for Africa is to alleviate in the long-term the massive problem of hunger in the region. Working with other donors and the African governments, the Bank is developing food security action plans for individual countries. The action plans analyze five components: 1) macroeconomics, microeconomics, food availability, food consumption, and markets. Several common themes have emerged from the analysis: 1) it is necessary to continue to work towards increasing Africa's agricultural growth; 2) the level of food poverty from a nutritional standpoint is greater than anticipated; 3) targeted interventions are needed; and 4) gender must be a consideration in the design of any sound development strategies.

88. Holtzman, J.S.
1986 *Rapid Reconnaissance Guidelines for Agricultural Marketing and Food System Research in Developing Countries.* Michigan State University International Papers. Department of Agricultural Economics Working Paper No. 30. East Lansing, Michigan, USA: Michigan State University, Department of Economics.

This paper develops rapid reconnaissance guidelines for conducting research on agricultural marketing components of food systems. After examining the substance of rapid reconnaissance in agricultural marketing research, the author reviews the analytical framework used in rapid reconnaissance of commodity marketing systems, key areas of investigation during rapid appraisals, analysis of prices and marketing margins, proxy variables and key indicators and noneconomic factors. In the second part of the paper, he discusses the process of rapid reconnaissance, including preparation for fieldwork and implementation of surveys. Report preparation, presentation of findings and follow up to rapid reconnaissance surveys are discussed in a section on wrapping up rapid reconnaissance. In the final chapter, the limitations of rapid appraisal methods are addressed. (Nutrition in Agriculture Bibliography)

89. 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.

In response to the rising number of emergencies, particularly in Africa, attention has been drawn to the types of institutional responses that have been applied in food security emergencies. As understanding of the causes, nature and process of famine evolves, more innovative approaches to relief efforts become possible. While emergency food relief has been effective in saving lives, the constraints imposed by shrinking budgets necessitates the consideration of more effective and efficient alternatives to minimize the impact of food security emergencies and preventing future ones. Traditional assistance to famine-prone regions has been divided between relief and development. Between these two ends, another class of activities can be defined that targets the conservation of productive assets at the household level early in the famine process. These activities can be called mitigation. These activities are largely untested and present special logistical and institutional problems.

90. Jodha, N.S.
1986 Poor in Dry Regions of India. *Economic and Political Weekly* XXI(27):1169-81.

Common property resources (CPRs), though neglected by policy makers and planners, pay a significant role in the life of the rural poor. This paper, part of a larger study on the role of CPRs in farming systems of dry areas of India, attempts to quantify the extent to which the rural poor benefit from CPRs. Based on data from over 80 villages in 21 districts in dry regions of seven states, the study reveals significant contribution of CPRs towards the employment and income generation for the rural poor, i.e., labour and small farm households. The per household per year income derived from CPRs ranged between Rs 530 and Rs 830 in different areas. This is higher than the income generated by a number of anti-poverty programmes in some areas. The dependence of richer households on CPRs is much less.

Despite such contributions of CPRs, their area and productivity are declining in all the regions. The area of CPRs has declined by 26 to 63 percent during the last three decades. Large-scale privatisation of CPR has taken place mainly during the last three decades. The privatisation of CPRs was done largely to help the poor. However, 49-86 percent of the privatised CPR ended up in the hands of the non-poor in different areas. Furthermore, most of the land received by the poor households was also given up by them as they did not have complementary resources to develop and use the newly received lands. Thus, the rural poor collectively lost a significant part of the source of their sustenance through the decline of CPRs. This loss does not seem to be compensated by privatised CPR lands

given to (or retained by) them. The situation calls for greater attention to CPRs as a part of the anti-poverty strategy. (authors abstract)

91. Khon Kaen University
1987 *Proceedings of the 1985 International Conference on Rapid Rural Appraisal.* Thailand: Khon Kaen University.

Rapid Rural Appraisal (RRA) has emerged as a new methodology which may improve the cost-effectiveness, timeliness and quality of rural development related research. Khon Kaen University organised a conference to identify emerging principles and draw lessons from the experience of RRA practitioners with the intention of compiling a range of RRA tools and techniques. This volume contains fifteen papers on topics ranging from the history and conceptual basis of RRA to recommendations for the development of RRA as a legitimate research methodology. RRA offers the opportunity through iterative learning to enhance understanding of rural conditions, making better use of the cumulative knowledge of local inhabitants. (Famine Early Warning Bibliography)

92. Kiregyera, B.
1989 Institutional Arrangements for the Collection and Handling of Agricultural Statistics in Africa. In *Food Supply Information Systems in Africa*, Commonwealth Secretariat, mimeo, 78-91, Report of a Commonwealth Workshop, Nairobi, Kenya.

This paper reviews the different institutional arrangements for data collection in Botswana, Ethiopia, Kenya, Lesotho, Malawi, Tanzania, Zambia and Zimbabwe. Statistical systems vary according to: whether or not they are integrated; links between data producers and users; the nature of the national statistical office; and, the statistical capacity of the Ministry of Agriculture. Although national experiences vary, there are common features which characterise data collection and handling in the countries studies. (Famine Early Warning Bibliography)

93. Koenig, D.
1988 "National organizations and famine early warning: the case of Mali." *Disasters* 12(2): 157-168.

In the Sahelian countries of West Africa, the problems of drought and famine are sufficiently long-term to justify the existence of permanent food security agencies. Yet donors are reluctant to fund these agencies when there is not a crisis, forcing poor countries to use their own resources for food security and famine early warning

efforts. To make more effective use of limited resources and since the data needs for effective famine early warning are similar to those for basic rural development, information systems to provide data simultaneously for development projects and famine early warning should be developed and supported. In Mali, one of the larger and poorer countries of the West African Sahel, basic information systems which gather a range of appropriate data already exist, but there need to be improvements in the quality of design and the timeliness of analysis to make the information more useful for either development or famine early warning. (Author's abstract)

94. Kumar, K.
1989 *Indicators for Measuring Changes in Income, Food Availability and Consumption, and the Natural Resource Base.* A.I.D. Program Design and Evaluation Methodology No. 12. Washington, D.C.: USAID.

This report presents the major conclusions and findings of a workshop held on June 20-22, 1988 and organized by various USAID bureaus. The purpose was to identify a set of simple, practical indicators to be used by overseas Missions and A.I.D./Washington for monitoring the impact of agricultural and rural development assistance. The characteristics of indicators are discussed in relationship to multiple user needs and selection criteria is listed. Indicators are defined as variables whose purpose is to measure change in a given phenomenon or process. Requirements are that they be valid, reliable, sensitive to change, replicable, timely, and cost-effective. Micro-level indicators for measuring changes in income include household income, expenditures, and assets. Macro-level indicators include gross national product, gross domestic product, and net national product. Food consumption indicators include per capita calorie intake, per capita food expenditure, per capita food availability, market prices, household food availability, and anthropometric measures. Major natural resource indicators were identified as water, soils, and plants.

95. Longhurst, R.
1987 "Rapid rural appraisal: an improved means of information-gathering for rural development and nutrition projects." *Food and Nutrition* 13(1):44-47.

The essence of the rapid rural appraisal approach is that the methods chosen should be those which are appropriate to the circumstances governing the research effort: the amount of time available, what needs to be known and with what degree of accuracy, the level of financial resources available, and what is to be the actual end use of

the information. Several of these methods are outlined: use of secondary sources, learning local technical knowledge, the use of key indicators, local researchers, direct observation, key informants, and group interviews. The paper concludes with suggestions for their application to nutritional considerations in agriculture and rural development. (Nutrition in Agriculture Bibliography)

96. Longhurst, R.
1986 "Famines, food and nutrition: issues and opportunities for policy and research." *Food and Nutrition* 9(1).

Examines the nutritional issues in the genesis and establishment of famine. The nature, causes, and impact of famine are touched upon, together with changes in nutrition and in household sources of food in a famine situation. The policy consequences of the shift towards "entitlement" thinking are elaborated, which include: a stress on economic development to alleviate poverty; modification of existing nutrition interventions during famine; an expansion and more imaginative use of food aid; expansion of "cash-for-work" projects; and finally, a re-examination of Early Warning Systems, nutritional surveillance, and project monitoring and evaluation in famine-prone areas. (Famine Early Warning Bibliography)

97. Longhurst, R.
1986 "Household food strategies in response to seasonality and famine." *IDS Bulletin* 17: 27-35.

The article reviews some literature on the ways families, primarily in Northern Nigeria, ensure their household food security during both seasonal food shortages as well as unexpected non-seasonal events. Agricultural seasonal coping strategies utilized by farmers include giving first priority to food crops, use of water logged flooded areas, use of secondary crops, both gathered and grown, and adaptive flexibility in cropping patterns depending on how rains progress. Other strategies include drawing on stores and assets, redistributive mechanisms, and diversifying off-farm income sources. Famine coping strategies discussed were gathering of foods, intensified migration of whole families, and the sale of farmland assets. The author looks at several famine coping strategies described in the literature including gathering of foods, migration, and sale of farmland and assets. Rural families can extend normal seasonal mechanisms to meet a drought famine, but the poorest families must begin early to dispose of assets and resources. Longhurst makes suggestions for ways to improve rural welfare and insuring food security which do not undermine the coping mechanisms which are in place. (Household Food Security Bibliography)

98. Maganda, B.F.
1989 Surveys and Activities of the Central Bureau of Statistics Related to Food Monitoring. In *Coping with Drought in Kenya*, T.E. Downing, K.W. Gitu, and M.K. Crispin, eds. Boulder and London: Lynne Rienner.

Describes the activities of the food sector monitoring programme of the Central Bureau of Statistics in Kenya, and its efforts to establish a nationwide forecasting and monitoring system for the major food crops. The system includes: an agro-climatic crop-yield model; processing of data collected in crop forecast surveys; monitoring market prices; analysis of trends in health and nutrition; and, analysis of food flows reported by the National Cereals and Produce Board. Data processing using micro-computers has produced a large quantity of good quality data. However, the Interministerial Food Forecasting Committee appears to suffer from a number of problems (for example, lack of full participation, failure

to have data in accessible form, no statutory powers), which reduces its effectiveness. (Famine Early Warning Bibliography)

99. Malambo, L.M.
1988 *Rural Food Security in Zambia.* Studies relating to Integrated Rural Development, No. 29. Hamburg: Justus-Liebig-Giessen University, H. -U. Thimm.

The purpose of this study was to provide a better understanding of food security problems in Zambia from a rural household perspective. The study specifically looked at how households meet target consumption levels on a yearly basis in the face of fluctuating production, prices, and household incomes. It includes a descriptive analysis of the food grain production and distribution system in Zambia, followed by an investigation of rural households' food production and disposal behavior, including the utilization of on-farm storage facilities.

Maize is the major food grain produced in Zambia and is also the main staple food commodity. Besides being the most important food item among rural households, it is also the main source of income. Over 60 percent of the maize produced is used for home consumption, the rest is sold to the monopsonistic grain marketing board or cooperative unions that operate in each Zambian province. The government policy of pan-territorial and pan-seasonal pricing has made it unprofitable to store food crops on farms and has encouraged farmers to sell the grain following the harvest. This has made rural food deficit households more vulnerable to food

insecurity. The public sector grain marketing system operates to move grain from rural areas to urban centers but has largely neglected the back-flow of grain. Grain deficit households in rural areas mainly depend on other rural households for supplemental food supplies.

The investigations also revealed that households undertake various actions to guard against poor food harvests. These include storing more grain than what is required in a single season, undertaking other agricultural activities that can raise income, such as growing vegetables and other cash crops, practicing mixed cropping or selling animals, beer and fish. Beer selling was particularly common among the low income households. (Adapted from author's abstract)

100. Margoluis, R. and M.O. Mukhier
1989 *Community-based Information Systems for Food Security Monitoring: The Role of the Sudanese Red Crescent Drought Monitoring Programme in Northern Darfur*, mimeo, Sudan.

During the drought and subsequent famine in the Sahel which peaked in 1984-85, Northern Darfur province in Sudan was particularly badly affected. In 1985, the Sudanese Red Cross Society (SRC) and the LRCS developed a community-based food security monitoring system for this province. The purpose was to provide reliable, timely and specific information to interested agencies concerning the food situation of people in this famine-vulnerable zone. In 1986, the SRC system became known as the Drought Monitoring Programme (DMP). Its community-based data collection and analysis provide exceptionally site-specific information on the basis of which targeting of assistance could be carried out. Information collection and needs assessment are linked directly to the provision of assistance, through the SRC and LRCS. The DMP is integrated into the SRC development network, supported by community SRC branches, and is therefore argued to be a relatively sustainable system. (Based on authors' abstract)

101. Mason, J.B.
1984 "Proposed guidelines for designing evaluation for nutrition and health programmes." *Food and Nutrition Bulletin* 6(4): 11-23.

Programme management involves making decisions about allocation of human and material resources. These decisions require different information depending on the level of the administrative structure. This paper provides various suggestions on methods for setting up procedures to provide the minimum information necessary to make these decisions. Its purpose is to give guidance to those responsible

for designing a built-in evaluation mechanism for country programmes under the Joint Nutrition Support Programme (JNSP) of the World Health Organization and UNICEF. It is intended primarily for the initial needs of those considering evaluation. The perspective is one of a government planning officer or consultant who must produce recommendations during the planning of a country programme in a relatively short period of time. (Author's abstract)

102. Mason, J.B.
1982 *Minimum Data Needs for Assessing the Nutritional Effects of Agricultural and Rural Development Projects.* Cornell Nutritional Surveillance Program. ACC-SCN Working Group on Nutrition in Agriculture and Rural Development. Geneva: United Nations Administrative Committee for Coordination, Subcommittee on Nutrition.

Recommendations are made on "minimum" methods that would have wide application in assessing the nutritional effects of agricultural and rural development, especially in the planning stage. An outline of the important decisions, relative to nutrition, on project design is presented. The author specifies the questions that need to be answered to provide information for these decisions. Minimum data required, possible sources of data and appropriate analysis methods for fieldwork are evaluated. The underlying theory is that the major effect of rural development projects on nutrition comes through the income generated for malnourished households. The planning decisions include targeting towards the malnourished, design of activities, and decisions on indirect effects and trade-offs. Policy decisions are based on the evaluation of nutritional effects. (Nutrition in Agriculture Bibliography)

103. Mason, J.B., J.G. Haaga, T.O. Maribe, G. Marks, V.J. Quinn and K.E. Test
1987 "Using agricultural data for timely warning to prevent the effects of drought on child nutrition in Botswana." *Ecology of Food and Nutrition* 19: 169-184.

Data from agricultural reporting systems in Botswana for the period 1978-83 are combined with data from the Ministry of Health's clinic-based nutritional surveillance system in a retrospective analysis to investigate the usefulness of agricultural indicators for timely warning of unusually severe child malnutrition due to drought. In the arable farming areas in eastern Botswana, deficits in an index of groundwater sufficiency for maize growth during the growing season (January-April) were associated with the deviation from trend in children's malnutrition (measured by weight-for-age) during the peak season for malnutrition, later in the year, across

regions and over time. In arid Western Botswana, as well as the East, qualitative reports on the condition of cattle were also shown to be useful predictors of child malnutrition. Decisions on the allocation of resources for relief could be made early in the year, based on agricultural data, even before confirmation from clinic data is available. (Authors' abstract)

104. Mason, J.B., J.P. Habicht, H. Tabatabao and V. Valverde
1984 *Nutritional Surveillance.* Geneva: World Health Organisation.

This book examines the concept of nutritional surveillance, looks at the role it can play in better informing decisions to improve a population's nutritional status, and outlines the types of interventions that are used to bring about adequate nutritional status. Three applications of nutritional surveillance information are considered specifically: 1) for health and development planning; 2) for programme management and evaluation; and, 3) for timely warning to prevent short-term food crises. Several sectors of government should be involved in the collection and use of nutrition data, in order to assess the effects of different activities on nutritional well-being. (Famine Early Warning Bibliography)

105. Mason, J.B., F. Trowbridge and J. Haaga
1983 *Defining Nutritional Data Needs.* Ithaca, New York, USA: Cornell University, Division of Nutritional Sciences, Cornell Nutritional Surveillance Program.

This paper outlines an approach to the initial assessment of nutritional data needs in developing countries. Such an approach may be useful to planners who are considering nutritional survey or surveillance activities as part of the planning process for improving the nutritional status of high-risk populations in their countries. (Nutrition in Agriculture Bibliography.)

106. Maxwell, S.
1989 *Food Insecurity in North Sudan.* Institute of Development Studies Discussion Paper #262. Brighton, U.K.: University of Sussex, Institute of Development Studies.

Food security planning must begin with an analysis of "who is food insecure and why." These questions are neglected, at least in Sudan. The paper helps fill the gap, by assembling information on the causes, dimensions, and characteristics of food insecurity in North Sudan, excluding the war torn South. A model of food insecurity is presented which focuses on the inter-connection between poverty, malnutrition, and vulnerability. This is then applied to North Sudan,

where a combination of long-term processes and short term shocks have resulted in worsening food insecurity. Over two million people are estimated to be chronically food insecure, with another seven million subject to transitory food insecurity: this is half the population of North Sudan. In order to produce a disaggregation by region and socio-economic group, a programme of "Rapid Food Security Assessments" was carried out in nine communities across North Sudan. Seven main groups of food insecure people are identified and their numbers plotted down to the Provincial level. Resource-poor households in the rural areas and the urban poor form the largest groups, concentrated in Darfur, Khartoum, and Kordofan. The paper ends with a review of food security interventions. (Author's abstract)

107. Maxwell, S.
1989 "Rapid food security assessment: a pilot exercise in Sudan." *RRA Notes*, No. 5. London: International Institute for Environment and Development.

This paper examines the application of rapid rural appraisal (RRA) techniques to assessing the causes, dimensions, and characteristics of food insecurity. This was carried out as a pilot exercise in nine communities in North Sudan as part of an investigation into the links between poverty, vulnerability, and malnutrition. The methodology was based on the "Sondeo" approach to RRA. A checklist of questions had been prepared, but interviews were essentially unstructured, initially with the sheikh or local leader, and then with representative households in the community. Some other RRA "tricks of the trade" were also used. (Famine Early Warning Bibliography)

108. McCorkle, C.M.
1987 "Foodgrain disposals as early warning famine signals: a case from Burkina Faso." *Disasters* 11(4): 273-281.

Recent research suggests that monitoring key events in social, economic, cultural, and political systems may provide more timely, frequent, and reliable warnings of impending famine than monitoring physical processes alone. But empirical data on early warning distress signals in these arenas are slim. Based on anthropological investigations in a southern Volta Noire community of Burkina Faso (formerly Upper Volta) during the drought of 1983-1984, this paper outlines a variety of possible early warning signals in disposal systems for staple foodgrains — the nutritional "bottom line" for farmers and herders in the West African savannah. Pre-famine distress signals in five broad categories are discussed: changes in

marketing patterns, non-markets exchanges, dietary practices, utilization of agricultural and pastoral labour, and ideological and sociopolitical behaviors. Data consist of both quantitative and qualitative comparisons of cereal disposals in these categories between 1983 and preceding years. (Author's abstract)

109. McCracken, J., Pretty, J. and Conway, G.
1988 *An Introduction to Rapid Rural Appraisal for Agricultural Development*, mimeo. London: International Institute for Environment and Development.

Rapid rural appraisal (RRA) arose out of the need for new methods of analysis that were powerful, quick, cheap, insightful and multi-disciplinary in nature. This report looks at the philosophy behind RRA and the techniques commonly used in assisting agricultural development. Its objective is to help development workers select those techniques most appropriate to their needs and resources. Four classes of RRA methodologies are examined: i) exploratory — used to produce preliminary hypotheses; ii) topical — used to answer specific key questions; iii) participatory — used to help involve rural households in research; iv) monitoring — used to evaluate the impact of development activities. RRA is finally set in the context of other alternatives to find stages in the development planning and implementation process where it can best complement more formal approaches. (Famine Early Warning Bibliography)

110. Merriam, J.M.
1989 *Simple Linkages Between Agricultural Activities and Food Consumption.* Washington, D.C.: Chemonics International.

The purpose of this paper is to provide a framework for agricultural project designers, implementors, and evaluators to better understand the important linkages between project activities and food consumption. It contains four flowcharts (production, labor, income, and markets) illustrating how development project activities may affect household food consumption, and a questionnaire to facilitate the identification of the linkages between the two. The first chart depicts the production decision and its affect on food consumption and food security. Changes in crop production patterns may lead to changes in labor patterns, which have a major impact on families' food consumption. The second chart examines changes in traditional labor patterns caused by project activities. Receiving income from the sale of farm products or farm labor begs the question of how this income is utilized, i.e., how much of a priority is given to the purchase of food. The third chart looks at some important food consumption considerations related to income. The final chart shows

the flow of cash and goods between the household and local, national, and international markets. It demonstrate the role the market plays in defining food consumption patterns. The questionnaire provides an example of a survey tool for determining the specific linkages for a particular situation and suggests sources for gathering information and the skills most appropriate to complete a survey. (Adapted from author's introduction)

111. Messer, E.
1989 Seasonality in Food Systems: An Anthropological Perspective on Household Food Security. In *Seasonal Variability in Third World Agriculture*, David E. Sahn, ed., 151-175. Baltimore, Maryland, USA: The Johns Hopkins University Press for the International Food Policy Research Institute.

Through an analysis of anthropological studies, Messer explores the significance of food insecurity by examining (1) ethnographic evidence of seasonal hunger and (2) concepts and methods that can be used to both identify and address seasonal food problems. The author reviews literature pertaining to the adaptation of forager societies, pastoralists, and peasant households to periodic food shortages. She next examines anthropological literature on some causes of seasonal hunger, including male migration, cash crop production and deterioration of ecological conditions of production. She then turns to more specialized anthropological approaches to the topic of seasonal food insecurity and adaptation and examines food strategies for coping with hunger, including dietary diversification through foraging, home food production, income diversification, food flow through gifts, household consumptive behavior, and adjustment of household size and composition. In the following section, Messer reviews literature from materialist (ecological and economic) or cognitive (cultural or symbolic) frameworks on the subject of seasonal food habits. In a concluding section, she uses anthropological literature which has illuminated the complexity of overcoming seasonality and achieving food security to draw a number of conclusions and to present possibilities for future research. (Household Food Security Bibliography)

112. Milford, J.R.
1989 "Satellite monitoring of the Sahel." *Weather* 4(2): 77-82.

Describes and assesses some ways in which satellites are being used to provide regular, continuous information in the Sahel. These include monitoring of long-term surface changes, seasonal vegetation growth, soil moisture, and rainfall estimates. One of the main limitations of remote sensing is that satellite data have to be

analysed through various models, all of which introduce uncertainty. Another is that trade-offs are inevitably involved between space and time resolution, or between number of wavelengths used and sensitivity. At present, operational monitoring in the Sahel is in its infancy. It is hoped that by the time the utility of the data is known, it has not been priced out of the market. (Famine Early Warning Bibliography)

113. Miller, D.C., M. Nichaman and M. Lane
1977 "Simplified field assessment of nutritional status in early childhood: practical suggestions for developing countries." *Bulletin of the World Health Organization* 55: 79-86.

This paper proposes a simple and inexpensive method for the field assessment of certain objective indicators of nutritional status in children of preschool age. It emphasizes the need for statistically valid sample selection and presents a design for randomly selecting 30 children from each of the 30 village sites in each region for which quantitative inferences are to be made, the main purpose being to estimate the prevalence of protein-energy under-nutrition and anaemia. The need to train indigenous para-professional workers as assessors and periodically to control their accuracy is stressed. The method used is limited to an estimate of the location and magnitude of common childhood malnutrition. It is recommended that it be supplemented by detailed ecological analysis to determine causal factors and propose remedial actions. (Authors' abstract)

114. Molnar, A.
1989 *Community Forestry: Rapid Appraisal.* Rome: Food and Agricultural Organization of the United Nations.

Rapid appraisal is a method that has been used increasingly in development projects for gathering socio-economic information. It is essentially a process of learning about rural conditions in an intensive, iterative and expeditious manner, specifically designed to improve quality and timeliness and to reduce cost. Characteristically, rapid appraisal adopts a dialogue method in which a small interdisciplinary team works directly with local people to identify the constraints they face and opportunities for addressing them. This report explores the range of rapid appraisal techniques and their potential in community forestry efforts: specifically, the information they could provide either alone or in combination with other methods; how they could be used in a participatory manner; and the training and other requirements necessary to assure quality information. (Adapted from author's Foreward)

115. Morgan, R.
1985 "The development and application of a drought Early Warning System in Botswana." *Disasters* 9(1): 44-50.

The article describes the indicators and data sources used in the Botswana Early Warning System, established in 1984. The main indicators used for assessment include: human nutrition (the main outcome indicator); agricultural data from local extension staff; rainfall/agro-meteorological data (the input indicator); stocks held in the National Strategic Grain Reserve; donor commitments; and, subjective but valuable district level reports. Data collection is concentrated on those indicators which are considered to be cost-effective. The problems associated with each indicator are discussed, as are possible further indicators. The importance of a functioning Early Warning System in a country highly susceptible to drought is stressed, in the context of the effort to elaborate a comprehensive National Food Strategy and to establish a Regional Early Warning System for southern Africa. (Famine Early Warning Bibliography)

116. Moris, J.R.
1989 Indigenous Versus Introduced Solutions to Food Stress in Africa. In *Seasonal Variability in Third World Agriculture: The Consequences for Food Security.* David E. Sahn, ed., 209-234. Baltimore, Maryland, USA: The Johns Hopkins University Press for the International Food Policy Research Institute.

Based on data from East and Southern Africa and adduced from data in the Sahel, the author examines how indigenous and introduced technologies utilized by households address marked seasonal variability in the food supply in Africa. He considers the indigenous production strategies of diversification, growing of root crops, exploitation of vertisols, livestock enterprises, bush collecting, and off-farm income. Three household social and economic adjustment mechanisms are discussed: reciprocal economic exchange, gender-linked allocation of farming tasks, and varying modes of household integration. Moris evaluates introduced solutions including specialized commercial production, mechanization, and irrigation and finds that introduced solutions to seasonal food insecurity are not better than indigenous strategies except under favorable conditions. Through a comparative evaluation of indigenous and introduced strategies, Moris concludes that indigenous production strategies generally outperform introduced options in two key areas; the return obtained from labor at planting time and cash outlays which are required at the critical hunger periods. These findings explain the rejection of recommended technical packages in African development projects. Insecure funding from outside service agencies on top of

natural risks make entry into modern agriculture only for those with a cushion of nonfarm income. (Household Food Security Bibliography)

117. Mulhier, M.O.M.
1991 *The Role of Indigenous Non-Governmental Organizations in Early Warning Systems and Response: The Case of the Sudanese Red Crescent Society's Drought Monitoring Programme in Darfur.* Paper presented at the Conference on The Future of Food Security, 25-27 July 1991, Institute of Development Studies. Brighton, U.K.: University of Sussex, Institute of Development Studies.

This paper is about the role of indigenous Non-Governmental Organizations (NGOs) in Early Warning Systems (EWS) and response. It discusses the case of the Sudanese Red Crescent Society's (SCR) Drought Monitoring Programme (DMP) in Darfur. The paper considers the different approaches to understanding famines and designing an EWS: the conventional approach based on food supply determinants entitlement theory and the recent expansion of entitlement theory to include assets as a determinant of vulnerability. The problem of monitoring assets for early warning and whether indigenous NGOs have a comparative advantage to do that are addressed. Also reviewed are the practical problems NGOs face in realising their perceived micro-development advantages.

The paper discusses and assesses the role of the SRC's DMP in food security monitoring and response in Darfur according to the various theories of famine and in regards to possible NGO's advantages. Other topics include the DMP's successes on the information side such as low cost sustainable systems, community participation and its achievement of building a good relationship with the Regional Government, and other monitoring systems in the region. Response time weaknesses (despite the existence of considerable potentials) and the dependence on external funds also are addressed. Finally, the paper looks at the role that could be played by the DMP in monitoring assets; and the potential of using the DMP for sustainable humanitarian assistance to avoid the influence of politics on development aid. (Adapted from the author's abstract)

118. Newhouse, P.
1987 "Monitoring food supplies." *UNDRO News.* Jan/Feb, Geneva.

The Global Information and Early Warning System (GIEWS) of the FAO has three functions: monitoring global food supply; monitoring national level food supply; and providing assistance to strengthen national early warning capacities. Whilst it aims to cover all food

staples, the main emphasis is on cereals, partly due to lack of information on other crops. National government information requirements are different to those of donors. Recent measures to improve the system include emphasis on socio-economic indicators, more refined use of satellite monitoring, and greater disaggregation of food estimates. (Famine Early Warning Bibliography)

119. Nieburg, P., A. Berry, R. Steketee, N. Binkin, T. Dondero and N. Aziz
1988 "Limitations of anthropometry during acute food shortages: high mortality can mask refugees' deteriorating nutritional status." *Disasters* 12(3): 252-258.

This paper is based on data received from a refugee camp in eastern Sudan between January and March 1985. It demonstrates that collection and analysis of mortality data are essential for the correct interpretation of anthropometric data during periods of uncertain food supply. Focuses on the deceptive appearance of stability in nutritional status in the face of high mortality, which may be explained by ongoing nutritional deterioration of surviving children. (Famine Early Warning Bibliography)

120. Niger Integrated Livestock Project
1988 *1987 Pasture Assessment Early Warning System. Research on Satellite-Based Pasture Assessment Implementation Techniques*, mimeo. Niamey: Government of Niger, Tufts University (USA) and USAID.

Report of a study conducted to determine appropriate and efficient analysis and sampling methods for the development of a cost-effective timely satellite-based pasture assessment drought Early Warning System in Niger. Pasture production estimates were obtained from twenty-three ground control stations in 1986 and 1987. These were combined with NOAA-9 satellite NDVI (normalised difference vegetation index) values for the same stations, and two variations of NDVI were evaluated. The advantage of a larger number of sites was hypothesized to more than compensate for the slight inaccuracies associated with the smaller site size. A sampling scheme was proposed for the 1988 rainy season. (Famine Early Warning Bibliography)

121. Nutrition Research Project
1983 *Development of Nutrition Indices for a Nutrition Surveillance System for Nepal.* Teku, Nepal: Department of Health Services, Nutrition Section, Nutrition Research Project.

A project was undertaken to develop simple and reliable indicators to be used by community health workers and paramedical personnel to identify groups at greatest risk of malnutrition. The first chapter provides a brief overview of Nepal and its nutritional status as well as an outline of project goals and objectives. Chapter 2 outlines the nutritional surveillance system in Nepal, the agencies involved, types of data collected, and criteria for selecting nutritional indicators. It is emphasized that regular nutritional surveillance is required as well as monitoring and evaluation of nutrition intervention programs. Recommended indicators include anthropometric, socio-economic, health, and use of health and other services by household members.

122. O'Brien-Place, P. and T.R. Frankenberger
1988 *Food Availability and Consumption Indicators.* Nutrition in Agriculture Cooperative Agreement, Report No. 3. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

In choosing a food consumption indicator there are three major questions to address: what will the indicator be used for, what population group must it cover, and what definition of food consumption will be most effective. The first two questions are generally self-evident, the third cannot be answered simply. Two strategies for measuring food consumption exist: direct and indirect methods. The former aims to collect information at the household or individual level on actual food consumed. These direct methods can vary greatly in their approaches and results despite being "direct." The indirect methods use strategies of either less quantification of a direct definition of food consumption or choice of a definition which is more remote from the direct meaning of food consumption. Once an indicator is chosen it can be converted to nutrients and compared with nutritional requirements. There is a range of nutritional and economic "ratios" which can be derived from an indicator. These ratios can be used to describe and monitor the food consumption situation in an area or country over time. (Nutrition in Agriculture Bibliography)

123. Obbo, C.
1985 Food Sharing During Food Crisis: Case Studies from Uganda and Ciskei. In *Food Systems in Central and Southern Africa*, Johan Pottier, ed., 265-279. London: University of London, School of Oriental and African Studies.

"Kinship is eating" is a Kiganda saying which embodies the concept of sharing food. Food sharing and strategies for dealing with scarcity and high food prices is examined in four urban Ugandan families living in Kampala in the first section of the paper. The main

strategies employed were urban food production and reliance on rural relatives. In order to establish whether geographical distance was influential in food sharing, families were chosen from four different regions. In all four cases rural-urban networks were maintained and intensified during times of food shortages. In the second section, food sharing in the territorial area of Ciskei, in the village of Cata in South Africa is examined. The author found that during times of acute food shortages, visits from neighbors intensified, and reluctant food sharing and forced reciprocity was the norm. These were reinforced through preying techniques, in which children played a large part. The Cata case illustrates a gender and age differential access to food and shows evidence that women's and children's nutritional needs are not being met. (Household Food Security Bibliography)

124. Overseas Development Administration
1989 *Report on Current Knowledge of Sahelian Farmers' and Pastoralists' Use of Weather Forecasting*, mimeo. Edinburgh, U.K.: University of Edinburgh, Department of Social Anthropology.

This report, carried out by a team of anthropologists, reviews traditional systems of weather forecasting. There is a considerable body of indigenous meteorological knowledge in Sahelian Africa, although it is under-reported in the literature. Knowledge is rooted in social structures, through which it is acquired, used, and judged. Weather is frequently seen from a moral perspective, being a reflection of the well-being of the community. A range of indicators are used in forecasting, including behaviour of birds and growth of plants. However, traditional structures have been undermined by experience of aridity, and introduction of new systems of cultivation. Finally, the report notes that there is little information on the use of modern communication systems for the dissemination of "high-tech" meteorological information to farmers and pastoralists. (Famine Early Warning Bibliography)

125. Pacey, A.
1982 "Taking soundings for development and health." *World Health Forum* 3(1):38-47.

The inefficiency of data collection in rural development is only partly due to the costs and delays involved in obtaining information. A major problem is that much of the information is biased and often does not reflect the full extent of poverty and ill health in the area concerned. Rapid and cost-effective reconnaissance can provide a "sounding" of the local situation and enable projects to be started

that will automatically generate further data as they proceed. (Nutrition in Agriculture Bibliography)

126. Paris, T.R. and L. Unnevehr
1985 *Human Nutrition in Relation to Agriculture Production: An Example in the Philippines.* Los Banos, Laguna, Philippines: International Rice Research Institute, Department of Agricultural Economics.

This study examines the linkages between production, consumption, and nutritional status of households in selected farming villages in Solana, Gagayan, the Philippines. The nutritional status of households under specific production systems was assessed using indicators such as food and nutrient intake adequacy ratios of households, anthropometric indices, and clinical signs of nutritional deficiencies in preschool children. Subsistence ratios were used to study the capability of farm households to produce their own food and meet their nutrient requirements. Data on crop production activities, income, credit, and food consumption were obtained through formal and informal interviews, food recall, food weighing, record keeping, and participant observation. To determine the effects of seasonality in food production on consumption and nutritional status, crop production, consumption, and anthropometric surveys were conducted every 2-3 months to coincide with agricultural production activities. (Nutrition in Agriculture Bibliography)

127. Payne, P.R.
1979 *Assessment of Nutritional Problems: Who Do We Look At and What Do We Measure?* Paper presented at Rapid Rural Appraisal Conference, 407 December 1979, Institute of Development Studies. Brighton, U.K.: University of Sussex, Institute of Development Studies.

This paper looks at the different levels at which nutritional needs can be viewed and understood. At the personal level, nutritional status, severity, and prevalence rates should be studied, at the situational level, indicators of poverty, household food supply and descriptions concerning events leading to malnutrition; at the social level, changes in the number of people in high nutritional risk situations, rates of displacement migration, and descriptive information on the process of impoverishment. This choice of indicators and the way they are regarded should involve a dialogue among assessors, managers, and decision-makers. To reduce the time factor in gathering information smaller sample size rather than fewer measurements as indicators of change in communities, such that the number of severely malnourished can be accurately measured. In assessing food intake, the quality of the diet — staples and other

foods, drink, and flavoring items — should be noted. (Rapid Rural Appraisal Bibliography)

128. Pelletier, D.L.
1990 The Role of Nutritional Status Information in Government Decision-Making Following and Agricultural Disaster in Malawi: Are the Lessons Generalizable? In *Proceedings of the Agriculture-Nutrition Linkage Workshop*, Volume 2, papers presented 12-13 February, 1990, Arlington, Virginia. A report prepared for the Nutrition in Agriculture Cooperative Agreement. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

This paper raises questions that address the complexities of incorporating nutritional considerations into the agricultural planning process such as: Whose nutritional status is of concern? What influence this choice has on intervention design? and, How nutritional status can be assessed operationally? An example of the impact a nutritional focus can have on government planning, decision-making, and intervention strategies is taken from the experience of the Malawi Government's response to an agricultural disaster in a northern district. It is suggested that indicators of nutritional status not only make contributions to technocratic decisions, but also help catalyze discussions on broader policy decisions and can legitimize political decisions. If a concern for nutrition-in-agriculture is to be institutionalized, the research suggests that these distinct roles should be appreciated.

129. People's Democratic Republic of Ethiopia
1990 *Guidelines on Nutritional Status Data and Food Relief*, mimeo. Addis Ababa, Ethiopia: Early Warning and Planning Services.

Provides background information on how nutritional surveillance is being used in Ethiopia. It is incorporated into early warning in a three stage approach, based upon food supply indicators, social stress indicators, and individual stress indicators. Nutritional surveillance is part of the third stage. Five stages of relief planning are outlined, again indicating where nutritional surveillance fits in. Guidelines are given on how to conduct a survey to measure nutritional status, incorporating "context" data, on how to interpret the data, and on the monitoring of relief programmes. The manual is intended to standardise the approach to nutritional surveillance. A number of technical appendices are included. (Famine Early Warning Bibliography)

130. Pinstrup-Anderson, P.

1986 An Analytical Framework for Assessing Nutrition Effects of Policies and Programs. In *Food Policy: Frameworks for Analysis and Action*, Charles K. Mann and Barbara Huddleston, eds., 55-66. Bloomington, Indiana, USA: Indian University Press.

This chapter addresses the question of appropriate assessment of the nutrition effects of public policies and programs. A large share of past studies have failed to explain how and why certain effects occurred. While useful as ex post facto evaluations of particular programs, such studies offer little assistance for those attempting to design new and improved programs and policies because the results are difficult to apply to programs other than those evaluated. Needed is an approach which not only estimates the nutrition impact of particular programs but also explains how the impact occurred and what would be the impact of certain program modifications. This requires analysis of the processes by which programs and policies influence the nutritional studies. The chapter identifies some of the most important processes and factors and makes suggestions regarding the analytical approach. It discusses household food acquisition behavior, program implementation issues, and the local power structure. (Author's summary)

131. Pinstrup-Anderson, P., J. Katona-Apte and S. Reutinger
1983 *Nutritional Aspects of Agricultural Projects: An Overview.* Falls Church, Virginia, USA: The Pragma Corporation/Division of Agricultural and Rural Development.

This paper briefly summarizes the main issues regarding the nutritional impact of agricultural and rural development projects and policies. These include: decreased production of foods for household consumption, insufficient increases in the income of "nutritionally at risk" households, higher food prices, and nutritionally undesirable expenditure patterns resulting from an increase in cash income, among other issues. Efforts to incorporate nutritional considerations into agricultural and rural development projects and policies are also reviewed. (Nutrition in Agriculture Bibliography)

132. Prehm, M.S.
1987 *Data Analysis Manual for Food Consumption/Nutrition Aspects of Rapid Community Assessment for Planning Procedure — Bicol Region Farming System Research and Development Project, Philippines.* Manual prepared for the Virginia Polytechnic Institute and State University and the Bicol Farming Systems Research and Development Project. Blacksburg, Virginia, USA: The Virginia Polytechnic Institute and State University.

The purpose of this manual is to provide background information to regional and local project staff for the consideration of food consumption/nutrition and selected income generating activities in the Rapid Community Assessment for Planning (RCAP) procedures. Background information on procedures and data analysis are included for each of the four phases of the RCAP. Examples of different data summarization techniques are given based on the initial field testing in Nahapunan, Bacacay, Albay, Philippines. The manual is inteded to be used along with the RCAP procedures modified for including food consumption and nutrition. (Author's abstract)

133. Pyle, A.S. and O.A. Gabbar
1989 *Household Vulnerability to Famine: Survival and Recovery Strategies Among Zaghawa and Berti Migrants in Northern Darfur, Sudan.* Paper presented at the Farming Systems Research/Extension Symposium, 8-11 October, 1989, The University of Arkansas in collaboration with Winrock International Institute for Agricultural Development, USA.

An understanding of household risk-reducing strategies during stress periods is important for understanding vulnerability to famine. Another significant factor in vulnerability to famine is the opportunity structure which determines households' access to resources in the community and to alternative sources of income. In this study, the authors look at the impact of widespread famine on traditional coping strategies in households which migrate to the town, El Pasher, during the 1984-85 famine in northwest Sudan. The response of two ethnic groups to famine are compared, the Zaghawa and the Berti. Research which examines the role of intracommunal institutions in normal times and indigenous support mechanisms during famine is needed. The authors make suggestions for follow up research, some of which should concentrate on (1) the strategies of households remaining in the town, (2) whether a shift towards investment in market oriented activities has excluded use of community resources and traditional institutions, and (3) intrahousehold vulnerability to famine. (Household Food Security Bibliography)

134. Rahmato, D.
1987 "Peasant survival strategies in Ethiopia." *Disasters* 12: 326-344.

This paper focuses on peasant farmers in Ethiopia, and their behaviour as serious famine sets in. In many of the last seventeen years the crop yields on rain-fed plots in drought-prone areas have failed to meet the requirements of the peasant farmers and their

families. Significant numbers have received food aid either at distribution points or in the shelters which developed in 1973 and 1984. Seeking food relief from external sources, however, is the last resort of peasants who have managed their dwindling resources for months, if not years, in order to survive. (Author's abstract)

135. Reardon, T., P. Matlon and C. Delgado
1988 "Coping with household-level food insecurity in drought-affected areas of Burkino Faso." *World Development* 16(9): 1065-1074.

The paper examines strategies used by rural households in the Sahelian and Sudanian zones of Burkino Faso to ensure food security on the face of drought-induced cropping shortfalls. It finds that three-quarters of the average household income in the Sahel sample and half of the same in the Sudanian sample come from non-cropping sources. These are more diversified regionally and sectorally in the case of the Sahel. The latter's non-cropping income is less covariant with the local cereal economy than is the case of the Sudanian sample. Moreover, much greater food aid was targeted to the Sahel for geographical reasons, without taking into account the more stable and higher level of purchasing power in that zone *vis-à-vis* the Sudanian zone. (Author's abstract)

136. Sabry, Z.I.
1982 "Issues in the evaluation of nutrition interventions." *Food and Nutrition* 8(2): 3.

Malnutrition in developing countries is essentially a problem of poverty and low food consumption. Thus, its alleviation rests in integrating nutrition interventions with socio-economic development measures. With this orientation, evaluation is becoming increasingly necessary. However, the methodology available for assessing nutritional status places unreasonable demands on the human and financial resources of any programme. There is also a serious lack of knowledge of the effect of malnutrition on the physical capacity and mental functioning and on the relationship between malnutrition and income. Evaluation may, with advantage, be built into the framework of the intervention project design, and be introduced at the appropriate time when impact is likely to be detectable. Of concern are such operational aspects as the relation of evaluators to operation staff, the involvement of project participants and the management of evaluation data. In addition, the political and ethical implications of evaluating nutrition interventions need to be kept in focus in order to maximize the value of evaluation efforts. (Author's abstract)

137. Sahn, D.E., ed.
1989 *Seasonal Variability in Third World Agriculture: The Consequences for Food Security.* Baltimore, Maryland, USA: Johns Hopkins University Press for the International Food Policy Research Institute.

Seasonal patterns of nutritional status indicators (measures of leanness and linear growth) and seasonal patterns of household food security (measured by calorie intake) are explored, as are the causes and predictability of seasonal patterns in nutrition and food security. Policy options are presented for mitigating the potential food security and nutritional risks associated with seasonal undulations. Conclusions include: 1) further research is needed to better understand the implications and importance of seasonal reductions in food; 2) the recognition that there may be long-term deleterious economic and social consequences of seasonal stress; 3) agricultural growth and market development are the long-term means of reducing seasonal food insecurity; 4) governments should encourage private-sector initiatives to improve seasonal food security; 5) there is a role for seasonally targeted interventions such as food-for-work, food subsidies and stamps, and mother-and-child feeding projects; 6) rural populations are most susceptible to the deleterious effects of seasonality; 7) seasonalities vary from year to year, country to country, region to region, village to village, and household to household; and, 8) seasonal variability in food security does not necessarily require seasonal solutions. (Adapted from editor's summary)

138. Schreiner, D.F. and L.G. Tweeten
1987 *Socio-Economic Indicators of Agrarian Reform and Rural Development.* Report prepared for the Statistics Division, Economic and Social Policy Department, Food and Agriculture Organization of the United Nations. Statistical Development Series No. 3. Rome: Food and Agricultural Organization of the United Nations.

This manual is directed at national statistical organizations responsible for providing socio-economic indicators for monitoring and evaluating agrarian reform and rural development. Chapter 1 summarizes the basic principles and areas of concern. Chapter 2 deals with the processes of monitoring and evaluation with emphasis on the role of socio-economic indicators. In Chapter 3, the general type and form of socio-economic indicators, their desirable properties, and their needed level of disaggregation are presented. Each primary indicator is listed and described, and supplementary indicators are given in an Appendix. This is followed in Chapter 4 by a general indication of the statistical development that is a prerequisite to meeting the needs of monitoring and evaluation. In

particular, the development and implementation of appropriate components of a long-term integrated national statistical programme is advocated. Chapter 5 presents several elementary and advanced analytical methods which can be employed in the analytical phase of monitoring and evaluation using the primary socio-economic indicators and related data. The concluding Chapter 6 provides a set of guidelines for countries to use in planning and implementing a long-term program of basic data development, processing, and analysis to support a national program of monitoring and evaluating agrarian reform and rural development.

139. Schumaker, J.
1990 *Achieving Household Food Security: A Review of Methodologies.* A report prepared for the Nutrition in Agriculture Cooperative Agreement. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

This manual is intended for those already aware of the importance of incorporating food security interests in agricultural development projects. The first section summarizes issues that influence food security: 1) production-consumption linkages; 2) risk and coping strategies; and, 3) trade-offs during transition to increased participation in commercial agriculture. Conceptual issues also are discussed including targeting groups at risk, equity and distribution of resources, and indicators that can be used to measure food insecurity. The third section covers methods for investigating consumption issues. Included are the lowest cost methods for projects and programs with the most limited resources (mostly Non-Governmental Organizations and small scale local projects), those programs that adapt and apply research to development through extension of new technology (i.e. farming systems or cropping systems research methods), and the more basic research programs which have most of their resources invested in research rather than the application of development technologies (International and National Research Centers). (Adapted from author's introduction)

140. Seaman, J. and J. Holt
1980 "Markets and famines in the third world." *Disasters* 4(3): 283-297.

Through a discussion of the characteristics of famine in Bangladesh, Ethiopia, and the Sahel, the authors illustrate some of the factors which may intervene between the production of food and its consumption, and the variety of outcomes which may result from economic disasters. They argue that the factors which decide the occurrence, or non-occurrence of starvation, and the way in which starvation occurs, have had to do not simply with the quantity of

food produced in an area but with the market and other means of storage and redistribution. In these areas relief has mitigated starvation to a rather small extent because of these factors. Vulnerability to famine is increased when a shift from a "communal" to a "market" economy occurs, as well as through political decision-making. Problems with timing of food aid and targeting those in need also are addressed. The final conclusion is that under conditions where the market mediates some or all of the starvation, a rational approach to relief is through the sale of food rather than entirely through free distribution. (Adapted from author's summary)

141. Shoham, J.
1987 "Does nutritional surveillance have a role to play in early warning of food crisis and in the management of relief operations?" *Disasters* 11(4): 282-285.

A major area of investment in data collection in developing countries has been that of nutritional surveillance and monitoring. From recent debate it is clear

that there is currently no consensus on the potential role of nutritional status as an early warning indicator.

The author presents a synthesis of the broad spectrum of views on the role nutritional surveillance could or should have in early warning. Conceptual problems and technical difficulties are reviewed in the light of recent experiences in Africa and Asia. The author raises a number of issues for future discussion in this ongoing debate. (Author's abstract)

142. Shoham, J. and J.B. Borton
1989 *Targeting Emergency Food Aid: Methods Used by NGOs During the Response to the African Food Crisis of 1983-86.* Final Report of Joint Study by the Relief and Development Institute and the Human Nutrition Unit, London School of Hygiene and Tropical Medicine. London: Relief and Development Institute.

This paper represents the final report of a study which involved the preparation and analysis of 13 case studies of the experiences of 11 European-based Non-Governmental Organizations during relief programs implemented in Sudan, Ethiopia, Niger, and Chad. The reasons why agencies target appear to be because of their own resource limitations, the desire to concentrate on the worst affected areas, and the desire not to distribute amounts of food relief that cause disincentive effects. The methods used for targeting cover three "levels": 1) the selection of the programme area; 2) the

selection of areas and population groups within the programme area, and 3) the selection of families and individuals within the programme area. In the first level, the targeting was done by agency personnel who were already present in the area. For those agencies who did not have a prior presence, surveys were undertaken to confirm need following a request, or to ascertain the scale of requirements. In the second level, approaches included: 1) anthropometric surveys in conjunction with low cost qualitative socio-economic assessment using local indigenous information sources; 2) quantitative sampling, based on socio-economic assessment relating assets to subsistence needs; and 3) standardised subjective assessment of a panel of socio-economic and nutritional indicators, based on extensive local experience of agency staff.

This paper considers the different types of situations and resulting programs that might be best served by prioritizing one type of assessment over another. Suggestions also are make as to how the different approaches might be strengthened and thus how recommendations about appropriateness of survey approach might eventually be concretized into guidelines for future programs. Within the third "level" of targeting, the study found some limited attempts to target individuals and households in the context of general feeding programs. Where attempted there was little documentation or evaluation of methods and outcome. The paper also considers the role of anthropometric cut-off points in determining family and individual child access to a supplementary food ration. It suggests making greater use of local indigenous identification mechanisms. It is suggested that further research could be conducted in the form of on-going evaluation of future targeted programs.

143. Shoham, J. and E. Clay
1989 "The role of socio-economic data in food needs assessment and monitoring." *Disasters* 13(1): 41-60.

This paper reviews six case studies examined as part of a project to review targeting methodologies employed by Non-Government Organisations in Africa during the 1984-6 food crisis. Most agencies have not yet fully evaluated the role of data in formulating policy decisions during their respective emergency programmes. The case studies presented reflect a wide variety of approaches to targeting emergency food aid that are based largely on the use of "socio-economic" data. The recent emergency relief operations in Africa seem to indicate a change in relief agencies' approaches to the assessment and monitoring of needs of the affected populations. Earlier dependence on nutritional data has given way to an increasing reliance on the use of socio-economic indicators. There

was a wide variation in the case studies of the type of indicators collected and utilized in needs assessment and monitoring. There were those who relied almost exclusively on nutritional data to target resources during the 1984-86 African crisis, and others whose experiences during that period lead them to attach more weight to socio-economic data. Other agencies appear to have recognised the problems of relying solely on nutritional data to target food aid during their 1984-86 emergency programmes, and thus more or less abandoned classical anthropometric surveys in their needs assessment and monitoring methodologies during this period. Thus nutritional data has a less significant role in the decision making process than previously had been the case. (Authors' abstract)

144. Staatz, J. M., V.C. D'Agostino and S. Sundberg
1990 "Measuring food security in Africa: conceptual, empirical, and policy issues." *American Journal of Agricultural Economics* December: 1311-1317.

Using Mali as an example, this paper shows that commonly used indicators of food security at the regional and national level are often poor predictors of household and individual food security. Hence, they also may be poor guides for intervention strategies. There is a need to develop more accurate, area-specific indicators and cost-effective means to monitor individual and household food security. In addition, household and individual food security must be separated from the vagaries of local agricultural production. It is crucial to improve both the mechanisms for moving food at low cost among regions and income streams for the food insecure. Rural capital markets also must be strengthened to allow households to bridge temporary shortfalls. Finally, it is necessary to have a better understanding of how disease, intrahousehold food distribution, and nutrition education mediate the relationship between household food availability and individual food security. (Adapted from author's conclusions)

145. Stocking, M. and N. Abel
1981 "Ecological and environmental indicators for the rapid appraisal of natural resources." *Agricultural Administration* 8: 473-484.

Natural resource assessment is traditionally of a long-term nature. This paper examines some of the underlying assumptions and proxy measures involved in their rapid appraisal. Three case studies on soil colour, plant indicators, and soil erosion illustrate a range of possibilities in using ecological and environmental indicators to appraise aspects of the physical environment which might normally be assessed by longer methods or not at all. It is concluded that the

interdependence of environmental factors is high and hence suitable proxy measures can be found. Rapid — and thus low cost — monitoring of change is discussed. The importance of a clear statement of assumptions is stressed. (Authors' abstract)

146. Suivi Alimentaire Delta Seno (SADS)
1989 *La Methodologie du Suivi Alimentaire Delta Seno*, mimeo. Mopti, Mali: Projet Information Alimentaire, Save the Children Fund (Mali) and Save the Children Fund (London).

A brief summary of the main components of the methodology used by the SADS food information system, run by Save the Children Fund's Projet Information Alimentaire in the 5th Region of Mali. Stresses a phased approach to data collection, based on principally qualitative information in the first instance, followed by quantification of key indicators in subsequent phases. Data collection is at village level, and geared towards tapping indigenous information networks, as well as exploiting existing sources of information. (Famine Early Warning Bibliography)

147. Sundberg, S. and V. D'Agostino
1990 Household Production and Income Strategies as Indicators of Consumption Security in South Central Mali. In *Proceedings of the Agriculture-Nutrition Linkage Workshop*, Volume 2, papers presented 12-13 February, 1990, Arlington, Virginia. A report prepared for the project entitled Nutrition in Agriculture Cooperative Agreement. Tucson, Arizona, USA: University of Arizona, Office of Arid Lands Studies.

As part of the 1985 to 1988 Michigan State University/CESA (the Malian Food Security Commission) Food Security Project surveys were conducted in 90

households to identify production-and-transactions and later consumption-and-expenditures relationships. This paper looks at how these households designed food production and income strategies to meet seasonal and annual consumption needs. In the first section food production and marketing strategies are documented. Such strategies include timing of grain sales, timing of grain purchases, diversification of crops on family fields, existence of individual fields and allocation of cultivated crops, and ownership and use of agricultural equipment. A section on household income strategies lists the various income-earning activities undertaken by men and women. It is suggested that food secure households tend to be more diversified in their income sources especially for women, and remittances from migrated family members are also more common.

The implication drawn is that the degree of household participation in the agricultural and non-agricultural economy is related to the household's ability to achieve food security. A comparison of children's nutritional status with agricultural-equipment ownership shows little correlation between the two. Thus, the validity of using agricultural-equipment status as an indicator of rural well-being is called into question.

148. Swift, J.
1989 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.

This book chapter summarizes a report commissioned by Oxfam and the Turkana Rehabilitation Project (TRP), and carried out with the support of the Turkana District and Nairobi authorities. The aim of the study was to assess the risk of drought and famine in Turkana District and to recommend measures to reduce the likelihood of a drought deteriorating into a famine. The study emphasizes policies and actions for Turkana District. Three themes suggest: 1) drought is inevitable, but famine is not; 2) measures to prevent famine need not be expensive; 3) traditional response systems should be encouraged. Preparedness plans and the operation of an early warning system are presented. (Adapted from the authors introduction)

149. Swift, J.
1989 "Why are rural people vulnerable to famine?" *IDS Bulletin* 20(2): 8-16.

Rural people are vulnerable to famine for more reasons than the traditional explanations of production and exchange failures. Other key areas for analysis are household assets, investments, food stores and stores of value and claims on the community and government. The author suggests that better policies to reduce vulnerability will be possible when these issues are taken into consideration. Such policies should include early warning, exchange interventions and improving assets and claims.

150. Swift, J.
1986 *Early Warning Monitoring and Drought Contingency Planning in Turkana District.* Project Proposal for the Ministry of Energy and Regional Development, Turkana Development Support Unit, Lodwar, Kenya. [Brighton, U.K.: University of Sussex, Institute of Development Studies].

Suggested drought preparedness strategies are outlined including: 1) initiation of an emergency drought management sub-committee; 2) appointment of a district drought contingency officer; 3) preparation of a drought manual; 4) creation of a drought contingency fund with donor commitments established in advance of a crisis; 5) baseline surveys and development research, and 6) establishing an Early Warning System. The early warning system would be composed of certain key indicators including weather data, crop production and storage, animal mortality, nutritional and health conditions of animals, migration patterns, livestock sales, prices of animals and cereals, food situation in herding camps, unusual sources of income among herders, human pathology pattern, and human nutritional status. It is proposed to set up an Early Warning Monitoring and Drought Contingency Planning Unit to initiate the monitoring and planning activities.

151. Swift, J.
1981 "Rapid appraisal and cost-effective participatory research in dry pastoral areas of West Africa." *Agricultural Administration* 8: 485-492.

Special problems exist for data collection in pastoral areas. These are discussed together with experience in West Africa and with methods which require the pastoralists to generate information about themselves. Plant indicators can be interpreted by ecologists and herdsmen to give estimates of carrying capacity. It is suggested that local knowledge could be enhanced by training some pastoralists living in the camps who are supervised by a visiting researcher. Promising results of an experiment in Mali are reported and it is considered that the initial effort and expense of setting up such information networks is worthwhile. (Author's abstract)

152. Swinton, S.M.
1988 "Drought survival tactics of subsistence farmers in Niger." *Human Ecology* 16: 123-144.

Previous research into drought-response tactics has tended to be undertaken after the fact, and hence has been forced to be impressionistic. This study quantifies the importance of farmer drought-response strategies in south-central Niger based on a survey which began during the drought of 1984. Livestock sales, food aid, temporary migration, remunerative non-agricultural activities, and loans were the principal drought-survival tactics employed. (Author's abstract)

153. Taal, H.

1989 "How farmers cope with risk and stress in rural Gambia." *IDS Bulletin* 20: 16-22.

As a result of continuing food crises in sub-Saharan Africa, there is a need to identify and analyze various sources of farm risk and how households cope with these risks in order to see how development programs can best help them. To examine the varieties of strategies employed, the author presents the findings of 15 months of fieldwork in two villages (Dobo and Kundam) which are located in MacCarthy Island and Upper River Division of The Gambia, and combines this research with an examination of secondary data. In the first section, the range of risks faced by farmers is presented, including rainfall variation, price variation, access to markets and food, and regular seasonal stress. In the second section, farmers responses to farm risk are analyzed, focusing on choices in cropping pattern, storage of food crops, reduced consumption, off farm work, asset disposal, community and kinship ties, and the evolution of household strategies in recent years. The author concludes that because farming has become riskier and vulnerability has increased, especially among the assetless and poorest, coping strategies have diversified. Policy makers need to recognize the trends and devise interventions to help farmers cope with their situations. (Household Food Security Bibliography)

154. Tata, R.J. and R.R. Schultz

1988 "World variation in human welfare: a new index of development status." *Annals of the Association of American Geographers* 78(4): 580-593.

In constructing the Index, the author's selected the following variables of systems outputs: physical — total value of primary industry output per capita, persons per square kilometer of arable land; economic — GPS/capita, and manufacturing value-added per capita; social — infant deaths per 1000 live births, percentage of rural population; political — government expenditures per capita, political rights index, and number of radios per 1000 population. Factor analysis with varimax rotation yielded four principal factors that correspond conceptually with the physical, economic, social, and political systems. Based on factor scores, 160 countries were arrayed according to the sum of the quintile ranks of their four systems, from most developed to least developed. Various combinations of quintile scores permit ranking and mapping countries for overall human welfare, socio-economic human welfare, sociopolitical human welfare, and politico-economic human welfare. The scale of analysis can be varied to sub-national regions, variables can be added to each macrosystem to extend the concepts of human welfare, and

additional development categories can be defined for more detailed study. These analyses yield a wealth of information for evaluating each country on many development scales.

155. Tobert, N.
1985 "The effect of drought among the Zaghawa in Northern Darfur." *Disasters* 9: 213-223.

Through an analysis of data gathered in two different years in norther Darfur, the author examines changes in traditions and customs of Zaghawa potters and blacksmiths in response to drought. Through an examination of subsistence activities to crisis over the period of one year, the author considers the question of whether patterns may be said to exist for predicting crisis. The paper is organized into four parts; a description of the Dar Zaghawa from 1965 to 1972, the traditional village life as it was in 1982, a month by month chronology of events and household agricultural and craftwork strategies during 1984 to 1985, when drought and food shortages reached crisis levels, and finally a discussion on the invisibility of the famine in urban areas. In the concluding section, through graphs Tobert illustrates the three cycles of change during the last twenty years and ends with a discussion of the responses to the 1984 drought. She concludes that drought does not affect everyone equally. The severity of a drought may be underestimated by outside administrators because those affected may be living in the compounds of relatives in urban areas and others affected may be in rural areas out of sight of government officials and aid workers. (Household Food Security Bibliography)

156. Toulmin, C.
1986 "Access to food, dry season strategies and household size amongst the Bambara of Central Mali." *International Development Studies Bulletin* 17(3): 58-66.

This article discusses strategies for dealing with food shortage in Bambara among marginal and high risk farmers. The advantages for these villagers of the large household size are: 1) the diversification of income sources from family members; and, 2) economies of scale that can be afforded by the larger size of family assets, such as oxen ploughteams, and labor for well-digging. The two seasons (wet and dry) influence all aspects of life, including the eating patterns. During peak labor season, food is more substantial to supply energy needs for production. In this study, 15 out of 29 households suffered food deficits both years. The traditional methods of coping with this shortage, such as pawning children to the wealthy, or raiding other villages, have given way to migration of young men and

diversification of income sources during the dry season. Help to those in need is still an important element of Bambara society. (Household Food Security Bibliography)

157. Uzzell, J.D.
1982 *Training Module: Rapid Nutrition Reconnaissance.* Washington, D.C.: U.S. Department of Agriculture, Office of International Cooperation and Development, Nutrition Economic Group.

This unit explains the use of rapid micro-surveys for assessing nutritional status and nutrition-related behavior among populations felt to be at nutritional risk. It suggests ways of sampling to permit maximum generalizability from the data obtained and gives a number of suggestions for carrying out the surveys themselves, including selection and training of field workers. Although the focus is on rural areas, most of the methods could be translated to urban areas as well. This kind of research has been shown to be effective when time and/or funding for large-scale surveys are lacking and when macro-economic studies are unable to pinpoint the exact distribution of malnutrition and the cultural-economic conditions which affect it. (Author's abstract)

158. van Willigen, J. and T.L. Finan, eds.
1990 *Soundings: Rapid and Reliable Research Methods for Practicing Anthropologists.* Napa Bulletin 10. Washington, D.C.: American Anthropological Association, National Association for the Practice of Anthropology.

Seven articles discuss different methodologies for conducting assessments and evaluations. Topics include the application of rapid appraisals in project planning and implementation, the use of focus group research, ethnographic evaluations, community service assessment and data collection needs on women farmers in the Sahel.

159. Verma, V., T. Marchant and C. Scott
1988 *Evaluation of Crop-Cut Methods and Farmer Reports for Estimating Crop Production.* London: Longacre Agricultural Development Centre Limited.

Assesses the comparative performance of the physical measurement of crop production, using crop-cut methods, with personal estimates by farmers themselves. Tests the hypothesis that production estimates obtained by interviewing farmers soon after the harvest can be at least as accurate as any estimates obtainable through physical measurement on sample plots. If this were so, then a number of cheaper and more efficient improvements in the design of sample

surveys could be made. Report is based on five methodological studies carried out in 1987, in Benin, Central African Republic, Kenya, Niger, and Zimbabwe, using a common experimental design. Farmers' estimates turned out to be remarkably close to actual production figures, though their estimates of planted areas were less accurate. Over a wide range of geographical, social and administrative conditions, however, farmers' post-harvest estimates performed better than "objective" methods in terms of prediction and variance. (Famine Early Warning Bibliography)

160. Wagara, A.O.
1987 *Simple Quantitative Models and Results from Tanzania Studies.* Paper presented at the UNICEF/Sokoine University of Agriculture Course in "Food ad Nutrition in Society."

This paper discusses food and nutrition planning programs in Tanzania based on village-level participation. Emphasis is placed on the gathering of data by extension workers on agricultural production and nutrition at the household and village levels. Models for assessing household food supply (the food and "bag model") and nutritional requirements are presented. The government's approved training guide for improving food and nutrition planning outlines a plan for determining the best crop mix for meeting household requirements without increasing social or economic costs. Using a household food security card also is mentioned.

161. Walker, P.
1989 *Famine Early Warning Systems: Victims and Destitution.* London: Earthscan.

Looks at those who are caught up in the process of famine, how they perceive their predicament, and what they do to avert starvation. Examines the objectives of Early Warning Systems, and the range of methodological tools that are available. The systems operated by national governments in India, Bangladesh, Botswana and Ethiopia are investigated, and various international, and non-governmental EWS are reviewed. A two-phase Early Warning System is suggested, the primary objective of which is to warn of the onset of the famine process, but which can switch to providing information necessary to warn of mass starvation, if this proves necessary. (Famine Early Warning Bibliography)

162. Walker, T.S. and N.S. Jodha
1986 How Small Farm Households Adapt to Risk. In *Crop Insurance for Agricultural Development: Issues and Experience.* P. Hazell, C.

Pomareda and A. Valdez, eds., 17-34. Baltimore, USA: John Hopkins University Press.

The article begins with a description of farmers' risk management in South Asia, Central America, and East Africa, contrasting agroclimatic, socioeconomic, and institutional contexts. Secondly, the author considers the efficacy of traditional risk management measures on stabilization of household income, concentrating on spatial diversification of crops, intercropping, and tenancy. Finally, the authors comment on efficiency costs and the potential adverse effect on equity of traditional risk-adjustment practices. It is difficult to assess whether small farm households adaptations to risk are effective, primarily due to a paucity of data, but evidence shows it to be far from perfect. Crop and spatial diversification can enhance yield stability in some ecological settings, but intercropping by itself contributes little to yield stability. To consider crop insurance as an effective risk management strategy, more knowledge about the influence of crop revenue on consumption stability is needed. The authors are unsure that a public program of crop insurance is the answer to greater security, or even a step in the right direction. (Household Food Security Bibliography)

163. Walsh, J.
1986 "Famine early warning closer to reality." *Science* 233: 1145-1147.

This article discusses the use of remote-sensing data to monitor crop development in order to give early warning of food emergencies. Essentially this is run by and for western aid agencies, and because of its cost, African countries will continue to depend on external sources for the products of remote-sensing technology. Examines USAID's FEWS and notes that it uses the US NOAA weather satellite. Together with crop assessments and social data, FEWS compiles monthly reports throughout the agricultural season in an attempt to shorten response time to serious food crises. (Famine Early Warning Bibliography)

164. 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.

This article discusses the food supply and household subsistence security of the Hausa people of drought-prone northern Nigeria. It's findings are based on field research conducted by the author in the last 1970s. How the Hausa cope with environmental uncertainty, food shortage, the market and crisis, such as famine are examined.

The history of the Hausa is not one of a subsistence economy. They had previously been integrated into the regional trade economy, in which the household formed the unit of production. The effects of colonialism transformed their economy and undermined the Hausa's food security. Colonial capitalism dissolved systems which buffered households from the uncertainty of the natural environment and the market. The efforts of the Hausa to mitigate the effects of this imposed economy constitute the core of this article, with attention paid to seasonal hunger cycles, patterns of vulnerability from incomplete market development, and the "larger crisis of social reproduction."

165. Watts, M.
1987 Drought, Environment and Food Security: Some Reflections on Peasants, Pastoralists and Commoditization in Dryland West Africa. In *Drought and Hunger in Africa: Denying Famine a Future*, M.H. Glantz, ed. Cambridge: Cambridge University Press.

This article examines the relationship between drought, environmental change and famine, arguing that an indigenous agricultural revolution has taken place in the semi-arid savannas of West Africa. Drawing on case study material from the Nigerien and Nigerian Hausaland, the author argues that environmental problems can be understood in the context of social, political, and economic changes in land use patterns. These changes — particularly the process of commoditization and the social context of the development of markets — also affect food security. The implications of this local level work for the analysis of famines is then discussed. It is argued that greater attention should be paid to long-term, structural patterns in agricultural development when explaining the causes of famine, as well as to intra-household differences in entitlements. Only by looking at structural rather than conjunctural causes of famine can long-term solutions to food crises, rather than short-term palliatives, be found. (Famine Early Warning Bibliography)

166. Watts, M.
1983 *Silent Violence: Food, Famine and Peasantry in Northern Nigeria.* Berkeley, California, USA: University of California Press.

Taking a historical perspective, the book examines the African food crisis in the context of Hausa peasant farmers in northern Nigeria. The relationship between the food crisis, climate, and society are discussed. In particular, household response to variable climatic conditions and the push to join the global economy are analyzed. Also considered are food security and food policy issues.

167. Wisner, B., P. O'Keefe and K. Westgate
1977 "Global systems and local disasters: the untapped power of peoples' science." *Disasters* 1(1): 47-57.

This paper attempts to show how detailed and important information stored in the environmental perceptions and management practices of peasant farmers and herdsmen is being under-utilised for purposes of disaster prevention. The authors argue that: 1) peasants do possess a great deal of understanding of their environment and elaborate repertoires of "adjustments" of daily practices which help them survive disasters; 2) these systems of understanding and adjustment become distorted — sometimes to the point of complete destruction — under the market conditions that characterise most underdeveloped countries; 3) distortion or destruction of the systems of "peoples' science" produces a situation of "decision pathology" on the part of peasants, which in turn explains apparently "irrational" or "non-adaptive" behavior such as overgrazing in Africa, or refusing to evacuate a flood-plain in Asia; 4) increased vulnerability to disaster is the result of such a situation; and, 5) increased numbers of people suffering increased vulnerability to disasters explain why there has been a statistically significant increase in the number and severity of disasters in the last decade. (Adapted from the authors' introduction)

168. York, S.
1985 "Report on a pilot project to set up a drought information network in conjunction with the Red Crescent Society in Darfur." *Disasters* 9(3): 173-178.

The project brief was to test the feasibility of setting-up an information gathering network in Darfur province, Western Sudan, in order to monitor changes in the food situation, based on existing Red Crescent Branches. This would regularly collect base-line data on food and livestock prices, and on population movements which could be used to identify vulnerable groups and areas. There is a brief summary of current conditions in Darfur and a review of what data sources already exist in the province. This is followed by a review of the work of the Red Crescent Society and how its branches present a ready-made structure on which to develop an information network. This could provide a low cost sustainable way to signal the onset of food crisis using the untapped resource of the local population themselves. (Famine Early Warning Bibliography)

169. Young, H. and S. Jaspars

1991 *Nutrition Surveillance for Rural People — Action and Impact in Darfur, Sudan, 1984-1991.* Unpublished paper. Brighton, U.K.: University of Susses, Institute for Development Studies.

Drawing on experiences from Sudan, the authors suggest the need to take a broad view of nutrition in situations of famine. Traditionally, famine has been looked at as a decline in food availability or food entitlement that leads to excess deaths. However, other factors need to be considered including the complex strategies populations take for coping with famine-related events and changes in nutritional status as an early indicator of famine. New approaches for incorporating nutrition data into an early warning system are outlined. Also discussed are different types of nutritional surveys used for surveillance with special consideration given to those that include the participation of local communities.

170. Zaki, E. A.A., J. von Braun, and T. Teklu
1991 *Drought and Famine Prevention in Sudan.* Famine and Food Policy Discussion Paper 5. Washington, D.C.: International Food Policy Research Institute, Food Consumption and Nutrition Division.

During a workshop organized by the Government of Sudan and the International Food Policy Research Institute the results of a three-year project on famine prevention were presented. Four discussion papers are included in the document: "Drought and Famine Prevention Policy for Sudan: An Overview," "Macroeconomic Policy Perspectives for Famine Prevention: Commentary," "Household Experiences with the 1984/85 Famine and Potential for Public Intervention: An Overview," and "Food and Agricultural Policy Aspects of Drought and Famine: Commentary." Summaries of participant's comments, discussions of possible interventions, and a final wrap up of concluding remarks follow. Ten issues for which there was not a clear consensus are outlined including: definition of hunger, causes of famine, food security, development strategy, macroeconomic policy, investment policy, institution building, relief and famine prevention, priority setting, and research agenda.

171. Zalla, T.
1979 *Incorporating Nutrition and Consumption in Farming Systems Research and Rural Development Projects.* Washington, D.C.: USAID, Bureau for Science and Technology, Office of Rural Development.

Rural development projects affect consumption by influencing rural household production decisions, the end product of which is traded to consumers or consumed by the producers themselves. Rural

development efforts also influence employment and income levels both of which affect consumption patterns and effective demand. Changes in both the quantity and composition of food production and consumption lead to dietary changes and to an expansion or contraction in other areas of rural and urban economic activity. An understanding of these kinds of production-consumption linkages will assist program and project planners to maximize both the nutritional impact of rural development projects and the growth linkages between rural development projects and other sectors of the economy. The household consumption unit rather than the production unit is the approximate unit of analysis for studying the linkages between production and consumption. Consumption data should be collected on the same households on which production and income data are collected in order to permit multivariate analysis of the production-consumption interrelationship. (Nutrition in Agriculture Bibliography)

172. Zinyama, L.M., D.J. Campbell and T. Matiza
1987 Traditional Household Strategies to Cope with Food Insecurity in the SADCC Region. In *Southern Africa: Food Security Policy Options*, M. Rukuni and R.H. Bernsten, eds., 183-205. East Lancing, Michigan, USA: University of Zimbabwe UZ/MSU Food Research in Southern Africa.

In a review of literature on coping strategies in the face of food shortages in rural Africa and an examination of available data on coping strategies in the Southern African Development Coordination Committee (SADCC) countries, theoretical approaches to analysis of coping behaviour are compared, strategies are described and the structure of coping behavior is discussed. The authors first consider literature from the environmental, cultural ecological, and political ecological approaches. They next examine coping strategies through literature on herding and farming communities in Sub-Saharan Africa and follow this with coping strategies in SADCC countries in which they discuss recent changes such as have appeared under the impact of colonialization and governmental intervention. The authors found that in Africa, long-standing local strategies are being replaced with redistribution strategies dependent on external institutions. Exogenous-based relief is less sensitive to local conditions and may fail to respond to local needs. It is also expensive compared to local strategies, which are essentially free. Because the reality in Africa is that open systems have replaced more closed systems, there is a need to balance local and external coping strategies for meeting food deficits. (Household Food Security Bibliography)