

Nutrition in Agriculture Annotated Bibliography



**Nutrition in Agriculture
Cooperative Agreement**

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**NUTRITION IN AGRICULTURE
ANNOTATED BIBLIOGRAPHY**

by

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for

Nutrition Economics Group
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ACRONYMS

ACC/SCN	United Nations Inter-Agency Coordinating Committee, Sub-Committee on Nutrition
AFR/TR/ARD	Africa Bureau, Office of Technical Resources, Agriculture and Rural Development
AID	Agency for International Development (same as USAID)
AVRDC	Asian Vegetable Research and Development Center
CGIAR	Consultative Group of International Agricultural Research
CIMMYT	International Center for Maize and Wheat Improvement
FAO	Food and Agriculture Organization
IARC	International Agricultural Research Center
IDS	Institute of Development Studies
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
INTSORMIL	International Sorghum and Millet Project
IRRI	International Rice Research Institute
LIFE	League for International Food Education
PPC	Program and Policy Coordination, U. S. Agency for International Development
USAID	United States Agency for International Development (same as AID)
USDA/OICD/NEG	United States Department of Agriculture, Office of International Cooperation and Development, Nutrition Economics Group

INTRODUCTION

This annotated bibliography surveys a selection of recent literature relevant to nutrition in agriculture. It is one of a series of publications to be prepared under a cooperative agreement involving the University of Arizona and the University of Kentucky with the Nutrition Economics Group, Office of International Cooperation and Development, and United States Department of Agriculture. Funding for this endeavor is provided by the Office of Nutrition, Bureau for Science and Technology, United States Agency for International Development.

To facilitate access to and utilization of the selections, each article has been classified according to one of eight subject categories. These are: Agricultural Development and Nutrition, Nutrition and Food Policy, Economy and Nutrition, General Nutrition, Food Consumption, Nutritional Status, Nutrition Interventions, and Rapid Rural Appraisal. To the extent possible, a complete citation is provided for each selection as well as an abstract summarizing the article's content.

The first category, Agricultural Development and Nutrition, includes selections which broadly address numerous issues relevant to international agricultural development efforts and their impact on and/or consideration of nutritional issues. Particular attention is given to literature focusing on the Farming Systems Research approach to agricultural development.

The second category, Nutrition and Food Policy, encompasses articles which are drawn from key aspects of food policy, namely supply, distribution, and consumption. Special mention is given to a recent comprehensive collection of readings on this subject entitled Food Policy: Integrating Supply, Distribution, and Consumption.

The third category, Economy and Nutrition, includes articles discussing research which has specifically focused on the role of socioeconomic factors in food production and consumption. Particular attention is given to research on the effect of economic growth, especially increasing income at the household level, on food consumption patterns and dietary adequacy.

The fourth category, General Nutrition, features selections which broadly assess the world hunger situation and its consequences for both individuals and societies. A study from the Philippines is presented as an example of an effort to utilize various assessment methods to identify the linkages between agricultural production, food consumption, and nutritional status at the household level.

The fifth category, Food Consumption, presents a range of articles which address various aspects of food intake by households and/or individuals within households. Some of the topics included under this subject heading include: assessment methods, culture and food habits, food consumption indicators, intrahousehold food distribution, and infant feeding practices in relation to food availability.

The sixth category, Nutritional Status, features selections which review various methods for the anthropometric assessment of nutritional

status in infants, preschool children, and pregnant women.

The seventh category, Nutrition Interventions, includes articles which discuss the nature and impact of specific interventions which aim to improve the nutrition of individuals or population groups. Among the interventions reviewed are: supplementary feeding programs for infants, preschool children, and/or women, and public food grain distribution programs.

The final category, Rapid Rural Appraisal, features selections which focus on methods to collect and interpret information for agricultural purposes, rural development, health, and nutrition planning which is relevant, timely and accurate.

AGRICULTURAL DEVELOPMENT AND NUTRITION

ACC/SCN

1983

Taking nutritional effects into account in agriculture and rural development projects: concepts and methodology. Paper presented at ACC/SCN workshop on the Nutritional Impact of Agricultural Projects. Castelgandolfo, Italy.

This publication contains the key papers prepared for a United Nations Inter-Agency Coordinating Committee/Sub-Committee on Nutrition (ACC/SCN) workshop on the nutritional impact of agricultural projects, as well as a brief summary of the workshop deliberations and conclusions. Topics covered in the workshops projects include: a conceptual framework for the nutritional impact of agricultural projects, gender roles in agriculture, the FAO methodology for integrating nutrition into agricultural and rural development projects, nutritional consequences of these projects, and minimum data needs for assessing these consequences.

Aubert, Claude

1986

Malnutrition in the Third World. Nutrition and Health 4: 61-70.

The causes of malnutrition are discussed: lack of money for food and insufficiency of food production. It is stressed that much agricultural land is employed for purposes other than the production of food. Other causes of malnutrition include changes in local food habits and food technology. Remedies discussed include increasing yields by organic manuring and mixed cropping; devoting more land to staple food production; changes in food habits and food technology. Until these problems are addressed in Western societies there is little prospect of suitable solutions amongst the peoples of the Third World. (Author's abstract)

Bressani, R., E. Ibanez, and J.M. Gonzalez

n.d.

Small-scale integrated agricultural production family farm. Food and Nutrition Bulletin 8(3): 30-31.

This article will present data to show that under the environmental conditions existing at a site in the highlands of Guatemala, it was possible to produce enough food from one hectare of land to supply a high-quality diet at relatively low cost for a family of five with a surplus left over to feed other people. The model of production was based on research findings on ways to improve the quality of staples and incorporated the results of such research into diets of adequate nutritional value and reasonable cost. These concepts will become evident in later sections of the article. The model used and its implementation have many drawbacks and weak points, and its transfer to practical situations may be almost impossible to achieve. However, it deserves analysis and criticism, and this is the reason for its publication. (Authors' abstract)

Campbell, Carolyn E.

1985 Rationale and Methodology for Including Nutritional and Dietary Assessment in Farming Systems Research/Extension. Department of International Nutrition, Cornell University

Improvements in nutritional status and/or the quality of life are frequently cited as motivations for undertaking technological interventions and development projects in rural areas of the Third World. In the past, many projects have failed in these goals with or without an increase in per capita income in the project region. Farming Systems Research came into being in part as an answer to this problem. By thoroughly understanding the agricultural system and its human and environmental ecology, it was thought that the errors of the past could be avoided. However, if technological interventions continue to include improvements in nutritional status and quality of life as principal goals of projects, in the absence of rigorous, well-planned nutritional and dietary studies within the realm of FSR/E, FSR/E trials and in the intervention phase itself, the same disappointing results of past interventions are not only possible, they are probable. This paper presents a rationale and condensed methodology for the inclusion of nutritional and dietary assessment in FSR/E. (Author's abstract)

CGIAR

1984 The International Agricultural Research Centers and Human Nutrition - A Position Paper. IARC, Washington, D.C.

This paper presents the views of the International Agricultural Research Center (IARC) with respect to the interaction between international agricultural research and human nutrition. Recent efforts made by the IARCs to explicitly consider nutritional concerns in their planning and work are also discussed.

DeWalt, Kathleen M.

1984 Nutritional Strategies and Farming Systems Research in Southern Honduras: The International Sorghum and Millet Project (INTSORMIL). Report prepared for USAID and INTSORMIL, Honduras.

This paper discusses several issues concerning the inclusion of dietary and nutritional studies in farming systems research. The author identifies the problems such research should address and the kinds of information which contribute to an understanding of farming systems. The paper also briefly reviews the methodological approach to the study of diet and nutrition which has been used by the INTSORMIL Collaborative Research Support Project in southern Honduras.

DeWalt, Kathleen M.

1987 Case Studies in Nutrition in Agriculture. Nutrition in Agriculture Cooperative Agreement, Report No. 2. University of Arizona, Tucson.

This paper provides an organizational framework for developing case studies of projects in agricultural development that address the relationship of

agricultural research and development to food consumption and nutrition of rural populations through the documentation of projects that explicitly address food consumption or nutritional concerns. Linkages between agricultural production and food consumption are specifically noted and include the following: food preference, acceptability and utilization, seasonality of production, crop mix and minor crops, income, the role of women, crop labor requirements, market prices, and problems of post-harvest storage. Two cases studies are presented: the Sierra Leonean Adaptive Crops Research and Extension Project and the Honduran International Sorghum and Millet Project, each addressing the issues of food consumption and nutrition in different ways.

Dewey, Kathryn

1979 Commentary: Agricultural development, diet and nutrition. Ecology, Food and Nutrition 8:265-273.

This paper examines some of the effects of agricultural development on the diets and nutrition of rural people in developing countries. For the purposes of this paper, agricultural development is defined as the transformation from mainly self-sufficient, subsistence agricultural systems to commercial agriculture and the concomitant increased participation in the market economy. The paper aims to analyze the impact that this transformation has had on diet and nutrition under the particular historical and economic conditions of capitalist development in most of the developing world.

Dewey, Kathryn

1980 The impact of agricultural development on child nutrition in Tabasco, Mexico. Medical Anthropology 4(1): 21-54.

This paper describes the impact of an agricultural development project, "Plan Chontalpa" on child nutrition in Tabasco, Mexico. In order to assess the project's impact on diet and nutrition and to examine the influence of agricultural change in general, a nutrition survey of 149 preschool children was conducted both within and outside the Plan Chontalpa area. The results described in the study indicate that the type of agricultural development represented by the Plan Chontalpa has not improved the nutritional status of preschool children in the project's target area.

Dewey, Kathryn

1981 Nutritional consequences of the transformation from subsistence to commercial agriculture in Tabasco, Mexico. Human Ecology 9(2): 151-186.

This paper discusses the impact of an agricultural development project, "Plan Chontalpa", on the food consumption and nutritional status of project beneficiaries in Tabasco, Mexico. One major impact of the project has been a significant reduction in the production of subsistence crops by rural families, resulting in decreased crop diversity and a concomitant increase in the degree of dependence on outside sources of food. Results from a nutrition survey in the project area indicate that dietary diversity, dietary quality, and nutritional status of preschool children are negatively associated with lower

crop diversity and increased dependence on purchased foods. The assumption that increased income following the adoption of commercial production will automatically lead to improved nutrition is challenged. Income levels were not consistently related to nutritional status. In the study area, where wages are low and food prices are very high, the value of a higher degree of self-sufficiency in food is recognized, yet families continue to switch to cash crops due to the environmental, economic, and time constraints imposed by the system of commercial agriculture in which they participate.

FAO

1982 Integrating Nutrition into Agricultural and Rural Development Projects. A Manual. FAO, Food Policy and Nutrition Division, Rome.

This manual provides a methodology for integrating food consumption and nutrition considerations into agricultural and rural development projects. It is designed for use not only by nutritionists and food economist but also by anyone involved in planning projects who has some knowledge related to nutrition and food or has access to professionals in these areas. The methodology provides guidelines, suggests methods, and gives detailed descriptions and checklists of the steps which may be taken.

Fleuret, Patrick and Anne Fleuret

1980 Nutrition, consumption, and agricultural change. Human Organization 39(3): 250-259.

This article reviews the findings of research studies which have focused on how modernizing communities (or specific categories of people within these) become malnourished through the introduction of novel methods of food production, distribution, and consumption. A main objective of this review is to identify some important implications of development policy.

Frankenberger, Timothy R.

1985 Adding a food consumption perspective to farming systems research. USAID, Bureau for Science and Technology, Office of Nutrition. Washington, D.C.

Methods in which the food consumption concerns of small farmers can be better integrated into each stage of FSR are presented, emphasizing the importance of food consumption to agricultural production. Considered first are production and consumption linkages of which FSR 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 FSR, and the kinds of data that can be collected. In conclusion, recent FSR projects which have attempted to implement such procedures are identified.

Frankenberger, Timothy R.

1987 Food Consumption and Farming Systems Research: A Summary. Nutrition in Agriculture Cooperative Agreement, Report No. 1. University of Arizona, Tucson.

This paper outlines a number of food consumption issues which are relevant to agricultural production and changes in technology. The issues are discussed in the context of four main categories, namely: 1) awareness, 2) implementation, 3) utilization, and 4) evaluation.

Garcia, M., J.B. Mason, J.T. Mitchell, C. Henderson, H. Tabataba, and L. Lopez
1983 Nutritional Effects of Rural Development: An Assessment as Part of the Planning of a Large-Scale Development Project in Palawan, Philippines. Cornell Nutritional Surveillance Program, Cornell University, Ithaca, New York.

This paper reports the results of detailed analyses of data collected on the island of Palawan in the Philippines during field-testing of the FAO guidelines for integrating nutritional considerations into agricultural and rural development projects. The paper also summarizes the findings and procedures adopted and lays out the implications for design of the Palawan Integrated Area Development Project.

Harrison, Gail

1987 Nutritional status and food intake data: their role in nutrition and agriculture. Paper presented at the Farming Systems Research Symposium, October 1987.

This paper identifies and discusses several reasons for the general lack of attention to direct measures of nutritional status and dietary intake within agricultural projects. A key reason is the lack of adequate information and training in the use of simple field-appropriate methods. The author also presents one approach to "rapid community diagnosis" with respect to the three most common types of malnutrition: protein-energy malnutrition, iron deficiency, and vitamin A deficiency.

Harriss, Barbara

1987 Nutrition and agricultural research. Food Policy February: 29-34.

This article reviews the relationships between agricultural research and nutritional status, including the present role of nutritional science in agricultural research. The author also explains and comments upon a strong body of recent advocacy for change in these relationships. Over the past 25 years, twelve internationally funded agricultural research centers have been established to carry out basic research on food crops of importance to underdeveloped countries. However, the impact upon nutrition of this research is not known and many basic questions regarding food policy remain unanswered.

Holmberg, Johan

- 1980 Guidelines for the Introduction of Nutritional Considerations into Development Projects - A Field Test Applied on Monap in Mozambique. FAO. Maputo, Mozambique.

This paper summarizes the field testing of the FAO guidelines for the introduction of nutritional considerations into agricultural and rural development projects. The guidelines were applied to the Mozambique Nordic Agricultural Programme (MONAP). Based on the results of the field testing, several modifications of the guidelines are suggested.

Huss-Ashmore, Rebecca

- 1985 Nutritional Aspects of Agricultural Change on Swazi Nation Land: Issues and Research Priorities for the Cropping Systems Project. University of Pennsylvania, Philadelphia.

The report summarizes a one month consultancy in 1985 to the Swaziland Cropping Systems Research and Extension Training Project. Several issues are discussed which the author suggests, should be addressed by a proposed nutritional component to the project. The issues include: the nutritional impact of on-farm trails and cash-cropping; seasonality of energy, protein, and certain vitamins; possible intrahousehold maldistribution of high quality protein resources; nutritional impact of agricultural labor requirements and domestic work; and Swazi cooking practices which may lower the nutrient content of the food.

Huss-Ashmore, Rebecca

- 1986 Report of the Nutritional Consultant Swaziland Cropping Systems Research and Extension Training Project. University of Pennsylvania, Philadelphia.

This article is a report of a nutritional consultancy to the Swaziland Cropping Systems Research and Extension Training Project. The consultancy was part of an effort to integrate nutrition and food consumption concerns into its ongoing research and training program. The consultancy entailed three main objectives, namely: (1) to construct a survey instrument for collecting food consumption data; (2) to address the need for training research assistants in the collection of these data; and (3) to communicate with personnel from USAID and the Ministry of Agriculture on the rationale for including a nutritional perspective in agricultural programs. The ways in which these objectives were met are discussed in the report.

Jones, Barbara

- 1980 Agricultural Change and Its Impact on the Nutritional Status of Small Farm Families. Unpublished report.

This paper discusses several issues relevant to the nutrition and consumption effects of agricultural development. Farming systems research programs are suggested as perhaps the most appropriate framework for studying these issues.

Keig, Gael and J.R. McAlpine

n.d. An Environmental Framework for Nutrition Surveys in Papua New Guinea.
Unpublished report.

The rural population of Papua New Guinea derives the bulk of its food supply from crops grown on land owned by each village or clan. There is a wide diversity of agricultural practices, each adapted to the physical characteristics of the local environment. Consequently the links between environment, food production, dietary intake and nutritional status are more direct than is the case for urban populations. This paper briefly outlines the findings of studies which have sought to describe and interpret differences in the nutritional status of population groups living in different environments in Papua New Guinea. The more qualitative early investigations have been followed by more rigorous attempts to identify links between characteristics of the physical environment, food production systems and nutrition. A project currently being undertaken by the Department of Primary Industry and CSIRO has provided environmental information which was used to delineate and classify a series of "ecological zones" which comprised the statistical sampling frame for the National Nutrition Survey. A brief outline is provided of the methods used to derive the sampling frame and information is presented on population distribution by environments over the whole country. The advantages of adoption of an environmental framework for rural surveys in Papua New Guinea are discussed.

Longhurst, Richard

1983 Agricultural production and food consumption: some neglected linkages. Food and Nutrition 9: 2.

In this article some aspects of these complicated linkages are discussed which should be given more attention in terms of investment effort, research and extension in order to effect significant improvements in food consumption. A good starting point is the farm family itself and its strategies to ensure food supplies for all its members. The aspects discussed here have generally been neglected in the formulation of agricultural policy. In some parts of the world they are closely interrelated and are especially vital. The first of these is the timing, or seasonality of production. Food is not always available as an even flow of produce the year round, certainly for the landless and poor farmers. Second, the mix of production and of crops grown and what are loosely termed "minor crops" deserve a greater proportion of policy attention. These crops, including vegetables, fruits and some grains and tubers play a far greater role in farmers' cropping strategies and diet than is generally assumed, and they fill important gaps at certain times of the year. Third, the role of women in farm production is a key variable determining the nutritional status of children. Accordingly, greater study should be given to women as producers. Farm families do not exist as homogenous units and in most parts of the world there is a clearly defined sexual division of labour and control of harvested product. (Author's abstract)

Longhurst, Richard

1985 Cropping systems and household food security: evidence from three West African countries. Food and Nutrition 11(2): 10.

Farmers, in the way they choose between crop mixes, planting times and the range of cultivation methods and factors, have in mind their own rationales for household food security. They employ a number of strategies designed to provide a relatively even flow of food for household consumption throughout the year. Some food they will produce themselves. Other food they will buy with cash raised through off-farm occupations such as trading, food processing, house repair and farm labour. In some cases, families know that they can depend on other members of their extended family for food gifts. In areas where there is marked seasonality of production, strategies to provide food for households year-round are extremely important and more difficult for farm families to implement. Such strategies are diverse in nature because households are rarely a homogenous unit of production and consumption. In many countries men and women have separate income-earning opportunities, separate fields which they plant with different types of crops, different obligations for providing food within the household and differing degrees of control over the produce from individual and family fields. This article looks at three countries in West Africa - Sierra Leone, The Gambia and Nigeria. They share a marked seasonality, having distinct wet and dry seasons, in relation with which farmers have different cropping strategies and differently share their work and responsibilities with other household members according to sex. The sharing of economic activities has important implications for the flow of food to different household members. (Author's abstract)

Longhurst, Richard and Michael Lipton

1985 Secondary Food Crops and the Reduction of Seasonal Food Insecurity: The Role of Agricultural Research. Paper presented at the IFPRI/FAO/AID Workshop on Seasonal Causes of Household Food Insecurity: Policy Implications and Research Needs. December 10-13, 1985. Annapolis, Maryland, USA.

This paper poses and attempts to answer four questions on the role of secondary crops and food insecurity. First, what role do these crops play in the diets of populations in developing countries, especially on a seasonal basis and in providing them incomes so that they can obtain sufficient food? Second, are some crops of greater importance in the diets of poor rural people? Third, what sort of agricultural research is already being carried out on these crops to improve the diets and incomes of undernourished people? Fourth, given the answers to the first and second questions, what should be the nature, structure, type, and location of investment in agricultural research in these commodities? (Authors' abstract)

Mack, Maura

1985 Nutrition Components of the Adaptive Crop Research and Extension (ACRE) Project - Sierra Leone. USAID, Office of Nutrition, Bureau for Science and Technology, Washington, D.C.

This paper reviews the nutrition component of Sierra Leone's Adaptive Crop

Research and Extension (ACRE) Project, its accomplishments and lessons learned. The purpose of the paper is to illustrate one example of an agriculture project which addresses both the food production and consumption/nutritional concerns of its farm family beneficiaries.

Mason, John, Marito Garcia, Janice Mitchell, Karen Test, Clarence Henderson, and Hamid Tabatabai

1984 Nutritional considerations in project planning - a case study of assessment methods. Paper submitted to Food Policy.

This paper discusses procedures for ex ante assessment of likely nutritional effects of development projects. Issues concern targeting project components to the needy, avoiding situations where increased income actually worsens nutrition, and identifying additional project components. The assessment of a large-scale development project in the Philippines is described. This indicated priority to remote areas, small farmers and subsistence fishermen; concluded that production-oriented components would improve nutrition of participants; and that a water supply intervention was likely to be effective. Future application of such procedures will be important if they can be fully integrated with the overall project planning. (Authors' abstract).

Maxwell, Simon

1984 Health, nutrition and agriculture: linkages in farming systems research. IDS Discussion Paper 198: 32-64. Institute of Development Studies, Sussex.

This paper argues for the interdependence of health, nutrition and agriculture, and the implications this has for the content and method of farming systems research (FSR). The paper proposes a conceptual framework for analysing the linkages, and explores the implications for FSR in terms of data and procedure. A case study is presented, based on farming systems research in Santa Cruz, Bolivia. It is concluded that this is potentially a very productive area in which further research is needed. (Author's abstract)

Merriam, Jeffery M., and Ronald Nunn

1984 Food Consumption Impacts of Selected Ongoing or Completed Aid Agricultural and Rural Development Projects. USDA/OICD/NEG. Washington, D.C.

This paper examines eleven USAID agriculture and rural development projects with respect to their effect on food consumption. An attempt is made to assess the projects' overall impact on development in order to determine how to effectively implement AID nutrition/food consumption strategies.

Mokbel, M. and P.L. Pellett

1986 Nutrition in Agricultural Development in Aleppo Province Syria: Home Food Preservation and Family Food Consumption Patterns. Dept. of Food Science and Nutrition. University of Massachusetts. Amherst.

This paper discusses the findings of qualitative dietary assessment surveys

conducted in eight villages in the high and low rainfall areas of Aleppo Province, Syria, together with height and weight determinations on children. Rural families in the high rainfall zone generally had greater and more stable farm resources and reserves than families in the low rainfall zone. Anthropometric data indicated that many children in both zones were below reference values in weight-for-age and height-for-age although weight for height values were normal. The interrelationships between farm resources and dietary consumption were suggested by: significantly higher consumption of dairy products as more livestock was owned; seasonality in variety and frequency of consumption; and the greater impact of drought on food reserves in the low rainfall zone. No direct relationships between anthropometric deficits, farm resources, and dietary patterns could be demonstrated since the differences between zones were small and all the farmers were relatively poor.

Mokbel, M. and P.L. Pellett

1986 Nutrition in Agricultural Development in Aleppo Province Syria: Relationship Between Farm Resources, Rainfall, and Nutritional Status of Children. Department of Food Science and Nutrition. University of Massachusetts, Amherst.

This paper discusses information obtained from two surveys (in winter and summer) in eight rural villages in high and low rainfall zones of Aleppo Province Syria. Information included living conditions, farm resources, dietary pattern, infant feeding practices, and height, weight, and age data on children. Living conditions and farm resources were generally superior in the high rainfall zone, but anthropometric findings did not differ greatly in both zones.

Olayide, S.O. and J.K. Olayemi

1976 Economic Aspects of Agriculture and Nutrition: A Nigerian Case Study. Paper presented at IITA Workshop on Interfaces of Agriculture, Food Science and Nutrition. Ibadan, Nigeria.

This paper reviews the interaction between nutritional intake and the state of Nigeria's food economy. The economic factors that influence the existing food supply and demand and thus nutritional status are also examined. First, the paper describes the average nutritional condition of the Nigerian population. Next, the major economic variables that explain the prevailing food supply-demand balance in Nigeria are identified. The main variables that influence the existing low rate of growth in Nigeria's food supply are: 1) the growing scarcity of traditional farm inputs, including the increasing person-to-land ratio, stagnant production technology, and low use of modern farm inputs; 2) marketing and price constraints; 3) profit constraints; and 4) organizational constraints. On the demand side, the main variables are: 1) high income growth rate; 2) poor income distribution; 3) high consumer prices; and 4) sociocultural factors. Finally, possible strategies aiming at effective planning for adequate nutrition in Nigeria are discussed.

Paris, T.R. and Laurian Unnevehr

1985 Human Nutrition in Relation to Agriculture Production: An Example in the Philippines. Dept. of Agricultural Economics, IRRI. Los Banos, Laguna, the Philippines.

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.

Pines, James M.

1983 The Nutritional Consequences of Agricultural Projects: Evidence and Response. ACC Subcommittee on Nutrition.

Agricultural and rural development projects cause economic and social changes that extend far beyond their typical broad output and income goals. Increased aggregate farm output and income often fail to improve the nutritional status of groups in the project area and better nutrition, or even stability by preventing deterioration, often requires specific attention. This paper reviews available evidence, and assesses its relevance for influencing agricultural planners in nutritionally favorable ways. Nutrition consequences flow from the combined impact of many factors and their influence varies in magnitude, and often in direction, depending on the social and economic contexts in which they appear. The author argues for the importance of disaggregation of data. He reviews economic and social factors such as ecological damage, migration, women's work and income, consumption patterns, child care, and social cohesion discussing how each affects nutrition and how, in some contexts, they do frustrate nutritional improvements.

Pinstrup-Andersen, Per

1982 Incorporating Nutritional Goals into the Design of International Agricultural Research. International Food Policy Research Institute. Washington, D.C.

This paper focuses on 1) identifying ways in which to improve the nutritional impact of international agricultural research and 2) summarizing current efforts by the international agricultural research centers to consider the nutritional effects of their work. The paper includes a brief overview of the linkages between agricultural research and human nutrition. In this overview emphasis is placed on identifying the factors which may be influenced by the agricultural research community to improve the nutritional impact. Following

the overview, the author discusses how the research community may integrate nutritional considerations into its decision-making. Next, current activities in this general area by the international agricultural research centers are summarized. Finally, the author proposes additional activities which the centers might wish to consider.

Pinstrup-Andersen, Per

1982 Export crop production and malnutrition. Paper presented at North Carolina State University, October 21, 1982.

This paper discusses the nutritional effects of export cropping and government policies which would promote improved nutritional status or at least preclude its deterioration. Four main paths are identified through which export cropping influences food intake. These are: food availability, ability of the household to obtain available food, desire to obtain food to which the household has access, and intra-household food distribution. The paper ends with a summary of the policy implications.

Smith, Meredith F. and Patricia A. Wagner

1985 Nutrition as a Component of Farming Systems Research. Proceedings of the XIII International Congress of Nutrition. Brighton, UK.

This paper summarizes the issues discussed at the XIII International Congress of Nutrition which relate to the effect of agricultural change on the nutritional status of farm families in the Third World. The discussion emphasized the importance of understanding existing farming systems and recognizing interactions among their various components so that the potential effects of proposed changes can be assessed. Three main recommendations were made, namely: 1) strengthen linkages between farming systems researchers and nutritional scientists; 2) demonstrate the integration of nutritional concerns in a carefully designed model project in one location; and 3) identify indicators of dietary quality and nutritional status that have practical and appropriate application within the framework of the farming systems research approach.

Tripp, Robert

1984 On-farm research and applied nutrition: some suggestions for collaboration between national institutes of agricultural research and nutrition. Food and Nutrition 6(3): 49-57.

This paper examines the possibilities of using a set of research procedures developed by CIMMYT known as "on-farm research", as an entry point for applied nutrition aimed at farming populations in developing countries. Key issues that are addressed include: the possibilities and limitations for including nutritional concerns in agricultural research, the stages at which nutritionists should participate in the process, and the analytical tools appropriate to this participation. Finally, some specific suggestions are made regarding increased collaboration between national institutes of nutrition and agricultural research.

USDA

n.d.

Food Consumption and Nutrition Effects of International Development Projects and Programs: An Annotated Bibliography. USDA/OICD/NEG. Washington, D.C.

This annotated bibliography features selections drawn from the fields of agriculture, economics, nutrition, anthropology, project management, and other related areas. The selections are arranged into three main categories, namely: 1) articles which deal with the causes and solutions of malnutrition problems from a technical or policy perspective; 2) articles on the nutritional effects of particular agricultural development programs and policies; and 3) articles dealing with guidelines and methodologies for exploring the nutritional impact of development projects.

Whelan, William

1982

Incorporating nutritional considerations into farming systems research. Paper presented at the Farming Systems in the Field Symposium. Kansas State University, November 1982.

This paper presents a strategy for incorporating nutritional considerations into farming systems research projects. A specific objective of this strategy is to achieve a reduction in protein-energy malnutrition. A key aspect of the strategy is the identification and inclusion in farming systems research projects of a suitable variable which (1) will provide useful nutritional information and (2) is cost-effective in terms of data collection and analysis. The author suggests the subsistence potential ratio (SPR) variable as an acceptable substitute for nutritional status, and perhaps better than either income or total expenditure variables. The SPR is the ratio of a household's ability to feed itself to its need to do it. A household's ability to feed itself may simply be expressed by the energy or protein value of the food which the household can produce over the course of the year, the agricultural production cycle, or the food consumption cycle. The household's need to feed itself refers to the energy or protein requirements of the entire household for the combined agricultural production-consumption cycle.

NUTRITION AND FOOD POLICY

Gittinger, J. Price, Joanne Leslie and Caroline Hoisington

1987

Food Policy: Integrating Supply, Distribution, and Consumption. The Johns Hopkins University Press, Baltimore and London.

This collection of readings focuses on food policy issues in developing countries. Its basic tenets are that effective food policy must be concerned with supply, distribution, and consumption (which includes explicit nutritional goals) and that malnutrition is unlikely to be eliminated in the near future through growth of national income alone. The collection includes selections drawn from all aspects of food policy. Part I presents an overview of current

thinking about food policy and the world food situation. Part II deals with food production, but emphasizes aspects of agricultural production that are relevant in the context of a broad food policy. Part III addresses food security, trade, and aid. Part IV focuses on distribution issues. Part V develops the concept that disaggregation is the key to understanding nutrition problems and to developing policies to address them. In Part VI the collection ends with a look at the experience in food and nutrition planning and concludes that generally it has not been broadly integrated.

Hay, Roger W.

1986 The political economy of famine. Nutrition and Health 4: 61-70.

This paper explores some of the reasons why the well-laid plans of the 1970s failed to be an effective bulwark against hunger. It is reflective rather than critical because we are faced with the certainty that just as surely as the famines of the 1980s followed the famines of the 1970s, the 1990s will again see drought, crop failure and, unless things change a great deal, famine as well. The analysis of the causes of hunger current in the 1970s can be summarized somewhat brutally as follows. Either there is not enough to eat, or what is available is poor in nutritional quality. Poor nutrition is synergistic with disease. Together they result in increasing debility and finally death. Famine is an unusual event, precipitating by this same triad of factors, on a catastrophic scale. The strategies which emerged from this analysis can be placed similarly under three broad headings. The first is that food production must be increased so that there is more available for everyone. The second is that national food security strategies should be developed and implemented. The third is that nutritional quality of people's diet should be improved. These are three major goals which have dominated international thinking for a decade. This paper argues that this analysis is at the very least incomplete and that the strategies based upon it have failed to make a marked impact on the risk vulnerable households facing famine. It goes on to suggest that, irrespective of the quantity and quality of food generally available, the households, poorer communities and poorer countries are able to lay claim to a share of what is available. These claims are mediated by a hierarchy of relationships - households within communities, communities within countries and countries in the world at large - and the nature of the relationships constitutes the 'political economy' within which famines arise and must be analysed. (Author's abstract)

Longhurst, Richard

1986 Agricultural strategies, food and nutrition: issues and opportunities. Nutrition and Health 4: 71-82.

Agricultural development in developing countries has not lead to significant improvements in the consumption and nutrition of poor people. One reason is that, in the design of policy and projects, consumption objectives have not been incorporated explicitly. Far greater understanding is required of the way rural people plan their strategies for obtaining household food; external assistance should build on these activities rather than undermine them. This has often occurred in the past. Five aspects of agricultural policy are

considered which, if incorporated into planning and implementation, should lead to improvements in food consumption and nutrition. These are: first, a review of the way in which export crops should be introduced and promoted so that food security is not adversely affected; second, a discussion on the need to give greater attention to what are known as "minor" crops; third, a discussion of the importance of incorporating seasonality into planning; fourth, a review of the importance of women; and fifth, an examination of the ways in which crop breeding research should involve nutritional concerns. The paper concludes with some observations from Kenya whereby agricultural sector planning could incorporate nutritional objectives. (Author's abstract)

Marchione, Thomas J.

1984 Evaluating primary health care and nutrition programs in the context of national development. Social Science and Medicine 19(3): 225-235. This paper illustrates an evaluation model incorporating research techniques of both primary health care and social anthropology. The case in point is the Jamaican Government's Community Health Aide Programme, which employs over 1300 auxiliary health workers to serve the low-income population of the island. The study demonstrates a cardinal principle of the anthropological approach - a grounded and holistic understanding of the social and environmental context is necessary to translate data into useful information. The study demonstrates connections between the distribution of care, the power of the cosmopolitan medical profession, and the Jamaican political patronage system. Finally, the impact of the program is assessed on child growth measures against the background of the Jamaican economy as it evolved from 1970 to 1980. (Author's abstract)

McKigney, John I.

1968 Nutrition in Food Policy and Planning - Paper presented at the Conference on Protein Foods for the Caribbean. Georgetown, Guyana.

This article features a nutrient-cost table developed by the Caribbean Food and Nutrition Institute which shows the amount of nutrients obtained per dollar spent on a specific food item. The table makes it easy to compare food prices with respect to two specific nutrients: calories and protein. This information could be useful to people involved in the development and implementation of nutrition and agriculture programs, projects, and policies.

Michigan State University Bean/Cowpea CRSP

1984 Improving food accessibility through village-level production of cowpea meal. Research Highlights 1(4): 1-3.

This article discusses one of the major foci of the collaborative research project between the University of Georgia and the University of Nigeria at Nsukka: the development of technologies to improve the ease and efficiency of seed coat removal. A simple, low-cost pretreatment process has been devised to loosen the cowpea seed coat. Following decortication and cleaning, cowpeas can be milled to produce meal or flour. Also under this project, storage and processing technologies have been developed to provide readily prepared forms

of cowpeas in greater quantities to consumers. In addition, the development and implementation of technologies to improve the utilization of cowpeas should contribute to improved nutritional status of West African project beneficiaries.

Mollett, J.A.

1986 The state of food and agriculture in Islamic countries. Food Policy 11: 279-284.

This brief review of the state of food and agriculture in Islamic countries underlines the need for a much greater public commitment to agricultural development. There is encouraging scope for cooperative efforts between the small, rich, oil-exporting countries and larger poor countries with untapped agricultural potential. The review is based on material prepared by FAO for the second meeting of the Organization of the Islamic Conferences (OIC) held at Istanbul, 11-16 March 1986. (Author's abstract)

O'Brien-Place, Patricia M.

1981 Nutrition in Policy Planning for the Rural Sector. Cornell International Nutrition Monograph Series, Division of Nutritional Sciences, Cornell University.

This monograph addresses the need to include nutrition in development planning and describes the complex interaction of agricultural and food policies on family nutrition. Methods that can be used to identify the nutritional impact of various policies are discussed. The nutrient consumption approach is presented as a descriptive model of the socioeconomic variables that influence nutrition. This model is suggested as a useful tool in nutrition planning for development.

Omari, C.K.

1986 Politics and policies of food self-sufficiency in Tanzania. Social Science and Medicine 22(7) 769-774.

Since independence, Tanzania has stated her food production goals in many national declarations and indicated how the policies were to be met. Implementation of policies has not produced more food because the political ends were not consistent with economic directions. This paper discusses both. (Author's abstract)

Omawale

1980 Nutrition problem identification and development policy implications. Ecology of Food and Nutrition 9: 113-122.

Lasting nutrition improvement in developing countries is established as being dependent on socio-economic development. However, traditional descriptions of the nutrition problem fail to give adequate guidance for appropriate development activity, so a more functional classification of groups at risk of

malnutrition is attempted in this study. A multi-purpose household survey of a Philippine province analysed in this context reveals the prevalence of malnutrition among pre-school age children to be generally related to the ratio of household income to the cost of calories in the household diet. The data also imply that subsistence farm households are likely to eat more expensive calories with a shift to cash cropping. Consequently, their currently low energy intakes will probably be reduced unless income doubles when such a shift occurs. This type of approach appears to offer better opportunities for introducing nutrition considerations into development planning that could then lead to improved nutrition.

Pinstrup-Andersen, Per, Norha Ruiz de Londono, and Edward Hoover

1976 The impact of increasing food supply on human nutrition: implications for commodity priorities in agricultural research and policy. The American Journal of Agricultural Economics 58(2): 131-142.

A procedure is developed to estimate the nutritional implications of alternative commodity priorities in agricultural research and policy. The model estimates distribution of supply increases among consumer groups, the related adjustments in total food consumption, and implications for calorie and protein nutrition. Findings from an empirical application of the model to the population of Cali, Colombia, suggest that relative increase in total nutrient supply is a poor indicator of relative nutritional impact because both nutritional waste and consumer adjustment in total food consumption are a function of the commodity from which the additional nutrients are obtained. (Authors' abstract).

ECONOMY AND NUTRITION

DeWalt, Kathleen M.

1983 Income and dietary adequacy in an agricultural community. Social Science and Medicine 17(23): 1877-1886.

Although many studies as well as conventional wisdom suggest that increases in income result in improved diet and nutritional status in rural areas of developing countries, several recent studies have failed to demonstrate such a relationship. In this paper the relationships between material wealth and income and dietary strategies are examined for an agricultural community in rural Mexico. A superficial examination focusing on summary indices of dietary adequacy frequently cited in the literature and indices of wealth and income demonstrates a positive relationship between them in this community. However, an examination of the same data emphasizing alternative dietary strategies to achieve nutritional adequacy shows a more complex picture. Increasing income is associated with consumption of purchased foods especially foods of animal origin, and is not associated with the consumption of staple foods produced within the household. Diets dependent on purchased foods do not necessarily meet nutritional needs more adequately than diets which rely on agricultural products and gathered foods. Among the implications of this research are a

need for a method of analysis which focuses on alternative nutritional strategies available in particular settings, and a need to reassess the relative importance of income generating activities and subsistence agriculture in areas undergoing agricultural change. (Author's abstract)

Dundas, Mary Louise

1984 Socio-Economic Influence on the Use of Sorghum Products and Nutritional Status of Children in Sudan. Unpublished PhD dissertation.

This article reviews a six month study of food consumption and food practices among families living in three rural villages in Sudan. The study revealed that the majority of adult men had an inadequate intake of calories, calcium, vitamin A, riboflavin, and niacin. The majority of children in the surveyed villages also exhibited some degree of malnutrition. In this study, particular attention was given to the type of sorghum eaten and the frequency of its consumption.

Perez Hernandez, Mercedes, Carlos Perez Hidalgo, Juan Ramirez Hernandez, Herlinda Madrigal, and Adolfo Chavez

1974 Effect of economic growth on nutrition in a tropical community. Ecology of Food and Nutrition 3: 283-291.

In order to assess the effect of agricultural development on nutrition, surveys were made both prior to, and following the implementation of an extensive agricultural programme in a tropical area. Over a period of 13 years, agricultural production increased almost sixfold, whereas in the same period the population only doubled. It was found that the average food intake rose significantly, but this change was the result of the economic impact of the higher income group. Approximately 30 percent of the population, comprising the poorest peasants, showed no improvement in food intake so the prevalence of malnutrition in the area was virtually unchanged. Thus, in 1958, 26.1 percent of children under 5 years of age showed second and third degree malnutrition; in 1971 this proportion dropped to only 22.5 percent. It follows that agricultural development alone does not necessarily alter the feeding pattern of low income peasants nor does it prevent malnutrition. (Authors' abstract)

Popkin, Barry M.

1978 Nutrition and labor productivity. Social Science and Medicine 12C: 117-125.

Improved nutritional status may have a significant positive impact on labor productivity. Critical dimensions of productivity affected by nutrition include labor time and intensity of work. The various hypotheses relating nutrition and productivity are reviewed. A study of labor-intensive road construction workers in the Philippines is presented which corroborates many of these theoretical relationships. (Author's abstract).

Reutlinger, Shlomo

1983 Nutritional Impact of Agricultural Projects: A Conceptual Framework for

Modifying the Design and Implementation of Projects. Paper prepared for the ACC/SCN Workshop on Nutrition in Agriculture and Rural Development Projects. Washington, D.C.

This paper identifies and discusses those economic features of agricultural and rural development projects which are most likely to have direct nutritional consequences. Several recommendations concerning the introduction of nutritional considerations into the design and implementation of agricultural and rural development projects are presented for consideration. These are: (1) Agricultural projects should be designed to be cost-efficient alternatives to welfare/income or food distribution/health interventions; (2) agricultural and rural development project planners should ascertain that projected income gains from cash crop production projects more than offset the potential loss to farm households due to decreased quantities of foods produced and consumed by the household; (3) project planners should ascertain that projected gains from cash crops offset disincentives to food consumption due to higher food prices as a result of the project; (4) project planners should consider the social cost-benefit of higher food prices when a region in which a cash crop project is undertaken turns from food self-sufficiency to importing food; and (5) project planners should consider the national food supply and price implications when evaluating the merits of projects promoting the production of basic foods relative to projects promoting export crops in countries which cannot or should not pursue free trade politics.

Truscott, Kate

1986 Socio-economic factors in food production and consumption. Food and Nutrition 12(1): 27-44.

This paper reviews the findings of a study undertaken to elucidate the relationship between agricultural production and consumption at the household level in eight villages in Wedza Communal Land, Zimbabwe. Two types of household were examined: those which have access to cash income from the formal sector (through one household member being engaged in wage work in the area or elsewhere); and those which depend largely on agricultural production for their material existence. The households were selected as case studies.

GENERAL NUTRITION

Babcock, Christine and Tom Zalla

1984 Nutrition Guidelines for Agricultural and Rural Development. USAID, AFR/TR/ARD. Washington, D.C.

This paper provides guidelines for USAID agricultural officers and others responsible for implementing USAID's nutrition policy and strategy as these pertain to agricultural and rural development projects and programs in Africa. The purpose of the guidelines is to facilitate serious consideration of nutrition in all agriculture and rural development projects and PL430 programs. The guidelines suggest a framework for improving the likelihood that increases

in income and agriculture production, and a decrease in imported goods that require foreign exchange will also lead to increases in food consumption among specific food deficit African populations.

Chavez, Miriam, Jean Hankin, and Ruth Huenemann.

- 1981 Simplified Dietary Assessment in Developing Countries. Report to the Committee on International Nutrition Programs, National Research Council. Washington, D.C.

This paper describes two dietary survey methods for use with households or individuals in developing countries. It includes illustrated forms, and discusses information on sampling, survey preparations and interviewing, survey contents, and techniques of data collection, analysis, and presentation.

Gilbert, D., E. Brinneman, and J. McGuire

- 1976 Dietary Assessment: A Comparison of Two Methods. Report to the Subcommittee on Nutritional Assessment, USAID. Washington, D.C.

This paper reviews the results of a dietary survey completed in Guatemala, comparing two simplified dietary assessment techniques, namely the "scorecard" assessment method and the "usual daily intake" method. The survey was conducted over a three-week period in a finca population. The statistical validity and reliability of the scorecard method compared to the usual daily intake method is examined in this report.

Gurney, Michael J., and Peter J. Jutsum

- 1981 Nutrient-cost nomogram: an appropriate technology. American Journal of Clinical Nutrition 34: 2615-2618.

The nutrient-cost concept is important in food and nutrition planning and applied nutrition programs. There is a need to develop a simple and quick method of calculating nutrient-cost values. A nomogram, which provides a new technology, has been devised to do this. The use of the nomogram and its theoretical basis are described.

Hertzler, Ann A. and C. Edwin Vaughan

- 1979 The relationship of family structure and interaction to nutrition. The American Dietetic Association 74(1): 23-27.

This paper reviews research which illustrates the relationship of family characteristics to food habits and nutritional status. Research reports are grouped into two main categories: those dealing with the structure and demographic characteristics of family units and those dealing with patterns of family interaction. Structural variables include family size, race, education, employment, income, and family composition (e.g., male or female headed, nuclear or extended). Interaction variables include parent-child interaction, parental interaction, satisfaction with marriage, and conjugal decision-making.

Hulse, Joseph H.

1982 Food science and nutrition: the gulf between rich and poor. Science 216: 1291.

The people of economically developed countries benefit greatly from modern food science. They are protected from food contamination, have access to a great variety of food, and need little time to prepare it. The poor in developing countries enjoy few of the benefits of food science. Their diets are often nutritionally deficient and they spend many hours each day processing their food and searching for wood with which to cook it. In most tropical countries food losses between harvest or slaughter and eventual consumption are inestimable. Efforts to improve post-harvest food systems in developing countries require the attention and ingenuity of many scientific disciplines and the support of all development agencies. (Author's abstract).

Poleman, Thomas T.

1981 A reappraisal of the extent of world hunger. Food Policy (November 1981): 236-252.

The variation between different estimates of the magnitude of the world food problem are enormous. The author questions the basis of the major surveys of FAO, the World Bank and USDA, and suggests that they have grossly overestimated the extent of world hunger. By analyzing the connection between population, food and economic participation, a more realistic view is obtained, suggesting a return to targeted assistance programmes for the improvement of maternal and child health. (Author's abstract)

Quandt, Sara and Cheryl Ritenbaugh

1986 Training Manual in Nutritional Anthropology. American Anthropological Association, Washington, D. C.

This training manual is designed as a starting point for practitioners of nutritional anthropology. The biocultural, ecological perspective is emphasized. Section 1 reviews methods used to study nutrition and diet at levels of individual, household and community. Section 2 provides recommendations for evaluating physical growth data, for studying traditional food use, and for incorporating nutritional anthropology into development projects. In Section 3, Regional Overviews and Approaches, five chapters review nutrition problems, programs, and research strategies in a variety of settings - from Amazonia to the United States. Finally, Section 4 presents a selection of resources for the practicing nutritional anthropologist, including an extensive list of food-composition tables.

Ritchie, Jean A.S.

1986 Towards better nutrition: lip service or a realistic fight? Nutrition and Health 4: 105-112.

Progress towards the objective of the World Food Conference of 1974 that "no child should go to bed hungry" is reviewed. The low market price of primary

products keeps developing countries poor. Yet in these countries industry rather than agriculture has been supported by governments. All regions are increasing total food production but population growth threatens to offset this increase. In some areas there is a decrease in food production per head of population. In many countries the social situation of women affects the nutrition of families. Other causes of malnutrition are discussed and future policies are recommended. (Author's abstract)

Scrimshaw, Nevin S.

1986 Consequences of hunger for individuals and societies. Federation Proceedings 45(10): 2421-2426.

Famine and the manifestations of acute hunger that result are an unnecessary disgrace to our global society and serious in their political, economic, and social consequences. Probably more damaging is the chronic undernutrition that afflicts such a large proportion of the populations of developing countries and the hidden hungers of iron deficiency, avitaminosis A, and iodine deficiency disorders that are enormously widespread. Famine in the modern world is almost invariably superimposed on chronic malnutrition that is not solved with emergency relief. Adaption to this undernutrition requires a reduction in physical activity needed for household and community improvement as well as work output. Iron deficiency interferes with cognitive performance, resistance to infection, and capacity for work. Other nutrient deficiencies add to the damage to the individual and society. Prevention of famine and hunger is not primarily a technological issue, but a moral, political, and social one. (Author's abstract).

FOOD CONSUMPTION

Chassy, Judith, A.G. Price van Veen, and F.W. Young

1967 The application of social science research methods to the study of food habits and food consumption in an industrializing area. The American Journal of Clinical Nutrition 20(1): 56-64.

This article reviews the use of a simple questionnaire method to obtain information on food consumption. This method is suggested as an alternative to a more expensive classical food consumption survey which requires highly trained personnel. The authors argue that alternative, questionnaire methods are especially needed in areas undergoing rapid social change due to industrialization and urbanization. Such methods would allow repeated surveys to monitor the changing food habits of the population.

DeWalt, Kathleen M.

1981 Diet as adaption: the search for nutritional strategies. Federation Proceedings 40(11): 2606-2610.

This paper addresses two important methodological problems in the study of diet

and nutrition. These are 1) the problems of looking at individual variations in diet within a system of shared dietary norms, and 2) the difficulties in organizing the collection and analysis of data on the circumstances that account for individual differences in diet. It is suggested that an environment provides several alternatives for meeting nutrient requirements, corresponding to alternative methods of food getting. These alternatives are called "nutritional strategies." The environment, including both its physical and social aspects, also imposes constraints on the ability of families to follow particular nutritional strategies. A family's strategy depends on its ability and desire to exploit particular methods of food getting. Data from a small agricultural community in Mexico are used to illustrate this approach. Several alternative strategies are outlined and are seen to be based on differential use of food potentially available to families from 1) subsistence agriculture, 2) purchase, and 3) gathering of wild food. A focus on alternative nutritional strategies emphasizes the importance of dietary variation, which, at the same time, allows for an understanding of the effects of different variables on food choice. (Author's abstract)

Hertzler, Ann A. and Carol Owen

1976 Sociologic study of food habits - a review. The American Dietetic Association 69: 377-384.

This article proposes the utilization of a sociological approach called scalogram analysis to increase the effectiveness of the nutrition educator in changing and/or improving food consumption patterns. Scalogram analysis organizes descriptive data into a form which is meaningful to the study of diversity in family food patterns. This method avoids the use of measures that are "description bound" or culturally biased by using a higher level of abstraction in classifying food habits. The information thus obtained can be useful in planning and evaluating nutrition education materials and presenting nutrition information.

Hertzler, Ann A. and Carol Owen

1984 Culture, families, and the change process - a systems approach. The American Dietetic Association 84(5): 535-543

Although descriptions of cultural food habits and meanings do not explain change, they are a very important aspect of applied programming. Cultural specific data need to be set within a theoretical framework so that findings are applicable to other situations now and in the future. A systems framework is described, and five rubrics are presented for the development of conceptual variables and their measures. The guidelines should be helpful to investigators initiating systems research in the study of food habits. Examples focus on the family system because this is the system with which most nutritionists work. However, systems concepts are just as viable for other systems, such as the state and the nation. (Authors' abstract)

Mason, John, Fredrick Trowbridge and John Haaga

1983 Defining Nutritional Data Needs. Cornell Nutritional Surveillance Program.

Division of Nutritional Sciences, Cornell University.

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.

Messer, Ellen

1972 Patterns of "wild" plant consumption in Oaxaca, Mexico. Ecology of Food and Nutrition 1: 325-332.

Although the maize-beans-squash complex of the Mesoamerican native diet is usually stressed, the utilization of wild greens may supply an important addition to the nutritive intake of these people, especially during times of crop failure. Field work in Abasolo, Oaxaca, Mexico has shown that the number of species used, and the quantities of the individual species employed are regulated by both the natural limits of the ecosystem and the cultural prescriptions of what is edible. Cultural practices which alter the nature of the ecosystem assure that certain species will be more widely available throughout the year. (Author's abstract)

O'Brien-Place, Patricia and Timothy Frankenberger

1988 Food Consumption Indicators. Nutrition in Agriculture Cooperative Agreement, Report No. 3. University of Arizona, Tucson

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.

Pekkarinen, Maija

1970 Methodology in the collection of food consumption data. World Review of Nutrition and Dietetics 12: 145-171.

Food consumption surveys have important nutritional, medical and economic purposes. The aim of such surveys is to assess the diet of populations or individuals in terms of nutritional adequacy as part of an effort to monitor

and evaluate the nutritional status of the same populations or individuals. Information on food consumption habits is essential for planning appropriate nutrition and agricultural programs and policies. The main methods employed in the collection of food consumption data are the interview, food account, food balance sheets, weighing and chemical analysis of food samples. The method of choice will depend on the aim of the survey, the required sample size, and the funds and personnel available. On the whole, interview methods involving diet recall or diet history are the cheapest ones for collecting food consumption data of larger population groups selected at random.

Pelto, Gretel

1984 Ethnographic studies of the effects of food availability and infant feeding practices. Food and Nutrition Bulletin 6(1): 33-43.

This article outlines a series of questions concerning factors that may affect infant feeding, nutrition and health. It also directs attention to background factors and characteristics of the community that may be important for program development and lead to more efficient utilization of resources in order to prevent malnutrition. Answers to the above questions can be obtained through various ethnographic data collection techniques such as observation in the community, informal conversations and structured "key informant" interviews. The extent and depth of informal data collection efforts will depend on resources available and plans, if any, for subsequent, more formal research into the causes of infant malnutrition in a particular environment.

Pinstrup-Anderson, Per, Judit Katona-Apte, and Shlomo Reutinger

1983 Nutritional Aspects of Agricultural Projects: An Overview. The Pragma Corporation/Division of Agricultural and Rural Development. Falls Church, Virginia, USA.

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. Some recent and on-going efforts to incorporate nutritional considerations into agricultural and rural development projects and policies are also reviewed.

Redhead, Joyce

1985 Decline and revival of traditional food plants in East Africa. Food and Nutrition 11(2).

It is often said that food habits are difficult and slow to change; this may well be so if change is a voluntary act. Food has important psychological associations with family, community and security; familiar food is satisfying and reassuring, particularly the traditional foods of childhood which often evoke a moving emotional response. Yet, in many countries of eastern Africa over the last three generations, extensive changes have occurred in family food

supply and in the household diet. In some urban areas introduced foods are now predominant: the accepted staple is maize flour, rice is a preferred cereal and wheat-flour bread a sought-after luxury. Even in the rural areas the range of traditional domestic foodstuffs has been considerably reduced. What are the explanations for such changes? (Author's abstract)

Simmons, Emmy

1981 Budget, Expenditures and Consumption Surveys in Developing Countries: What, Why, and How. USDA/OICD/NEG. Washington, D.C.

This paper provides information on how to gather data on household income and/or total expenditures on food and/or quantities of food consumed. First, the objectives of these surveys are discussed. The author then reviews a series of decisions that need to be made with regard to eleven aspects of survey development. These decision areas are: population coverage, scope of survey, sample design, methods of enumeration/interviewing, scheduling, organization of fieldwork, methods of analysis, arrangement for data processing, evaluation of survey results, use of other surveys, and tabulation and presentation of data. Examples of how these data can be analyzed are listed in Appendix A. Several basic texts describing the theoretical underpinnings for such analyses are listed in Appendix B, and several compendiums of budget, expenditures and consumption surveys are listed in Appendix C.

Smith, Meredith, Annette Venhaus, and Blas Santos

1985 Quality of Food Intake Among Rural Families in the Dominican Republic. Department of Foods and Nutrition, Kansas State University

A survey of 1073 households was conducted in 1983 in an integrated agricultural project near Santiago, Dominican Republic. Results showed that the FAO recommendations for calories and protein were not met by three-fifths of the households and vitamin A by 94.1 percent. Moderate malnutrition, measured with the Shakir Strip, was found in 22.9 percent of the 1-5 year old children. A diet low in protein density was suggested as a possible cause of malnutrition. As household size increased the Nutrient Adequacy Ratios (NAR) decreased, although they improved again in the largest households. Multiple regression statistics showed that the number of food items was most important, followed by household size, expenses, and income in predicting NAR Nutrient Density Ratios (NDR), and Mean Adequacy Ratios (MAR). These findings suggest that an increase in household food production will have a positive impact on food intake and nutritional status of families in the region. (Authors' abstract)

Tripp, Robert

1982 Including Dietary Concerns in on-farm Research: An Example from Imbabura, Ecuador. CIMMYT, Mexico.

This paper describes the way in which dietary and nutritional concerns are included in an on-farm research program in Ecuador. The program seeks to

improve the production and welfare of small farmers. The analysis of dietary and nutritional information is important to this effort for two reasons. First, most small farmers use at least part of their production for home consumption. An understanding of farm families' dietary preferences and patterns is thus valuable if a new agricultural technology is to have a good chance of acceptance. Second, nutritional improvement among rural populations is often not achieved in the course of economic development, so that technological change must be more carefully directed if it is to solve nutritional problems. Thus, both for predicting nutritional consequences and for helping gauge the acceptability of technologies to be tested, some dietary information is often necessary to help guide on-farm research. A few simple methods for developing that kind of information and examples of how the results are utilized in an on-farm research program in Ecuador are discussed in the paper.

United Nations University

1983 Special Issue. Household food distribution. Food and Nutrition Bulletin 5(4): 1-71.

This special issues is a compilation of six papers which discuss aspects of intra-household food distribution in the context of food policy issues. Despite considerable research on the factors and processes influencing household behaviour, an understanding of intra-household decision making processes and how they influence household responses to government policies and other external changes is still very limited. The papers in this issue make a contribution in this direction. They include: a literature survey, a framework for following up policy effects, an analytic approach to estimating the nutritional impact of food policies, and a group of empirical studies and analyses.

Van Esterik, Penny

1984 Intra-family Food Distribution: Its Relevance for Maternal and Child Nutrition. Cornell Nutritional Surveillance Program 31.

This document provides an overview and conceptual framework to stimulate further research and study on the subject of intra-family food distribution. Initially, the report reviews the importance and nature of intra-family food distribution and the conceptual and methodological issues raised by information available on the subject. The bulk of the report describes a proposed framework for the study of intra-family food distribution. The report concludes with a consideration of possible policy implications and research priorities for future work on the subject.

Villere, Betty

1981 Simplified Dietary Survey Methodology, A Preliminary Report. Center for Disease Control, Atlanta, Georgia. (unpublished).

This report discusses a simplified dietary survey that can be conducted by minimally trained personnel in a short time. It is designed to provide a

profile of infant breast feeding and weaning practices in order to identify which foods might be appropriate for fortification or subsidization. The survey instrument will obtain baseline data for subsequent program and policy evaluation. It will also provide a basis for policy decisions, the selection of food supplementation approaches, and the identification of education needs and sociocultural practices which merit further research.

Zalla, Tom

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

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.

NUTRITIONAL STATUS

Anonymous

1980 Measuring children's malnutrition with a strip of celluloid. Intercom 5: 5.

This article describes the Shakir strip, a simple, inexpensive tool that is useful in village surveys for making quick estimates of the extent of child malnutrition. The Shakir strip is a strip of celluloid 30 cm. long that is used to measure the upper arm of a child between the ages of 1-5 years. This measurement is correlated with the child's nutritional status. Further information is available from Teaching Aides at Low Cost (TALC), LCH, 30 Guilford St., London WC1N 1FH, United Kingdom.

Dagan, Ron, Shaul Sofer, William J. Klish, Gillian Hundet, Hedy Saltz, and Shimon W. Moses

1983 Growth and nutritional status of Bedouin infants in the Negev Desert, Israel: evidence for marked stunting in the presence of only mild malnutrition. The American Journal of Clinical Nutrition 38: 747-756.

Growth and feeding practices of 353 Bedouin infants from the Negev Desert, Israel, were compared to those of 302 Jewish infants from the same area and to American standards. These two populations differed in their cultures and educational backgrounds. The use of medical and health services was lower among the Bedouin population. The feeding practices of the Bedouin infants were markedly different from those of their controls. The Bedouin infants show a progressive decrease in weight, length, and head circumference (means of all three parameters were around the fifth percentile) while the Jews were comparable to Americans. The nutritional status was assessed by three different anthropometric measurements. The weight to length ratio showed that 88% of Bedouin and 96% of Jewish infants were above the tenth percentile. Tricep skinfold measurements showed that 96% of the Bedouins and 99% of the Jews were above the fifth percentile. The midarm circumference to head circumference ratio was in the range between 0.280 and 0.310 (mild malnutrition range) while that of the Jews was above 0.310 (well-nourished range). These data show marked stunting in the presence of only mild malnutrition. This observation argues against the general belief that marked stunting is the result of prolonged severe malnutrition. Differences in cultural and genetic backgrounds, as well as different feeding practices and increased morbidity, could contribute to this phenomenon. (Authors' abstract)

Djazayery, Abolghassem, Mohammad Ali Barzegar, and Keikhosrow Keighobadi
1983 Assessment of the nutritional status of pre-school children in Mahabad rural areas. Journal of Tropical Pediatrics 29: 329.

Mahabad is a small town with a population of 40,000, situated in a mountainous area of West Azarbaijan Province in the north-west of Iran, which has a cold climate. The inhabitants are Kurds, their main occupation being farming and their economic status medium to low. Previous observations and sporadic data obtained had indicated that protein-energy malnutrition (PEM) was present in Mahabad villages. It was decided, therefore, to make a nutritional status assessment in children aged 0-60 months. (Authors' abstract)

Feraudi, Mario and Luis A. Mejia
n.d. Development and Evaluation of a Simplified Method to Collect Blood Samples to Determine Hemoglobin and Hematocrit Using Chromatographic Paper Discs. Division of Nutrition and Health, Institute of Nutrition of Central America and Panama (INCAP), Guatemala.

A simplified method for the simultaneous determination of hemoglobin and hematocrit using dried capillary blood collected on chromatographic paper disks was developed and evaluated under laboratory and field conditions. The paper disc method (PDM) was compared with traditional laboratory methods (TM) in blood samples collected from human subjects with a wide range of hemoglobin and hematocrit values. The associations between the PDM and the TM were highly significant ($p < 0.001$). The correlation coefficients were 0.90454 for hemoglobin and 0.9266 for hematocrit and there were no significant differences between the mean values obtained by both procedures. The levels of hemoglobin contained in the disks remained unchanged during a storage period of one month.

The hematocrit values, however, were maintained constant throughout a six-month evaluation. On the average, the percent coefficients of variation were 3.4 and 8.3% for the determinations of hemoglobin and hematocrit, respectively. It is concluded that the PDM represents a practical alternative approach for assessing hematological status in the field. (Authors' abstract).

Frisancho, A. Roberto

1974 Triceps skin fold and upper arm muscle size norms for assessment of nutritional status. The American Journal of Clinical Nutrition 27: 1052-1058

Based on a cross-sectional sample of 12,396 white subjects aged 0 to 44 years, derived from the United States Ten-State Nutrition survey of 1968-1970, percentiles for right upper arm circumference and triceps skin fold are reported. From these measurements for each individual, the arm muscle diameter, arm muscle circumference, and arm muscle area were calculated. Thereafter, age- and sex-specific percentiles for all three estimates of muscle size were obtained. The development of subcutaneous fat, as indicated by the triceps skin fold, in males is characterized by slow apposition, while in females, it is continuous throughout childhood, adolescence, and adulthood. Sexual dimorphism in triceps skin fold is defined by the age of 3 years, and by adulthood, females exceed males by 83%. The muscle area in the upper arm during childhood exhibits considerable changes with age. Sexual dimorphism is defined by the age of 13 years, and by adulthood, males exceed females by about 56%. The amount of subcutaneous fat and degree of muscularity in children reflects the individual calorie and protein reserve. However, measurements of subcutaneous fat among populations characterized by a low degree of fitness may not be a sensitive indicator of nutritional status and growth. On the other hand, measurements of muscularity in children do serve as an adequate general index of nutritional status and growth in size. (Author's abstract)

Gueri, Miguel, Peter Jutsum, and Bernard Sorhaindo

1982 Anthropometric assessment of nutritional status in pregnant women: a reference table of weight-for-height by week of pregnancy. The American Journal of Clinical Nutrition 35: 609-611.

A reference table of weight-for-height by week of pregnancy has been devised on theoretical grounds, based on the premises that the average increment of weight during pregnancy is 20% of the prepregnant weight and that almost all the increment takes place linearly during the 2nd and 3rd trimesters of pregnancy. The table was tested with retrospective clinic and hospital data. The results show a good correlation between the weight-for-height at different stages of pregnancy as a percentage of the reference table and the birth rate of the offsprings. This reference table can be a useful tool to assess the nutritional status of pregnant women and, within limits, to "predict" the chances of delivering a low birth weight infant. (Authors' abstract)

Havivi, Eliyahu, Noga Manny, Yehudit Dacosta-Stupp, and Avraham Reshef

1985 Nutritional status of a population assessed on the basis of a group of blood donors. Israel Journal of Medical Sciences 21: 499.

Several blood constituents were used to evaluate the nutritional status of a random, consecutive group of 655 blood donors. The population included 503 men and 152 women, with a mean age of 35.1 years; 26.8% of the women and 26.5% of the men had deficient levels of ascorbic acid; 18.0% of the women and 11.9% of the men had hemoglobin levels below normal. Plasma iron was inadequate in 29.3% of the women and 18.6% of the men. A very small number of donors were found to be deficient in carotene, retinol, thiamine, riboflavin and pyridoxine. These findings call attention to an unexpected aspect of human nutrition in an apparently healthy, not undernourished population. (Authors' abstract)

Miller, David C., Milton Nichaman and Michael 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 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 undernutrition and anaemia. The need to train indigenous paraprofessional 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 and it is recommended that it be supplemented by detailed ecological analysis to determine causal factors and propose remedial actions. (Authors' abstract)

USAID
1984

A Basic Field Survey of Nutritional Status of Young Children: Overview, Planning and Organization. Office of Nutrition and Office of Research and University Relations, Bureau for Science and Technology, USAID. Washington, D.C.

This manual is one of a four volume series prepared by the staffs of the Division of Nutrition, Centers for Disease Control; Cornell University Nutritional Surveillance Program; and the AID Office of Nutrition and Office of Research and University Relations. The survey method described in the series aims to provide basic, representative data, with a modest investment of resources, that can be collected, processed, and analyzed in a short time. The method uses simple, easily collected measurements such as height or length, weight, and sometimes hemoglobin or hematocrit to assess the nutritional status of young children. The data can be obtained by trained local field workers, can be analyzed quickly and can be used to identify nutritional problems, plan nutrition programs and establish a baseline to evaluate remedial measures. With the inclusion of a few well-chosen related variables, such as occupation, sanitation, or cropping patterns, the method also allows for comparisons that can help to illuminate associations between malnutrition and certain of its

underlying social, economic, and environmental causes.

NUTRITION INTERVENTIONS

Beaton, George H. and Hossein Ghassemi

1982 Supplementary feeding programs for young children in developing countries. The American Journal of Clinical Nutrition 35: 864.

The intent of this commissioned review was to address the question "What have we learned from past experience that will assist in future consideration of food distribution programs aimed toward older infants and young children?" This is a planning question. Those involved in food and nutrition planning wish to have available information delineating situations in which it would seem particularly beneficial to introduce food distribution programs of various types. To provide a focus for the report, consideration has been limited to programs involving children between the ages of about 6 months and 6 yrs. Neither the distribution and marketing of breast milk substitutes nor school feeding programs fall within the scope of the report. Although a number of the programs examined also include food distribution to pregnant and lactating women, this aspect has not been specially examined. The report is concerned with programmatic activities in developing countries; food distribution programs operating in industrialized countries have not been examined. (Authors' abstract)

Edozien, Joseph C., Boyd R. Switzer, and Rebecca B. Bryan

1979 Medical evaluation of the special supplemental food programs for women, infants, and children. The American Journal of Clinical Nutrition 32: 677-692.

The special supplemental food program for women, infants, and children administered by the United States Department of Agriculture, was evaluated nationally. Participating infants, children under 4 years old, and pregnant and nursing women were investigated initially and after receiving food supplements. The supplements were iron-fortified infant formula, iron-fortified infant cereals, and fruit juices for the infants, and milk, cheese, iron-fortified cereals, eggs and fruit juices for the children and women. Initially, the average birth weight was lower and the infant mortality rate was higher than expected in a well nourished population. There was also evidence of slight growth retardation, a high anemia rate, and a high percentage of participants having saturation of transferrin values less than 15%. The program had no effect on the prevalence of pregnancy, an increase in birth weight, an acceleration of growth, and a reduction in the anemia rate in all participant categories except women in the first and second trimesters of pregnancy. (Authors' abstract)

Field, J.O.

1985 Implementing nutrition programs: lessons from an unheeded literature. Annual Review of Nutrition 5: 143-172.

Well-planned programs that are conceptually sound and technically appropriate often fail in practice because little thought is given to problems of implementation. Implementation is a weak link in much of the social sector, but nowhere more than in nutrition programs the world over. It is subject to neglect, especially by economists, who tend to focus on planning and evaluation. It is also subject to mechanical treatment by technical experts, whose inclination is to equate implementation with the application of their expertise. Rather few analysts look at delivery systems independently of what they deliver, while fewer still are sensitized to the complexities of system-society interaction, the exceptions being mostly in the field of community development. This essay relates a small but insightful literature concerning implementation to the particular needs and problems of nutrition programs in low-income countries. Most of this literature is derived from other policy arenas - urban renewal, rural extension, agrarian reform, public health, and family planning especially - while much of it is based on Western (typically American) experience. A major concern of the implementation literature is to explain why so much public policy does not seem to work as intended. Our task in these pages is to distill messages that are germane to nutrition policy in the developing countries. (Author's abstract)

Gavan, James D., and Indrani Sri Chandrasekera

1979 The Impact of Public Food Grain Distribution on Food Consumption and Welfare in Sri Lanka. IFPRI.

Sri Lanka has achieved remarkable social progress for a country with a very modest economic base and relatively low per capita income. This progress is manifest in, among other things, high rates of literacy, long life expectancy, and low infant mortality. This progress appears to be at least in part the result of a series of social policies that have been followed in the country since and in some cases prior to independence. Among these are the food distribution programs. A comprehensive public rice distribution system has operated since World War II. The system involves the distribution of rice at subsidized prices through an extensive network of cooperatives and an active government program of price supports and procurement of agricultural commodities, particularly rice, to supply the public distribution system. This study explores the operation of the public food distribution system, how it affects the price and availability of foods, and its impact on the food intake levels and nutrition of different income groups in the society. (Authors' abstract)

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).

RAPID RURAL APPRAISAL

Beebe, James

1985 Rapid Rural Appraisal; The Critical First Step in a Farming Systems Approach to Research. Farming Systems Support Project, Networking Paper No. 5, University of Florida.

Rapid rural appraisal is a way of organizing people and time for collecting and analyzing information where time constraints demand decisions before a local situation can be fully understood. It is a heuristic device to initiate additional formal studies and interventions. An important advantage is its flexibility. It assumes that in the beginning not enough is known of the problem to articulate specific questions and that a standardization of methodology would limit its flexibility. The paper establishes minimal requirements and outlines several methodological issues.

Chambers, Robert

1985 Shortcut methods of gathering social information for rural development projects. In Putting People First: Sociology and Development Projects, edited by M. Cernea, pp. 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.

Chambers, Robert and B. P. Ghildyal

1985 Agricultural research for resource-poor farmers: The farmer-first-and-last model. Agricultural Administration 20: 1-30.

Rural poverty is much less a problem of total food availability than of who produces the food and who has the income to buy it. A high priority is, therefore, to enable the tens of millions of resource-poor farm families to increase their production and improve its stability. The normal "transfer-of-technology" (TOT) model for agricultural research has built-in biases which favour resource-rich farmers whose conditions resemble those of research stations. TOT approaches have been modified through on-farm trials and demonstrations but the basic model and approach remain the same. A second emerging model is "farmer-first-and-last" (FFL). This starts and ends with the farm family and the farming system. It begins with a holistic and interdisciplinary appraisal of farm families' resources, needs and problems, and continues with on-farm and with-farmer R and D, with scientists, experiment stations and laboratories in a consultancy and referral role. FFL fits the needs and opportunities of resource-poor farm families better than TOT, but there are obstacles to its development and introduction. These can be tackled step-by-step, through combinations of methodological innovation, interdisciplinarity, including social sciences, and provision of suitable resources, rewards and training. FFL approaches promise a greater contribution from agricultural research to the eradication of rural poverty. (Authors' abstract).

Gordon, Gill

1979 Rapid rural appraisal: a conference held at the Institute of Development Studies. Finding out about child (0-5 years) feeding practices. IDS. University of Sussex. Brighton.

There have been few detailed studies of child feeding practices, particularly those giving quantitative information, probably because conventional methods are difficult and time-consuming. Family food use is a sensitive subject because it hinges on economic status and power relationships in the household. Investigations on child feeding practices tend to be one or two dimensional, but child feeding behavior is a complex activity with many ramifications. The author suggests cost-effective methods of eliciting information on eight questions that need to be answered before planners can attempt to predict the outcome of alternative nutrition interventions. The author's suggested methodology is based on the cooperation of workers trusted by the community.

Holtzman, John 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.

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.

Knipscheer, Hendrik

1982 Rapid labour data collection for secondary crops; cocoyan and soybean farming systems in Nigeria. Public Administration and Development 2: 265-272.

The challenge to effective farming systems research is to find methods of system appraisal that maximize the use of existing information and are timely while maintaining a certain measure of accuracy and validity - in other words to achieve rapid rural appraisal. The comparative method for the collection of labour utilization for secondary crops is based on a combination of literature study and field survey. Farmers compare foodcrops of which labour utilization data are known with crops of which the labor requirements are unknown. From the rankings, the labour use of the unknown crops can be derived. The comparative method was applied for cocoyan and soybean farming systems in Nigeria. In both cases absolute labour data provided by the farmers themselves. The method, therefore, seems to be a quick, but nevertheless reliable, method by which generally applicable labour utilization data can be obtained. (Author's abstract)

Longhurst, Richard

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.

Mason, John 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, Rome.

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.

Pacey, Arnold

- 1981 Taking Soundings for Development and Health. An Approach to the Information Needs of Rural Development Workers, District Officials, and Health Services Staff. World Health Organization, Washington, D.C.

The management of social services, including health care, suffers in most countries from a dramatic "information gap." This is as true for information on the health status of the population as it is for data on the structure and functioning of the health care system. Missing, most of all, are data linking the health status to its main determinants, such as socio-economic background and health-related behaviour of individuals, families, and communities. This paper presents an overview of the methods of rapid rural appraisal as discussed at a conference held at the Institute of Development Studies, University of Sussex, in December 1979. The author presents additional material drawn from recent work by the World Health Organization and argues for the use of imaginative, non-traditional methods for gathering and using information in the health field.

Pacey, Arnold

- 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.

Prehm, Marilyn 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. Manual prepared for the Virginia Polytechnic Institute and State University and the Bicol Farming Systems Research and Development Project.

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 intended to be used along with the RCAP procedures modified for including food consumption and nutrition (Author's abstract).

Scrimshaw, Susan and Elena Hurtado

1987 Rapid Assessment Procedures for Nutrition and Primary Health Care. Anthropological approaches to improving programme effectiveness. The United Nations University, Tokyo.

This manual, tested in a sixteen-country study, contains specific instructions for the use of anthropological methods for rapid assessment of health and health-seeking behaviour at the household level and interactions with popular and biomedical health care providers. This field guide includes several sample data collection instruments, examples of field techniques, and discussion of data management and analysis. It also includes a brief discussion on anthropological methods, focus group sessions, and selection of field workers. The manual is designed to be used by social scientists, health workers, and students of anthropology.

Uzzell, J. Douglas

1982 Training Module: Rapid Nutrition Reconnaissance. USDA/OICD/NEG, Washington, D.C.

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)

Zalla, Tom

1986 Toward Rapid Appraisal of Consumption and Expenditure Patterns. Report for NEG/USDA under contract No. TAD-86-176. Washington, D.C.

This report examines the potential uses of food consumption and household expenditure data, and the type and detail of data that is required for each use. It describes various qualitative rapid appraisal techniques and lists essential elements of a rapid appraisal approach, focussing on those situations requiring estimators with known distributions. The author examines several methodological issues that limit the extent to which surveys gathering these types of data can reduce interview frequency. He examines sampling approaches appropriate to the various intended uses of the data. He then briefly examines data processing with a view toward building a turnkey system for planning, executing and analyzing household consumption data.

