# A.I.D. FOOD POLICY PROGRAMMING: LESSONS LEARNED

## An Assessment of the "Consumption Effects of Agricultural Policies" Project, 1977-1988

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Prepared for the Technical Assistance Division, Office of national Cooperation and Development, U.S. Department of Agricultur

With funding by the Office of Nutrition, Bureau for Science and Technology, Agency for International Development
RSSA-BST-1171-R-AG-3125-01

August 1989

ACKNOWLEDGEMENTS

The authors wish to thank the many people who have spoken with us about the "Consumption Effects of Agricultural Policies" and "Subsidized Consumption" projects and about A.I.D. work in food policy assistance, in general. While a list of persons contacted appears in the appendix, our special thanks are due to Arlene Mitchell, Director of the Technical Assistance Division within the Office for International Cooperation and Development (OICD), Nicolaas Luykx, Deputy Director of the Office of Nutrition, A.I.D., John Hyslop of the Technical Assistance Division of OICD, and Patricia O'Brien-Place of the Africa Bureau, A.I.D.

On the basis of the project documents, related food policy and development literature, interviews with project staff and consultants, and interviews with various "users" of project outputs, this picture of the lessons learned from the CEAP project was composed. The responsibility for any errors of commission or omission falls to us.

Furthermore, the views expressed herein are those of the authors and should not be attributed to the Agency for International Development or the U.S. Department of Agriculture.

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# LESSONS LEARNED FROM A.I.D. FOOD POLICY PROGRAMMING: THE CONSUMPTION EFFECTS OF AGRICULTURAL POLICIES

## EXECUTIVE SUMMARY AND RECOMMENDATIONS

This report assesses lessons learned from A.I.D. work in food policy under the Consumption Effects of Agricultural Policies (CEAP) project between 1977-1988. Food policy integrates in a systems perspective the relationships between macroeconomic and agricultural sector policies and micro level behavior at the household or firm level, including resultant changes in food consumption patterns, and nutritional effects. The CEAP project has been A.I.D.'s only major effort to address the issue of how improving nutrition and food consumption can be made an integral part of the economic development process. All other A.I.D. activities in nutrition are direct interventions (for example, supplementary feeding programs and vitamin A distribution). The CEAP project pioneered policy-oriented intervention as a part of A.I.D. nutrition strategy.

The CEAP project was oriented toward better understanding the interrelationships and effects of agricultural development and food subsidy policies on the food consumption and nutritional status of different socioeconomic groups. The effects of policy decisions on the food consumption patterns of the poor were emphasized. In addition to producing needed knowledge for researchers and policymakers, the project aimed at providing specific technical assistance to A.I.D. missions and host governments, and sponsoring training activities associated with food policy analysis and design.

The CEAP project was directed by the A.I.D. Office of Nutrition (A.I.D./S&T/N) and managed by the Nutrition Economics Group (NEG) within the Office of International Cooperation and Development (OICD) of the U.S. Department of Agriculture (USDA). In addition to NEG providing project management, it also provided technical assistance, back-stopping, and technical guidance for studies, as well as coordination of consultants from the private sector, universities and other parts of USDA.

Under the CEAP project, a variety of research and policy studies, technical assistance, and training activities were conducted in approximately thirty countries. The CEAP project produced a diversity of outputs including policy studies and analysis, technical papers, technical assistance, and training materials and activities, both formal and informal.

In this assessment, lessons are identified in five general areas: (1) the seventeen CEAP project studies; (2) the design of research and studies; (3) technical assistance; (4) training activities; (5) project administration and management. The lessons are detailed in the text. The report ends with recommendations for future A.I.D. work related to emerging food policy priorities.

## LESSONS LEARNED AND OVERALL RECOMMENDATIONS

**1. The CEAP project was timely and positive because it addressed a policy area of vital and continuing importance, imperfect understanding, and growing interest.**

The CEAP project contributed to legitimizing and institutionalizing food policy analysis through its sustained support and project outputs. The CEAP studies have added to the general food policy literature and specific literature in project countries. CEAP studies also contributed and continue to provide basic information to policy dialogue in some countries including reexamination and discussion of reform of food subsidy programs in Egypt and Sri Lanka and Jamaica, price policy reforms in Tanzania, Sudan, Honduras, Indonesia, Jamaica, Zambia, and others (see text for additional examples).

2. Initially, the CEAP project strategy intentionally emphasized short-term, relatively inexpensive CEAP studies, performed at the request of host governments and A.I.D. missions by U.S. contractors. The policy intent was to quickly identify policy impacts on food consumption and sometimes nutrition and to make useful policy recommendations. Furthermore, these studies were planned to generate further interest and support for the project.

**The lesson has been learned that short-term studies can indeed be useful, but to succeed some specific preconditions must be met. For successful short-term CEAP studies, preexistent data and preliminary consumption analysis is probably necessary, and very competent analysts are required.**

3. In general, experience and evaluation has demonstrated quality trade-offs with the quick turnaround strategy, with studies sometimes running into insurmountable data, conceptual, or analytical constraints in the required time limits.

**It has been learned that a staged- or phased-study strategy is preferable to trying to "do it all" in a six month study. Using such a strategy, initial studies identify policy questions, data and information availability, and indigenous expertise and describe the system under study. Subsequent efforts exploit existing data or expend necessary resources for data collection and analysis. In all stages, collaboration with host country nationals is essential.**

**4. It has been learned that institutionalization of food policy analytical capacity within U.S. universities, A.I.D., and host country policymaking institutions takes time, sustained commitment of resources, and critical mass.**

Furthermore, food policy analysis requires an appreciation of complex systems. Competent food policy analysis requires expertise in subject areas not commonly combined in university departments, A.I.D. program offices or host country government ministries. Knowledge of agricultural production and economics, food consumption, nutrition, macroeconomics, trade policy and political economy are particularly needed.

**5. Whereas awareness of food policy issues has grown, food policy analysis has not yet reached the "cookbook" stage in the U.S. or developing countries, although much progress has been made on specific analytical ingredients and techniques. Figuring out where and how to nurture the will and skill and art to analyze and shape food policies in an on-going fashion will continue to take time.**

Both the taste for and the skill to produce food policy analysis is acquired only with experience by host country policymakers. It is not likely to result from brief exposure to single-shot, short-term analysis by expatriate consultants.

**6. Part of the staging process should explicitly include informal and formal educational and training opportunities for host country nationals. In countries where a pool of trained analysts exist, it is important that they benefit from and contribute to short-term studies conducted by competent analysts.**

Incorporating nationals on study teams is essential to contribute to institutionalization. Such participation may provide host analysts with resources to gain expertise on policy issues that they would not otherwise have as well as the opportunity to then communicate policy results to others.

7. Most of the early studies, as well as a few of the later ones, analyzed effects on food consumption of agricultural or food pricing policies used in pursuit of agricultural sector strategies or national development objectives. Important lessons were learned from the studies and subsequent critiques and commissioned papers, oversimplified here as:

a) **While the linkage between agricultural pricing policies and supply response has been acknowledged, price policies must also aim to promote the efficient allocation of resources and, ultimately, food security.**

b) **Getting agricultural prices "right" is not a panacea; complementary policies are necessary. Poor infrastructure and transport systems, inadequate supply of agricultural inputs and credit, and labor shortages or bottlenecks can limit supply responsiveness.**

c) **Price policy effects on rural producers must be understood as they influence household production, consumption, and income.**

   Most rural households are dependent on agricultural production; however, many poor rural households are also dependent on food purchases and off-farm income sources. Effects of price policy on food consumption and nutrition, therefore, must be understood fully as these policies influence wage rates, household decision making, and resource allocation. The "new home economics" or farm-firm household models can assist in understanding the impacts of price and other policies on household decision making.

d) **Off-farm income can be a significant component of total household income in rural areas. Since income is an important determinant of food consumption, enhancing food consumption often entails identifying options for improving household income from alternative sources.**

e) **Producer policies have differential impacts; understanding these effects requires disaggregated analysis.**

If adequate information is not available, it must be sought to perform useful analysis. In general, considerable work still remains to be done in understanding the responsiveness of food product demand to changes in own-price and the prices of substitute and complementary products.

f) **Disaggregated price policy analysis can demonstrate trade-offs in agricultural strategies related to promotion of food crops versus cash crops.** To be most useful, micro level models need to be linked with sectoral and economy-wide models.

8. Subsequent CEAP studies addressed questions of food subsidies and their cost-effectiveness in meeting policy goals related to population coverage and nutritional impact along with their efficiency impacts. Again over-simplifying the major lessons from the CEAP work:

a) **Gaining accurate knowledge of consumption parameters may dispell some traditional wisdom and inform design of better policy**

For example, the CEAP studies raise questions about the use of food price policy to promote consumption of traditional food grains. Rogers and Lowdermilk (1988) concluded that consumers do not substitute coarse grains for rice when the price of rice increases. Instead they decrease overall grain consumption. Thus, unless the substitutability of coarse grains can be enhanced, increasing prices of imported grains will have negative effects on the poor.

b) **Consumer food subsidies can accomplish the objectives of improving food consumption and nutritional welfare.**

c) **Subsidy programs may be extremely costly in terms of public expenditures, distort incentives to agricultural producers, and be difficult to dislodge as subsidies assume entitlement status.**

d) **Food subsidies may fail to benefit the poor if the poor do not have genuine access to subsidized items.** The CEAP studies demonstrated that the availability and distribution of subsidized food may be inequitable and penalize the poor.

e) **There is considerable scope for targeting consumer subsidies to vulnerable groups in an attempt to reduce fiscal costs. Although the CEAP project identified instances where targeting was difficult or relatively unsuccessful, it demonstrated that developing targeting strategies is possible and requires a comprehensive assessment of the food distribution system and food consumption patterns.**

Successful policy and program design varies by country situation. Management and implementation details can make critical differences in achieving the targeting and nutritional objectives of the program. Trade-offs exist between the administrative requirements and public sector costs of effectively targeting a program and the costs of program leakage (that is, providing benefits for non-target groups) when fewer attempts are made to target.

f) **A variety of targeting mechanisms exist and their applicability is, to a great extent, country specific. The CEAP studies explored the use of self-targeting or "inferior" foods, ration shops, food stamps, geographical targeting by region, and targeting by type of outlet.**

The ideal carrier for a self-targeting food subsidy with the least distorting and, at the same time, the most positive nutritional effects may be those foods consumed in major proportions by the poor and not preferred by the affluent. Yet, in some cases, such a food does not exist and alternative targeting mechanisms must be sought.

In general, an assessment of the feasibility, costs and benefits of targeting that maintains coverage for the most vulnerable is extremely case specific.

9. In general, the CEAP project emphasized studies and understanding food policy phenomena, with significant attention to providing technical assistance useful to A.I.D. missions and host country governments.

**In the future, there will be continued need for timely technical assistance. More attention should be paid to both informal and formal training and communication and outreach activities.**

10. Broad distribution of reports and summaries in official languages and in English to host country personnel, and to A.I.D. staff and to university professors and students, respectively, is important and of low marginal cost. As Evenson (1983) observed in a review of the CEAP work, case studies and other literature become incorporated in university curricula and help equip new generations of analysts.

11. **It is important for A.I.D. to exert a leadership role in food policy analysis so that explicit consideration of consumption and nutrition links to agricultural and economic policies does not fall through the cracks.** Part of that leadership depends upon conceptualizing and designing a new, long-term project or set of projects explicitly aimed at informing policymakers about the links between development policies and food consumption and nutrition. The project(s) should be designed around a matrix concept of priority countries and problems and staged activities. A.I.D. should also commit available resources to both short-term and long-term training of host country personnel.

12. **The support of a competent managerial entity with excellent subject matter expertise and institutional memory was critical to success of the CEAP project and will be similarly important to future food policy project success.**

Part of the contribution of the Nutrition Economics Group of USDA was providing institutional memory within the government. With large project portfolios and frequent personnel turnover in A.I.D., country missions and consulting firms, this combination of career personnel with subject matter expertise and access to extensive documentary and reference materials contributes to an institutional memory and is extremely important in assuring that objectives are met. Universities possess the long-term commitment to research that consulting firms usually cannot, but incentive structures in universities usually do not facilitate management or provision of technical assistance or training activities.

13. Additionally, the managerial entity(ies) should be able to provide or coordinate experts in research, technical assistance, formal and informal training, communication and outreach. This requires a long-term project commitment by an entity with demonstrated management and subject-matter expertise. Also important is the ability to provide long-term food policy training or to sub-contract for specific needs.

14. An examination of the current A.I.D. Office of Nutrition portfolio reveals programs in four major areas: (1) nutrition monitoring and surveillance, (2) addressing vitamin and mineral deficiencies, (3) targeted maternal and child care interventions, (4) nutrition social marketing. **There is no program of activities that explicitly explores the linkage between economic polices and food consumption/nutrition.**

Yet there is broad consensus in the donor community, at academic institutions, and in developing country forums that further understanding of these linkages is required for the effective policy guidance necessary to combat the deteriorating nutritional status of major portions of the population in Africa and Latin America.

15. **There is a clear need to build upon the work of the CEAP studies. It is recommended that A.I.D. initiate a new phase of food policy programming through the Office of Nutrition that examines the effects of employment and income-generation policies; technology, input and credit provision; and macroeconomic adjustment on the nutritional status of different socioeconomic groups.** An improved understanding of the political economy and social factors impeding policy reform is also critical to design strategies for change.

16. The diverse collection of reforms known by the rubric "structural adjustment" are of particular significance today in determining consumption and nutrition outcomes in the world. There is increasing evidence that structural adjustment has had an unduly harsh impact on certain segments of the population and contributed to a deterioration in nutritional levels. Although there are two major donor efforts underway to quantify the impact of macroeconomic adjustment on household living standards, **there is an immediate need for a program of activities designed to develop policies and specific interventions to assist groups vulnerable to the adverse impacts of macroeconomic reform packages.**

# A.I.D. FOOD POLICY PROGRAMMING: LESSONS LEARNED

(An Assessment of the "Consumption Effects of Agricultural Policies" Project)

## I. PROJECT DESCRIPTION

### A. Historical Context

Growing recognition of the important links between agricultural policies, food consumption, and nutrition stimulated A.I.D. to design and support the "Consumption Effects of Agricultural Policies," or CEAP project between 1977 and 1988. The CEAP and related projects were directed by the A.I.D. Office of Nutrition (A.I.D./S&T/N). Under an agreement with the Office of International Cooperation and Development (OICD) of the U.S. Department of Agriculture (USDA), the Nutrition Economics Group (NEG) was formed and managed the projects on an ongoing basis.

In 1989, after twelve years of programming, A.I.D. has requested a broad-based assessment of lessons learned from the CEAP project. Among the questions raised: What has the project accomplished? What have food policy analysts learned? How can food and agricultural policies be designed better to protect or promote nutrition and food security during the process of agricultural development and general economic structural reform? What lessons are there for policymakers, for A.I.D. mission officers, for consultants who provide technical assistance, and for professionals who conduct training activities? Has the project revealed anything about the process of institutionalization of food policymaking expertise within host country governments? Finally, what has been learned that is useful to A.I.D. in planning future food policy interventions, and where should the A.I.D. be headed?

In historical context, the CEAP project represented an important new step in the evolution of A.I.D. development programming efforts in nutrition. Early Office of Nutrition programming efforts implemented in the mid-1960s attempted to improve dietary status of target groups through a variety of technological approaches including the introduction of new crop varieties, new fortification processing techniques, and the distribution of high protein and other dietary supplements. At this time, protein deficiencies were considered to be the preeminent nutrition problem and supplementation and crop and food modification technologies were viewed as the principal remedies.

By the early 1970s, the emphasis on protein, vitamin and mineral deficiencies appeared misplaced for several reasons. Malnutrition stemmed only in part from inadequate protein intake; thus, protein supplementation and fortification technologies could go only so far in alleviating malnutrition. Improved food technologies frequently failed to reach the people who really needed them due to bottlenecks in marketing or distribution chains, or because of lack of purchasing power or nutrition

education. More critical and detrimental than protein deficiencies, it was was inadequate energy intake. If individuals could obtain sufficient food to supply adequate energy, their protein needs would likely be met. Recognizing this, analysts began to judge protein supplementation and other micro-nutrient fortification measures insufficient and uneconomic to eradicate malnutrition. Measures designed to increase caloric intake gained precedence, and foreign assistance nutrition programming shifted to include more direct nutrition intervention.

Nutrition research in the 1970s examined maternal nutrition and links between maternal nutritional status and reproductive outcomes as well as subsequent infant mortality. The socioeconomic context of nutritional status was examined, and methodologies were developed for health and nutrition surveys. Theories and methods of integrating nutrition planning into national policymaking gained prominence in the 1970s, along with the development of the theory of nutrition education and methods.

By the late 1970s, A.I.D. policy statements indicated that direct nutrition interventions and provision of food aid were addressing only a limited portion of the malnutrition problem. The agency turned to multidisciplinary, in-country assessments of national nutrition problems (McGuire, 1988, p. 26), and sought to define some of their socioeconomic determinants. Additionally, analysts increasingly recognized that policies and programs in many sectors such as agriculture, health, population, and education could and did influence nutritional status. Further, sectoral policies that did not consider potential effects on the consumption and nutrition of the poor could be detrimental and counterproductive to development.

The CEAP project, in addressing agricultural economic policy and in drawing on A.I.D. bureaus and integrating academic disciplines that had not been related in the past, was a new type of venture. The CEAP project combined the efforts of nutritionists, economists, agriculturalists, anthropologists, statisticians and computer specialists. Such an effort broadened the definition of a nutrition-related intervention.

The CEAP project recognized that policy interventions must go beyond protein fortification, vitamin supplementation and improving infant diets, although these are legitimate concerns. Nutritional outcomes are largely determined by the nature of the food production and distribution system. **There was a growing recognition that agricultural policies could provide either positive or perverse incentives for enhancing incomes from agriculture, and the food consumption and the nutritional status of the poor. Further, increasing agricultural productivity in developing nations, though necessary, was not a sufficient guarantee of food security or nutritional well-being for many vulnerable groups.** A better understanding of the relationships between agricultural policies and food consumption, as well as the cost-effectiveness of various consumer subsidy policies, offered the possibility of better designing and coordinating agricultural and nutrition policies, programs, and projects.

The CEAP project was approved on April 1, 1977 to:

> determine and improve the nutrition/consumption effects of development policies, particularly those in the agricultural sector; and to sensitize agricultural policymakers and technicians to the importance of incorporating nutrition considerations in to agricultural policies; to investigate the economic and political feasibility of using subsidized consumption systems to achieve nutrition objectives and to evaluate their cost-effectiveness, the pre-conditions under which they might be effective, and their replicability; to determine the forms of subsidized consumption programs most appropriate for particular sets of pre-conditions and particular objectives (Office of Nutrition, 1977).

In the decade since the initiation of the CEAP project, agricultural sectoral policy concerns have assumed much greater importance. With increased attention focused on food security at national, regional, and household levels, two large-scale A.I.D. efforts have certain complementarities with the CEAP project. The "Agricultural Policy Analysis and Planning" project (APAP) was initiated in 1983 with a second phase started in 1988. APAP supports economic policy reform measures and assists in fostering competitive input supply and product marketing systems. Significantly, a NEG senior staff member assisted in the original formulation of the APAP project.

The "Food Security in Africa" project also began in the early 1980s to assist African countries in dealing with food security problems by formulating alternative institutional arrangements and encouraging "more productive and dynamic food systems." Although these two projects have emphasized policy analysis and design, and attempted to understand the effects of policy actions on performance of the food system, neither of them have an explicit food consumption focus, nor do they explicitly integrate nutritional concerns.

**B. Project Organization**

Technically, several distinct projects comprised what are here referred to as the CEAP project. These include:

| | |
|---|---|
| Economic Analysis of Agricultural Policies (931-1171) | 1977-79 |
| Consumption Effects of Agricultural Policies (931-1274) | 1980-81 |
| Consumption Effects of Agricultural Policies (Phase II) | 1982-85 |
| Subsidized Food Consumption Project (931-1275) | 1980-85 |

The Nutrition Economics Group operated through 1988 by extending previous projects. Two of the food subsidy reports (Mali and Dominican Republic) were completed in the final years and cooperative agreements with the Universities of Kentucky and Arizona were initiated to examine methods for incorporating nutrition objectives into agricultural projects.

The CEAP project was directed by the A.I.D. Office of Nutrition but managed by the Nutrition Economics Group of OICD/USDA. An intergovernmental Resources Support Services Agreement (RSSA) provided the Office of Nutrition with agricultural economics expertise to manage the

CEAP research activities dealing with the consumption and nutrition effects of agricultural policies. The NEG staff included a senior economist, a junior economist, a secretary, and various consultants.

The CEAP project included three components: research and studies, technical assistance, and training. In many respects, sorting out the three components is not only difficult but somewhat arbitrary. Frequently, studies provided technical input to policy decisions. Similarly, important on-the-job training resulted for analysts and collaborators in the study/research and technical assistance process.

C. Major Project Outputs

The CEAP project began in 1978 with studies in Sierra Leone and Nigeria. With the approval of CEAP Phase I in FY 1981, seven short-term policy impact studies were initiated in Cameroon, Senegal, Jamaica, Panama, Sudan, Tanzania and Peru. At the same time, a longer-term study was started in Honduras. During Phase II, policy analyses were undertaken in Zambia, Indonesia, and Liberia.

The Subsidized Consumption project, a component of the CEAP effort, included studies of food subsidy systems in Egypt and Sri Lanka and, more recently, in Mali and the Dominican Republic. Major contractors for each of these studies included universities, consulting firms, and the International Food Policy Research Institute (IFPRI) as indicated in Appendix 1. NEG acted principally as project catalyst and manager. In a number of instances, CEAP contractors collaborated with host-country institutions, including ministries of agriculture, health and planning and research institutes. A complete listing and description of all studies accomplished under the CEAP project appears in Appendix Table 1.

Technical assistance, sometimes in the form of additional studies, was provided in Boliva, Burundi, Panama, Cameroon, Thailand, Dominican Republic, Haiti, Sri Lanka, Indonesia, the Philippines, Senegal, India, Guatemala, El Salvador, Ecuador, Zaire and Jamaica. The distinction between the studies and technical assistance activities frequently blurs. Representative technical assistance included: preparation of food consumption and nutrition components of agricultural sector assessments; evaluating the consumption effects of an integrated rural development project (Philippines), evaluating the consumption and nutrition effects of a small farm diversification project (Guatemala), assisting in the design of a food stamp program (Jamaica), assisting in the design of national household expenditure surveys, and processing and analyzing income, expenditure, and food consumption survey data.

Finally, while training occurred informally during Phase I of the CEAP project, NEG planned or conducted formal training activities primarily in the project's second phase. During Phase II approximately 13 percent of the CEAP budget was earmarked for "outreach activities involving A.I.D. and host country personnel, including workshops, seminars and an information network" (Office of Nutrition, 1981). Lessons learned related to the design and management of successful training activities are suggested in Chapter III.

## D. Level of Effort

The CEAP project was accomplished with relatively limited funding and a small professional staff. NEG was funded primarily by the Office of Nutrition with additional core support from relevant A.I.D. missions. Appendix Table 2 provides a historical look at NEG expenditures. Total NEG expenditures from 1977-1988 were $4.7 million. Excluding the first year, NEG expenditures averaged about $420,000 per year for personnel, office costs, travel, and consulting fees.

These totals account for a small portion of total Office of Nutrition expenditures. For example, in 1987, obligations to the CEAP project amounted to approximately $571,000, or 5 percent of total Office of Nutrition obligations of $12.4 million. Appendix Table 3 provides a complete breakdown of the Office of Nutrition project portfolio in 1987.

Despite the substantial output of studies, reports, and methodological papers, NEG maintained a small professional staff. Contractors and cooperators at universities and consulting firms performed much of the work. From 1980 to 1988, NEG staffing remained fairly constant, at approximately 50 professional person-months per year. This corresponds roughly to four full-time professional staff members.

## II. LESSONS LEARNED: THE CONSUMPTION EFFECTS OF AGRICULTURAL POLICIES AND FOOD SUBSIDY PROGRAMS

This chapter presents a broad-brush panorama of our current understanding of the major links between nutritional status, food consumption patterns and agricultural and other economic policies. In doing so, we emphasize the understanding and knowledge that emerged from studies carried out under auspices of the CEAP and related projects.

We present CEAP-related study results in three different ways in the three sections of this chapter. First, to provide context, we highlight the general food policy literature to which the CEAP studies have contributed and capsulate major lessons that have been learned about the operation and effects of four major classes of policies:

1) producer price policies
2) consumer price policies and food subsidies
3) input, technology and marketing policies
4) macroeconomic and trade policies.

Admittedly, the literature is so vast that we can do no more than use it as a backdrop for the examination of the CEAP reports. The second section presents a profile of the CEAP research and study program. Along with a characterization of the types of countries and policies treated under the CEAP project, we highlight contributions from the CEAP studies. From this we identify some specific lessons learned from the CEAP studies.

The third section provides abstracts, on a country by country basis, of all identified CEAP study activities. These abstracts will be useful to analysts who provide further technical assistance in the countries mentioned.

## A. THE GENERAL LITERATURE

The food policy literature has expanded substantially in the last fifteen years, with the determinants of this growth multiple and essentially interrelated. The following factors seem important in contributing to the significant growth in our concern about and understanding of food policy.

1. The global magnitude of malnutrition has broadened with absolute increases in the number of people affected. Persistent world hunger in the face of several decades of attempts to foster economic development and enhance nutrition in developing countries contributes a sense of urgency to the search for policy solutions.

2. Analytical and empirical work has contributed to understanding the determinants of malnutrition, particularly the role of economic policy determinants. Important issues have emerged from considering the distributional impacts of agricultural success stories such as the introduction of Green Revolution technologies in India and elsewhere. Increasingly, the importance of employment and income in contributing to access to food is understood, along with the conflicting incentives provided by prices in producing/consuming households.

3. Substantial commitments of resources by A.I.D. and other donor agencies over time have permitted ongoing research into relationships between agricultural development policies, food consumption, and nutritional status. More recently, consideration of the effects of macroeconomic and trade policies on the welfare of the poor has expanded as many developing countries have adopted the macroeconomic reforms set forth in structural adjustment packages.

4. There has been increased recognition and understanding of the contribution of adequate nutritional and health status of citizens in developing countries to economic and human development in those countries. Awareness has grown of the links between child survival rates, reproduction decisions, and population growth. Recognition of the essential role of food consumption and nutrition in many aspects of development has reinforced the importance of identifying and implementing adequate food policies.

**The following analysis suggests that A.I.D. food policy studies under the CEAP project have contributed to heightened consciousness among decision makers and to the body of knowledge about the links between economic policies and food consumption and nutritional well-being. In addition, institutionalization of analytical investigation into food policy at NEG/OICD, the International Food Policy Research Institute (IFPRI), at the World Bank and at a few major universities, with government support, has legitimized food policy research and afforded the critical mass and continuity necessary for steady accumulation of results.**

Policymakers have considered and in some cases incorporated analysis into policy reforms. The development of human capital in the form of expertise gained in food policy research and analysis has also enhanced the capacity of consultants providing technical assistance.

## 1. Conceptual Frameworks for Food Policy Analysis

What is food policy? Often misunderstood by U.S. policy analysts, particularly agricultural economists, to mean policies specifically related to food assistance programs, nutrition programs, or the assurance of food safety, true food policy analysis really encompasses a much broader perspective.

Critical to a food policy perspective is a systems outlook and an understanding of the interrelationship of markets throughout the agricultural sector and the national and international economies. Also vital is an appreciation of the two-way interactions between individual, household and firm behavior on the one hand and market outcomes and policy interventions on the other.

The extension of socioeconomic analysis inside the black box of the household to understand intrahousehold or intrafirm resource allocation practices has expanded the scope of food policy analysis at the micro or household level. In the other direction, the gravity of indebtedness problems in many developing countries and subsequent demands by the World Bank and the International Monetary Fund for nations to adopt structural adjustment measures have heightened concerns that the adjustment measures be designed, sequenced, and timed to minimize adverse impacts on the poor.

Attention appears to be focussing once more on effective uses of targeted consumer subsidies, direct nutrition or health interventions, and emergency income generation measures to soften impacts of macroeconomic or sectoral adjustment policies. The design and coordination of effective interventions at the project level is an integral component of overall food policy.

A variety of food policy conceptual frameworks appears in the literature. Here, a few of the most important are highlighted to provide a flavor of the type of understanding sought about a nation's agricultural and food economy (Figures 1-5). No single study can or should hope to do analytical justice to all of the components presented in the diagrams furnished here. For given policy questions, particular critical relationships between economic and other important variables (for example, nutritional status of children) are identified and explored. The organizing concept of a food policy framework linking important elements of the world market, the macroeconomy, agricultural and non-agricultural markets, and major types of consuming and producing households facilitates identification of the most critical relationships and permits the accumulation over time of the understanding of relationships.

Timmer, Falcon and Pearson describe food policy as:

> the collective efforts of governments to influence the decision making environment of food producers, food consumers, and food marketing agents in order to further social objectives. These objectives nearly always include improved nutrition for inadequately nourished citizens and more rapid growth in domestic food production. Many countries also seek more equal income-earning opportunities and security against

> famines and other food shortages. Food policy analysis is the process of research and thinking designed to discover the complementarities and tradeoffs among food policy objectives and to identify government initiatives in the project, program and policy arenas that can best achieve these objectives (Timmer, Falcon, and Pearson 1983, p. 9).

Figure 1 pictures the linkages between agriculture, food, and nutrition and represents the variety of diverse factors affecting agricultural productivity, subsequent transformation, marketing and consumption as food. Also illustrated is the contribution of food availability to nutrition; note, however, that non-economic factors such as health status, the home environment, and knowledge also contribute to nutrition. Figure 2 presents the Timmer, Falcon, and Pearson view of the connections between macroeconomic and food policy. Highlighted here are key economic variables derived from macroeconomic policy: exchange rates, interest rates, wage rates that influence food prices, the rural-urban terms of trade and ultimately food prices, producers and consumers, and broader food policies.

Gittinger et al. introduce an integrative concept of food policy focusing on links between supply, distribution, and consumption (Gittinger et al., 1987). Goals and components of a food policy:

> should be concerned with both short-term and long-term needs. It (food policy) should include programs to alleviate current malnutrition, such as fortifying food, providing school lunches, setting up ration shops, and distributing vitamin A capsules. At the same time, it should include programs to increase supply and access in the long term, such as pursuing research to increase crop yields, building infrastructure for improved transportation, increasing incentives to farmers, expanding employment and income-generating opportunities, and using futures markets appropriately (Gittinger et al., 1987, pp. 1-2).

Evenson provided the Nutrition Economics Group with a framework linking five classes of policies: factor supply, production technology, product market, factor ownership, and consumer--with their effects through factor and product markets on various policy outcomes (Evenson, 1983, Figure 3). The matrix he includes at the bottom of Figure 3 highlights the distributional concerns food policy analysts have. Indicated is one taxonomy of population groups of concern: landless agricultural workers, small tenant farmers, medium and larger sized producers, urban workers and the urban rich. Although recent work has highlighted several other significant categories including the unemployed and rural artisans, this taxonomy provides a useful starting point.

Pinstrup-Andersen depicts the relationship of food policies and programs to nutritional status in Figure 4 (Mann and Huddleston, 1986) This diagram highlights the fundamental importance of the ability of the household to acquire food in the market at affordable prices (or through household production), the cost of non-food goods, and, critically, the level of household income. Other important factors that influence nutritional status are cultural and individual knowledge, attitudes and practices, intrahousehold resource allocation practices and opportunities,

and a complex of individual and community health and sanitary conditions. Finally, indicators of well-being include the growth and development of individuals, their activity levels, and their level of health.

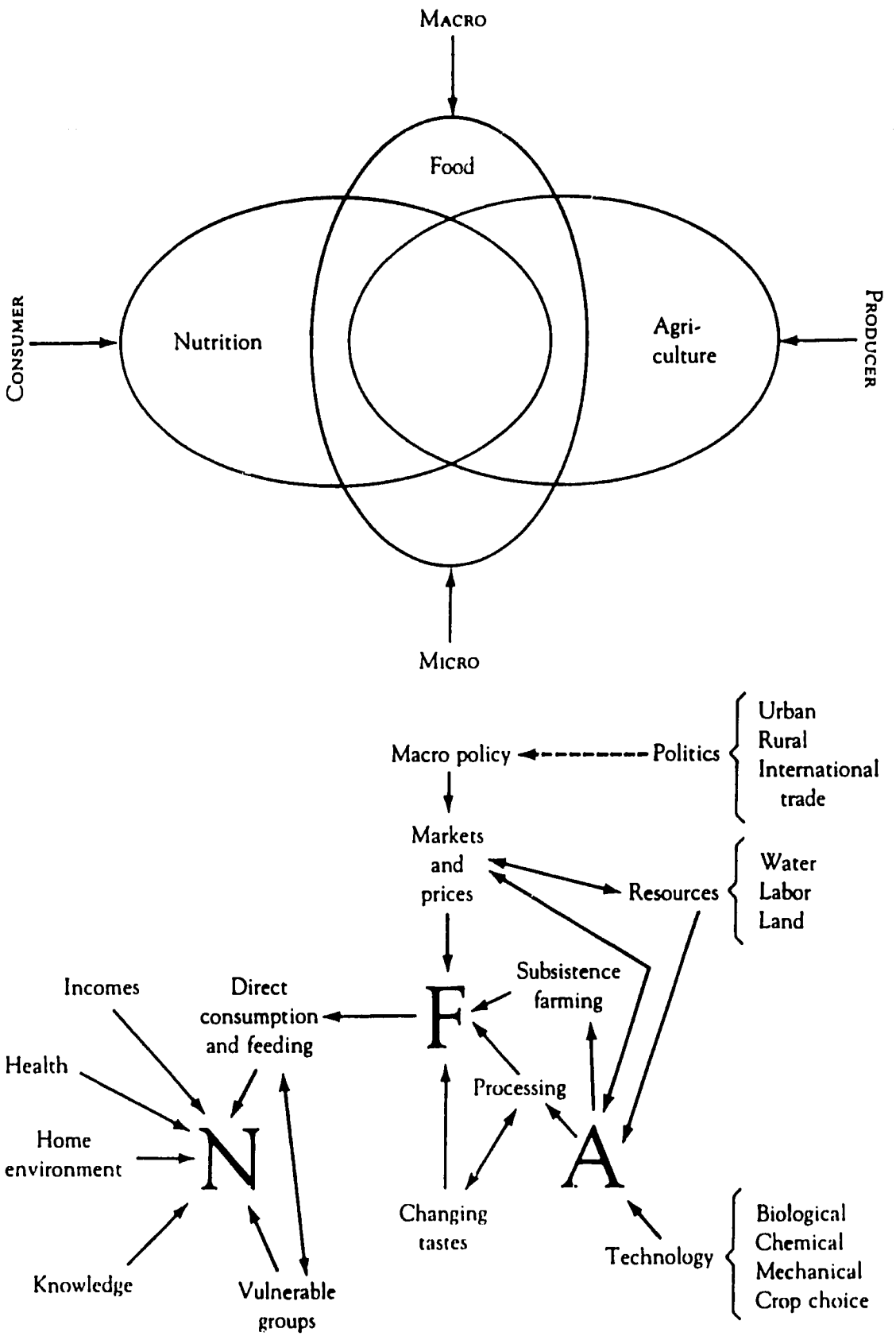
Dawson and Kennedy proposed a conceptual framework as part of their 1987 evaluation of the CEAP project (Dawson and Kennedy, 1987). In Figure 5, government level policies influence (in this case) child growth, morbidity, and mortality through effects on agricultural output, the demand for labor (contributing income), and intrahousehold dynamics. Particularly important are policy effects on the value of women's time and control over income. This conception highlights an emerging interest and understanding of intrahousehold resource allocation practices and the dynamic effects of changing the value of women's time and their control over income.

The final conceptual framework presented here predates all those presented above (Figure 6). It appeared in the 1981 Phase II CEAP project paper of the Office of Nutrition. The figure presents clearly the envisaged links between policies, their effects on home consumption, market supply, and income (working through output, price, income and other effects). Subsequently, these production, market exchange, and income effects influence the demand and consumption of food. Food consumption interacts with other factors including food utilisation, and the resulting nutritional effects feed back into the system. Also, clearly indicated is the need to disaggregate home consumption, market exchanges, changes in income, consumption and nutritional status by socioeconomic group, considering the poor particularly. Thus, underlying the sizeable body of work of the Nutrition Economics Group and its contractors was an early conception of the food economy as a system. This vision reflected the intellectual ferment of the time and appears to have been adopted broadly and continues to contribute to food policy work.

One testament to the success of the CEAP project is the credibility that food policy frameworks and analysis now have. These frameworks link the consideration of sectoral and macroeconomic policies with their economic and distributional effects on income, prices, food consumption, and nutrition. Similarly, food policy frameworks recognize that household level behaviors exert significant effects on national economies. While obviously it is impossible to attribute exclusive credit for a generally enhanced food policy consciousness and knowledge to the CEAP project, nevertheless the project contributed in important ways to both heightened awareness and the understanding of important links between economic policies and food consumption. The project has also contributed importantly to understanding better a host of policy interventions, including the use of food subsidies, that can help improve inadequate consumption or nutritional status.

FIGURE 1

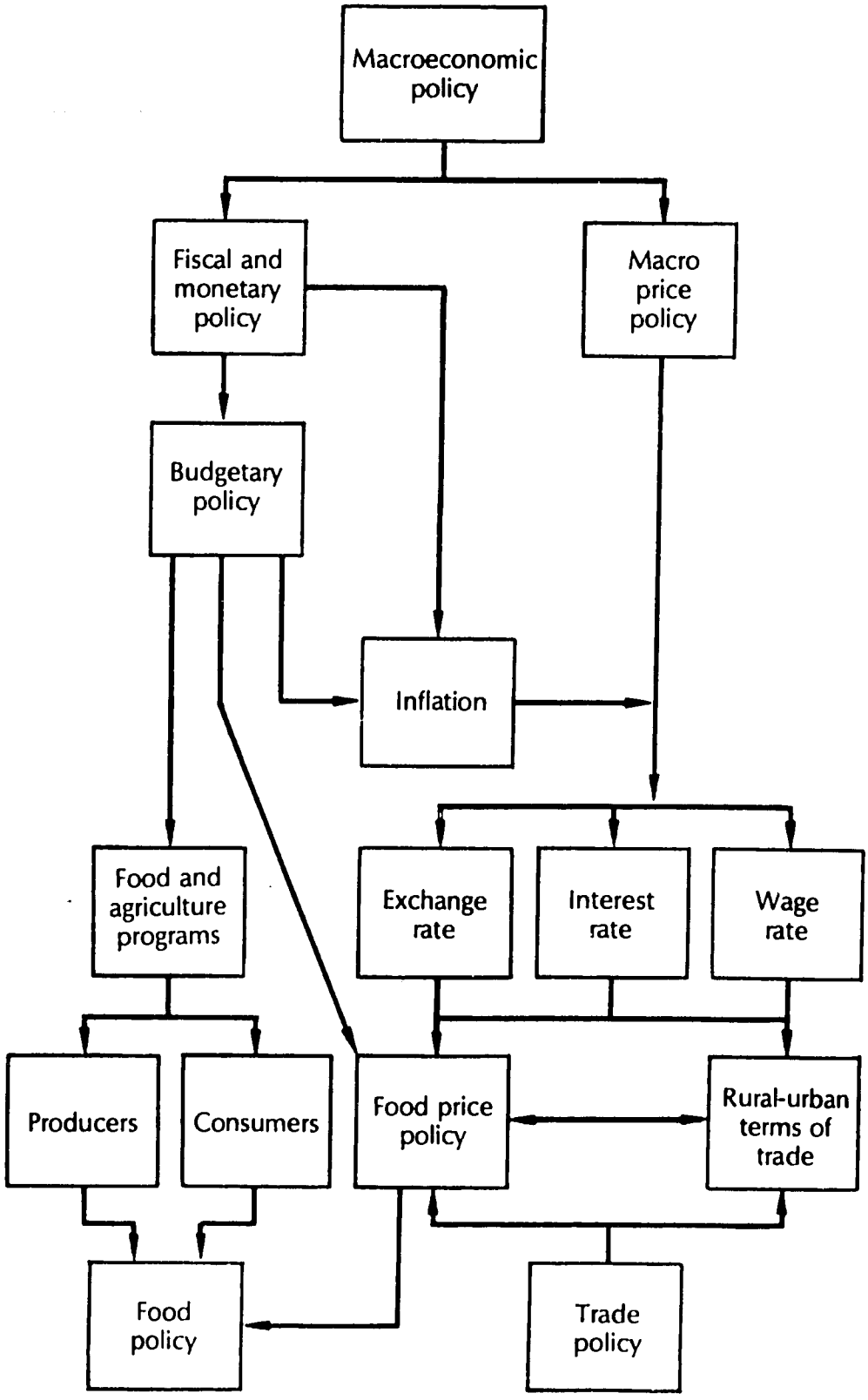
Linkages among Agriculture (A), Food (F), and Nutrition (N)




Timmer, Peter C., Walter P. Falcon and Scott R. Pearson. 1983. Food Policy Analysis. (Baltimore: Johns Hopkins University Press).

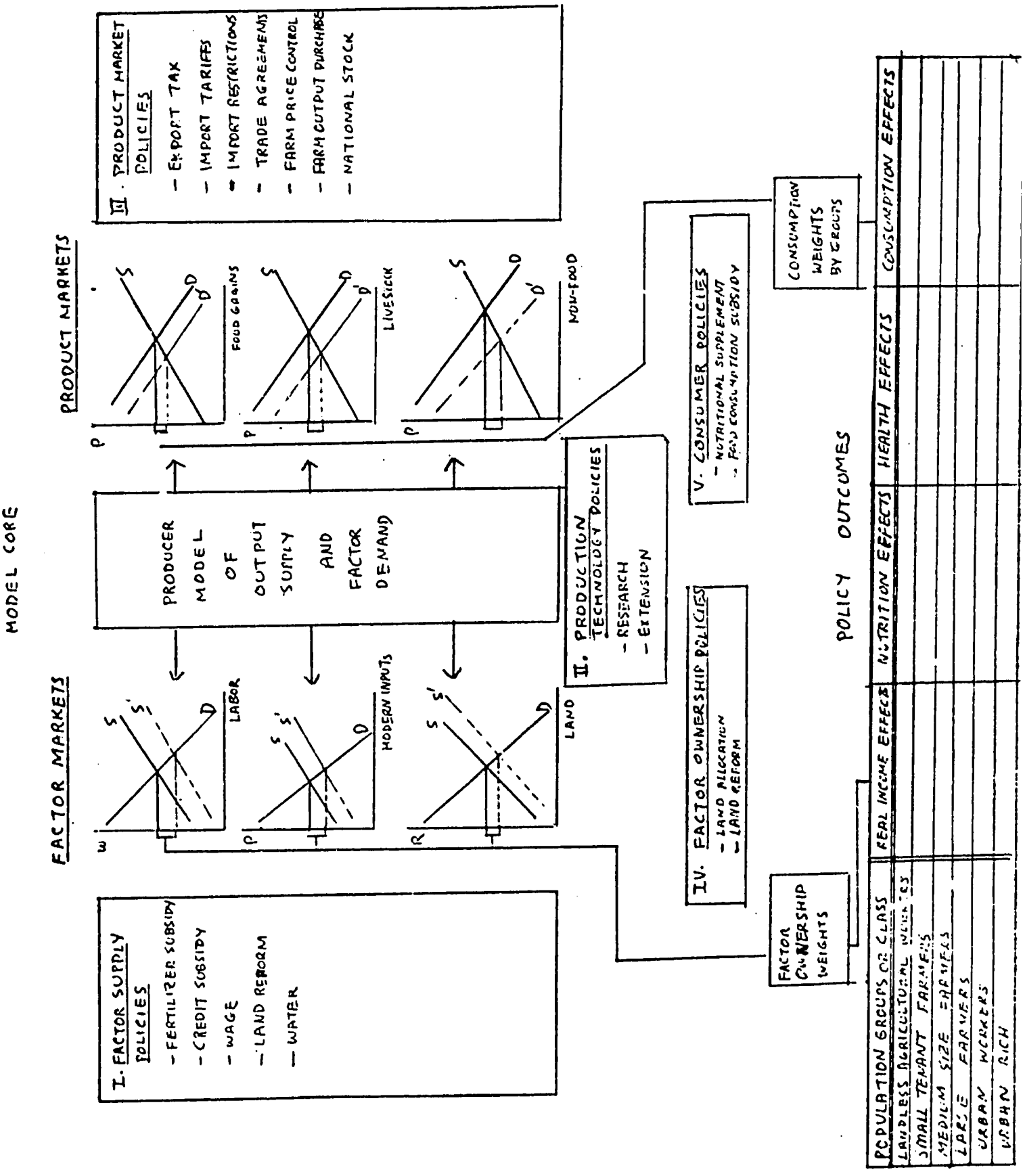
**Major Connections between Macroeconomic Policy and Food Policy**

FIGURE 2



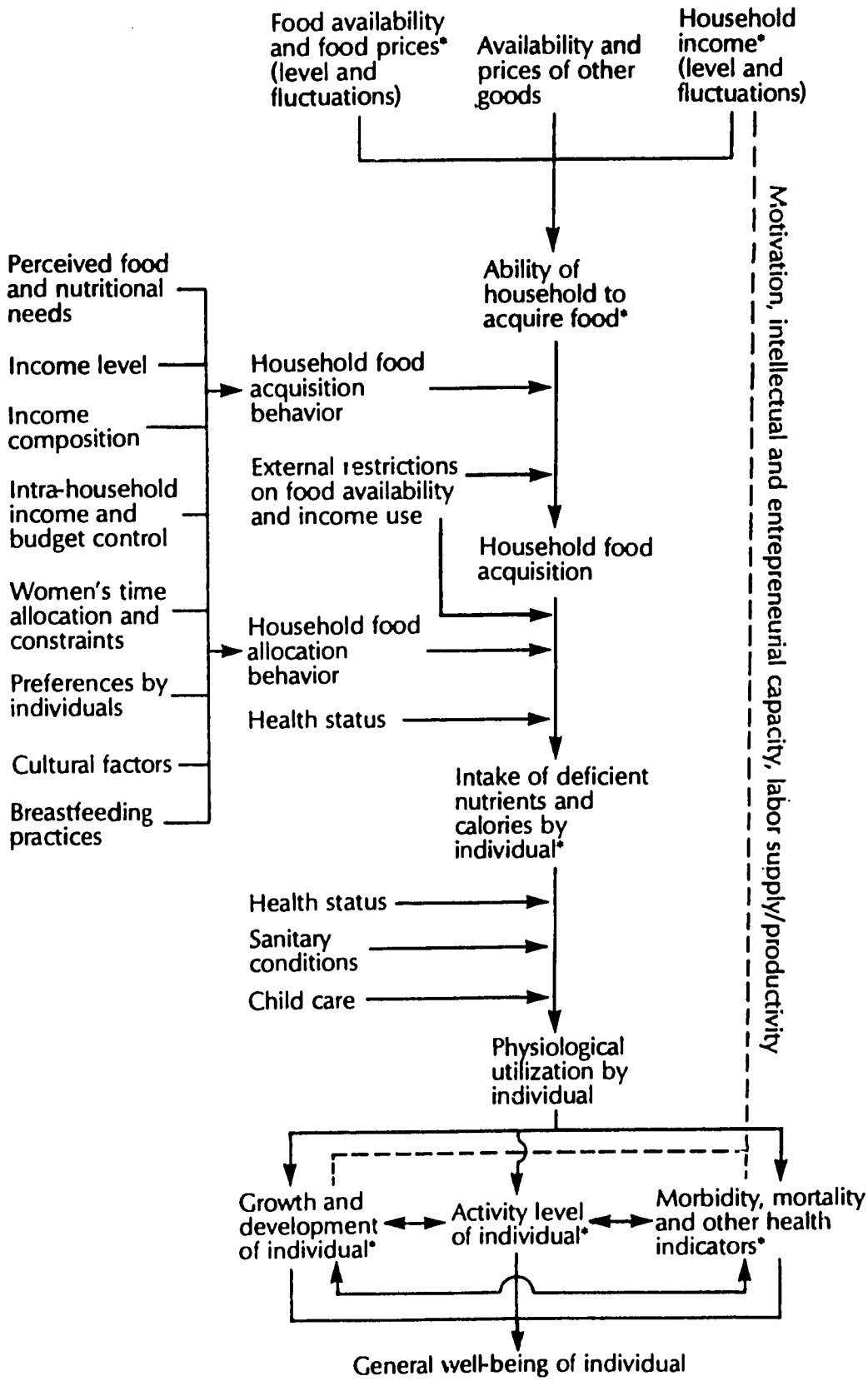

Timmer, Peter C., Walter P. Falcon and Scott R. Pearson. 1983. Food Policy Analysis. (Baltimore: Johns Hopkins University Press).

FIGURE 3




Evenson, Robert. 1987. "A Review of the CEAP Project Findings: Data, Methods, Models and Conclusions." (Nutrition Economics Group, USDA/USAID).

FIGURE 4 **Relationship of Food Policies and Programs to Nutritional Status**

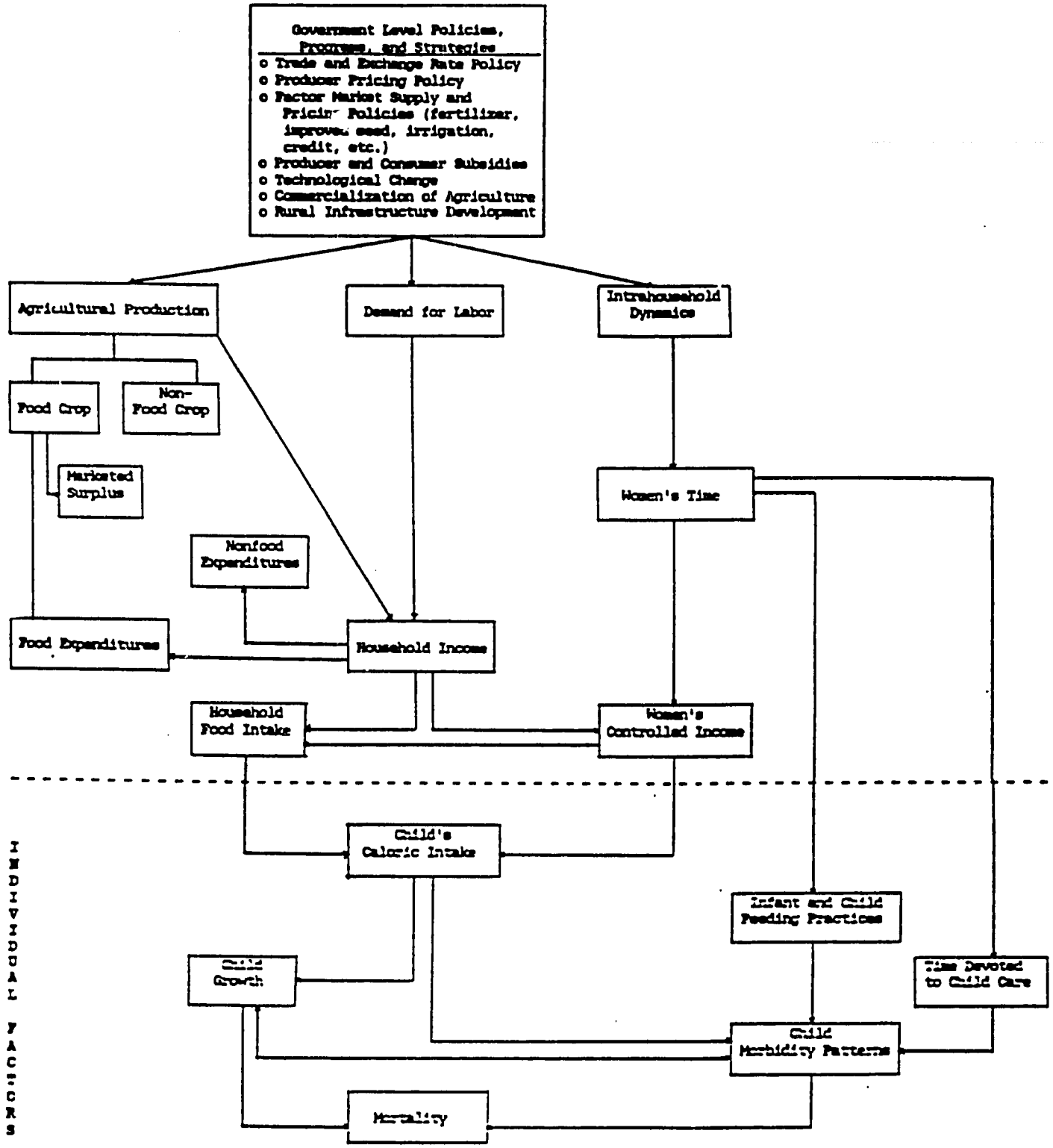



*Sometimes used as indicators of nutritional impact

Pinstrup-Anderson, Per. 1986. "An Analytical Framework for Assessing Nutrition Effects of Policies and Programs." in Food Policy, Charles K. Mann and Barbara Huddleston (eds.). 1986. (Bloomington: Indiana University Press).

FIGURE. 5

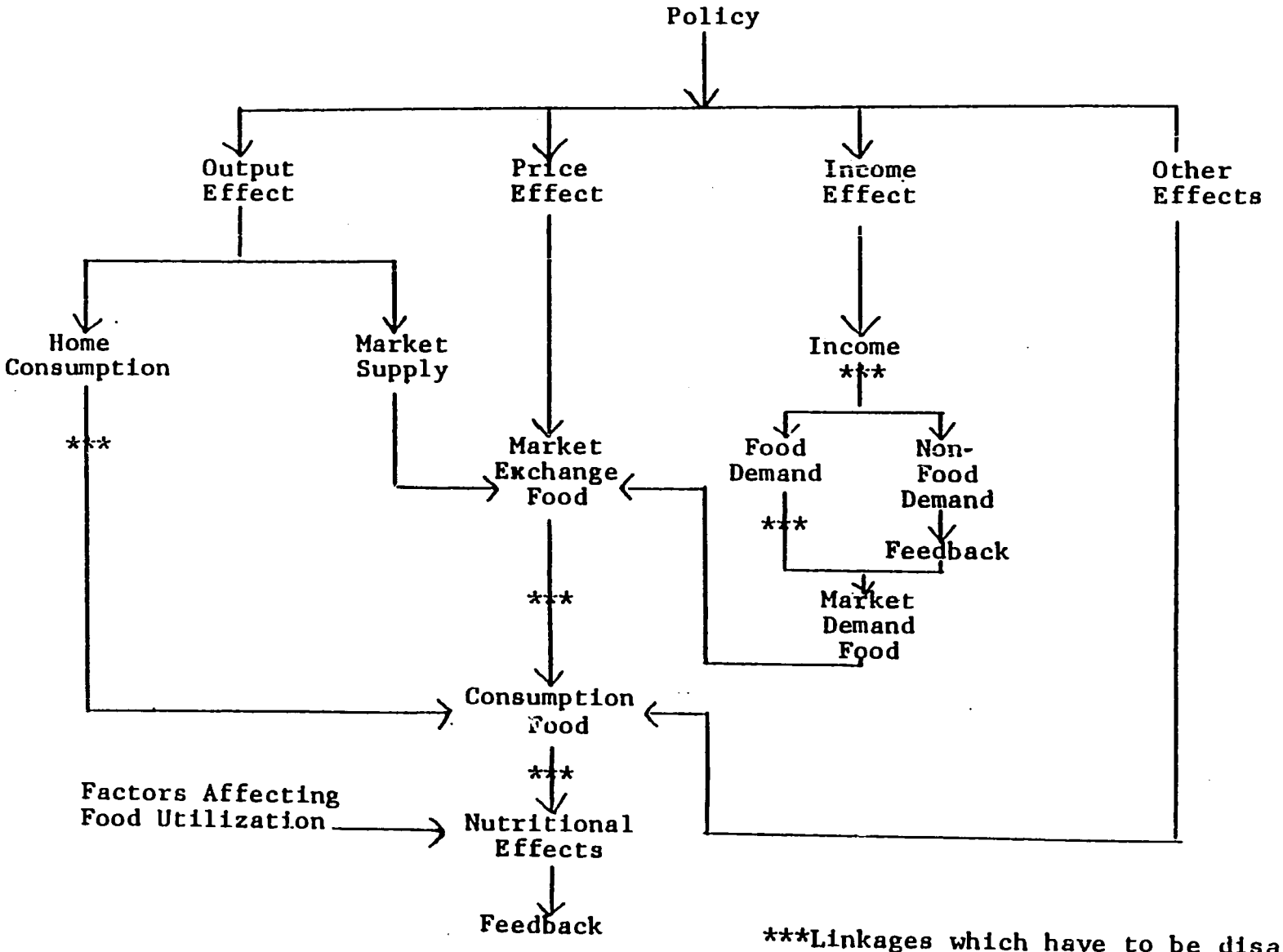
Some potential linkages between agricultural policies and programs and food consumption and nutritional status




Dawson, Anthony and Eileen Kenney. 1987. "An Evaluation of the Tripartite Nutrition in Agriculture Project." A report to the Office of Nutrition, USAID.

FIGURE 6

## Illustration of Linkages Between Policies and Consumption Effects




***Linkages which have to be disaggregated by socio-economic group to be able to identify the effects on those groups likely to be at risk of malnutrition

Agency for International Development. 1981. "Project Paper: "Consumption Effects of Agricultural Policies (Phase II)." (Nutrition Economics Group, USDA/USAID).

## 2. Producer Price Policies

Price policy for agricultural products has received sustained attention over the past decade (Timmer, 1986; Mellor and Ahmed, 1988). The glare of this attention has resulted in consensus on general principles, although some differences of opinion remain. This section highlights major points of consensus and the lessons that they suggest. It also illustrates where the CEAP work fits into the general literature. (More detailed discussion of the CEAP conclusions on price policy appear in the second major section of this chapter). Finally, unresolved issues and areas for further investigation are presented.

First, much of the literature has asserted that developing countries institute a variety of policies, many of them price policies, that discourage productivity growth in the agricultural sector and effectively turn the terms of trade against agriculture (Peterson, 1979; Lutz and Scandizzo, 1980; Bale and Lutz, 1981). Discriminatory policies may be instituted to generate government revenues, to encourage the flow of resources out of agriculture into other sectors of the economy, or to provide cheap food for urban consumers. Interestingly, once countries achieve significant levels of development, they tend to reverse discriminatory policies and protect agriculture (Anderson and Hayami, 1986). While all governments regardless of ideological orientation or development strategy manipulate agricultural and food prices to one degree or another (Pinstrup-Andersen, 1985), implying that free-market determination of prices is largely a myth (de Janvry, 1983), there is some evidence that price policies frequently discriminate against agriculture in developing countries.

The evidence regarding this phenomenon is by no means conclusive. Byerlee and Sain (1986) analyzed price data from the early 1980s for thirty-one developing countries and found no consistent pattern of discrimination for wheat, a major food commodity. While there was a widespread pattern of government provision of low-price wheat bread to urban consumers, there were only a few cases where this policy was carried out at the expense of the producer. Another study that examined maize prices during the same period, but for a different group of developing countries, concluded that most countries had protected producers at the expense of consumers (Sain and Martinez, 1984). This and other recent work suggests that discriminatory producer price policies in developing country governments may not be as widespread as originally reported (Byerlee and Sain, 1986).

Further consensus has emerged regarding the role of price policies in affecting production outcomes. For developing economies largely dependent on agricultural growth and increasingly interested in either food self-sufficiency or food security, excessively discriminatory producer prices inhibit supply responsiveness.

Indeed, it has long been argued that, for developing economies largely dependent on agricultural growth, producer price policies that either implicitly or explicitly tax the farmer are a serious disincentive to increased production (Schultz, 1978). During the 1970s, the World Bank sponsored a series of case studies of agricultural policy incentives and

found that governments were consistently taxing the agricultural sector through price policy (World Bank, 1982, Byerlee and Sain, 1986). At the time the CEAP project was getting underway, the World Bank noted "the almost overriding importance of producer prices in affecting production outcomes and production levels" (World Bank, 1981).

How are discriminatory price policies counterproductive? Price policy affects incentives at the micro or individual producer and consumer level. Price policies also affect sectoral growth and macroeconomic variables. At the microeconomic level, both economic theory and common sense suggest that producers respond to prices in making their production decisions. The simple abstraction represented by an economic supply curve suggests that the higher prices go, the more product producers offer in the market. Conversely, low prices reduce incentives to produce and market farm commodities.

Yet a number of economists have questioned the axiom that agricultural prices are the primary determinant of supply response. Cleaver (1985) has argued that the supply response to price changes has been overestimated. Cleaver found that "farm-gate" prices played a relatively small role in determining aggregate output. More important factors were the efficiency of marketing arrangements and the effectiveness of government-sponsored agricultural research, extension and credit services. Further studies in Senegal, Zimbabwe, and Somalia have supported this view (Martin 1988; Rohrbach 1988; Wehelie 1988).

The magnitude of agricultural supply response and marketed surplus to price policies has been investigated fairly extensively in the literature. The evolution of the empirical quantification of supply response has suggested that:

a) In the short run, the magnitude of supply response to price changes may be quite limited--for example, Bond (1983) estimated an average short run supply elasticity for nine African countries on the order of .12.[1] In the longer run, the estimate increased to .21 Similarly, Mellor and Ahmed (1988) estimate the range of supply elasticity at from .10 to .20.

b) In some cases, particularly in the short-run, supply response to relative price changes reflects a reallocation of productive resources to alternative crops rather than a net increase in total output (Shapiro and Berg, 1988).

c) Generating a significant long run supply response cannot be left to price policy alone but depends on relaxing a number of binding constraints on the production and distribution system (Askari and Cummings, 1976).

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[1] A supply elasticity indicates the percentage change in quantity supplied that can be expected with a given percentage change in price. Thus, a supply elasticity of .12 indicates that with a 10 percent increase in prices, supply would be expected to increase 1.2 percent.

Both theoretical and empirical considerations of supply response in various contexts have raised a number of issues critical to an understanding of the role of price policies in determining supply response. Much early discussion centered upon the rationality of the developing country producer and whether he or she was properly motivated by profit considerations (Schultz, 1964). The so-called backward bending supply curve was debated in the literature.[2] Later, analysts addressed the role of uncertainty and the producer's attitude toward risk. The producer's response to price depends on a variety of factors. Which prices are relevant in affecting producer expectations? When are prices known or announced (that is, prior to planting or after harvest)? Is the relevant price highly variable over time? Are government price guarantees credible? Does the official or market price cover the costs of production, and with which production technology?

Several additional constraints to unfettered supply response exist. Many of these necessarily qualify any exclusive reliance on price policies and their capacity to lead the way to agricultural development. What are the major constraints? One set relates to producers' capacity to produce marketable surplus. This capacity is conditioned, in turn, by weather, by the natural resource base, by access to variable inputs, by technology, and by entrepreneurial or managerial ability and knowledge. To be effective, price policies must be accompanied by a variety of appropriate policies to address these other limiting constraints. In many cases, structural constraints in transport, storage and communications infrastructure, rather than insufficient producer prices, account for supply response limitations.

Information and marketing constraints have also been cited in the literature as explanations for poor supply response. Jayne and Minot (1989), in summarizing recent research in Senegal and Burkina Faso, noted that "few marketable surpluses are produced because markets are thin and uncertain, but markets remain thin because few marketable surpluses are produced" (Crawford 1988; Reardon, 1988). Finally, the availability of production inputs and consumer goods, determined in part by the condition of the transport system, has a great impact on production outcomes. Mellor and Ahmed (1988) have stated that "in practice, the availability of inputs such as fertilizer is more important for farmers than the price." (p. 3).

For the purposes of food policy analysis under the CEAP project, it is important to ask: How does price policy relate to food consumption and nutrition? The various food policy frameworks discussed above suggest some of the important links between food prices and nutrition. These include the effects of prices on agricultural output, on producer or household income and on food prices faced by consumers, among other things. As patterns of food production and consumption of different economic agents adjust to changing relative prices, the result is a differential alteration in the nutritional intake of various groups of consumers.

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[2]The concept of the backward bending supply curve refers to a producer offering additional labor in productive activity. If the curve is backward bending, it implies that after some point, the producer would prefer leisure to increased income.

A significant advance in our understanding of the effects of changing food prices on consumers and producers has resulted from consideration of the household in its dual role as producer and consumer. The conceptualization is particularly useful in the context of rural agriculturalists, the majority of people in the developing world. Households utilise their available resources, including labor time, and purchased goods in accord with available technology to produce a variety of goods for home consumption and sometimes for market sale. In the model, the household maximizes its utility. Depending on the conceptualization, household utility may be understood as a function of food and non-food consumption and leisure.

The household faces constraints in terms of having resources, including labor time. By understanding that the rural agricultural household is both a food producer and a food consumer, it is easy to see that agricultural prices affect the household in these two distinct roles. Thus, if agricultural prices increase, the household in its producing capacity benefits because the value of its production increases. The household as a consumer suffers, however, because the costs of food have risen. Increasingly, analysts recognize that the net impact of changes in agricultural prices on the welfare of the agricultural household depends in part on its position as a net buyer or a net seller of food. Work under the CEAP project by a team from Michigan State University contributed significantly to our understanding of these phenomena and will be discussed in Section B.

Bearing the conceptualization of the household as a producing firm in mind, information about the productive and consumptive activities of the household and the sources of household income becomes increasingly valuable for our understanding of the impacts of economic policies, including agricultural price policies. If a household is a net purchaser of food as are urban and many rural households, price increases especially combined with instability in agricultural prices will have negative income and price effects on these households, at least in the short term. A study by Rogers and Swindale (1988) under the CEAP project contributed to this literature and is also discussed in Section B.

Ending this brief summary of micro-level price policy issues, attention turns to the macroeconomy and the importance of many food and agricultural price policies for economic growth strategies and the public budget. Earlier, discriminatory price policies providing disincentives to agricultural production were noted. These may be achieved in many ways:

a) Overvalued exchange rates that encourage imports of foreign products including food, and discourage exports, including domestically produced agricultural products. Overvalued exchange rates exert adverse impacts on the balance of trade and cause domestic prices to diverge from international prices. Economists commonly believe that significant divergence of domestic and international prices leads to inefficient use of resources and lower growth than would otherwise be the case;

b) Parastatal marketing boards that operate as monopsony buyers for the government are often used to purchase grains at prices either

higher or lower than world market prices. Either policy leads to inefficiencies in resource allocation and frequently insupportable public expenditures;

c) Border measures such as quotas, tariffs, or subsidies that are commonly used can produce significant price and trade distortions and result in high fiscal costs. If these are used to protect domestic production, consumers may pay higher than world market prices. On the other hand, border measures that are used to provide consumers with subsidized food, can also result in disincentives for domestic producers. It can be misleading to compare domestic prices with border prices at a specific point in time, rather than as a trend over time. For example, due to changes in the external environment that affect the world price, the same policy may be a "subsidy" in one year and a "tax" in the following year, even though there are no commensurate effects on producers or consumers.

Frequently, developing country governments attempt to simultaneously support producer prices above market levels and keep consumer prices below world market prices. This combination of policies can lead to significant and unsustainable expenditures of government revenues.

A caveat should be added at this point. The literature does suggest that the government can play a vital role in price stabilization as opposed to price support. A distinction lies between attempting to support prices above a long-run trend and dampening instability or fluctuations around a trend. If marketed surplus is proportionately very low, the thinness of markets can result in extreme price instability. Because much food in rural areas is purchased, price instability can be extremely detrimental to consumption.

Mellor and Ahmed (1988) suggest that strategically and competently managed stocks can provide valuable stabilizing influence in a market plagued by instability. Necessary conditions include sustainable prices, appropriate timing, and adequate resources to dampen price variability. Food imports and food assistance may be employed in this capacity.

Most of the CEAP studies examined some aspect of price policy. Influences of prices on household decision making were studied in Sierra Leone, Nigeria, Cameroon, and Senegal. Price policy effects at the economy level, disaggregated by income level, were more common as evidenced by the studies in Honduras, Indonesia, Zambia, and Jamaica.

## 3. Consumer Price Policies and Food Subsidies

Food subsidies are the most common example of consumer policies designed to insure that poor consumers are able to meet basic nutritional requirements. In fact, virtually all governments manipulate food prices. Since low-income consumers spend anywhere from 60-80 percent of their income on food, cheap food is often viewed as a nutritional, as well as a political, necessity (Pinstrup-Andersen, 1985).

Governments that subsidize food have a wide range of policy options. First of all, a distinction is usually made between implicit and explicit subsidies (Pinstrup-Andersen, 1988). Implicit subsidies are financed by the agricultural sector through the maintenance of artificially low producer prices. Explicit subsidies are government financed subsidies. These purport to avoid the disincentives of producer price policies. In the real world, the distinction between implicit and explicit subsidies is not always clear and can be difficult to quantify (Valdes, 1988). Observers have noted the tendency for an explicit subsidy scheme to gradually incorporate implicit subsidies at the expense of the agricultural sector (Von Braun, 1988; Valdes, 1988).

Subsidy programs can also be distinguished by distribution mechanism and scope. General subsidy schemes provide price supports for the total quantity traded of one or more food commodities, most commonly wheat and rice (Pinstrup-Andersen, 1988). Other schemes may be targeted to reach particular geographic areas, vulnerable households or address seasonal shortages. Rationing, or the provision of a certain quantity of one or more food commodities at fixed prices, is often a component of these subsidy schemes, whether general or targeted. General subsidy programs are much easier to administer than targeted programs, yet there is a tradeoff. General subsidies can be costly and exhibit a greater level of "leakage." That is, general subsidies provide cheap food to households irrespective of income levels.

For the most part, food subsidies (general or targeted) are price subsidies; food is made available for purchase at below-market levels. However, a number of countries (Sri Lanka, Colombia and the United States among others) operate food stamp schemes. Qualified households can apply for food stamps which are used to obtain certain commodities. Through food stamps, subsidized food distribution is both targeted and rationed. Clearly, generalizations regarding food subsidy schemes are unwise due to the tremendous variation from country to country.

While some countries have a long history of consumer-oriented interventions in food pricing, many food subsidy schemes evolved out of wartime rationing programs or colonial rule. However, only in the past decade have food subsidy systems been widely studied, producing a growing body of literature on the objectives, operation and impact of food subsidy schemes. Initial studies in Pakistan, Sri Lanka, Bangladesh, and India supported the assumption that food subsidies resulted in increased household consumption for low-income groups (Rogers, 1978; Gavan and Chandrasekera, 1979; Ahmed, 1979; Kumar, 1979). For some schemes, such as the wheat flour program in Pakistan, the poor derived most of the benefits (Khan, 1982). However, in other cases, such as the rice subsidy in Kerala

(India), richer consumers gained more in relative terms than poorer consumers, although both groups showed an absolute gain (Kumar, 1979).

Subsidy programs entail significant costs. A comprehensive study in Egypt, sponsored by the CEAP project, estimated the fiscal costs of maintaining a general subsidy on wheat and subsidies on limited quantities of other commodities to be almost $2 billion (U.S.) in 1981 (Alderman, von Braun and Sakr, 1982). Until 1977, Sri Lanka operated a similar system of general subsidies for rice. However, by 1979 Sri Lanka moved to a targeted and rationed program, restricting coverage under the subsidy to the poorest 50 percent of the population. Changes were made due to both fiscal pressures and because only a fraction of the calories from subsidized rice were actually going to those with calorie intakes at below recommended levels (Gavan and Chandrasekera, 1979).

Later studies have confirmed the administrative feasibility of targeted subsidy programs, when certain conditions are met. A pilot rice subsidy program in the Philippines targeted geographical areas or villages with a high concentration of poor households (Garcia and Pinstrup-Andersen, 1987). Leakage, or food distribution to those not in need, was estimated at only about 18 percent. In general, targeting is much more difficult and the administrative costs higher when poorer households are a smaller proportion of the total population.

An important element of a subsidy program is the choice of the commodity to carry the subsidy. Often the primary cereal staple, usually wheat or rice, is chosen. As mentioned earlier, if the middle and upper income groups also consume significant quantities of wheat or rice, the costs of a general subsidy program may be prohibitive.

However, there may be difficulties with targeted schemes as well. A study of the wheat bread subsidy in Brazil found that it actually resulted in decreased calorie consumption in the lowest income groups as individuals substituted wheat bread for rice and other foods (Williamson-Gray, 1982). The same study hypothesized that shifting the subsidy to cassava would result in an increase in incomes for the poor and a decrease in incomes for the rich. Studies have documented that in Latin America, unlike much of Asia, there is not one primary staple. It is important to document the various consumption patterns (Pinstrup-Andersen, 1985). For example, in five out of ten Latin American cities, the poorest quarter of the population spent more on meat than on cereal (Musgrove, 1978). Recent studies have focused on so-called "self-targeting" schemes that subsidize "inferior" foods. That is, if less preferred (but still nutritionally adequate) foods such as sorghum and millet are subsidized, richer households will exclude themselves from the program by voluntarily choosing other, more preferred foods such as wheat and maize. A study in Bangladesh found that shifting the distribution of sorghum to ration shops would lead to relative gains for low income groups since sorghum is almost exclusively consumed by the poor (Karim, Majid, and Levinson, 1980).

This discussion highlights the importance of using consumption information (formalized by price and income elasticities) in the design of food subsidy schemes. The empirical evidence from a number of case studies has shown both income and price elasticities for staple foods to be large

in absolute value among the poor (Alderman, 1985; Pinstrup-Andersen, 1985). However, there are other potential issues to consider. For example, the increase in consumption of subsidized food may not improve calorie consumption because of changes in diet composition (Pinstrup-Andersen 1985). In fact, recent analyses imply that the degree of substitution between foods (and nonfoods) in response to changes in relative prices is relatively high (Alderman, 1985). If this is true, the carrier of the food subsidy should be carefully chosen.

Much research has also concerned distributional impact of food subsidy schemes. The claim has often been made that, in practice, food subsidies have an urban bias. A study in Bangladesh determined that two-thirds of all public food-grains went to urban consumers, although only 9 percent of the population lived in urban areas (Ahmed, 1979). In addition, Rogers (1981) found that the Pakistani ration shop system mainly benefited the urban population; the average per capita increase in calories from the program was 116 in urban areas as opposed to 14 in rural areas. Despite a network of ration shops in the rural areas, travel times were still longer, raising the opportunity cost of ration shop purchases. An urban bias was also found in food subsidy programs in China and Mexico (Lardy, 1983; Lustig, 1988). It is clear that implicit subsidies, maintained by artificially low producer prices, are an example of a policy bias against the agricultural sector. It is not as clear what the impact would be on rural areas if policy reforms resulted in higher producer prices and lower consumer subsidies. As discussed in the preceding section, many rural households are net food buyers and, at least in the short run, might encounter the same hardship from higher food prices as their urban counterparts.

Another distributional issue of current interest concerns the allocation of food within the household. Recent work in the Philippines has shown that food subsidies may not benefit all household members equally because of inequities in intrahousehold distribution. Calorie consumption gains of adult males and females resulting from the subsidy were "considerably more" than the gains of the children (Garcia and Pinstrup-Andersen, 1987). The authors cited widespread adult malnutrition as a possible reason. It has been surmised that the marginal propensity to consume food is greater for women's income than for men's income (von Braun and Kennedy, 1986). Income varies by source and whether a particular portion is deemed to be "women's income" or "men's income" has important implications for household nutrition.

## 4. Input, Technology and Marketing Policies

Despite their important differences, input, technology, and marketing policies are considered together here because of their similarities as essential complements to agricultural price policies. As the previous review of the price policy literature suggests, in order for producers to be able to increase production and the marketing of surplus, they must have access to inputs, improved technologies, and markets.

Mellor and Ahmed (1988) suggest that public investment in agricultural input provision may be conceptualized in two stages. Initially, to encourage preliminary adoption of improved inputs, it may be desirable for

the public sector to subsidize fertilizer or seeds. However, government subsidies of the variable costs of inputs may quickly become unsustainable if adoption broadens. A better government policy, he suggests, may be to make initial investments in the fixed costs of input distribution such as personnel or warehouses or seed replication facilities. The unit costs of these investments will decline rather than increase as volume expands.

Similarly, there is an emerging consensus that subsidized credit provision is not a cost-effective means of increasing agricultural output; in a number of cases, subsidized credit is thought to have exacerbated skewed rural income distribution and caused a deterioration in rural savings rates (Braverman and Guasch, 1986). It has been suggested that governments promote credit availability, particularly by removing institutional constraints, rather than finance credit subsidies (Braverman and Guasch, 1986). There are, however, successful examples of credit provision schemes. Of particular notice is the Grameen Bank in Bangledesh which provides small amounts of working capital to individuals, particularly women, generating self-employment in livestock and poultry raising, small manufacturing and shopkeeping.

Eicher (1982), Matlon (1987), and others stress that the long-run commitment to research in developing countries and at international research institutes will continue to be essential to generate appropriate technologies to increase productivity. Matlon concludes that for much of sub-Saharan Africa, no miracle Green Revolution technology is in store. Micro-climates, soil conditions, and other characteristics of the agroecology are too heterogeneous and fragile to respond to uniform input packages. Thus, progress will continue to be hard won and depend on a combination of on-station and farming systems research and effective methods of extension and teaching to farm managers. In addition, national commitments to find the means to support research and teaching will be vital to success over time.

With regard to both input availability and improved technologies, important questions have been raised about the distributional consequences of government policy. Important distributional issues concern the access of low income farmers, many of whom are women, to productivity enhancing technology and credit. Much on-going work suggests that designing policies successfully targeted toward low income producers, including women, is difficult but possible, as demonstrated by the experience of the Grameen Bank in Bangledesh.

As stated earlier, the literature is beginning to suggest that there may be different implications for the household of different sources of income within the family. Household nutrition may ultimately reflect differences in sources of income and responsibility for allocation of household resources. For example, new technologies or inputs may have either positive or perverse effects on child or household nutrition depending upon the new technology or as the input alters allocations of time among family members. Much work in this area remains to be done.

Finally, policies to improve the availability and operation of markets provide additional significant avenues for cost-effective government investment. The former reliance on government marketing boards with

monopsony power has given way to a new enthusiasm for expanding the role of private traders in agricultural product marketing. Recent research of marketing reform in Africa, however, has suggested that private traders may not immediately step in to fill the void should the state withdraw from food marketing (Jayne and Minot, 1989; Weber et al., 1988; Goetz et al., 1988). In southeastern Senegal, many private traders "lack the resources, product knowledge and management skills to market inputs effectively" (Jayne and Minot, p. 15).

Commonly, marketing costs are very high. High marketing costs reflect a variety of factors including poor transportation, storage, processing, information, and banking infrastructure. Private traders in Mali have not been able to take advantage of the greater opportunities offered by marketing reform due to their inability to acquire trucks and warehouses, inadequate working capital, and by the lack of market information (Dione and Staatz, 1987; Jayne and Minot, 1989). Frequently, the public sector is needed in developing, as in developed economies, to invest in the provision of many goods and services with "public goods characteristics." In all economies, for example, private provision of roads, bridges, transport, and communication infrastructure tends to be problematic. Sometimes the required scale of investment is too great (for example, a rail system). Sometimes a private investor cannot capture the benefits of investment because it is not possible to exclude those who do not pay. In some cases, many citizens and economic sectors can benefit from a public investment and initial financing out of government revenue is the most expedient funding mechanism. The CEAP project addressed issues of marketing constraints in studies in Cameroon and Panama. These are described in Section B.

## 5. Macroeconomic and Trade Policies

In the unstable macroeconomic environment of the 1980s, increasing attention has focused on the impact of macroeconomic and trade policies on food consumption levels and the nutritional status of developing country populations. With the entrance of "structural adjustment" into the development lexicon and the strong economic growth of the export-oriented nations, the linkage between macroeconomic policies and nutritional status has become apparent although not fully understood.

The level and nature of government expenditures, exchange rate levels, the degree of trade protection, the inflation rate, and the balance of payments situation are among the significant macro variables manipulated by policymakers. As Stewart (1987) has noted, there are three major ways in which macroeconomic and trade policies affect food consumption and nutritional status:

1) **Incomes**; the aggregate growth rate affects wage and employment trends in both formal and informal sectors and thus has an impact on real income. In the agricultural sector, changes in the terms of trade and the degree of trade protection and export promotion affect rural incomes.

2) **Prices;** the inflation rate, the exchange rate, and the degree of outward orientation influence the availability and price of food items. Changes in relative prices can also alter diet composition and affect nutritional status. Changes in prices of non-food items can alter food consumption patterns.

3) **Social services;** changes in government expenditure levels affect provision of many services such as health care, food subsidies and housing. In many countries, reducing government spending also entails cuts in public sector employment.

The underlying philosophy of donor-induced macroeconomic adjustment is that the country's macroeconomic indicators show an unsustainable trend. Fiscal austerity and monetary conservatism are viewed as corrective mechanisms and a short-run deterioration in living standards are often seen as the price of long-term stability and economic vitality. This viewpoint has received support from an analysis by Jaeger and Humphreys (1988). They examined sub-Saharan African (SSA) countries with strong macroeconomic reform programs, comparing them with SSA countries with weak or no reform programs, and found that the growth of GDP, exports, and domestic investment was greater for "strong reformers"-- that is, countries that had lessened trade and exchange rate biases, reduced public sector expenditures, or pursued general liberalization strategies. However, a study by the Economic Commission for Africa, using the same data as Jaeger and Humphreys, came to just the opposite conclusion: weak and non-reformers had higher growth rates than strong reformers.

Some critics have argued that the current emphasis on macroeconomic adjustment has placed too much emphasis on broad macro indicators and too little on food consumption levels. A UNICEF study (Cornia et al., 1987) found that macroeconomic adjustment often led to a deterioration in the nutritional status of vulnerable groups. In acknowledging the important linkage between food consumption/nutrition and macroeconomic variables, the study recommended changes in the design, sequencing and pacing of macroeconomic policies.

It is important to note that macroeconomic reforms, which traditionally include goals of reducing government expenditures and reevaluating the public sector role in the economy, may adversely affect public sector investment, including human capital investment through redirections in education spending.

Thus there is little consensus on appropriate policy actions. Although growth-oriented adjustment may worsen the nutritional situation of vulnerable groups, an adverse macroeconomic environment created by poor or unsustainable policies may lead, in time, to an equally harsh deterioration in consumption and nutrition.

Two large research efforts were initiated in 1988 by Cornell University (with A.I.D. sponsorship) and the World Bank to examine the distributional impact of macroeconomic policies. These efforts will attempt to determine the impact of alternative policy actions on a range of living standard indicators and will hopefully expand our understanding of the effects of macroeconomic policies on food consumption levels and nutritional status.

## B. LESSONS LEARNED: THE CEAP AND SUBSIDIZED CONSUMPTION STUDIES

Most of the work done during the CEAP project concerned the impact of agricultural and food price policies on consumption and nutrition. The following analysis distinguishes between producer and consumer price policies, while recognizing that in some respects this division is artificial. Indeed, the "fundamental dilemma" of food price policy has been expressed as the tradeoff between low food prices for consumers and high prices as an incentive for producers. The review that follows demonstrates the immutable linkage between supply-side and demand-side interventions.

### 1. Lessons Learned: Producer Price Policies

**LESSON 1: WHILE THE LINKAGE BETWEEN AGRICULTURAL PRICE POLICIES AND SUPPLY RESPONSE HAS BEEN ACKNOWLEDGED, PRICE POLICIES MUST ALSO PROMOTE THE EFFICIENT ALLOCATION OF RESOURCES AND, ULTIMATELY, FOOD SECURITY**

In considering agricultural development and the effect of agricultural price policies, many development economists have concluded that the best mechanism for improving the welfare (including consumption levels and nutritional status) of developing country farmers is to raise the prices paid for agricultural goods. As discussed in the literature review, developing country agricultural sectors are widely perceived as "discriminated" against vis-a-vis urban sectors. This discrimination may occur for purposes of maintaining low food prices in urban areas, generating public revenues, or as a result of overvalued exchange rates created by an industrialization policy.

Yet the CEAP studies did not tend to focus on the explicit linkage between price polices and production outcomes. In many of the case studies, "discriminatory" policies were not observed. In other instances, discriminatory polices were implicitly acknowledged, although the focus of the analysis was elsewhere. For example, in Tanzania, a CEAP study found that insufficient incentives had depressed production of both food and cash crops. Monopoly purchasing by parastatals and overvalued exchange rates were the primary mechanisms for taxing the agricultural sector. These discriminatory policies caused the rise of an illegal parallel market for grain. The two CEAP studies in Tanzania were devoted to examining how the existence of a dual marketing structure, resulting from discriminatory price polices, had affected the food consumption patterns of various groups (Keeler et al., 1982; Renkow et al., 1983).

In Jamaica, a major conclusion of the CEAP study was that price policies pursued by the government had not resulted in an efficient allocation of resources. The Jamaican government had embarked on a strategy of promoting both sugar and rice production. Increased sugar production was supposed to lead to an increase in foreign exchange earnings as sugar exports grew; increased rice production was expected to reduce growing foreign exchange expenditures on imported rice. The CEAP study found that production gains, where they had occurred, had been achieved at great cost in terms of the efficient allocation of scarce domestic

resources (van Blarcom, 1983a).

Local production costs for rice were found to be "well above the foreign price for imports," although they were "about equal the current retail price" (p. 24). It was not known whether production costs could be reduced with greater experience in rice cultivation and milling. An examination of the domestic sugar industry found that sugar production was heavily subsidized. The export cost of domestically produced raw sugar was 33 cents per pound in 1982. In comparison, the ten-year average for raw sugar on the international market was 15 cents. Although analysis of the 1983-84 Household Expenditure Survey was not complete at the time of the van Blarcom study, it was concluded that the price polices pursued by the government had been at "substantial costs to low-income groups" (van Blarcom, 1983a, p. 65).

## LESSON 2: GETTING AGRICULTURAL PRICES RIGHT IS NOT A PANACEA; COMPLEMENTARY POLICIES ARE NECESSARY

Getting prices right is not a panacea. Price policies work best in conjunction with complementary policies that address other constraints to growth in agricultural productivity and demand.

In Panama, a CEAP study found that the government supported agricultural prices through purchases by state agencies and through subsidization of inputs. On net, analysts concluded that the agricultural sector received significant protection. The CEAP study found, however, that high support prices had induced greater output only when accompanied by technical change. Technological improvements, particularly improved seed varieties, enabled farmers to overcome constraints represented by limited land or labor and to respond to higher prices (Franklin et al., 1984).

A CEAP study in the Northwest Province of Cameroon noted that the poor state of the transport system was partially responsible for limited trade opportunities with Nigeria despite growing Nigerian food demand. There were no roads linking the Northwest Province directly with Nigeria, only "a couple of mountain roads passable by all-terrain vehicles in good weather." Poor infrastructure restricted marketing opportunities and prevented price signals from operating (Ariza-Nino et al. 1982b).

In Senegal, researchers found that higher official millet prices were not likely to lead to either "vast increases in millet production" (p. 171) or increased income from millet sales. The strategy of farmers was to allocate a constant proportion of land to both millet and groundnuts, the primary export crop. This compromise enabled farmers to pursue a middle road between the risk avoidance strategy of millet self-sufficiency and the profit maximization strategy of groundnut production. Researchers stated that the "aggregate production of foodgrains tends to be relatively inelastic with respect to price" (p. 171). Furthermore, the capacity of the government to store additional purchased millet was judged to be too limited for any expansion in millet purchases (Josserand and Ross, 1983).

The authors also surmised that an increase in the price of groundnuts

relative to millet would not lead to an increase in the amount of land devoted to groundnuts. However, such a shift would probably induce farmers to devote additional inputs, such as chemical fertilizer and labor, to groundnut production. The crucial ingredient was judged to be timely access to agricultural inputs, particularly chemical fertilizers. (Josserand and Ross, 1983).

**LESSON 3: PRICE POLICY EFFECTS ON RURAL PRODUCERS MUST BE UNDERSTOOD AS THEY INFLUENCE HOUSEHOLD PRODUCTION, CONSUMPTION, AND INCOME**

A significant contribution of the CEAP project was to attempt to examine the role of rural agricultural producing households as producers but also as consumers. Studies of rural households in Sierra Leone, Nigeria, Cameroon, and Senegal pursued this line of inquiry and are discussed here.

The Sierra Leone studies, conducted by several analysts at Michigan State University (MSU) under overall direction of Victor Smith contributed some of the most useful insights produced under the CEAP related to household decision making in response to economic incentives in rural areas. Researchers were able to use an extensive and path-breaking data set that had been collected in 1974-1975 by Byerlee, Spencer, and other researchers under the Rural Employment Research Project at Njala University College, Sierra Leone.

Study objectives included studying the effects of economic development policies including pricing on the rural economy and rural households and their consumption and nutritional status. The study also attempted to understand better the effects of increased commercialization, characterized by increased production for the market, on the welfare of rural households disaggregated by income stratum. One of the major conclusions was that rural subsistence and semi-subsistence households do respond to market incentives (Smith, Strauss, Trechter, and Schmidt, 1982).

The analysis for A.I.D. by Victor Smith and the MSU team took place at a time when concern had mounted that economic development policies could influence or exacerbate problems of malnutrition. The authors concluded:

> "There is a widespread agreement that economic change has major effects upon nutritional levels in the populations affected, but little is known in detail about the responses of individual households to the changes that occur during development or about the effects on household nutrition of the adjustments in agricultural production that occur as the result of government policies with respect to price, market opportunities or technical change. Quantitative measures of the effects of such policies are desperately needed" (Smith, Strauss, Trechter and Schmidt, 1982, p. 1).

After examination of the Sierra Leone data, they concluded:

> In summary, the hypothesis that production for the market has an adverse effect on the diet finds some support in the data, but more often is not confirmed. Still there are enough instances in which the consumption of a specific food falls as one or the other measure

> of production for the market ri es to remind us that the economist cannot safely ignore the possibility that greater dependence on the market may have adverse effects" (V. Smith, Strauss, Trechter and Schmidt, 1982, p. 17).

The CEAP study in Cameroon analyzed the potential effect of higher food crop prices for corn, beans, and potatoes on household food consumption in eight highland villages in the Northwest Province. Policymakers identified potential growth in demand resulting from rapid urbanization of coastal food deficit areas around Douala. In response to rapid growth in these coastal areas where oil had been discovered, the government wished to improve transportation linkages to facilitate food marketing. The Cameroon study attempted to assess the impact of increased market demand on the consumption of rural producers (Ariza-Nino et al., 1982b).

Analysts identified two principal economic effects of concern, a negative price effect on the consumption of the now higher priced good and a positive income effect resulting from anticipated enhanced marketing opportunities and prices. As the market price of food increased, its opportunity cost in home consumption also increased. At the margin, analysts expected the producing/consuming household to reallocate resources away from consumption of the higher priced good toward production for the market. An increase in marketed surplus sold at higher prices increases farmer profits. The net effect on consumption and nutritional status would depend on a number of factors including cross-commodity effects in both production and consumption as well as income and own-price consumption and production parameters (as well as labor/leisure tradeoffs). Unfortunately, cross commodity issues were not treated in the analysis and, in fact, foods were aggregated together, probably inappropriately.

The authors aggregated food crops and conducted a statistical analysis that suggested to them that the net short-run effect of increased food prices on consumption and nutrition was negative. A 10 percent increase in price was estimated to reduce food consumption directly by 11.6 percent. A 10 percent price increase was estimated to raise incomes by 3 percent, but with only 0.5 percent of this additional income spent for food consumption. Authors concluded that food consumption would decline by 11.1 percent, should prices rise 10 percent. The 11.1 percent drop in food consumption was found to correspond to a 7.6 reduction in calorie consumption (Ariza-Nino et al., 1982b).

The authors concluded that the short-run effect would be negative up to the time households rearrange consumption and production patterns. They cautioned that in the absence of increased productivity, households might not be able to meet both market and food needs and recommended to the government that it devote resources to productivity enhancement of food crops. The study noted that agricultural development efforts had focused on cash crops, particularly coffee, and suggested that the government should reorient its policy toward food crop production (Ariza-Nino et al.,1982b).

**LESSON 4: OFF-FARM INCOME CAN BE SIGNIFICANT COMPONENT OF TOTAL HOUSEHOLD INCOME IN RURAL AREAS. SINCE INCOME IS AN IMPORTANT DETERMINANT OF FOOD CONSUMPTION, ENHANCING FOOD CONSUMPTION ENTAILS IDENTIFYING OPTIONS FOR IMPROVING HOUSEHOLD INCOME FROM ALTERNATIVE SOURCES.**

A variety of CEAP evidence has reinforced the principle that any rigid division of the food and agricultural sector into blocs of rural producers and urban consumers is misleading. Many rural households purchase food, and much rural household income comes from off-farm sources. The Senegalese study, for example, identified rural consumers as significant purchasers of imported rice. On the income side, the Dominican Republic study concluded that non-farm income comprised approximately 40 percent of total income for those calling themselves farmers. Off-farm income sources included wages, income from businesses and transfers from relatives or friends living outside the household (Rogers and Swindale, 1988).

Implications of a richer understanding of the rural household/ enterprise as one with diversified sources of consumption and income are that: (1) higher food prices for staples may not be uniformly beneficial for rural families and, in fact, may create net hardship for low income, food deficit families, (2) raising producer prices is not the only way to improve rural welfare, and (3) raising producer prices may engender only limited supply response. To improve rural incomes, employment generation and identifying alternative sources of income may be necessary along with price policies.

**LESSON 5: PRODUCER POLICIES HAVE DIFFERENTIAL IMPACTS. UNDERSTANDING THESE EFFECTS REQUIRES DISAGGREGATED ANALYSIS.**

Understanding the effects of agricultural policies on consumption, nutrition, or income requires disaggregated analysis, necessitating, in turn, disaggregated micro-level data. The CEAP project greatly expanded this type of disaggregated analysis which was the focal point of the project. The differential distributional consequences of agricultural and other policies ultimately have an effect on nutritional status.

The CEAP study in Panama attempted to identify the impact of public price policies on food consumption. Two types of producer subsidies existed in Panama at the time of the study: price supports and input subsidies. The study found that the benefits of higher producer prices went disproportionately to those farmers that exhibited a high degree of "market-connectedness," or engaged in substantial market transactions. These tended to be the richer commercial farmers that marketed a large portion of their production. Small farmers were almost exclusively semi-subsistence farmers; they only marketed a small portion of their output and had little to gain from high support payments. In fact, it was determined "most rural families derive most of their income from non-farm sources" (Franklin et al., 1984).

Analysts of the Egyptian agricultural and food economy were able to document a complex web of food subsidies and agricultural pricing policies (including exchange rates and input policies), and assess their net interactive effects on welfare of different groups. Their analysis suggested that while consumer subsidies on wheat, rice, and maize penalized

larger, more efficient domestic producers, input subsidies and protection of the livestock sector resulted in net transfers to livestock producers, chiefly small-holders and landless laborers (von Braun and de Haen, 1983).

Another issue in analyzing the distributional effects of government agricultural price policy relates to the government's strategic choice to subsidize particular commodities. In Honduras, for example, sugar subsidies were found to have negative repercussions on consumers through higher prices, while benefiting only a small number of producers. The sugar subsidy also significantly strained the government budget (Norton et al., 1988).

**LESSON 6: DISAGGREGATED PRICE POLICY ANALYSIS CAN DEMONSTRATE TRADEOFFS IN AGRICULTURAL STRATEGIES RELATED TO PROMOTION OF FOOD CROPS VERSUS CASH CROPS**

The CEAP work in Jamaica and Senegal, and to some degree in Honduras, focused on agricultural sector strategies, particularly government priorities to support food staples versus traditional cash crops important for export. The CEAP studies attempted to identify the distributional effects of governmental agricultural pricing strategies on a variety of socioeconomic groups.

Farmer planting decisions regarding food and cash crop combinations are influenced by government price policies at the output and input level. Output choices and price policies subsequently influence food consumption and nutritional status through many of the links between income and prices illustrated previously.

Food policy literature has debated frequently the relative merits of policies supporting traditional food staples versus export or "cash crops." A cash crop is one that is produced for sale. An export crop is a particular type of cash crop, one that is ultimately sold on foreign markets (von Braun and Kennedy, 1986). Tuinenburg (1987) has noted two common oversimplifications: (1) that the promotion of export or cash crops has an adverse effect on domestic food availability and subsequent food consumption, and (2) that governments must chose between a path of food self-sufficiency characterized by the promotion of domestic food crops and a path of applied comparative advantage, which usually means the promotion of export or cash crops.

These conclusions have not been borne out by the empirical evidence. For instance, evidence from a number of countries has shown that increased cash crop production does not necessarily correspond with deteriorating food consumption levels, and the net effect is dependent on a multitude of factors (von Braun and Kennedy, 1986).

The CEAP study in Senegal illustrates some of the complexities in the cash crop-food crop debate. Cash crops and food crops are not mutually exclusive sets. In Senegal, groundnuts (peanuts) are the primary export crop, yet the study found that households derived a significant percentage of total calories from groundnut consumption. Groundnuts, although clearly a "cash crop," have an important role as a food crop. A similar pattern was discovered in Jamaica where sugar, an export cash crop, also contributes significantly to energy consumption of lower income groups and

is widely consumed in a semi-processed form (Josserand and Ross, 1983; van Blarcom, 1983a).

The Senegal study examined: (1) how agricultural policies influenced producers' food-cash crop combinations (principally millet and groundnuts) and cultivation practices, (2) how the given allocation affected household consumption patterns, (3) estimated effects on export earnings and food self-sufficiency. Senegal is a food-deficit country that produces traditional food staples of millet and sorghum in the central sector of the country and some paddy and irrigated rice in the South and North, respectively. The traditional colonial agricultural strategy involved encouraging the production and export of groundnuts and importing cheap South Asian rice to fill food needs. Since independence, the pattern of rice imports and peanut exports has persisted, although rice imports have grown substantially. Policy reform objectives have concentrated on trying to reduce rice imports, encourage millet and sorghum production, and maintain export earnings from peanuts. However, in the past several years, evidence suggests that imported rice has become an important food staple for rural families faced with shortages of millet. Drought and other factors have frequently resulted in poor harvests implying that millet supplies and sales are often limited, especially in certain seasons (Josserand and Ross, 1983).

The authors found that an increase in the price of imported rice, consequently, "raises the cost to farmers of not producing enough cereals, and thus quite possibly leads to a reallocation of inputs from peanuts to cereals" (p. 148). The authors conclude that, if the government wants to maintain export earnings from peanuts, it must either continue to import rice to make up for cereal (millet) shortages in urban plus rural areas or promote increased productivity in rural cereals production. The authors concluded that such policies might reduce dependence on imported rice, or at least help to keep farmers from moving out of peanut production.

Recommendations of the CEAP Senegal study were that agricultural policy should "promote equally cash and food crops" (p. 148). This would require a shift in overall policy emphasis, including research and technology support, input distribution, and price policies, away from cash crops toward traditional and new food crops (Josserand and Ross, 1983).

The focus of the Jamaica study was slightly different. It examined the consequences of a strategy to promote sugar production for export and rice production for import substitution purposes. The study concluded that efforts to expand sugar exports had led to domestic price increases and had hurt low-income groups that derived a significant percentage of calories from the production (or consumption) of brown sugar. On the other hand, promoting domestic rice production proved to be at high cost to the government, with Jamaican rice prices consistently above international prices (Van Blarcom, 1983a).

To preserve consumption, low income consumers switched to nutritionally inferior starchy staples, cassava and plantain. The authors of the Jamaican study concluded that government efforts to improve the balance of trade and conserve foreign exchange through import substitution of rice and export promotion of sugar, would adversely affect the nutritional welfare of low income consumers. Sugar policy benefits would accrue to a relatively small group of sugar producers (Van Blarcom, 1983b).

## 2. Lessons Learned: Consumer Price Policies and Food Subsidies

Some of the CEAP studies contributed useful methodological frameworks for food subsidy analysis. In particular, the Egypt study project was a pioneering effort that provided a detailed examination of the complexities of the Egyptian food distribution system. The study clarified the web of agricultural and food sector interventions that comprised the Egyptian subsidy and rationing system. A series of studies examined the impact of food subsidies on income distribution, consumption, the agricultural sector, the government budget, foreign exchange, and trade. At the time, it was the state-of-the-art in food subsidy system analysis.

In the policy environment of the early 1980s, understanding the impacts of particular food subsidy systems increased in importance. During this period, a number of new subsidy programs were implemented, experimentation occurred with pilot programs, and the effects and objectives of many long-established schemes were reexamined or modified. Providing impetus for this flurry of activity were profound changes in the global economy. Rising debt, declining prices for many primary products, fluctuating oil prices, drought, and continued population growth all constrained the policy options of developing country governments.

In this increasingly volatile setting, macroeconomic concerns were pushed to the forefront. Developing countries experienced new pressures to remove "distortions" and to promote market-oriented reforms. Under the sponsorship of the IMF and World Bank, a growing number of countries embarked on policy reform strategies of macroeconomic adjustment. Frequently recommended by the donors was a combination of measures including exchange rate devaluation, fiscal austerity, trade liberalization and the privatization of state enterprises.

In the quest for macroeconomic health, many nations faced a dilemma of trying to ensure that basic needs would be met while trying to restrict public expenditures and institute price reforms. The understanding and analysis of food subsidy systems in this context is vitally important. Unless policymakers understand how subsidy programs operate, who the intended and actual beneficiaries are, and what the explicit and implicit costs to the public budget, the overall economy, and different important groups are, all economic reform efforts may fail (An essential corollary analysis is to understand the political economics of food subsidy systems).

The studies in Egypt, Sri Lanka, Tanzania, and the Sudan helped expand the understanding of food subsidy systems by examining the relationship between food subsidies, the macroeconomy, consumption patterns and nutritional status. In several instances, the analytical framework and policy recommendations of the CEAP studies were brought into the policy process. The reforms of the Sri Lanka food stamp scheme in 1985 and 1986 were influenced by the on-going CEAP work (Edirisinghe, 1988). Tanzania undertook a number of reforms of the agricultural sector in the mid 1980s including sharp reductions in food subsidies, increased producer prices for food crops, and the elimination of taxes on export crops. In Egypt, only slight efforts have been made to reduce the subsidy burden despite extremely high public sector costs. The maintenance of nutritional levels is a priority. Subsidy reform efforts in the Sudan have recently been eclipsed by larger macroeconomic issues, drought, and civil war.

**LESSON 1: GAINING ACCURATE KNOWLEDGE OF CONSUMPTION PARAMETERS MAY DISPELL SOME TRADITIONAL WISDOM AND INFORM DESIGN OF BETTER POLICY**

The CEAP experience highlighted the importance of using consumption information, formalized by price and income elasticities, in the design of consumer price policies. There is agreement that consumers modify their food consumption patterns when relative prices or incomes change. The empirical evidence from a number of case studies has shown both income and price elasticities for staple foods to be large in absolute value among the poor (Alderman, 1985; Pinstrup-Andersen, 1985).[3]

Information regarding price and income elasticities, aggregated across regions, income groups, or other categories, is useful to policymakers because it can contribute to quantitative estimates of the effects of price or income changes on consumption levels and, by extension, on nutritional status. Knowledge of consumption parameters can contribute to assessing the potential effects of a host of government policy instruments including tax and subsidy choices.

In many cases, knowledge of consumption parameters is extremely limited. Data series of food consumption patterns, especially disaggregated by income class, are lacking in many countries. Cross-sectional data frequently lack price variation, essential to calculating price or cross-price elasticities. Deriving price and income elasticities from survey data and from price series over time was an integral part of the CEAP project. Many of the CEAP studies were able to obtain elasticity estimates for the country's basic foodstuffs and, in doing so, provided guidance for policymakers concerning price policy decisions. The CEAP project demonstrated that there are a number of low-input, rapid assessment methodologies that can be particularly useful to resource-constrained governments that need basic elasticity information to judge the potential impacts of price policy changes.

One value of accurately derived consumption parameters is to dispell erroneously assumed relationships between foods or between foods and non-food items. For example, imported rice in West Africa has been viewed frequently as an urban luxury good, a commodity thought to have relatively high price and income elasticities. By extension, if prices were to rise or incomes to fall, rice consumption would be expected to decline. Conversely, starchy staples (such as cassava, yams, and plantains) and coarse grains (millet and sorghum) are frequently considered necessities. If the relative prices of coarse grains rise or incomes fall, it is often assumed that the household attempts to hold constant the consumption of these "necessities."

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[3] A good is said to have a high price elasticity if an increase in the price leads to a relatively rapid fall in demand. Such goods can be viewed as luxuries. On the other hand, if a price increase has relatively little effect on quantity taken, the good has an inelastic demand. This type of good can be considered a necessity. The concept of elasticity is also applied to changes in income. Goods which are consumed at declining rates as incomes rise and relatively unchanging rates as comes fall are said to have a low income elasticity. Goods which are consumed at increasing rates as incomes rise have a high income elasticity.

The CEAP studies raise questions about the efficacy of the use of food price policy to promote consumption of traditional food staples, such as millet and sorghum in West Africa. In the study in Mali, two cereal groups, rice and coarse grains, were found to dominate the urban diet in every region and income class. However, contrary to the conventional wisdom, there appeared to be little substitution between rice and coarse grains in response to price changes. Within the range of prices observed in the study it was found that consumers did not appear to substitute coarse grains for rice very readily when rice prices rose or coarse grain prices fell. When rise prices rose, households decreased consumption of both coarse grains and rice (Rogers and Lowdermilk, 1988).

The authors concluded that consumers across all income groups appear to prefer a relatively constant proportion of rice and coarse grains. Rice is usually eaten as the midday meal, while coarse grains are eaten in the morning and evening. Rice is a convenience food in that it does not require the labor, time, and fuel that coarse grain preparation does. The different roles of rice and coarse grains in the diet help explain the lack of substitutability. In addition, when the labor, milling, and fuel costs of coarse grains are calculated, the price differential between rice and coarse grains is much smaller (Rogers and Lowdermilk, 1988). The CEAP results from Mali suggest that unless the substitutability of grains can be enhanced through processing to increase convenience or storage characteristics, increasing prices of imported grains will have negative affects on the poor.

Another use of consumption parameters is in assessing the nutritional implications of particular subsidy policies. In the Dominican Republic study, researchers found that a decrease in the price of chicken resulted in consumers substituting chicken for grain and legume staples of higher nutritional value in terms of both protein and calories. A decline in the price of a particular commodity may induce a substitution that has a negative effect on consumers' total protein and calorie intake, meaning that an increase in consumption of subsidized food may not improve calorie consumption because of changes in diet composition (Rogers and Swindale, 1988).

Finally, empirical data on consumption patterns and food sources can correct erroneous assumptions about the beneficiaries of food subsidy policies. In Egypt, for example, foreign observers commonly believed that food subsidies primarily benefitted consumers in urban areas. Observers had often cited the difference in the number of bakeries in rural and urban areas as an example of the regional bias in food distribution. In fact, a 1981 A.I.D. study of subsidy policies in Egypt made the assumption that there were no food subsidies in rural areas. The CEAP Egypt study found much less of a urban bias than was previously believed. In the case of wheat bread distribution, the higher volume of subsidized bread flour distribution in rural areas compensated for the smaller number of bakeries selling subsidized bread. With the exception of rice and oil, there was little evidence of an urban bias in the distribution of subsidized and rationed foods. There was evidence of regional biases in distribution, but no substantial urban bias (Alderman et al., 1982).

**LESSON 2: CONSUMER FOOD SUBSIDIES CAN ACCOMPLISH THE OBJECTIVES OF IMPROVING FOOD CONSUMPTION AND NUTRITIONAL WELFARE.**

Food subsidies represent a transfer of income. The source of the transfer depends on the type of subsidy in operation, specifically whether it is an implicit or explicit subsidy. Implicit subsidies entail a transfer from food producers to consumers, while explicit subsidies represent a transfer of government revenue derived from taxpayers or foreign borrowing to consumers. One measure of program effectiveness, or successful redistribution, is the degree to which food purchasing power is transferred from higher income to lower income groups.

The CEAP studies yielded a broad range of empirical evidence affirming the long-held assumption that food subsidies make a significant contribution to the consumption patterns and nutritional status of low income individuals. The evidence from Egypt, Sri Lanka, and Tanzania demonstrated that subsidy schemes in these countries do have a positive impact on food consumption and nutritional welfare as well as perform a redistribitive function.

The Egypt study concluded that despite the fiscal burden of the subsidy program and the benefits garnered by the urban rich, there were significant beneficial nutritional impacts. It was stressed that per capita calorie consumption in Egypt exceeds that of all countries with a per capita GNP up to twice that of Egypt. Despite variations in access and inequities in the distribution of benefits, the overall thrust of the analysis was that the subsidy system results in a considerable transfer of purchasing power to the entire population, as well as the poorer segments of the population. When subsidized consumer prices are compared with food import prices, the transfer amounts to 15 percent of the income of the poorest quarter of the urban population. For the rural population, the transfer amounts to almost 17 percent of the income of the lowest quartile. Although a significant portion of the cost of the subsidies was financed by artificially depressed agricultural prices for producers, their loss was more than compensated for by the increased welfare from subsidized grain purchases (Alderman and von Braun, 1984).

The effectiveness of subsidy programs in addressing nutritional deficiencies was also demonstrated in the Sri Lanka study. Researchers found that the switch in 1979 from a general subsidy system to a food stamp program of more limited coverage had been accompanied by a deterioration in the nutritional status of the lowest income groups. A comparison of the nutritional situation in 1978-1979 and 1981-1982 revealed that although 75 percent of the population had maintained or increased calorie consumption, the poorest 20 percent of the population had seen per capita calorie consumption decline 8 percent from an already low 1,490 calories per day to 1,398 calories. The recommended per capita daily allowance was 2,200 calories (Edirisinghe, 1987).

The report offered three reasons for this decline in the context of a program that was supposedly designed to maintain the food consumption of the poorest groups in the population. First, as discussed earlier, there were a number of flaws in the design of the food stamp scheme. A number of eligible or needy households were denied food stamps, while a significant

percentage of middle income households were able to obtain benefits. Second, in contrast with the earlier scheme, the value of the food stamps were not indexed to changes in the costs of the foods they were used to purchase. By 1982, due to the presence of inflation, the real value of food stamps declined to 56 percent of their original value. Food stamps were not indexed because it was believed that their declining real value would be offset by growth in incomes resulting from economic liberalization. The authors noted, however, that the lower income groups were not able to take advantage of the income earning opportunities presented by the reforms (Edirisinghe, 1987).

The study in Tanzania also affirms the effectiveness of consumer price subsidies in alleviating the nutritional deficiencies accompanying economic stagnation. The select groups that were able to received government food subsidies fared much better during the downturn of the late 1970s and early 1980s than their counterparts who did not have access to subsidies. Although the Tanzanian team did not undertake a nutritional survey and instead relied on the assumption that the maintenance of purchasing power translates into the maintenance of nutritional status, the conclusions appear acceptable. However, as will be discussed, the majority of Tanzanians most likely suffered a deterioration in food consumption due to poor economic conditions and there were serious inequities in the distribution of subsidized food. Distorted agricultural incentives arose from the monopsony power of the parastatals and allowed the government to maintain subsidies for select groups (Keeler et al., 1982; Renkow et al., 1983).

It is possible to derive conclusions from the comparative analysis of these studies as to the nutritional effectiveness of consumer subsidies. A program of general subsidies that is mainly explicit, causing minimal discrimination against producers with regard to procurement prices, has tremendous scope for alleviating nutritional deficiencies in lower income groups. Both the general literature and the CEAP work have provided many examples of relatively successful policy intervention in this area. The costs of general subsidies can be high, however. This point is discussed below.

The CEAP Tanzania study and other work show that implicit food subsidies, financed by keeping prices paid to producers artificially low, may actually increase nutritional deficiencies in the aggregate. While select groups can increase or maintain consumption through their access to subsidized food from official sources, the limitations on the expansion of supply arising from the discriminatory producer price policy force the majority of the population to seek alternative sources for food on the unofficial ("black") market. Often, the black market prices are much higher. If a majority of the population must pay what is essentially a higher market price (due to the risk surcharge), the case can be made that, in the aggregate, the majority would be better off without the network of implicit subsidies. The decline in calorie consumption of the majority without access to subsidized food gains may be more significant than the calorie gains of the select minority who have access (Keeler et al., 1982; Renkow et al., 1983).

**LESSON 3: SUBSIDY PROGRAMS MAY BE EXTREMELY COSTLY IN TERMS OF PUBLIC EXPENDITURES, DISTORT INCENTIVES TO AGRICULTURAL PRODUCERS AND BE DIFFICULT TO DISLODGE AS SUBSIDIES ASSUME ENTITLEMENT STATUS.**

As food subsidies have grown as a share of public spending in many developing countries, economists have begun to emphasize the significant effects that subsidies can have on the macroeconomic environment. Much of the rationale for choosing Egypt as a CEAP case study of food subsidies stems not only from the tremendous visibility of the subsidized food distribution network, but also the importance of the scheme in the public sector budget. Central among the objectives of the Egypt CEAP study were to quantify the significance of food subsidy spending in the government budget and to ascertain macroeconomic consequences of the subsidy policy.

The Egypt study demonstrated that policy reforms are influenced, to a great extent, by the assumptions and objectives that underlie the original policy action. From the mid 1970s to 1981, the real per capita cost of the Egyptian food subsidies rose dramatically. Observers often cite the rise in world commodity prices, administrative deficiencies, and a lack of political will as the primary factors for this increase in subsidy costs. The CEAP report contradicted this view, arguing that the increases in the real value of subsidies were deliberate policy actions. This finding is important in that it suggests a potential fallacy in the reasoning of outside policy analysts. If the growth of subsidies is viewed as unintentional or the result of improperly constrained administrators or politicians, the subsidy system may be judged "undesirable" or at least as lacking a guiding objective (Scobie, 1984).

In addition, Scobie's analysis implied that while it may be convenient to fault an extensive subsidy program for an existing budgetary or macroeconomic imbalance, a careful accounting is necessary in order to properly gauge the true impact. He made the claim that the portion of the budget allocated to the subsidy program was often overstated and the growth of the subsidy program had been "more modest than often depicted." The growth in subsidies took place during a time when total budgetary resources available (including foreign borrowings) were expanding. Although real per capita subsidies did grow rapidly during the 1970s, only 15 percent of the increase in total government expenditures were devoted to increased spending on consumer subsidies. Thus, consumer subsidy spending made a relatively small contribution to the total budget deficit (Scobie, 1984).

The Egypt study also demonstrated that a subsidy program, especially one of this magnitude, by no means operates in a vacuum. A complete analysis requires a general equilibrium framework. Due to the difficulties with general equilibrium models, however, particularly the high degree of abstraction and the lack of adequate data, it was necessary to utilise a partial equilibrium approach for this study. It is nevertheless possible to draw a number of conclusions about the macroeconomic implications of consumer subsidies. Depending on the method by which the government deficit is financed, there may be a significant impact on both the exchange rate and the inflation rate. Given the extent to which deficits induce inflation, the purchasing power of low income households may decline. Although most foods may be cheaper due to the subsidy, housing or clothing may be more expensive. The net effect may well be negative.

It has been well documented that efforts to reduce or eliminate subsidy schemes are often met with fierce resistance. In Egypt, the subsidies are a key ingredient in domestic policy and the memory remains of riots that have followed food price increases. A substantial portion of the country's food needs are met by government expenditures on imports; as we have seen, domestic prices are kept relatively fixed. This means that any instability in world prices or in the supply of foreign exchange must be transmitted to other parts of the economy to prevent food price increases. Output and investment are undoubtedly affected. To the extent that output and investment levels determine incomes and the growth of employment for low-income groups, vital tradeoffs are thrust on policymakers. In meeting food consumption goals, there may be a destabilizing effect on employment. Although the Egypt CEAP study did not consider such a tradeoff, these issues are of great significance. In recent years, the macroeconomic implications of government deficit spending have received increased attention. As the Egypt study demonstrated, a complete understanding of household food consumption status demands an understanding of the general equilibrium effects of government expenditures on subsidies (Scobie, 1983).

**LESSON 4: FOOD SUBSIDIES MAY FAIL TO BENEFIT THE POOR IF THE POOR DO NOT HAVE GENUINE ACCESS TO THEM**

The CEAP studies highlighted an important element often neglected in the literature of the late 1970s: namely that successful redistribution depends upon a number of factors that combine to determine the household's access to food. These determinants of access are a product of the specific features of program design.

The Egypt study demonstrated that access to subsidized food, and the corresponding distributional success of the scheme, depend on factors such as: proximity to an outlet with subsidized food, the degree of urbanization, geographic area, type of employment, an individual's opportunity cost of time, and the prevalence of obligatory bribes or "baksheesh." In a number of countries, for a combination of political, administrative, and economic reasons, rural areas are not covered by the food subsidy distribution network. Potential or actual unrest in urban areas, arising from consumer price increases, has often been viewed (accurately) as a potent threat to political stability. The transport and administrative costs of serving a dispersed rural population can also be prohibitive.

In Egypt, rural areas are well served by ration shops--shops that sell a basic ration of commodities at subsidized prices. However, only about one-half of the rural areas are served by cooperative shops, government controlled outlets that sell subsidized frozen poultry, meat, and fish, in addition to the basic ration. The lack of proper refrigeration facilities appears to contribute to the low distribution of these commodities in rural areas. Thus, the degree to which food products are perishable, in conjunction with available infrastructure, affects the feasibility and cost of rural food subsidies (Alderman, von Braun and Sakr, 1982).

Despite efforts of Egyptian government authorities to bring the entire population under the subsidy umbrella, there are distinct regional biases

in the food distribution system. The CEAP Egypt study documented significant differences of food availability within the metropolitan Cairo area. Although subsidized rice generally was stocked in shops in the wealthier neighborhood of Heliopolis, it was never available in the market in Giza, a low-income neighborhood, during the five weeks of the CEAP survey. In the case of subsidized cooking oil, most neighborhood stores had adequate supplies but they limited purchases to one bottle per visit. In Heliopolis, however, there were no restrictions on quantities, while in Giza, cooking oil was occasionally unavailable. The availability of subsidized bread and flour also differed throughout the country (Alderman, von Braun and Sakr, 1982).

An individual's type of employment also affected access to subsidized goods. Workplace cooperative shops supplied government workers and workers in enterprises employing more than 200 people with additional allocations of subsidized meat and poultry. Butter oil, scarce in other government stores, was more readily available. No effective method existed to prevent members of workplace cooperatives from receiving additional commodities from other types of cooperatives (Alderman, von Braun and Sakr, 1982).

Another factor influencing the access to subsidized foodstuffs were the often substantial search costs. Search costs, namely the opportunity cost of traveling to an outlet and waiting in line, were significant. In some cases, search costs may be a self-selecting mechanism; the opportunity cost of waiting in line is theoretically higher for upper income groups. Thus, high search costs might be expected to moderate the demand of those with high opportunity costs of waiting (that is, those who could be doing something more productive elsewhere). However, in Egypt the authors compiled anecdotal evidence that the upper income groups sent their servants to wait in line for subsidized commodities. This type of behavior underscores the substantial price differentials between subsidized and non-subsidized goods. It also illustrates the importance of household quantity limitations (Alderman, von Braun and Sakr, 1982).

The survey team in Egypt encountered evidence that bribes were often paid to shop workers or owners in exchange for preferential access to subsidized commodities. Similar incidences of leakage can be documented in most food subsidy programs.

These limitations on the degree of access to the Egyptian ration and subsidy scheme are fairly minor, in part due to the sheer magnitude of the overall subsidy program. The CEAP sponsored work in Egypt demonstrated that food consumption outcomes hinge on many factors. In 1970 Sen documented a number of cases where the the cause of malnutrition and famine was a lack of "entitlements" or purchasing power rather than inadequate food supply. The Egypt study extends Sen's notion of an "entitlement failure" to one of an "access failure."

The fundamental importance of the household's access to subsidized food was also stressed in the Tanzanian studies. At the time of the studies, all legal procurement, transport, and marketing of grain were controlled by the state through the National Milling Corporation (NMC). Virtually all grain producers were required to sell to the NMC. The NMC maintained rigid producer price controls and NMC purchasing prices were often lower than

those offered in the illegal, parallel market. As a consequence, consumers and producers faced a dual marketing system comprised of the official market and the parallel market (Keeler et al., 1982; Renkow et al. 1983).

Urban cereal prices in unofficial markets exceeded official prices by 100 percent in 1982. In 1978, a year of good harvests, parallel market prices were only fifteen percent higher. In contrast, in 1980, a year of generally poor harvests, parallel market prices were more than triple official market prices. On the official market, consumers are aided by implicit subsidies; on the parallel market, purchasers must pay a market determined price that reflects price distortions from limited market supply and compensation to the trader for the risks of illegal marketing (Keeler et al., 1982; Renkow et al. 1983).

The studies found that the inadequacy of producer incentives constrained NMC grain purchases and the NMC subsequently provided a limited amount of grain. Levels of grain consumption depended on the degree of access to the limited supplies of the official (subsidized) markets. Market access varied across consumer groups and across regions. The less supplied by the parastatal, the more that needed be purchased in the parallel market.

Dar es Salaam and a select number of other urban areas received the bulk of the subsidized NMC grain. From 1977 to 1980, 90 percent of Dar es Salaam's grain needs were met through NMC sales. Other urban areas, especially those in the western and southern regions, had very little access to NMC supplies and were forced to rely on the parallel markets. The study surmised that the difference in access to NMC supplies was so great that outside Dar average food consumption was "very likely to be significantly lower than in the capital." In rural areas, NMC grain was rarely available and since a significant number of rural households depend on markets for their grain, higher grain prices were assumed to have had a negative effect on consumption levels. The situation was compounded by the fact that rural areas often faced unreliable supplies from the parallel markets (Keeler et al., 1982; Renkow et al. 1983).

Within the urban areas of Tanzania, access to subsidized food also differed across income and occupational groups. The urban middle class, including merchants and government workers, had preferred access to NMC stocks of rice and wheat through either government allotments or special influence. Using existing consumption surveys and data on nutritional status, the study team drew an important lesson regarding the consumption levels in different regions and across different socioeconomic groups. For households dependent upon the market, the degree of access to the subsidized grains of the NMC was probably the most vital determinant of consumption patterns over the preceding decade (Keeler et al., 1982; Renkow et al. 1983).

In this instance, the work of the CEAP project in the early 1980s provided policymakers with a greater appreciation of what can be termed "the importance of access." It is clear that the benefits of even a well-designed subsidy system do not necessarily accrue to those with the lowest incomes, the most severe nutritional deficiencies, or the greatest eligibility.

**LESSON 5: THERE IS CONSIDERABLE SCOPE FOR TARGETING CONSUMER SUBSIDIES TO VULNERABLE GROUPS IN AN ATTEMPT TO REDUCE FISCAL COSTS. ALTHOUGH THE CEAP PROJECT IDENTIFIED INSTANCES WHERE TARGETING WAS DIFFICULT OR RELATIVELY UNSUCCESSFUL, IT DEMONSTRATED THAT EFFECTIVE PROGRAM DESIGN IS POSSIBLE AND REQUIRES A COMPREHENSIVE ASSESSMENT OF THE FOOD DISTRIBUTION SYSTEM AND FOOD CONSUMPTION PATTERNS.**

Food subsidy programs often have a multiplicity of objectives, both implicit and explicit. An almost universal objective is to ensure that the nutritional needs of the population are met. Such a goal presents challenges in matters of program design, implementation, and financing The CEAP project focused a great deal of energy on these issues. Some of the most valuable policy "lessons" emerged from this analysis.

The authors of the Egypt study recognized that the subsidy program was a complex system with diverse goals and that the issue was not the elimination of the system but suggesting ways to cut the cost of the subsidies through better targeting of benefits (Alderman, von Braun and Sakr, 1982). Since the government managed an extensive system of general subsidies in which over 90 percent of the population derive benefits, the authors believed there to be considerable scope for improved targeting. The study identified components of the subsidy system that favor the rich. For example, "fino" flour and "fino" bread, higher quality products and relatively expensive compared with other subsidized breads and flour, were primarily consumed by higher income groups, yet they were still subsidized by the government. If this particular subsidy were reduced or eliminated, program costs would be reduced without the consumption and nutrition of lower income groups being appreciably affected. Recommendations for improved targeting and the data analysis necessary to perform such a task, were two of the significant results of the Egypt study (Alderman, von Braun and Sakr, 1982).

The Sudanese case study also provided evidence regarding the targeting of food subsidies (Youngblood et al., 1983). The original focus of the study was the nutritional impact of eliminating the wheat bread subsidy in May 1979. However, researchers soon discovered that urban consumers actually faced declining real prices for wheat bread, despite periodic increases in the fixed nominal price, due to substantial inflation. Growing quantities of concessionary wheat imports and an over-valued exchange rate contributed to the decline in real consumer prices. Consequently, the focus of the study was altered to determine the effects on various groups of a policy of import parity pricing, a policy that would result in increases in the real price of wheat bread (Youngblood et al., 1983).

Researchers found the primary beneficiaries of the price policy, in absolute terms, to be middle and upper income groups who consumed three times as much bread as the lower income stratum. However, increases in wheat bread prices had much greater relative impact on the lower income strata. For example, the lowest quartile devoted 7.3 percent of its income to wheat bread purchases, while the top half of the population spent only 4 percent of its income on wheat bread (Pinstrup-Andersen et al., 1983).

The calorie consumption of the lower income groups was estimated to be much more severely affected than the calorie consumption of the higher

income groups by the bread pricing policy in Sudan. Estimation of the relevant cross-price elasticities yielded the result that a 50 percent increase in bread prices would lead to a reduction in intake of 175 calories per capita for the poorest income stratum. It is important to note that this segment of the population already experienced considerable calorie deficiencies. Therefore, although an increase in wheat bread prices would affect all households that consume bread, irrespective of income, an increase would have a relatively greater impact on the poorer segments of the population (Pinstrup-Andersen et al., 1983).

The results from this analysis of Sudanese policy demonstrate significant scope for targeting of benefits. A number of conditions exist which lend themselves to targeting: (1) the subsidies on grain apply to all consumers irrespective of income, (2) the subsidized commodities are consumed in great quantities by the upper income groups, (3) the poorer segments of the population still experience calorie deficiencies despite the existence of the subsidies, (4) the fiscal and macroeconomic implications of the subsidy scheme exact a toll on the agricultural sector as well as other sectors of the economy, and (5) increasing food prices to correct distortions and encourage production would have severe impacts on the lower income groups. The nature of these conditions, which interact to create apparently intractable policy dilemmas, offer the basis for reform of the subsidy system. For these conditions lend themselves very well to the implementation of a targeted subsidy scheme. Such a scheme can reduce the costs of the system (direct and indirect) while protecting the poor.

In many ways the Sri Lanka study is the best example of some of the inherent conflicts in reducing the fiscal costs of a subsidy program while preserving the nutritional status of low income groups through improved targeting. The Sri Lanka study is also one of the success stories of the CEAP project; research on the food stamp program led to policy recommendations which eventually had an impact on the modification of the food stamp program (Edirisinghe, 1988).

For over forty years Sri Lanka operated a system of general food subsidies and rations. In 1979, in the context of broad economic reforms designed to reduce government intervention in the economy, Sri Lanka replaced the general subsidy with a food stamp scheme. The scheme was intended to protect low income households while reducing government expenditures. Eligibility was based on household income, household size, and composition. The official income cut-off for a family of five was Rs 300 in 1979 (Edirisinghe, 1987).

The three objectives of reduced spending, better targeting, and nutrition maintenance were achieved with varying degrees of success. Research shows that the reforms did lead to reduced spending. Food subsidies as a share of government expenditures declined from 15 percent of the budget in the mid 1970s to 3 percent in 1984. The success of the government in reducing the fiscal burden of subsidies was also accomplished with few political consequences (Edirisinghe, 1987).

However, efforts to improve the targeting of benefits were not as successful. There was considerable evidence of leakage as the intended beneficiaries reaped only a portion of the total benefits. Although half

the population were recipients of government transfers, the study showed that: (1) the half of the population receiving benefits was by no means the poorest half of the population, (2) the lowest quintile in terms of per capita expenditures received only 38 percent of the benefits, while over 60 percent of the food stamp budget was going to "unintended" beneficiaries, and (3) although the elimination of the general subsidy program and the introduction of food stamps reduced the leakage of benefits, the leakage "still appear(ed) to be substantial." Under the old program, the lowest 40 percent of the population received only 50 percent of the benefits of the total expenditures, while with the new scheme the lowest 40 percent received 67 percent of the benefits (Edirisinghe, 1987).

The study identified a number of reasons for the difficulty in achieving targeting goals (Edirisinghe, 1987). A government survey had pointed out that the screening process or misunderstandings on income declarations may have caused benefits to be denied to qualified applicants. Second, the scheme did not have systematic procedures for considering the appeals of those turned down. Third, although eligibility for the scheme was primarily based upon household income and size, it is not clear that income is a reliable indicator for food expenditures. Finally, fraud may account for some of the leakage. Obviously, a significant number of households above the eligibility threshold obtained benefits (Edirisinghe, 1987).

In the area of nutrition maintenance, the evidence was most discouraging. The new scheme had contributed to a deterioration in the nutritional status of the lowest quintile. Much of this deterioration was resulted from of unchanging nominal prices in the face of rising inflation. The study found that the real value of the subsidy had eroded by 43 percent from 1979 to 1982 (Edirisinghe, 1987).

One of the successes of the CEAP project was an increased understanding of the role that targeting could play in the administration of consumer subsidies. The project studies also identified some of the limitations of targeting subsidies at a time when targeting was seen by some as as a panacea for twin problems of high public expenditures and nutritional deficiencies.

**LESSON 6: A VARIETY OF TARGETING MECHANISMS EXIST AND THEIR APPLICABILITY IS, TO A GREAT EXTENT, COUNTRY SPECIFIC. THE CEAP STUDIES EXPLORED THE USE OF SELF-TARGETING OR "INFERIOR" FOODS, RATION SHOPS, FOOD STAMPS, GEOGRAPHICAL TARGETING BY REGION, AND TARGETING BY TYPE OF OUTLET.**

The CEAP studies, especially those implemented in Sri Lanka, Dominican Republic, and Honduras demonstrated that comprehensive analysis can lead to the development of recommendations for improved targeting of benefits and reduced fiscal costs, while preserving the nutritional goals of the program. Indeed, they revealed a number of lessons regarding the variety of targeting of benefits available to policymakers.

One of the major contributions of the Sri Lanka study was the development of analytical techniques to assess possibilities for modifying

the food stamp scheme. Although the author calculated that, based on expected program outlays, it would be impossible to guarantee the lowest quintile 2,200 calories per capita even if there were zero leakage, there was scope for improved targeting that would not increase fiscal outlays but would improve the calorie consumption of the lowest 20 percent of the population. The study estimated from 1981-2 data that the calorie consumption of the lowest 20 percent (classified by expenditures) could have been raised from the observed 1,364 calories to 1,540 calories per capita per day if the entire budget for food stamps (Rs 1.7 billion) were allocated to this group and there were zero leakage (Edirisinghe, 1987).

A few recommendations for modification were made and a number of traditional targeting mechanisms were dismissed as inappropriate. First, the subsidization of "inferior" foods, self-targeting staples with negative income elasticities of demand such as cassava, yams and coarse grains, was thought to be inappropriate in the context of Sri Lanka. The author observed that these foods played a minor role in the diet, even in rural, low-income households. Significant changes in preferences would have to occur before subsidies on an "inferior" good would be successful. Second, geographic targeting was rejected because malnutrition was not believed to be confined to certain geographic areas or particular agricultural regions. Third, targeting based on the prevalence of child malnutrition was rejected. Irrespective of the logistical constraints of conducting anthropomorphic screenings, the data in this study showed that child malnutrition was not closely correlated with household income. Malnourished children were found throughout the income range (Edirisinghe, 1987).

With these targeting limitations in mind, the study concluded that the best targeting option was to have the community play an important role in targeting. The community was thought to possess general information on the income and nutritional status of its members. If the community were permitted to screen applicants, the stigma of fraudulent claims would reserve benefits for the truly needy. Sri Lanka was believed to be a good candidate for such a program because of the tradition of "extensive participation by the people in the democratic process of representative government." However, a number of assumptions underline such a plan: (1) it assumes the community can be an accurate judge of a household's nutritional situation, (2) it does not prevent fraud on the part of the community members doing the screening, and (3) it ignores the political ramifications of community determined eligibility (Edirisinghe, 1987).

The study in Mali also found targeting by subsidizing "inferior" foods to be impractical (Rogers and Lowdermilk, 1988). Based on urban consumption data, there were no commodities that could be termed either "inferior" or "luxuries." As discussed in Section 2, rice and coarse grains were consumed in similar proportions across all income groups. There was no tendency for consumption of a particular food to decline as incomes rose. Indeed, the consumption of all foods rose sharply as incomes increased. Any subsidy would have to use alternative targeting mechanisms (Rogers and Lowdermilk, 1988).

The study in the Dominican Republic, while mainly concerned with the effects of price changes on food consumption, highlighted the importance of

food purchasing patterns in the design of any targeting mechanism (Rogers and Swindale, 1988). The scope of the various government-run programs was small; even in the poorest region, only about 1 percent of food purchases were government subsidized. However, by 1988, public food distribution systems were receiving increased attention as the country entered a period of macroeconomic adjustment. Food purchasing and private marketing patterns were judged to have important implications for the design of an expanded distribution program (Rogers and Swindale, 1988).

For example, the authors found that 59 percent of food purchases in the Dominican Republic took place at "colmados", small neighborhood retail stores. The typical household makes several purchases per day at the neighborhood colmado and, due to the close relationship between buyer and seller, purchases on credit are often permitted. The convenience of this particular distribution system has important implications for the design of a distribution system for subsidized goods. Given time and transportation costs, there are two options for the expansion of a food subsidy program.

One option would be the establishment of an extensive system of outlets, either utilising the existing "colmados" or expanding the number of government-run outlets. The second option would primarily utilise the existing government run outlets. According to the study, although few actually reported making purchases at one of the special government stores and a number of the stores were closed at the time of the survey, about 50 percent of the households surveyed had access to one. Among other factors, it would appear that the price differential between the private outlets and the government stores is not great enough to induce significant levels of purchases. An expanded food subsidy system using the existing network would have to offer more substantial discounts in order to compensate for time and transportation costs (Rogers and Swindale, 1988).

The Honduras study, a comprehensive assessment of the Honduran agricultural sector, also provided insight into the effective design of food subsidy programs targeted to reach vulnerable groups (Norton et al., 1988). The government operates two programs which directly affect the prices paid by consumers for food items: (1) a program of retail price ceilings, and (2) a program of direct retail sales through an agency-run network of shops. In the case of retail price ceilings, the government, through the Ministry of Economy and Trade, sets maximum wholesale and retail prices for a variety of foods and other goods. At the time of the study, 63 items were controlled, over one-third of which were foodstuffs. The objectives of such controls were to protect consumers from price speculation and ensure adequate supplies in domestic markets. Although the researchers believed the objectives to be laudable, they found a number of faults with this particular strategy. They questioned whether the existing system was "a cost-effective and fiscally viable way to extend food subsidies to poor families" and whether it was actually reaching nutritionally vulnerable groups (Norton et al., 1988).

Both programs were found to have limitations. Retail price controls are notoriously difficult to implement. They require effective enforcement if the objective of curtailing price speculation is to be met. Unfortunately, at the time Honduras only had 35 inspectors for the entire country and, as a consequence, enforcement was ineffective. Even more

important is the analytical problem of knowing how to set the "correct" price for a given commodity. Quality data must be available along with personnel trained in advanced econometric techniques. Even with these conditions met, there still exist significant margins of error; demand behavior is difficult to accurately estimate. If the price of a commodity is set too low, the supply will be too small to meet consumer demand and shortages will ensue, a situation that the scheme was meant to avoid. Naturally if the price is set too high, consumers will also suffer. The Honduran price control scheme was found to have many of these defects (Norton et al., 1988).

The program of direct retail sales was also faulted in the study. According to policymakers, a network of government owned stores (BANASUPRO) is vital to the poor because it can sell basic goods more cheaply than the private sector since it does not need to make a profit. Such a network is also believed to discourage monopoly pricing by private retail outlets. However, the researchers cited a survey that reported no significant price differences between BANASUPRO outlets and private retail stores. The BANASUPRO outlets also provided fewer services: (1) they were open fewer hours, (2) they carried a limited range of items, (3) they were more often out of stock, and (4) they did not offer credit as many private retailers did. These drawbacks existed despite a rising operating deficit. Thus, the study asserted that BANASUPRO, as it was constituted, had little impact on the consumption levels of the poorer segments of the population. The outlet were not concentrated in poorer neighborhoods and, as noted, they provided fewer services without significantly lower costs (Norton et al., 1988).

The authors suggested two possible sets of reforms. The first possibility involved changes such as: (1) making BANASUPRO outlets competitive in both priced and non-priced products, (2) encouraging the formation of consumer cooperatives, (3) promoting competing retail outlets in monopoly-prone areas, and (4) allowing BANASUPRO to act as a wholesaler or provider of technical assistance for private retailers. The second possibility for reform, only briefly mentioned, was the utilisation of BANASUPRO as a targeted food subsidy system expressly for low-income households. The sale of only a few basic commodities, at subsidized prices, in poorer neighborhoods and regions was thought to be a more cost-effective scheme that would reach vulnerable groups. As a result, although the authors acknowledged that appropriate targeting "is easier said than done," they argued that future efforts to adjust the state's role in food distribution should focus on the further targeting of benefits (Norton et al., 1988).

The CEAP studies demonstrated the limitations of alternative targeting options and showed that the mechanisms with which they are implemented depend a great deal upon: (1) the structure, scope, and impact of the existing subsidy scheme, and (2) the consumption patterns and nutritional characteristics of households and individuals of different income groups. Thus, the characteristics that determine successful targeting programs are, to a great extent, country-specific. There can be no all-encompassing "cookbook." Developing country policymakers must rely on solid, empirical research by trained analysts and experienced judgment.

### 3. Lessons Learned: Input, Technology and Marketing Policies

Input, technology, and marketing policies were not a major focus of the CEAP studies. Only two of the CEAP studies concerned the impact of input policies on consumption and nutrition, and then only indirectly. The study in Cameroon showed that the liberalization of marketing systems and the introduction of market mechanisms may not have the intended effects on prices, production, and consumption if there are factor supply or marketing constraints. This case highlights the fact that price is a necessary but not sufficient condition for increased production, food consumption, and nutrition (Ariza-Nino et al., 1982b).

The CEAP study in Panama found that the introduction of new production technologies at least partially compensated for the market-distorting effects of producer price policies and consumer price controls. It was discovered that poultry, a commodity that had experienced technological improvements in production, did not experience a decline in output or increase in price despite an extended period of consumer price controls. The negative production effects of price controls were overcome by technical changes in the production process that lowered the costs of production (Franklin et al., 1984).

### 4. Lessons Learned: Macroeconomic and Trade Policies

Very little of the CEAP work concerned the consumption and nutrition effects of macroeconomic policies, although it was recognized that macroeconomic policies have important implications for policymaking in the agricultural sector.

The CEAP study in Peru attempted to draw conclusions regarding macroeconomic policy and consumption and nutrition concerns. A computer simulation model was used to compute the effect of alternative policies on prices, supply, incomes, and expenditures in a general equilibrium context. The empirical analysis led to the conclusion that the disincentives of agricultural pricing policy, combined with selective trade policies that discriminated against the import-competing agricultural sector, caused a deterioration in nutrition of all groups with the exception of those in the protected industrial sector. Yet the study also found that a move towards trade liberalization would entail significant costs that would undoubtedly be borne by the "home goods" sector representing the poorest segments of society and the bulk of the population (Franklin et al., 1985).

## C. ABSTRACTS OF STUDIES

This section presents an abstract of each country study sponsored by the CEAP and Subsidized Consumption projects. The abstracts summarize months, and sometimes years, of research in one or two pages and necessarily oversimplify study details. These abstracts may be useful for analysts concerned with agricultural and food policy issues in the countries mentioned.

It should also be noted that the studies were by no means equal in terms of funding levels, personnel commitment or length of project. The short-term policy impact studies in Cameroon, Senegal, Jamaica, Panama, Sudan and Tanzania were completed in less than a year in most instances and cost about $100,000 to $150,000. On the other hand, the Honduras study took over four years and received an estimated $600,000 from A.I.D. and another $150,000 from the Government of Honduras. The Subsidized Consumption project devoted extensive resources to the Egypt and Sri Lanka studies; funding was about $450,000 for each study.

### CAMEROON

BIBLIOGRAPHY:

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SUMMARY:

I. POLICY SETTING

Farmers in the highlands of the Northwest Province are relatively isolated from the markets in Southern Nigeria and the coastal areas around Douala. There are very few roads linking farmers to these large markets and transport is costly. This study was conceived at a time when the government of Cameroon was considering lifting the official proscriptions against the export of agricultural goods across the border into the rapidly growing markets of Southern Nigeria. However, by the time the fieldwork was completed, concern had shifted to the potential for food scarcity in the coastal areas around Douala where rapid urbanization and oil discoveries were taking place. Consequently, the government began to focus on plans to improve the transport linkages between the Douala area and the Northwest Province so as to induce increased supplies of the principal food crops, corn, beans, and potatoes.

II. RATIONALE AND OBJECTIVES

The study assessed the potential impact of increased marketing opportunities on the consumption levels of farmers in the Northwest Province as might occur with improvements in the transport infrastructure. As mentioned, the original focus was to be the impact of trade liberalization with Nigeria, but the final draft stressed the impact of the

growth of demand in Southern Cameroon. A second objective of the study was to evaluate the usefulness of short-term, rapid assessment surveys in gaining knowledge of food consumption patterns and the nutritional impact of rising agricultural prices.

## III. METHODOLOGY

The data for this study resulted from a household consumption survey conducted in May of 1981. A survey of 72 households in eight highland villages of the Northern Province yielded information on food production, consumption, income and local prices. Smaller surveys gathered information on market prices and trade flows and limited use was made of the 1978 National Nutrition Survey. Price and income elasticities also estimated for food crops.

## IV. CONCLUSIONS

The authors found no reason to believe that prospects existed for expanded agricultural trade with Nigeria, even if the legal barriers were removed, due to the poor state of the roads. Furthermore, the authors concluded that increased marketing opportunities would have a negative effect on the food consumption and nutritional status of the highland farmers. That is, in response to the anticipated growth of demand, a rise in food prices was expected to occur. Two opposite economic effects would result from this price rise: a negative price effect and a positive income effect. The negative price effect the authors concluded, would result in a decrease in food quantity consumed as farmers sold more and sacrificed home consumption. However, this negative effect is partially counteracted by a positive income effect as farmers sold more on the market and earned higher incomes. The authors concluded that the combined effect of these two opposite effects would be negative in the short run. A 10 percent price increase was estimated to lower food consumption directly by 11.6 percent. The price increase raised incomes by 3 percent but only 0.5 percent of this additional income would be allocated to food consumption expenditures. Authors concluded that the net effect would be a decline in food consumption by 11.1 percent and a corresponding drop in calorie intake by 7.6 percent.

# DOMINICAN REPUBLIC

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Rogers, Beatrice L. and Anne J. Swindale. "Determinants of Food Consumption in the Dominican Republic." Volumes I and II. Tufts University School Of Nutrition." April 1988.

## SUMMARY:

### I. POLICY SETTING

Food price policy in the Dominican Republic (DR) has included price supports to the agricultural sector, consumer subsidies, and the use of parastatals in marketing and procurement. However, during the mid-1980s, against the background of rising fiscal constraints, DR food policy underwent a significant transformation. In addition to currency devaluations, price controls were lifted on a number of staple foods, including rice, cassava and plantain. The government also operated several distribution programs intended to provide basic foodstuffs at "affordable" prices.

### II. RATIONALE AND OBJECTIVES

The purpose of this study was to determine the effects on food consumption and nutritional status of relative changes in food prices and household income in the DR. In particular, it sought to identify determinants of food demand and to provide information on how changes in prices and incomes, brought about by alternative food price policies or economic adjustment policies, might affect the consumption patterns of households. The study also attempted to evaluate the effects of the government programs which subsidized or distributed foodstuffs.

### III. METHODOLOGY

The data used for this study were obtained from a 10 month national household income, expenditure, and food consumption survey undertaken in 1986. To examine differences among regions, the country was divided into five distinct strata. Relatively straight-forward estimation methodologies were used; price and income elasticities were calculated using two-stage regression analysis.

### IV. CONCLUSIONS

The DR study yielded a wealth of information regarding consumption patterns, nutritional status, price effects, purchasing and food distribution patterns and income sources. Rice was found to be the dominant foodstuff at all income levels and in almost every region. As incomes rise, households were found to consume more rice, but their consumption of other foods also rose. Interestingly, very few foods were found to be "inferior" in that consumption declined as income rose.

Regarding nutritional status, the results indicated that 17 percent of the population had a calorie intake below 75 percent of recommended levels.

The proportion of total household expenditure devoted to food rose with income and did not level off until the upper income groups were accounted for. This suggests that many households below the median expenditure level had not reached the point at which food preferences were satisfied.

Important conclusions were also reached concerning the effects of price changes on nutrient intake. For example, it was discovered that the prices of cassava and cooking oil were inversely related to calorie and protein consumption. As the prices of these goods fell, the overall level of the diet improved. On the other hand, interestingly, when the price of chicken fell, protein and calorie consumption levels also declined. Lower chicken prices led to the substitution of chicken for foods with higher protein and calorie levels per unit expenditure, such as rice, beans and plaintains.

Also important was the finding that the public distribution of free and subsidized food through government outlets accounted for less than 1 percent of consumption during the survey period. Of the four different types of government-run programs, one was confined mostly to the poorest geographic region (the Frontier) and was phased out during the year of the study. The major program, Ventas Populares (VP), had outlets available to only half of the survey sample. In addition, a number of VP stores were closed at the time of the survey. The travel time required to reach the store may have affected their accessibility. The third program was only for households affiliated with the government and access was very limited. Finally, a program that provided subsidized transportation to farmers, thereby subsidizing the market price, was begun in the year of the survey and was small in scope, although there were plans for expansion.

The study also described the purchasing patterns of different household types and the implications for the design of a food distribution program. Approximately half of all food expenditures were made at small, neighborhood stores and consisted of very small quantities. It was argued that any public food distribution system would have to take into account these purchasing patterns.

Finally, the income survey indicated that households rely on a variety of income sources and that, on average, households whose heads are farmers derive 40 percent of their income from non-farm sources. This suggests that a wide range of consumer price and income policies affect the consumption of farm households and that producer price policies cannot be viewed as the only appropriate instrument for influencing the food consumption levels of farmers.

# EGYPT

## BIBLIOGRAPHY:

Alderman, Harold, Joachim von Braun and Sakr Ahmed Sakr. "Egypt's Food Subsidy and Rationing System: A Description (Task 1)." IFPRI. November 1982.

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Scobie, Grant M. "Food Subsidies and the Government Budget in Egypt (Task 5)." IFPRI. January 1984.

Scobie, Grant M. "Food Subsidies In Egypt: Their Impact on Foreign Exchange and Trade (Task 6)." IFPRI. August 1983.

## SUMMARY:

### I. POLICY SETTING

Food subsidies are an important and enduring component of Egyptian social policy. Policies designed to ensure access to food supplies date back to antiquity. In recent years, the subsidy system has become the primary marketing channel for the bulk of the nation's basic foodstuffs. Over 90 percent of the population participate in the rationing and subsidy schemes.

This research project took place during a time of increased concern about the fiscal costs of the scheme and was one of the first examples of a comprehensive analysis of an extensive subsidy system. Food subsidy expenditures had risen from less than 1 percent of public outlays in 1970 to 10-15 percent in the late 1970s and early 1980s. Continued population growth and rising world price for food were major contributing factors to the rise in program costs.

### II. RATIONALE AND OBJECTIVES

The project analyzed a wide range of effects of the food rationing and subsidy system on the food consumption of different groups, income distribution, the agricultural sector, the government budget, and foreign exchange and trade. The tremendous scope of these objectives demonstrates that this research project was the most comprehensive of the consumer subsidy studies.

### III. METHODOLOGY

A broad array of analytical techniques were used to interpret the many data sets that were elements of the comprehensive study. Time series consumption data from a Household Expenditure Survey was used as were farm budget and census data. For the sectoral and macroeconomic analysis,

comprehensive models were applied in order to quantify the effects of the subsidies on agricultural production and the larger macroeconomic environment including trade flows, exchange rates, levels of protection, impacts on balance of payments, and government budgets.

## IV. CONCLUSIONS

The extensive scope of this study yielded a number of conclusions regarding household food consumption and income distribution, the agricultural sector and the macro economy:

The study found that the food subsidies were not well targeted and the middle and upper classes received a significant share of the benefits. The participation of all income groups meant that larger government expenditures were required to operate the scheme than if targeted to the poor. However, lower income groups were found to be well served by the subsidy network and the nutritional goals of the program were judged to have been met. Per capita calorie consumption exceeded that of all countries with a per capita GNP of up to twice that of Egypt.

Yet the studies determined that food subsidies and government intervention in agricultural price policy had significant effects on the agricultural sector as a whole, as well as on the producer prices of particular commodities. The instruments used by government to intervene in agriculture have included import and export controls, compulsory delivery quotas, area allotment, and input subsidies. For example, the producer prices of the three major cereals- wheat, rice and maize- were kept below international prices. When combined with the distribution of subsidized imports to meet the needs of the food subsidy scheme, there were substantial disincentives to cereal production.

Interestingly, the livestock sector, consisting mainly of cattle and buffalo, was found to be protected and was cited as a major source of price distortions. Livestock producers had historically received prices in excess of international prices and had benefited from the provision of subsidized maize, the primary feed grain. Livestock production was primary the domain of the small family farm; most meat and milk was produced from draft animals. On the other hand, meat is mainly consumed by high-income groups. Thus, the beneficiaries of livestock protection include both small family farmers and richer urban households.

The "Task 4" report found that the expansion of the subsidy system that occurred in the the 1970s and early 1980s and the high level of price distortions did not occur primarily at the expense of agriculture as a whole. However, within the agricultural sector, the studies did identify important distributional consequences of Egyptian agricultural and food policies and highlighted policies, such as artificially low cereal prices or subsidized imports, that created disincentives to increased production.

Although the fiscal costs of the scheme grew rapidly between 1974 and 1982, the studies concluded that other macroeconomic policies contributed more than the food subsidies to public deficits. Nevertheless, the subsidy system did have significant effects on the inflation rate, balance of payments, and the exchange rate, imposing real costs on the economy.

## HONDURAS

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Price and Income Elasticities of the Principal Food Commodities in onduras." March 1984.
Productive and Nutritional Relationships in a Linear Programming Model at he Farm Level." March 1983.
Sectoral Model of Linear Programming for National Production of Basic rains." July 1984.

UMMARY:

. POLICY SETTING

Honduras was, and continues to be, one of the poorest countries in the estern Hemisphere. An estimated 55 percent of the population were found o have average daily consumption levels of 1,697 calories or less, 20 ercent below the accepted minimum standard of adequacy. Although, since 978, the agricultural sector grew faster than the economy as a whole, the rowth rate has not kept pace with population growth.

The majority of farmers have less than three hectares of land and many o not have clear title to their plots. Corn and beans are the primary taples along with beef, sugar, plantains and other starchy staples. owever, rice and wheat have begun to replace traditional grains. The overnment operates two programs with the goal of making food available at easonable prices to low-income households.

I. RATIONALE AND OBJECTIVES

This set of studies was a long-term project designed to examine the tructure of the entire Honduran agricultural sector including the omposition of production, relatives prices over time, imports, exports and ood consumption. Special attention was paid to the effects of various ricing and marketing policies on farm incomes and nutritional equirements. Through collaboration with host-country analysts, the tudies were also intended to build Honduran capacity for future policy nalysis.

## III. METHODOLOGY

The primary data source for this project was the extensive work undertaken for the previous "Study of the Effects of Agricultural Development Policies on Food Consumption in Central America" in which all four authors had participated. The final study built on a wide range of time series, census, farm production and household expenditure data. Researchers were able to clean and process the data tapes from the 1978-79 Household Survey for this project. Although econometric modeling was used to explore a number of food consumption and public policy relationships, the primary goal of the studies was to determine whether an intensive but relatively simple analysis of existing data bases, such as are available in many developing countries, could yield valuable results for policy decisions. On the balance, the authors concluded that, with sufficient expertise, such analysis could be both reliable and useful.

## IV. CONCLUSIONS

The study concluded with a number of important findings with direct relevance to future policy formulation:

First, while prices were not believed to be greatly distorted in relation to international markets, some cases were found where price policies had negative repercussions. For example, producer sugar subsidies were partially passed on to consumers resulting in higher consumer prices, increased government expenditures, and a misallocation of farmland away from more productive crops.

Second, the study found that a large segment of the population still suffered from nutritional deficiencies despite the existence of marketing programs that provided consumers with low-priced foodstuffs. The authors recommended that strategies be redesigned to target at-risk groups more effectively and offered recommendations for doing so based upon an analysis of the food distribution system.

Finally, reforms in land use policy were suggested as a way of stimulating a reallocation of resources away from export crops and toward domestic food crops. It was believed that nutrient availability would increase with transfer of land to the smaller, more efficient farms. However, the studies did not address the issues involved in implementing such reforms.

# INDONESIA

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Johnson, S.R., Tesfaye Teklu, and Helen Jensen. "Evaluating Food Policy in Indonesia Using Full Demand Systems." Center for Agricultural and Rural Development, Iowa State University. September 1987.

Meyers, William H. and S. Devadoss. "An Evaluation of Crop and Fertilizer Price Policies in Indonesia: A Policy Model Exercise." Center for Agricultural and Rural Development, Iowa State University. September 1987.

## SUMMARY:

### I. POLICY SETTING

For the last two decades, the Government of Indonesia (GOI) has utilised food price policies and input policies to affect production and consumption outcomes. As rice is the dominant staple, especially in urban areas, rice pricing policy has received particular attention. At the time of the study, the GOI operated a dual-price policy for rice and wheat characterized by a producer floor price to encourage production and a ceiling price to protect consumers. Input prices for fertilizer and pesticides were also subsidized. In 1986, the (GOI) increased fertilizer prices by 25 percent, while the rice support price increased less than 9 percent. This occurred in the context of a growing debate about phasing out subsidies for major food commodities.

### II. RATIONALE AND OBJECTIVES

The objectives of this study were threefold: (1) to gain a general understanding of the food consumption patterns of households in different regional and socioeconomic groups, (2) to estimate food demand parameters-- price, cross-price, and income elasticities-- for a range of commodities, and (3) determine the nutritional status of households of various sizes, regions and income exists.

### III. METHODOLOGY

The study used data from a 1980 multipurpose household survey of 60,000 households. The relevant food demand parameters were calculated using a multiple regression model, the Almost Ideal Demand System (AIDS). Two other demand systems were estimated for comparison, a multinomial linear logit model and a local stochastic approximation, although the results were not as robust. An empirical model was also used to assess household level availability of nutrients.

### IV. CONCLUSIONS

The study contributed information and estimates of food demand parameters for major commodities, with a particular focus on rice. The price, cross-price and income elasticities provided a framework for evaluating the impact of various policy changes on food consumption and nutrition. Although the policy model exercise did explore the impact of

two policy alternatives, there was not a great emphasis on drawing policy implications from the data. Instead, the empirical work can be viewed as a comprehensive resource for future policy analysis.

The policy work that was done revealed that price elasticities are negative for all food groups, but with rice consumption the least responsive to a change in own price. High income consumers maintain rice consumption when prices rise. In addition, the change in the relative price of rice had differing distributional impacts. Although all consumers experience an increase in real income from a drop in rice prices, the gain is more pronounced for low-income consumers due the importance of rice in their diet. Conversely, a price increase for rice would result in greater percentage loss of real income for the low-income households.

# JAMAICA

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Van Blarcom, Bonnie. "Consumption Effects of Jamaican Sugar and Rice Pricing Policies." NEG. July 1983.

Van Blarcom, Bonnie. "Economic Analysis and Nutritional Considerations of the Cassava Industry in Jamaica" NEG. February 1983.

## SUMMARY:

### I. POLICY SETTING

Since 1973, Jamaica has faced severe balance of payments problems sparking a number of policy debates regarding the role of the agricultural sector and the achievement of food security. In 1983, a widespread view was that food security was attainable through a combination of domestic production and sufficient foreign exchange to cover the importation of food during times of shortages. Policy strategies discussed were: (1) the promotion of sugar exports, and/or (2) a reduction in rice imports through policies that encouraged domestic rice production. Although sugar was the primary agricultural export, earnings had been declining due to increased world competition. Sugar also provided significant source of calories for domestic consumers. Rice was produced domestically on a very limited, high cost basis with the bulk of consumption needs met by imported rice.

### II. RATIONALE AND OBJECTIVES

The purpose of the main study was to analyze the strategy of promoting sugar exports along with import substitution of rice. The study also hoped to determine the potential effects this policy, if successfully implemented, would have on food consumption and nutrition. In addition to this study, NEG staff and consultants provided considerable technical assistance in processing and analyzing income, expenditure and food consumption data. A second study examined the feasibility of promoting the Jamaican cassava industry.

### III. METHODOLOGY

The rice and sugar study relied on secondary data from the Jamaican Government, international organizations and existing studies. Data and information regarding the cassava sub-sector was compiled by the author. No econometric regression or modeling was done. The cassava study used existing data on cassava production costs and aggregate demand.

### IV. CONCLUSIONS

The main study concluded that efforts to expand sugar exports had raised the price of domestically-consumed sugar with detrimental effects for low-income consumers for whom brown sugar was a principal source of calories. Efforts to expand rice production were disappointing and domestic production costs were high. It was also reasoned that the removal of consumer subsidies for sugar and rice in 1980 (for budgetary reasons) had adversely affected the nutrition of low income groups. Low-income consumers shifted to starchy staples, cassava and plantain, foods that are

nutritionally inferior. The author concluded that the policy of sugar and rice promotion had led to increased foreign exchange earnings (from sugar) and decreased foreign exchange expenditures (for rice). However, these gains had been achieved at the expense of economic efficiency in the agricultural sector. In the absence of cost-saving technological advances in rice production and increases in the world price of sugar, the effectiveness of the dual sugar-rice strategy was judged to have limitations and possible repercussions on low-income consumers.

The cassava study concluded that due to poor marketability and low consumer preference "cassava production should not be encouraged." Furthermore, promoting cassava production as a means of increasing incomes of small farmers was not viewed as a worthwhile policy option.

# LIBERIA

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Hiemstra, Stephen J. and Kimseyinga Savadogo. "Urban Food Consumption Patterns and National Food Policy in Liberia." Purdue University.
Report 1: Preliminary Report, 1986.
Report 2, Part 1: Results of the Household Survey, October 1986.
Report 2, Part 2: Statistical Analysis, October 1986.
Report 3: Rice Self-Sufficiency in Liberia, March 1987.
Report 4: Substitutes for Rice, March 1987.
Report 5: Methodology and Evaluation, August 1987.

## SUMMARY:

### I. POLICY SETTING

Rice is the major food staple in Liberia and rice self-sufficiency has been a major objective of the Liberian government since the 1960s. At the time of the study, rice imports were increasing and domestic demand was expanding. Efforts had been made to encourage production by promoting new cultivation technologies, introducing improved seed varieties, and supporting producer prices. The maintenance of high producer prices for rice was accompanied by consumer prices that, although stable, were above world prices.

### II. RATIONALE AND OBJECTIVES

The purpose of the study was to collect and analyze data on food consumption and expenditure patterns for rice and other principal food products to then assess the impact on food consumption and nutrition of various food and agricultural policy alternatives. Special attention was paid to the policy of rice self-sufficiency.

### III. METHODOLOGY

The team from Purdue University, A.I.D./Monrovia, and the Ministry of Agriculture cooperated to conduct a household expenditure survey in March of 1986. The survey was limited to Monrovia and six other major urban areas. The data were tabulated, cleaned and analyzed by the study team at Purdue. A multiple regression model, the Almost Ideal Demand System (AIDS), was used. Due to the weakness of the price data, prices were dropped in the final model. The statistical analysis yielded fairly robust estimates of income elasticities.

### IV. CONCLUSIONS

The authors examined the effect on rice consumption, production, imports and prices of four scenarios: (1) improving real incomes of 2 percent per year, (2) declining real incomes of 3 percent per year, (3) the elimination of rice imports under a rice self-sufficiency strategy, and (4) the pursuit of a comparative advantage-based, free-trade strategy. In the first scenario, the authors estimated that Liberia would need annual increases in rice imports of 4.5 percent to meet domestic demand from

increased income. In the long term, rice imports could be expected to decline as rising incomes created more demand for wheat and other preferred staples. In the second scenario, the demand for rice would probably decline due to reduced income levels, but there would not be a reduction in absolute demand due to population growth. In the third scenario, rice self-sufficiency would entail higher consumer prices for rice, both to increase producer incentives and to reduce demand to a market-clearing level. The authors suggested that consumers would switch to other cereals and starchy staples in response to the higher rice prices. Price increased would exert considerable adverse income effects and, in the absence of government intervention, the nutritional status of low-income households would be harmed. The fourth scenario, the free trade regime, is based on the assumption that the comparative advantage of Liberian agriculture lies in tree crops rather than rice production. Commercial production of rice would decline as cheaper imported rice were consumed. The production of coffee and cocoa would rise as the practice of parastatal purchases from farmers at below-market prices was ended. The free trade scenario was preferred by the authors due to the assessment of favorable growth prospects for coffee and cocoa. It was acknowledged that a transition to such a policy would have to be carefully managed.

The study also had two interesting conclusions regarding rice consumption patterns in Liberia. First, the data showed that for upper-income households, the income elasticity for rice becomes negative. That is, as incomes rise beyond a certain point, rice consumption declines. Second, the study noted differences in preferences for imported rice and domestically-produced "country rice." At low income levels, household responses to changes in incomes are the same for both imported rice and country rice. At higher income levels, the negative income elasticity for rice is much more pronounced for country rice than imported rice. Thus, it would appear that country rice is economically "inferior" to imported rice.

# MALI

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Rogers, Beatrice L. and Melanee L. Lowdermilk. "Food Prices and Food Consumption in Urban Mali." Tufts University School of Nutrition. October 1988.

## SUMMARY:

### I. POLICY SETTING

At the time of this study, Malian food policy issues focused on cereal supplies and pricing. Cereals dominate food consumption of all major groups and regions. Very little was known about potential impacts of alternative food price policies and, more importantly, about urban consumption patterns.

### II. RATIONALE AND OBJECTIVES

The purpose of this study was to describe the food purchasing patterns of households in urban areas by income group. By identifying the consumption patterns of different income groups, officials implementing economic policies and food policies could more readily take into account the impact of such polices on vulnerable groups. Of particular interest was the impact on food consumption of possible food price changes.

### III. METHODOLOGY

This study used data from a household expenditure survey conducted by the Ministry of Planning and funded by the World Bank. The survey took place from May 1985 to May 1986 and collected information on items purchased and amounts spent. Since the original survey did not include quantity or price data, the authors returned to the survey markets to measure the local units, making it possible to standardize data from the original survey in kilograms. Price and income elasticities were estimated using two-stage regression analysis.

### IV. CONCLUSIONS

The study verified that cereals dominate food consumption patterns in every city and in every expenditure class. In most of the cities, rice accounted for over half of the cereal calories consumed. Coarse grains (millet, sorghum, and maize) were the next most important source of calories. In addition, calorie consumption was found to be below recommended levels in the two lowest expenditure quartiles in all cities surveyed. Interestingly, there was little regional variation in consumption patterns.

In examining the effects of price changes on the consumption of rice and coarse grains, the authors found, for the price variation observed, little substitutability between rice and coarse grains. Households seem to keep constant the proportions of rice and coarse grain consumed. Thus,

when rice prices increase, both rice and coarse grain consumption fall. When coarse grain prices fall, there is little substitution of coarse grain for rice. The authors suggest that the smaller amount of labor, time, and fuel required for rice preparation and availability of rice in urban areas may explain its dominance in the diet. The study discovered no foods that could be termed "inferior", that is, no foods were consumed in lower quantities as incomes increased. These findings have important policy implications for the design of any program of cereal subsidies.

# NIGERIA

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Smith Victor E., William Whelan and Peter Schmidt. "Food Consumption Behavior in Three Villages of Northern Nigeria." MSU. 1982.

Smith, Victor E., John Strauss, William Whelan, David Trechter and Peter Schmidt. "Food Consumption Behavior: Rural Sierra Leone and Kano State, Nigeria." MSU. 1982.

## SUMMARY:

### I. POLICY SETTING

Together with the Sierra Leone study, the Nigeria study was one of the the first major research efforts under the CEAP project. Three villages in Kano State of northern Nigeria were surveyed. The villages were, for the most part, traditional societies just beginning to experience change in production techniques and marketing systems. The three principal crops were millet, sorghum and groundnuts.

### II. RATIONALE AND OBJECTIVES

While the purpose of Sierra Leone study was to develop appropriate methods for measuring the effects of economic policies upon the food consumption of rural producers, the objective of the Kano State, Nigeria study was to test the methods by applying them to a data set. At the time of the study, very little was known about the effect of an increase in market orientation on the consumption patterns of semi-subsistence farmers. Much of the food consumed by semi-subsistence households does not pass through market channels and, therefore, how these households responded to economic incentives was little understood. In addition, little accurate data existed.

### III. METHODOLOGY

This study analyzed data collected during a 1974-75 field survey. Although the data were not collected with a study of food consumption patterns in mind, accurate quantity records of consumption were complied. The sample consisted of 45 households in each of three villages. The data were analyzed using single-equation estimation methods developed in the Sierra Leone study.

### IV. CONCLUSIONS

The authors were able to make a number of recommendations from their analysis. Although the sample was small and the data imperfect, the analysis highlighted the complexity of food production-consumption linkages. It was concluded that the degree of market orientation and production patterns "matter" for food consumption, but that it is very difficult to make simple statements about the nutritional effects of alternative production and marketing strategies. Interestingly, sorghum was found to be a "Giffen good" for over half the households. That is, a higher price for sorghum was associated with more rather than less sorghum

consumption. The study did conclude that, in general, higher sorghum prices, lower income, and lower reliance on the market were associated with above average consumption. In such a situation, most of the household's nutritional needs were met by home production of sorghum and millet. It was hypothesized that normal economic development characterized by greater output, higher incomes and more production for the market might actually harm the nutritional status of many households, given the important nutritional role of home-produced coarse grains. However, it was recognized that there may not be such a loss if increased incomes were used to purchase foods which offset any nutritional loss from declining home production.

Finally, it was suggested that measures to increase household income be taken, even though they may involve greater dependence upon the market. It was believed that such efforts should be directed toward improving the productivity of food crops such as maize and cowpeas. Since these foods were found to be consumed in greater amounts as incomes rose, any adverse nutritional impact of increased market orientation could be minimized.

# PANAMA

## BIBLIOGRAPHY:

Franklin, David L., Eric Shearer and Gustavo Arcia. "The Consumption Effects of Agricultural Policies: The Case of Market Intervention in Panama." Research Triangle Institute. January 1984.

## SUMMARY:

### I. POLICY SETTING

Beginning in 1973, the Panamanian government increasingly began to intervene in the agricultural sector with the aim of promoting food self-sufficiency and improving the nutrition of consumers. Policies included input subsidies, producer price supports, government procurement of basic grains and retail price ceilings. In both rural and urban areas, food production and consumption exhibit substantial diversity with rice, animal products (beef, poultry, eggs and milk) and vegetables the major commodities. Corn and beans play a relatively minor role in the diet.

### II. RATIONALE AND OBJECTIVES

The objective of the study was to determine the effects of public sector price policy interventions on food consumption patterns of different groups in the population. The study assessed the probable impact of producer price supports on the market for rice and corn. The effects of price and export controls on the market for beef and milk were also examined.

### III. METHODOLOGY

The study analyzed food consumption data collected for the 1980 Nutrition Study. The data were used to describe the food consumption patterns of various income groups in rural and urban areas. Determinants of food consumption patterns were analyzed with econometric techniques. For example, income elasticities were estimated for selected commodities.

### IV. CONCLUSIONS

One of the major conclusions of the study was that, despite ten years of government policy intervention, half of the population still suffered from nutritional deficiencies. The report hypothesized that nutrition levels had slightly improved, but no time-series consumption or nutrition data were utilised. Not surprisingly, income was judged the main determinant of food consumption levels.

The study found that unfavorable price policies toward beef producers were responsible for the unintended reduction in the availability of beef. Furthermore, price policies that favored producers, such as those for basic grains, were judged to have mainly benefitted richer, commercial farmers. Part-time subsistence farmers sold little if any of their crop on the market and therefore did not reap any of the benefits of the price

supports. It was found that price policies were mainly successful for those products that had experienced technical change (for example, rice and poultry) because such changes were associated with declining production costs over time. Price policies were not able to induce a supply response for those commodities that did not experience technical advances (for example, beef). Finally, in noting that many of the smaller farmers received most of their income from off-farm labor, the study suggested that efforts to aid the nutritionally-at-risk focus more on rural labor markets rather than on maintaining producer price supports.

# PERU

## BIBLIOGRAPHY:

Franklin, David L., Jerry B. Leonard and Alberto Valdes. "The Consumption Effects of Agricultural Policies: Peru." Sigma One Corporation. February 1985.

## SUMMARY:

### I. POLICY SETTING

This study was undertaken against a background of declining food consumption levels by urban and rural consumers. Previous studies, including a 1983 study by Sigma One Corporation, had documented the existence of widespread chronic malnutrition as a result of inadequate diets. Government agricultural and trade policies were believed to discriminate against agriculture and discourage production.

### II. RATIONALE AND OBJECTIVES

This study was based upon the hypothesis that agricultural output had been depressed because of disincentives created by parastatal pricing restrictions and the maintenance of discriminatory trade policies. The authors hoped to demonstrate that a "more neutral structure of economic incentives" would have lessened the deterioration in the consumption levels of urban and rural consumers. By developing a framework of the potential policy instruments and their impact on the structure of incentives, the study hoped to influence the policy debate and aid in the eventual realization of increased food availability and diet diversity.

### III. METHODOLOGY

Official government statistics and data collected during previous fieldwork were the principal data sources. Time series data were used to estimate the structure of relative prices, the structure of production, and resulting impacts on consumption patterns and income distribution. Based on this analysis, the authors used a simulation model to estimate the general equilibrium effects of alternative policies on prices, supply, incomes, and expenditures.

### IV. CONCLUSIONS

The major conclusion of the study affirmed the initial hypothesis that restrictive trade policies operating under the guise of industrial protection had resulted in a deterioration in the nutritional situation of almost all Peruvians. While protective trade policies did benefit the manufacturing sector, they harmed the agricultural sector. The study found that protectionist trade policies and an over-valued exchange rate had made imported foods cheaper than domestically produced foods. When world grain prices rose, attempts to control domestic food prices only worsened incentives to producers, leading to a decline in agricultural output.

Only those individuals in the protected industrial sector were able to maintain their food consumption levels. Although acknowledging the apparent advantages of a trade liberalization strategy, the authors noted that the costs of such an adjustment would "undoubtedly be borne by the home goods sectors" that consist of the bulk of the population, including some of the poorest segments of the population.

## SENEGAL

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Josserand, Henri P. and Clark G. Ross. "Consumption Effects of Agricultural Policies: Senegal Case Study." Center for Research on Economic Development, University of Michigan. 1982.

SUMMARY:

I. POLICY SETTING

In 1974 the Government of Senegal (GOS) relaxed its policy of promoting its major export crop (peanuts) and shifted to a strategy designed to achieve eventual self-sufficiency in food crops. The import of rice and wheat was restricted and producer prices were increased in order to encourage the production and consumption of local grains such as millet and sorghum. Although the GOS encouraged increased production and consumption of domestic grains, it did not want to reach this objective at the expense of peanut production which provides vital export earnings.

II. RATIONALE AND OBJECTIVES

The objectives of the study were three-fold: (1) to provide information on the food consumption patterns and nutritional status for the three villages surveyed, (2) to determine the impact on food consumption levels of the policy shift towards food crops, and (3) to judge the usefulness of short-term, rapid assessment surveys.

III. METHODOLOGY

The findings were derived from a 12 week survey of three villages done directly by the study team. Data on farm production, marketing, farm and non-farm income, food consumption and physical condition of family members were collected for 72 households- one-third of the combined population of the villages. The project team also used secondary data from another region to generate a farm planning model for a typical rural household.

IV. CONCLUSIONS

The study found that food consumption and caloric intake were closely correlated with total income, the distribution of which was very uneven. The study also found that rice had become a very important food source for rural families because of either: (a) poor millet crops, or (b) limitations in the quantity of millet for sale due to seasonal shortages. This meant that an increase in the price of imported rice would raise the cost to the farm family of not producing enough cereals and could lead to a reallocation of inputs from peanuts to cereals (p. 148).

The report concluded that if the GOS wished to maintain export earnings from peanuts, it must either continue to import rice, and therefore use foreign exchange earnings, or devote resources to increasing the productivity of rural food producers. Improving agricultural productivity

might reduce dependence on imported rice, or at least keep farmers from moving out of peanut production. The study recommended that Senegalese agricultural policy "promote equally cash and food crops" (p. 148). Realizing this objective would require a shift in overall policy emphasis, including redirecting research and technology services, input distribution and price incentives from cash crops toward traditional and new food crops.

# SIERRA LEONE

## BIBLIOGRAPHY:

Kolasa, Kathryn M. "The Nutritional Situation in Sierra Leone." MSU. 1978.

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Strauss, John, Victor Smith, Peter Schmidt and William Whelan. "Joint Determination of Food Consumption and Production in Rural Sierra Leone: Estimates of a Household-Firm Model." MSU. 1981.

Smith, Victor E., John Strauss, David Trechter, William Whelan, Peter Schmidt and James Stapleton. "Food Flows and Simulations: Rural Sierra Leone." MSU. 1981.

Smith, Victor E., John Strauss, William Whelan, David Trechter and Peter Schmidt. "Food Consumption Behavior: Rural Sierra Leone and Kano State, Nigeria." MSU. 1982.

## SUMMARY:

### I. POLICY SETTING

The Sierra Leone study was the first major research effort under the CEAP project. At the time of the study, a number of economists argued that many households producing large amounts of their own food have access to markets for some of the food they produce or could produce. If this were the case (and there were dissenters), market responses would affect consumption behavior and production patterns. The market responses of subsistence and semi-subsistence households would be also be affected by the economic policies pursued by the government. However, at the time, there was very little empirical evidence on the effects of agricultural policies on the consumption behavior of rural producers. It was recognized that accurate policy design required the ability to predict the effects of an increase in market orientation on food consumption and nutritional status.

## II. RATIONALE AND OBJECTIVES

The purpose of the Sierra Leone study was different from the "policy impact" studies in a number of respects. The study did not have a "policy" component. The primary objective was to test and develop methodologies for obtaining quantitative estimates of the effects of income (using expenditures as a proxy) and prices on the consumption decisions of rural households. There were doubts as to the feasibility of this task; some questioned whether it would be possible to analyze the consumption decisions of subsistence and semi-subsistence households, given that food is both produced with household labor and purchased on the market. The Sierra Leone study was also different in that it was a longer-term study and did not operate within the self-imposed constraints of other studies. Finally, the researchers did not focus on involving host country institutions and individuals in the study; the objective was methodological development.

## III. METHODOLOGY

Given the focus on methodological development, the Sierra Leone study was instrumental in establishing the feasibility and testing the techniques of future CEAP studies. The data for this study were collected during 1974-75 in year-long surveys of farm and non-farm production by rural households. It is significant that the original data collection was concerned with household production activities and not food consumption behavior. However, expenditure data were available. Finally, the data were also cross-sectional. This created doubts to whether there would be enough price variation to establish price elasticities. In the analysis stage, this study experimented with two different econometric approaches: single-equation estimation for individual commodities and a household-firm model describing the entire production and consumption system of the household as a whole.

## IV. CONCLUSIONS

The conclusions of this study can be divided into two categories. First, the study yielded a great deal of practical information on the utilisation of the two different econometric approaches. In general, the household-firm model was found to provide more consistent estimates and was better able to use the data than the single-equation estimation. However, obtaining results from the household-firm model was much more costly and required a skilled econometrician. The primary achievement of the study was a thorough analysis of the strengths and weaknesses of the two models in calculating price-expenditure relationships for households that were both producers and consumers. Conclusions regarding the consumption patterns of rural households were also presented, conclusions that had resulted from methodological experimentation. Most notably, the data showed that production for the market had an effect on the consumption of different commodities, but that the effect could be positive or negative depending upon what commodities were produced by the household. In other words, the food consumption patterns of semi-subsistence households were found to be very responsive to price changes. Furthermore, this responsiveness could be quantified (by direct and cross-price elasticities) and contribute to policy decisions.

# SRI LANKA

## BIBLIOGRAPHY:

Edirisinghe, Neville. "The Food Stamp Scheme in Sri Lanka: Costs, Benefits, and Options for Modification." IFPRI. March 1987.

## SUMMARY:


### I. POLICY SETTING

In 1979, Sri Lanka replaced a system of general subsidies and quantity rationing of rice with a food stamp scheme. The reforms had the dual objective of attempting to reduce government spending while maintaining the consumption levels of low-income households. Under the old scheme, subsidized rice rations were available to half the population, while price subsidies on major foods such as wheat and sugar were available to all. The new system was phased in gradually over a two year period in an attempt to minimize adverse effects.

In January 1978, subsidized rice was restricted to families with monthly incomes less than Rs 300 and the number of persons eligible for rice rations was reduced to 7.6 million persons, just under 50 percent of the population. In September 1979, the government-run network of ration shops was replaced by food stamp distribution. Only households with annual incomes of less than Rs 3,600 were eligible, with marginal adjustments for larger families. The final phase of the reform was begun in 1980 with the elimination of the remaining general subsidies. Price subsidies on flour, sugar and infant milk foods were almost completely phased out by 1982.

### II. PURPOSE OF THE STUDY

The purpose of this study was to determine the impact on the nutritional status of households in different income groups of the change from general price subsidies and rice rationing to a food stamp scheme. The effects of the reforms were to be evaluated using the level of benefits accruing to various households under each scheme. It was hoped that the analysis would yield recommendations for modifications that would improve the cost-effectiveness of the food stamp scheme.

### III. METHODOLOGY

The comparison of the beneficiaries of the two schemes was carried out using data from the 1978-1979 and 1981-1982 Consumer Finances and Socioeconomic Surveys, both conducted by the Central Bank of Ceylon. Food consumption figures from these surveys were transformed into calorie equivalents using conversion factors recommended by the Sri Lanka Medical Research Institute. A simple model was used to predict whether food subsidies and/or food stamps had induced greater food consumption than a normal cash transfer. Otherwise, no modeling or complex statistical analysis was attempted.

### IV. CONCLUSIONS

The author found that reforms did lead to reduced government spending. Food subsidies as a share of government expenditures declined from 15

percent of the budget in the mid 1970s to 3 percent of the budget in 1984. The success of the government in reducing the fiscal burden of subsidies was accomplished with few political consequences.

However, the switch from the general subsidy system to the food stamp scheme was accompanied by a deterioration in the nutritional status of the lowest income groups. Although 75 percent of the population had maintained or increased their calorie consumption, the poorest 20 percent of the population saw their per capita calorie consumption decline 8 percent from an already low 1,490 calories per day to 1,398 calories.

The were two reasons for this decline. First, there were a number of faults in the design of the food stamp scheme. A number of eligible or needy households were denied food stamps, while a significant percentage of middle income households were able to obtain benefits. The lowest quintile in terms of per capita expenditures received only 38 percent of the benefits, while over 60 percent of the food stamp budget was going to "unintended" beneficiaries. It was estimated that the calorie consumption of the lowest 20 percent of the population could have been raised from the observed 1,364 calories to 1,540 calories per capita per day if the entire budget for food stamps (Rs 1.7 billion) were allocated to this group.

Second, in contrast with the earlier scheme, the value of the food stamps were not indexed to food price changes. By 1982, due to inflation, the real value of the food stamps declined to 56 percent of their original value. The food stamps were not indexed because it was believed that their declining real value would be offset by the growth in incomes resulting from economic liberalization. However, the lower income group were not able to take advantage of the income earning opportunities presented by the reforms.

The study cited a number of reasons for the difficulty in achieving targeting goals. A government survey pointed out that the screening process and misunderstandings regarding income declarations may have caused benefits to be denied to qualified applicants. The scheme did not have systematic procedures for considering the appeals of those turned down. Finally, fraud may have accounted for some of the leakage.

As for recommendations for modification, several traditional targeting mechanisms were dismissed as inappropriate. First, the subsidization of "inferior" foods, self-targeting staples with negative income elasticities of demand, was thought to be inappropriate in the context of Sri Lanka. The author observed that such foods played a very minor role in the diet, even in rural, low-income households. Second, geographic targeting was rejected because malnutrition was not believed to be confined to certain geographic areas or particular agricultural regions. Third, targeting based on the prevalence of child malnutrition was rejected. The data showed that child malnutrition was not closely correlated with household income.

The study concluded that the best targeting option was to have the community play a role in targeting. The community was thought to possess general information on the income and nutritional status of its members. If the community were permitted to screen applicants, the stigma of fraudulent claims would reserve benefits for the truly needy.

# SUDAN

## BIBLIOGRAPHY:

Youngblood, Curtis E., Marielouise W. Harrell, Michael P. Demousis, and David L. Franklin. "Consumption Effects of Agricultural Policies: Bread Prices in the Sudan." Sigma One Corporation. April, 1983.

Pinstrup-Andersen, Per, Joachim von Braun, Thonmgjit Uy, and Winifreda Floro. "Impact of Changes in Income and Food Prices on Food Consumption by Low-Income Households in Urban Khartoum, Sudan with Emphasis on the Effect of Changes in Wheat Bread Prices." IFPRI. April, 1983.

## SUMMARY:

### I. POLICY SETTING

Wheat bread subsidies have been a component of government policy in the Sudan since independence. Since 1972, significant changes in the consumption and sources of wheat supply have occurred. Per-capita consumption of bread and other wheat products rose steadily at 5 percent per year in the early 1970s and by the early 1980s was growing at an annual rate of 13 percent. Due to the inability of domestic wheat production to keep pace, wheat imports almost tripled during this period. Despite increases by the government in the nominal price of wheat, the real price fell significantly due to the accelerating rate of inflation. By the late 1970s, with wheat imports using up an increasing portion of scarce foreign exchange, the policy debate centered on reducing or eliminating the wheat bread subsidies that had apparently stimulated consumption at the expense of alternative grains such as sorghum.

### II. RATIONALE AND OBJECTIVES

The initial purpose of the CEAP study and the supplemental report by Pinstrup-Andersen was to determine the effects on the urban population of the increases in the nominal price of bread in May 1979. However, since the study revealed that consumers actually faced lower real prices for wheat bread due the high inflation rate, the study altered to focus on the cause of the rapid increases in per-capita wheat consumption and the impact of an increase in real price of bread on the calorie consumption and real income of various income strata.

### III. METHODOLOGY

Data sources consisted of the existing 1978-79 Household Budget Survey and a 1982 "Mini-household Survey" resampling. The 1978-79 survey sampled 1600 households and the 1982 survey sampled approximately 600 households for information on calorie consumption levels, income, and food expenditures. Information on food prices was also obtained from official sources. Econometric estimation yielded estimates of price and income elasticities of various commodities by income stratum and an estimate of the impact of price changes on calorie consumption. Simulation analyses were used to develop scenarios of estimated import requirements under alternative policies and world price levels.

## IV. CONCLUSIONS

The principal conclusion of the Youngblood study was that bread demand is "sufficiently income elastic" for middle and upper-income households. That is, bread consumption rises as income increases. As a result, middle and upper-income households received most of the benefits of the bread subsidy. This consumption pattern explains the tremendous increases in per-capita consumption; artificially low prices caused the upper income stratum to consume five times as much bread as the lower stratum. The study asserted that there is little justification for the subsidy in its present form because the subsidy is regressive- households with higher incomes gained more in absolute terms than the lower income households. However, the study recognized that, in relative terms, the lower income strata are hurt the most by the elimination of the subsidy and thus, to avoid adverse nutritional impacts, efforts must be made toward the direct targeting of food aid or the implementation of income generating schemes. The study also noted that a change in policy would benefit the producers of wheat and other competing grains as well as provide for a more efficient use of domestic resources in the production of food grains.

Though it did not contradict the Youngblood study, the Pinstrup-Andersen study placed greater emphasis on the relative distributional impact of an elimination of the bread subsidy. It acknowledged that the lowest income stratum would experience a smaller absolute loss in income than the higher income stratum from an elimination of the bread subsidy. Yet the study stressed that, in relative terms, the impact of an elimination of the bread subsidy would be borne by the lower income strata. The Pinstrup-Andersen study found that "a given increase in the bread price for all consumers will reduce real incomes in the lowest income stratum by twice the reduction in the highest income stratum when measured as a proportion of current incomes by each stratum" (p. 11). Thus, the authors concluded that large increases in bread prices would have severe nutritional impacts on low income groups in the absence of any compensatory schemes.

# TANZANIA

## BIBLIOGRAPHY:

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Renkow, Mitchell A., J. Leonard, and David L. Franklin. "The Potential Effects of Alternative Structures and Pricing Policies in the Markets for Maize in Tanzania."
1983.

Van Haeften, Roberta. " The Consumption Effects of Agricultural Policies: Tanzania Case Study." NEG. 1983.

## SUMMARY:

### I. POLICY SETTING

Prior to the drought of 1973-74, Tanzanian agricultural policy was characterized by the promotion of export crops such as coffee, cotton, sisal and cashews. Producers of these crops were provided with agricultural research, transport, and extension. In 1974, in the wake of severe food shortages, the government attempted to make food production a greater priority. This policy shift occurred despite the continued reliance on capital-intensive industrialization as the primary development strategy. Various kinds of institutional support were offered to the agricultural sector including agricultural research, extension services, and inputs on credit through the National Maize Program. At the time of the Keeler study, the marketing of grain was almost exclusively controlled by the National Milling Corporation (NMC). It was illegal to transport grain or sell more than a very small amount to any entity other than the NMC. During most of the year, the producer price offered by the NMC was lower than the price offered by the unofficial (illegal) markets. The NMC also set the retail prices for all grains sold legally. However, NMC supplies could only provide a portion of the nation's grain needs; the illegal parallel markets were an important grain source for many consumers.

### II. RATIONALE AND OBJECTIVES

The CEAP project in Tanzania consisted of two studies. The Keeler, et al. study (1982) examined the role of the official and unofficial (illegal) grain markets in determining the availability and cost of basic grains to different groups of consumers. It hoped to ascertain the impact on consumption of procurement and marketing policies that provided cheap maize to certain consumers. The Renkow et al. study (1983) examined the impact on low income households of alternative price policies and market structures for basic grains.

### III. METHODOLOGY

Both of the studies were based on secondary data. Much of the data was obtained from official government sources during a four-month visit to

Tanzania in 1981. The Keeler study had hoped to use data from the 1976-77 Household Budget Survey and compare it with the 1969 Household Budget survey, but the project team could not obtain the 1976-77 data. Without the needed consumption data, the team attempted to draw conclusions based on macroeconomic indicators, government purchasing information, and price data. The Renkow study had access to a subset of the data from the 1977-78 Household Budget Survey. Using this data, estimates were made of maize consumption as well as income and price elasticities.

## IV. CONCLUSIONS

The major finding of the Keeler study was that the availability and cost of basic food grains for various consumer groups was determined by their access to official grain supplies from the NMC. Grain prices in the official market were up to half those in the illegal parallel markets. Thus, rural food producers and urban dwellers with access to NMC supplies were probably able to maintain their consumption levels because official prices rose much less than parallel prices. On the other hand, rural dwellers who were not food producers (for example, cash-crop plantation workers) and urban dwellers without access to official markets (for example, residents of urban areas other than Dar es Salaam) were forced to pay higher prices on the parallel market and probably decreased their consumption of basic grains.

The Renkow study quantified the effects of this dual marketing structure. In 1979-1980, the dual market led to "a net welfare transfer of approximately 87 million (Tanzanian shillings) from producers and consumers dependent on the parallel market to NMC customers." It was estimated that an unsubsidized unified market for maize in 1979-1980 would have produced an income decline of 11 percent for beneficiaries of NMC supplies. Furthermore, the dual marketing structure meant that additional foreign exchange outlays of $7 million (U.S.) were required to cover the maize subsidy on NMC supplies. In recommending that Tanzania move to a unified marketing structure with a more efficient allocation of resources, the Renkow study suggested that the international donor community provide concessionary food aid and technical assistance to Tanzania during a transition phase.

# ZAMBIA

## BIBLIOGRAPHY:

Fletcher, Lehman B., Abner W. Womack, Stanley R. Johnson, William H. Meyers et. al. "Policy Issues, Project Design and Implementation Plan: Final Research Strategies based on Host Country Review (Report #1)." Food and Agricultural Policy Research Institute (FAPRI) at Iowa State University and the University of Missouri- Columbia. September 1985.

Womack, Abner W., S.R. Johnson, William H. Meyers, Helen H. Jensen et. al. "Development of the Analytical Modeling for Analyzing Consumption and Nutritional Impacts of Food And Agricultural Policies in Zambia (Report #2)." FAPRI. January 1987.

Womack, Abner W., S.R. Johnson et al. "Preliminary Economic Model of the Zambian Maize Industry (Report #3)." FAPRI. February 1987.

Womack, Abner W., S.R. Johnson et al. "Zambia Maize Policy Model (Report #4)." FAPRI. May 1987.

## SUMMARY:

### I. POLICY SETTING

In 1985, at the initiation of the CEAP effort in Zambia, the major donor agencies had expressed considerable concern regarding Zambia's macroeconomic and agricultural policies. Agricultural policy characterized by a uniform pricing system, consumer and marketing subsidies, and government credit and research policies that favored large commercial farmers had negatively affected agricultural productivity. There were pressures for "market oriented" reform, including currency devaluation, phasing out subsidies, improving marketing efficiency and reforming price policy. In this environment, the Government of Zambia (GOZ) needed an improved capacity to estimate the probable effects of food and agricultural policy changes on agricultural production, food consumption and the nutritional status of various socioeconomic groups.

### II. RATIONALE AND OBJECTIVES

The focus of the Zambia study was somewhat different than that of the earlier "policy impact studies" in terms of both objectives and approach. The purpose of the study was to develop methods and procedures for estimating the probable effects of food and agricultural policy changes on production and consumption, especially in the longer term. However, unlike earlier studies, the project emphasized institutional interaction. A key component of the effort was to provide the GOZ with an analytical framework and an improved capacity for agricultural policymaking. In particular, the team focused on working with host country analysts and applying computer-based techniques to the evaluation of the nutritional impact of policy options. Institutionalization was a stated priority.

## III. METHODOLOGY

Computer models were developed and used to evaluate the various impacts of policy reform. In keeping with the goal of creating a sustainable policy analysis capability, micro-computer software was utilised and host country analysts participated in the project. Data sources included government price and production statistics and a 1985 household budget survey.

## IV. CONCLUSIONS

The primary achievement of the Zambia project was the development and implementation of a policy analysis tool designed to be utilised directly by personnel within the Planning Division of the Ministry of Agriculture and Water Development. The model was designed to predict the consequences of various policy decisions and was rather unique in that it attempted to minimize the "black box" approach to policy modeling. The analyst could intervene at several key points in order to mirror current policy actions. Unfortunately, there is no documentation of any policy conclusions from the utilisation of the model. Perhaps this reflects the fact the policy model was intended, in the hands of host country analysts, to build institutional capacity rather provide an academic exercise for foreign professionals.

## III. LESSONS LEARNED: CEAP PROJECT DESIGN AND IMPLEMENTATION

### A. RESEARCH AND STUDIES

An assessment of the CEAP studies suggests that those contributing the greatest lasting value to the food policy literature did so for important reasons. First, they identified and focused on important questions where great gaps in knowledge existed. Second, the research or studies were directed by competent analysts with adequate assistance. Often the nature of the analysis depended on multidisciplinary expertise. Third, the studies were supported adequately. Fourth, sufficient time permitted analysts examine some of the complexities inherent in the policy situations and arrive at results that might be considered counterintuitive.

Among the most significant studies carried out with CEAP support were:

1) the studies of the Sierra Leone and Nigerian agricultural economy that emphasized impacts of agricultural policies on rural households and taking explicitly into account the dual role of subsistence and semi-subsistence households as both producers and consumers. These studies stressed the responsiveness of semi-subsistence households to economic factors.

2) the comprehensive Egyptian food subsidy study that analyzed multiple dimensions of the extensive food subsidy and rationing system. The analysis considered the effects of the scheme on different socioeconomic groups, the agricultural sector, and the general macroeconomic environment.

3) the Honduran food policy analysis which systematically analyzed a variety of macroeconomic, sectoral, trade, consumption, production, and nutrition data to provide a comprehensive overview of the agricultural and food sector.

A review of the all of the CEAP studies highlights the following lessons pertaining to the design and implementation of research and studies:

Identifying a research agenda requires the input of competent professionals

Three different categories of research can be identified: disciplinary; subject matter; and problem-solving. Disciplinary research develops knowledge in a specific discipline and is typically highly rewarded by academicians. Subject matter research addresses a category of problems and is multi-disciplinary by nature. Much of the CEAP subject matter falls into this category. Finally, problem-solving research addresses specific problems in a particular policy context. Much of the remainder of the CEAP analysis and technical assistance falls into this category.

In managing any project with research and study components as varied and complex as the CEAP project, a blend of participants with different perspectives, training, and objectives is necessary. A.I.D. attempts to supply missions with useful knowledge to promote development objectives. University contractors frequently face incentives to produce disciplinary or subject matter research. They are typically less rewarded for supplying

technical assistance to solve specific problems. Contractors, on the other hand, are frequently well-trained to provide advice on the basis of brief studies. They rely ultimately on knowledge produced by those contributing to relevant research literature for the off-the-shelf techniques and knowledge to adapt to field situations.

It is extremely important that the value of each of these types of research be appreciated, as well as the differing incentives facing different of researchers. For A.I.D.'s purposes, a project must maintain a balance between contributing to subject matter literature and providing information that is useful in the short-term. Management must seek to define the desired blend between long-term and short-term projects and must structure terms of reference and other incentives to yield the appropriate results. Many times the value of long-term investment in data collection or research and analysis may seem either too abstract or too time consuming to merit undertaking. However, donors including A.I.D. have contributed the required resources in the past and have produced worthwhile results.

Tradeoffs exist between short-term and long-term studies

Initially, the CEAP project strategy emphasized short-term, relatively inexpensive CEAP studies, performed at the request of host governments and A.I.D. missions by U.S. contractors. The policy intent was to quickly identify impacts on food consumption and, sometimes, nutrition and to make useful policy recommendations. Furthermore, these studies were planned to generate further interest and support for the project.

The lesson has been learned that short-term studies can indeed be useful, but to succeed some specific pre-conditions must be met. To produce useful short-term CEAP studies, data and preliminary consumption analysis are necessary, and very competent analysts are required. Experience and evaluation have demonstrated quality tradeoffs with the quick turnaround strategy, with studies sometimes running into insurmountable data, conceptual, or analytical constraints in the required time limits.

It has been suggested that a staged or phased study strategy is preferable to trying to "do it all" in a six month study. Using such a strategy, initial studies identify policy questions, data and information availability, and indigenous expertise. They also describe the system under study. Subsequent efforts are designed to capably exploit existing data or expend necessary resources for data collection and analysis in collaboration with host country nationals.

Relative emphasis on nutrition versus consumption

The degree of emphasis in understanding the commodity and nutrient composition in the diet varies in the CEAP studies as well as the development literature. In large measure, the study design should determine the most important nutritional questions to be addressed. A study concerned with overall energy levels, for example, may be designed much differently than one addressing micronutrient deficiencies (for example, Vitamin A) or even protein deficiencies.

In a review of the Sierra Leone study, Smith (1982) stresses the importance in study design of capturing the nutritional variety inherent in different foods by carefully disaggregating food groups to maintain consistency in nutritional composition. Nutritional composition of foods may vary significantly across plant and animal species and geographical areas. The nutritional problem addressed, then, dictates the formation of food groups for analytical purposes. In the Sierra Leone study, data existed on 100 foods. Their analysis employed some 26 different foods or groups of foods. Although for other purposes this number might be excessive, such techniques can provide more accurate conclusions.

Determining the degree of commodity disaggregation

Food consumption and production surveys have traditionally grouped commodities for simplified data collection and analysis. Norton (1988) argues, in an economic context, for more disaggregation of agricultural commodities. He notes a long standing preoccupation with a few major grains or traditional export crops, a preoccupation which can lead to conclusions about a sector's performance or dynamism which can mask both problems and accomplishments (Norton, 1988, p. 10).

Norton suggests using as many products, both crop and livestock, as possible in construction of production indices to measure the value of agricultural output. He cites Ccama et al. (1987) who showed that in Peru, vital calculations of the agricultural sector had included only eleven major crops that, in fact, constituted less than half of the total value of crop output. On the basis of his experience in several countries, he recommends consideration of at least twenty crops and at least five livestock products in calculations representing the agricultural sector (Norton, 1988, p. 22). In addition, pasture lands are commonly omitted, but contribute importantly to overall value of agricultural production in many countries.

Developing institutional research and policy analysis capabilities

The lesson has been learned that institutionalization of food policy research and analytical capacity within U.S. universities, A.I.D. and host country governments takes time, sustained commitment of resources, and critical mass. Furthermore, food policy analysis requires an appreciation of complex systems. Competent food policy analysis requires expertise in subject areas not commonly combined in university departments, A.I.D. program offices, or host country government ministries, namely agricultural production and economics, food consumption, nutrition, business, and knowledge of political economy, macroeconomics and trade policy.

Whereas awareness of, and interest in, food policy issues has grown, food policy analysis has not yet reached the "cookbook stage" in the U.S. or developing nations, although much progress has been made on specific analytical ingredients and techniques. Figuring out where and how to nurture the will and skill and art to analyze and shape food policies fashion takes time and a commitment of resources.

## B. PROVIDING TECHNICAL ASSISTANCE

### 1. Technical Assistance Activities under the CEAP Project

In general, the CEAP project emphasized studies and the understanding of food policy phenomena with significant attention to providing technical assistance useful to A.I.D. missions and host country governments.

Over 15 countries received CEAP-related technical assistance. Often technical assistance either preceded, accompanied, or followed CEAP studies. In a few instances where very short-term assistance was required, NEG staff members were assigned. In most cases, NEG contracted a consultant affiliated with a university or a firm for the assignment. In two cases, NEG made arrangement for USDA employees to provide assistance. Technical assistance in response to A.I.D. or host country requests was usually funded, at least in part, by the sponsoring institution or agency. Technical assistance was provided in four key areas:

#### a) Assistance in survey design and data analysis

**Boliva 1978-79**

NEG supplied an economist (Marco Ferroni) and a statistician (Garrie Losee) to the A.I.D. mission in Boliva to assist with the design of a rural household consumption survey, including questionnaires, implementation plan, sampling design, and identification of further technical assistance needs.

**Cameroon 1979-80**

NEG provided a series of consultants to assist the Ministry of Planning with the design, administration and execution of a nation-wide household consumption survey. Consultants included Beatrice Rogers, Roe Goodman, Sarah Lynch, Lou Howell. An NEG consultant trained enumerators in the use of microprocessors and evaluated the feasibility and cost effectiveness of their use in collecting and cleaning household consumption data at the household level.

**Dominican Republic 1979-82**

In response to an A.I.D. Office of Nutrition request, NEG contracted two economists, Phillip Musgrove and Laurent Ross, to review the Central Bank's Household Consumption Survey conducted in 1976-77 and determine the steps necessary to process and analyze the data. The two consultants also provided the Central Bank programmers and analysts with advice on how to document the data set and gave a seminar on consumption analysis.

In 1980, they assisted with the final cleaning of the data and helped install several editing and statistical packages on the Bank's computer. They helped with data analysis and advised on their use for policy

purposes. This data was to be utilised in an effort to strengthen the nutrition component of the "Health Sector Project" and, possibly, in the formation of a nutrition planning capability in the A.I.D. Health Sector Project.

Sri Lanka 1980-81

NEG entered into a cooperative agreement with Cornell University to develop and implement a prototype household survey. The purpose was to assist the Government of Sri Lanka in linking data from the 1976 Nutrition Status Survey to other, more recent socioeconomic surveys. The survey was conducted in two districts for two months in 1980. Also in 1980, a NEG consultant (Jim Levinson) assisted the Food and Nutrition Policy Planning Office of the Ministry of Plan in the analysis of survey data on food consumption and nutritional status, an evaluation of the food stamp program and an evaluation of the school biscuit program.

In 1981, NEG consultants in cooperation with USDA/ERS personnel helped with analysis of consumption survey data. Financed by the Asia bureau, two consumption economists (George Poynor and Neville Edirisinghe) reorganized the data set and developed two alternative models for estimating price and income elasticities from cross-sectional survey data.

Philippines 1981

An NEG contractor (Economist Marguerite Burk) spent three months assisting the Food and Nutrition Research Institute (FNRI) with the analysis of its 1978 food consumption survey data. She advised on use of the survey data for national nutrition and agricultural planning. A nutritionist and survey consultant from USDA (Eleanor Pao) spent two weeks with FNRI reviewing the 1978 survey data. In particular, she examined the data on the diets of young children and anthropomorphic measurements and made recommendations on survey procedures and questionnaire design for a future survey.

El Salvador 1982-83

NEG funded the analysis of nutritional data from a survey of the rural poor in El Salvador. The data were collected in 1977-78 and the analysis was carried out by Suzanne Vaughan (University of Hartford) and William Flinn (Ohio State University). The purpose of the survey was to identify demographic characteristics of nutritionally vulnerable households and malnourished children useful to policymakers and field workers in designing and implementing better nutrition projects and programs.

Ecuador 1983-84

NEG contractors helped nationals with the design and analysis of a national household consumption and expenditure survey. Assistance was provided during the questionnaire and survey deign stage and continued during a preliminary analysis of the data.

Zaire 1985-86

A NEG consultant provided assistance to A.I.D. in the design of a baseline survey and monitoring component to assess food consumption patterns and changes during the implementation of an agricultural development project in the Bandundu region. This activity included the development of a survey questionnaire, sampling methodology, and implementation plan. Further advice was provided regarding the processing and analysis of the data.

Jamaica 1986-87

NEG and cooperating universities (University of Missouri and then Iowa State) provided assistance to the Jamaican Statistical Institute (STATIN) in processing and analyzing income, expenditure and food consumption data from a 1984 survey. NEG and ISU provided continuing assistance in cleaning, editing, and analyzing survey data and, by 1987, had completed seven reports on analytical results of the 1984 household expenditure survey and the earlier 1975-77 survey.

Haiti 1986-88

NEG staff members, together with cooperators from Iowa State University (Stan Johnson, Helen Jensen) assisted with the design and implementation of a nation-wide income and expenditure survey. The survey provided basic information on food consumption and contributed to a reevaluation of national food policy by the Government of Haiti. An NEG staff member (Shirley Pryor) provided logistical and technical advice during the data collection phase in late 1986 and early 1987. In 1987, an economist and computer programmer from ISU (Helen Jensen and Bruce Eveland) assisted the Haitian Institute of Statistics in putting into place the computer program used to process the survey data. Further assistance was anticipated when A.I.D. required the Government of Haiti, under a Title III Food Aid agreement, to analyze a number of food policy issues. However, political turmoil curtailed technical assistance efforts.

b) Examining the food consumption/nutrition effects of rural and agricultural development projects using survey data.

Panama-1979

An NEG consultant (Nutrition Planner Judith McGuire) spent three weeks helping A.I.D. determine whether the nutritional impact of a fish pond project could be measured. After determining that such measurement was possible, she developed three alternative methods for evaluating the project's nutritional impact.

Haiti 1979-1980

A NEG consultant (Irwin Shorr) spent one month in 1979 working with the implementors of the second phase of the FAO/World Bank Integrated Development Project in northern Haiti. He added a nutrition component to a

socioeconomic survey undertaken earlier and designed a survey conducted in 1980. He returned to help implement the nutrition status component of the 1980 survey. The component was designed to identify the malnourished groups in the project area. Later he assisted with the data analysis in Rome with the FAO collaborators.

Dominican Republic 1980

An NEG contractor (Nutritionist Meredith Smith) assisted the staff of Plan Sierra, an integrated agricultural development project, in designing a nutrition component for the project. She developed and tested a nutrition survey designed to provide information on income, expenditures, and food consumption of area households and identify individuals at nutritional risk. She returned to analyze the data and to identify possible interventions to improve nutritional status.

Philippines-1981

Assistance was provided in incorporating food consumption and nutrition goals in the planning and design of the Palawan Integrated Area Development Project. NEG published a report on this activity detailing substantive conclusions gained from efforts to incorporate nutrition objectives into the four sequences of the project: (1) pre-project planning and selection, (2) project identification and preparation, (3) project appraisal and review, and (4) design of project monitoring and evaluation systems.

Guatemala 1981

Assistance was provided in developing methods for evaluating the nutritional impact of a proposed small farmer diversification project. Two possible evaluation packages were presented with implementation plans and cost estimates.

Guatemala 1983

Assistance was provided in designing the income, employment, and expenditures components of a baseline survey and evaluation of the Small Farmer Diversification Project. The survey was vital in determining the nutritional impact of the project on the 5000 participating families. NEG also assisted in an economic evaluation of three project components: rural access roads, soil conservation and small-scale irrigation. The evaluation analyzed the effects of these project components on cropping patterns, production techniques, farm incomes, and by extension, consumption and nutrition.

c) Preparing the food consumption/nutrition impact component of agricultural and food sector assessments or strategy statements.

Burundi 1979

NEG provided assistance in considering consumption/nutrition needs in the Burundi Agricultural Sector Assessment. The NEG contractor (Clark Ross

of the Center for Research on Economic Development, University of Michigan) evaluated the consumption patterns and nutritional levels of rural areas and incorporated them into the current and proposed agricultural development strategy.

Thailand 1979-80

In 1979, the NEG project leader spent three weeks in Thailand assisting the A.I.D. mission in drafting a Project Identification Document (PID) for an agricultural planning project. In 1980, two NEG consultants participated in the development of the Thailand Agricultural Planning project paper. An agricultural economist (Leroy Blakslee) prepared the sector analysis/research component of the project paper. This component developed analytical techniques and household income and expenditure data necessary to evaluate the impact of alternative policies on nutritional status. Another economist (Marguerite Burk) prepared a report detailing how a social accounts matrix (SAM) model could be used to examine the consumption impacts of alternative policies on different socioeconomic groups.

Senegal 1981

At the request of the A.I.D. mission in Senegal, An NEG staff member (Patricia Rader) assisted in design of a five year $25 million Agricultural Sector Grant. She focussed on drafting a portion of the PID that provided $300,000 over five years for nutritional programming. In a separate activity, another NEG staff member (Gary Smith) contributed to a review of the Senegal River Basin project paper. He helped develop a nutrition monitoring and evaluation component.

d) Short-term assistance in the analysis of agricultural policies and/or national food production/consumption status

Dominican Republic 1979

In the wake of hurricanes David and Frederick, NEG and A.I.D. personnel helped estimate probable impacts on agricultural production, food availability, and food consumption. NEG consultants (Phillip Musgrove, Margaret Andrews and Marshall Green) assessed the national food situation and made monthly estimates of food production and consumption requirements for various income groups and geographic regions.

Indonesia 1981

An agricultural economist (Jim Levinson) spent six weeks assisting the Ministry of Agriculture with an analysis of the effects of agricultural policies on food consumption levels and nutritional status of various groups. He also evaluated a community-based food storage and distribution system.

**2. Technical Assistance: Lessons Learned**

NEG played a crucial role as a clearing house for development professionals with expertise in survey design and implementation, complex data analysis, and consumption-oriented economics. By virtue of an extensive network of university academics, private consultants, and government personnel, NEG was able to meet the need for technical assistance in incorporating food consumption and nutrition into policy design. The existence of such a network should be viewed as a pre-requisite for useful and timely technical assistance.

The CEAP project was fortunate to recruit high quality researchers and consultants. Much of NEG's success in this area was due to their extensive network of food policy professionals. It has been acknowledged that any technical assistance effort, including the CEAP, is limited by the biases or "blinders" of researchers and consultants, despite the use of quality consultants. To counter this phenomenon, it has been suggested that technical assistance be undertaken by multi-disciplinary teams. Another possible option is close oversight and management. Clearly analysts with a broad, multi-disciplinary perspective are needed.

In providing technical assistance of any nature, it is vital to begin with a formal "problem definition" stage. If consultants are rushed into a host country with little preparation and background, much time is often spent simply defining the problem. If, in an initial stage, the problem is defined and responsibilities and goals are derived, much more can be achieved.

There are also important lessons as to the role of the host country mission. If the technical assistance is requested by the mission, it is important that the mission remain a integral part of the effort. Links between Washington, the technical assistance team, host country officials and the mission must be maintained and cultivated, for if one "link" breaks the effectiveness of the assistance can be greatly reduced. Part of the responsibility of the technical assistance team is also to "sensitize" both A.I.D. mission personnel and host country officials to the task at hand. In a number of countries, the CEAP project was successful in this educational and outreach role.

A common concern mentioned in interviews with former NEG staff, A.I.D. and USDA personnel was the logistical difficulties in arranging for travel on short notice. There are a number of constraints which serve to restrict the flexibility of A.I.D. in responding to immediate host country requests for technical assistance. Locating NEG at OICD/USDA meant that gaining travel approval was a bit easier. It has been surmised that the increasing reliance on outside contractors by A.I.D. stems, in part, from the ability of contractors to operate without bureaucratic constraints on activities such as short-notice travel.

The microcomputer revolution of the past decade has enormous implications for improving policy design and decision making in developing countries. The proliferation of new microcomputer technologies at low-cost has create a great opportunity for improved in-country analytical capability. One testament to the CEAP project is that this trend was

recognized early. In many instances, consultants assisted host country analysts in using low-cost technologies in-country. Even today, data is often collected and taken to a U.S. university or international agency, only to return in finished form as "policy recommendations." NEG was far-sighted enough to recognize that developing host country analytical capability, the "institutionalization" component, was an extremely important part of the technical assistance effort. Interaction with host country analysts was encouraged and there is little doubt that the CEAP technical assistance effort had a significant externalities in the form of informal training.

But there are still problems to be overcome, especially regarding more complex research efforts. The Almost Ideal Demand System (AIDS) and other such modeling systems require computer capacity that is difficult to meet in many developing countries. In Honduras, technical assistance was provided in developing linear programming capability. Later, however, there were pressures from new expatriate analysts to shift to more exotic technologies, despite the time and money invested in the original effort (Dawson and Kennedy, 1987). This debate delayed the project and demonstrates the importance of continuity in an on-going technical assistance effort.

In the future, there will be continued need for timely technical assistance. The experience of the CEAP project has revealed that attention should be paid to both informal, including on-the-job, training during the provision of technical assistance. Only "interactive" technical assistance will promote the institutionalization of the knowledge and analytical capability required for policy relevant analysis.

### C. TRAINING ACTIVITIES

During the first phase of the CEAP project, efforts were focused on the impact studies and technical assistance. With the initiation of the second phase in FY 1982, $200,000, or 13 percent of the budget, was earmarked for "outreach activities involv(ing) A.I.D. and host country personnel, including workshops, seminars and an information network" (A.I.D., 1981). However, due to the budgetary limitations and priorities in other areas, training and outreach activities were never an equal partner in the CEAP project.

For the purposes of this report, we will distinguish between formal training and informal outreach activities. Formal training refers to activities which utilise the so-called "experiential learning cycle" technique. Learning experiences are provided through assigned readings, lectures, in-class exercises and group discussions. Particular use is made of case studies, and interactive exercises. Participants are encouraged to think about developing personal strategies for implementing what they have learned (Office of Nutrition, 1981). On the other hand, outreach activities include informal seminars, usually concerning the results of CEAP research or technical assistance efforts, and project reviews such as the mid-term review which drew together NEG personnel, contractors, A.I.D. officials, and experts from other organizations. Outreach activities are far less organized, shorter in duration, and can be seen as forum where individuals gather to exchange views on a given subject.

There were two separate efforts by NEG to introduce a program of formal training on the linkages between agricultural policy, food production, and consumption. The first of these began in early 1982. It was funded through an inter-agency PASA with the A.I.D. personnel office with oversight by the Office of Nutrition. NEG was contracted to design a training program and required materials, implement a pilot workshop to test the materials, and provide an evaluation of the possibility of using workshop materials in a more extensive program. The pilot workshop was geared toward agricultural and rural development officers from A.I.D. It's purpose was to assist A.I.D. personnel in introducing food consumption and nutrition considerations into the design, implementation and evaluation of policies, programs, and projects in developing countries.

During FY 1982, NEG staff members, cooperating with other A.I.D. personnel, were charged with designing a curriculum. As a first step, opinions were solicited from A.I.D. missions and regional bureaus on the potential content of the training program. With this input, the objectives and program elements were drawn up, case studies were selected and the project sites were visited. NEG utilised sub-contractors to perform much of the preparatory work of the training program. Sub-contracts were negotiated for field information collection, case-writing, exercise development, video design, and the training staff. In September 1982, the 6-day pilot workshop was held in Maryland with 18 A.I.D. officers attending. The goal of the workshop was for participants to develop the ability to:

1) assess all possible linkages between agricultural/rural development programs/projects and food consumption and nutrition.

2) evaluate during the pre-feasibility stage of a program/project any negative impact on food consumption/nutrition, and assist with the identification of appropriate actions to offset negative effects or strengthen any positive effects.

3) communicate effectively with other professionals concerned with food consumption/nutrition aspects (food economists, applied nutritionists, project evaluators etc.).

4) identify what resources are needed during the project design implementation and evaluation phases in order to have food consumption/nutrition concerns effectively incorporated in overall project activities.

By all accounts the pilot workshop was successful. The response of the participants, in terms of meeting the above goals, was positive. An evaluation by a trainee representing FAO suggested minor revisions in the design of the workshop. Three more workshops of this type were held; two more outside of Washington and one in Ecuador. The workshop in Ecuador was open to Ecuadorians and non-A.I.D. officials, while the other three workshops were only for A.I.D. officers. Although NEG personnel contributed to these workshops by ensuring that the materials formed a replicable package, one that could be utilised in a variety of circumstances with minimal redesign, the responsibility for conducting the workshops was contracted to Pragma, a Falls Church, VA consulting firm.

The original hope was to have two such workshops in each region each year. However, the workshops were discontinued due to a lack of training funds and disagreement between academic disciplines as to the content of the program.

In 1985, an attempt was made at NEG to resurrect some elements of the training program and utilise some of the materials developed. One session was held in Nigeria with the International Institute for Tropical Agriculture (IITA) and consisted of two and a half days of instruction. The workshop was similar to earlier efforts in that it explored the linkages between food production, consumption, and nutrition. It is important to note that this workshop did reach host country personnel.

Formal versus informal training

As mentioned, the training and outreach activities of NEG were not limited to formal training programs. NEG sponsored informal seminars and held a mid-project review in 1983. Informal seminars usually lasted a few hours and were mostly attended by A.I.D. personnel, although other interested parties could attend. These sessions often involved the presentation of research results and lessons learned during policy impact analyses. It is estimated that NEG sponsored 4 or 5 such seminars per year during Phase II. The 1983 mid-project workshop can also be seen as an informal outreach activity. This workshop brought together NEG staff, A.I.D. officials, contractors, and other experts. Four papers on aspects of the work under the CEAP project were presented and, by all accounts, there was a great deal of useful discussion and "cross-fertilization."

Other informal training occurred during the provision of technical assistance. The NEG staff and consultants provided a wide range of technical assistance that often utilised host country nationals. NEG and the Office of Nutrition were farsighted enough to realize that developing host country analytical capability is often more important than the quick achievement of technical assistance goals. The CEAP project demonstrates that both the taste for and the skill to produce food policy analysis is acquired only with experience by host country policymakers. It is not likely to result from brief exposure to single-shot, short-term analysis of expatriate consultants.

In countries where a pool of trained analysts exist, it is important that they contribute to the completion of short-term studies conducted by competent analysts. Incorporating nationals on study teams is essential to contribute to institutionalization. Such participation provides host analysts with the resources to gain expertise on policy issues as well as the opportunity to then communicate policy results to others.

In addition, making reports and report summaries broadly available in official languages and in English to host country personnel, A.I.D. staff, and university professors and graduate students is an important informal training function of low marginal cost. As Evenson (1983) observed in a paper presented at the mid-term review, when case studies and literature are disseminated, they become incorporated in university curricula and help equip new generations of analysts.

Thus, a valuable lesson of the CEAP project is that informal training is at least as important as formal training activities. The staging process of any future project should explicitly include informal and possibly formal educational and training activities for A.I.D. officials and host country nationals.

Evaluating training activities

It has been acknowledged that the training component of the CEAP project was the weakest leg of the CEAP tripod. Part of the problem derives from the inability to measure the success of the training activities. A complete training component must incorporate a tracking mechanism to follow participants in formal and informal training activities. By tracking the career path of individuals involved in a given training activity, the usefulness of a training component can be evaluated. This type of post-training tracking and evaluation takes both funding and long-term commitment. Unfortunately, NEG was limited in training funds and did not have the resources to undertake a tracking effort. Future projects should specifically incorporate adequate evaluation mechanisms when initiating a training component.

Funding and managing training activities

Much of the reason for the paucity of training activities stems from the lack of funding. It is A.I.D. policy that program funds cannot be used for training A.I.D. personnel, although they can be used for training host country personnel. Since the first formal training effort was directed toward A.I.D. agricultural officers, it was funded through the A.I.D. personnel office rather than with program funds. Thus, decisions as to the future of the training efforts were not made by the Office of Nutrition. The second training effort, directed toward host country nationals, also faced funding limitations but of a different source. After research and technical assistance activities, there was only a small percentage of CEAP funding remaining for an international training effort.

The second NEG training effort was managed by a well-qualified agricultural economist who spent a portion of time reestablishing the training component. A review of other A.I.D. efforts reveals that successful training components usually utilised a full-time staff with professional training credentials. Given the limited resources at NEG, it is not surprising that training activities were small in scope. A lesson for future project is that formal training requires both funding and a substantial commitment by professional training personnel. However, the CEAP demonstrates that informal training is much less constrained by funding and personnel limitations, pointing to other hidden advantage of informal training.

## D. ADMINISTRATIVE AND MANAGEMENT CONSIDERATIONS

The CEAP project was directed by the Office of Nutrition at A.I.D. and managed by the Nutrition Economics Group (NEG) of the Office of International Cooperation and Development (OICD) within USDA. With the advantage of hindsight and the insights of those interviewed, lessons relevant to administrative and management arrangements of major projects such as the CEAP project can be identified. The points raised here are based on interviews with a number of individuals involved with the CEAP and other A.I.D. projects and a review of project activities and documents.

### Institutionalization of the CEAP approach within A.I.D. is critical

The CEAP project ended in 1988. The authors believe that a fundamental issue of institutionalization of CEAP-type food policy analysis remains, as well as a timely opportunity. The authors view institutionalization at many levels as the ultimate criterion for assessing the effectiveness of the management and administrative arrangements of the CEAP project. While it is typical and proper to assess development projects for their contribution to institutionalizing a new approach to doing things in target countries abroad, it is just as relevant to ask the question: What has been learned and changed on the home front? Specifically, how are problems conceptualized and approached differently now than before? With the termination of the CEAP project, it is critical to examine whether or not CEAP analysis- which specifically examines the role of agricultural and other economic policies in improving consumption and nutritional status--has been institutionalized at A.I.D. as well as it might be, and, if not, what are the opportunities for doing so?

At this time, there is a consensus that the institutionalization within A.I.D. of the analysis of effects on consumption and nutritional status of economic policies is not complete though there are promising opportunities. Although numerous individuals in the development community have become aware of the linkages between economic policies and nutritional status, there is as yet no clear and continuing A.I.D. institutional commitment to CEAP-style analysis. A successor to the CEAP project has not been approved and no organizational entity is continuing or exploiting the substantial work and invested resources of the now defunct Nutrition Economics Group. At issue is the provision of timely technical assistance, training, and relevant studies to countries facing structural adjustment demands, challenges of privatizing various industries, and the need for public-private partnerships to identify new mechanisms for meeting critical human needs.

During the years of the CEAP project, sustained support and guidance from A.I.D. was critical, as was that from OICD for the Nutrition Economics Group. Without such visible commitment, there is every danger that consciousness of the connection of nutrition to economic investments and policy choices will be reduced, if not lost.

Explicit A.I.D. support for communication and outreach is critical

A critical element in institutionalizing the understanding and application of CEAP approaches to policy analysis within and outside of AID is making project findings widely available in easily accessible formats. In general, this is one opportunity that was insufficiently exploited due to lack of emphasis on dissemination. Our assessment is that successful projects are committed to communicating results throughout the course of the project as broadly as possible, within A.I.D., the donor and academic communities, and in host countries in the relevant languages. In numerous cases the CEAP project published valuable, useful results. In other cases, however, it is necessary to dig deeply in files to understand what the project undertook, and what was learned. Support within A.I.D. and within missions can be increased through effective communication of project results.

A clear division of management responsibilities is essential

The success of any complex program or project is dependent on a workable and clear division of responsibilities, including overall accountability. Any project management format has inherent strengths and weaknesses which must be worked with and around. The division of project management responsibility between the Office of Nutrition in A.I.D. and NEG at OICD and the positioning of NEG within USDA had both advantages and disadvantages which are instructive to note. On the positive side, the arrangement gave A.I.D. access to the USDA career-expertise of a number of well-qualified individuals. Over time, experienced mid- to senior-level persons were recruited to serve within NEG. The location of NEG within the government also permitted development of expertise and institutional memory within the government, a desirable outcome. One can argue that in much external contracting, the intellectual fruits of projects as well as project resources too often are expended with no visible trace left in the program agencies from which they originated, particularly as staff rotate. Having the leader and staff of NEG be government employees speaking for USDA was also an advantage in certain situations.

A complication of locating project administration in another government agency appeared to result inevitably from the different missions, objectives, demands, and loyalties of two distinct government agencies. So long as both A.I.D. and OICD firmly supported the CEAP project in such ways as expediting planning, hiring, and other administrative decisions, the liaison functioned successfully. In the final years when uncertainty of support became an issue, the dual bureaucratic structure appeared to exacerbate delays in taking needed actions.

In the CEAP project, there was a division of responsibility for various aspects of overall project oversight and day-to-day project management and administration. In principle, the Office of Nutrition supplied overall project direction, intellectual guidance, and project monitoring. Administration and day-to-day guidance were handled by the leader of the Nutrition Economics Group. NEG staff responsibilities included various aspects of project implementation: supervising and monitoring research and study activities; providing and supervising

technical assistance; and arranging for or carrying out training, communication and outreach activities.

In practice, establishing the most efficient divisions between responsibilities for overall guidance and day-to-day management decisions was not easy for the CEAP project or other similar projects. There is a need for a clear understanding of objectives and responsibilities among contractors, administrative office staff, and project directors within the Office of Nutrition. Such was not always the case. Yet any experienced observer, realizes that this problem is not unique to the CEAP project. All future A.I.D. programming must address the difficult issue of delineating and delegating many important project management responsibilities while providing overall direction and guidance, monitoring project progress, and demanding accountability.

The personnel hiring process was sometimes complicated by the division of responsibility between the Office of Nutrition and OICD. The availability of personnel ceilings is an unavoidable issue when contracting with other governmental agencies in an era of limited resources. The temporary nature of contractual relations between A.I.D. and OICD complicated permanent hiring decisions involving career commitments for USDA. As a result, temporary consultants were used initially while building up a core staff.

Strategies for contracting for services

Different project designs provide advantages and disadvantages relative to the ease with which high quality, cost-effective services may be contracted. A strength of the contractual relation between A.I.D. and NEG/OICD was the access it gave A.I.D. to USDA's cooperative agreement mechanism with universities. For relatively few resources, USDA is able to enter into cooperative agreements with university researchers to perform specified studies or to provide other technical assistance. Under the cooperative agreement mechanism, universities agree to forego usual overhead requirements as a portion of their cooperative commitment to the agreement. Frequently, university researchers seek opportunities to pursue research interests compatible with A.I.D.'s needs, and through the cooperative agreement mechanism, collaboration can be arranged cost-effectively.

A second strength of the contractual arrangement between A.I.D and NEG/OICD was the capacity NEG had to provide consultants for various purposes, drawing from three general pools: government, universities, and consulting firms. One function of NEG/OICD was to provide project backstopping for the CEAP projects including arranging technical assistance. The capacity to contract with individuals from all three sources was a strength of the inter-governmental arrangement.

Realizing the potential to draw expertise from throughout the Department of Agriculture depends upon compatibility between the objectives of different agencies and their capacity to allocate personnel for overseas assignments, frequently on relatively short-term notice. In practice, while this can be and was done, it depended greatly on the ability to synchronize objectives, needs, and products with specific supervisory

individuals in agencies outside OICD, for example, the Economic Research Service. Success in doing so depends on winning the commitment and agreement of management in numerous agencies and branches, who in turn, seek justification for doing so in demonstrated advantages to their own agencies.

A basic personnel issue noted by the former leader of the Nutrition Economics Group was the initial difficulty she faced in identifying analysts who were trained in integrating the analysis of agricultural policies, food policies, and nutritional effects. Because this area of study was new at the time the project began, the roster of available analysts capable of adequately addressing the three different components was relatively limited. One overall contribution of the project was the lengthening of that roster of analysts with CEAP skills.

Finally, several persons contacted noted the limitations of the Resources Support Services Agreement (RSSA) with respect to facilitating mission buy-ins to the project. Mission buy-ins are desirable to permit missions to easily tap in to project activities and expertise. In the future, cooperation between A.I.D. and OICD or another entity should use a more flexible mechanism to promote mission buy-ins (one suggestion has been a "ribbon PASA").

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TABLE 1 - CEAP STUDIES

| COUNTRY | CONTRACTOR | DATE COMPLETED | POLICY EXAMINED |
|---|---|---|---|
| Cameroon | CRED | August 1982 | The potential impact of increased marketing opportunities on the consumption levels of farming households. |
| Senegal | CRED | August 1982 | Impact of policies promoting domestic food crops on food consumption. |
| Sierra Leone and Nigeria | MSU | October 1982 | Effects of economic policies or events on the food consumption behavior of semi-subsistence households. |
| Tanzania | RTI, Sigma One | February 1983 | Role of alternative price policies and unofficial marketing channels in determining the cost and availability of basic grains. |
| Sudan | RTI, Sigma One, IFPRI | April 1983 | Impact of an increase in the real price of bread on consumption and income levels. |
| Jamaica | NEG, DAC | July 1983 | Examination of the policy options of export promotion of sugar and/or the import substitution of rice. |
| Panama | RTI, Sigma One | January 1984 | Role of producer price policies in determining levels and patterns of food consumption. |
| Egypt | IFPRI | July 1984 | A five volume study of the effects of the Egyptian food subsidy and rationing system on food consumption, income distribution agricultural production, government budgets, foreign exchange and trade. |
| Peru | Sigma One | February 1985 | Impact of parastatal pricing restrictions and selective trade policies on agricultural production and urban and rural food consumption. |

| | | | |
|---|---|---|---|
| Sri Lanka | IFPRI | March 1987 | Effects of the replacement of a system of general food subsidies with a food stamp scheme on food consumption, nutrition and the government budget. |
| Zambia | FAPRI | May 1987 | Analysis of the nutritional impact of food and agricultural policies with special emphasis on the maize industry. |
| Liberia | Purdue University | August 1987 | Urban food consumption/expenditure patterns and food policy options, with special emphasis on rice self-sufficiency. |
| Indonesia | CARD | September 1987 | Impact of government rice pricing policy on food consumption and nutritional status. |
| Honduras | EICD, NEG | February 1988 | Long-term study of the structure of the agricultural section. Focus on the effect on income, consumption and nutrition of pricing and marketing policies. |
| Dominican Republic | Tufts University | April 1988 | Effect of changes in prices and incomes on food consumption. |
| Mali | Tufts University | October 1988 | Urban food consumption patterns and probable consequences of price changes. |

CARD --- Center for Agriculture and Rural Development, Iowa State University
CRED --- Center for Research and Development, University of Michigan
DAC --- Development Assistance Corporation, Washington, D.C.
ECID --- Center for Studies of Integration and Development, Guatemala
FAPRI -- Food and Agricultural Policy Research Institute, University of Missouri and Iowa State University
IFPRI -- International Food Policy Research Institute, Washington, D.C.
MSU --- Michigan State University
NEG --- Nutrition Economics Group, OICD, USDA
RTI --- Research Triangle Institute, Research Triangle Park, N.C.

**Appendix A**

TABLE 2- NEG ANNUAL EXPENDITURES (1977-88)
(IN DOLLARS)

| FISCAL YR | DIRECT COSTS | OVERHEAD | OVERHEAD RATE | TOTAL |
|---|---|---|---|---|
| 1977 | 33,370 | 7,341 | 22% | 40,711 |
| 1978 | 91,837 | 16,531 | 18 | 108,368 |
| 1979 | 165,847 | 33,169 | 20 | 199,016 |
| 1980 | 404,946 | 80,989 | 20 | 485,935 |
| 1981 | 311,647 | 59,213 | 19 | 370,860 |
| 1982 | 328,139 | 75,472 | 23 | 403,611 |
| 1983 | 359,866 | 89,967 | 25 | 449,833 |
| 1984 | 375,254 | 93,814 | 25 | 469,068 |
| 1985 | 274,024 | 73,986 | 27 | 348,010 |
| 1986 | 526,899 | 137,007 | 26 | 663,906 |
| 1987 | 446,838 | 116,428 | 26 | 563,266 |
| 1988 | 736,093 | 191,384 | 26 | 927,477 |
| TOTAL | 4,054,760 | 975,301 | | 5,030,061 |

(Source: NEG document files)

TABLE 3- OFFICE OF NUTRITION PROJECTS (1987)
(IN THOUSANDS OF DOLLARS)

| PROJECT DESCRIPTION | PROJECT NO. | PLANNED | OBLIGATIONS | EXPENDITURES |
|---|---|---|---|---|
| Vitamin A Def. | 931-0045 | 1975-87 | 3,527 | 1,946 |
| Iron Deficiency | 931-0227 | 1976-89 | 835 | 173 |
| Scientific/Tech/Plng | 931-2062 | 1976-C | 972 | 575 |
| Food Tech. Services | 931-0831 | 1969-86 | 550 | 223 |
| Maternal/Infant Diet | 931-1010 | 1979-88 | 3,375 | 2,232 |
| Surveys & Surveillance | 931-1064 | 1977-87 | 725 | 724 |
| Education Field Support | 931-1065 | 1979-81 | 0 | 352 |
| CAAP | 931-1171* | 1977-C | 0 | 29 |
| Health Systems RSSA | 931-1198 | 1977-87 | 325 | 160 |
| CEAP | 931-1274* | 1980-85 | 571 | 92 |
| Malnutrition CRSP | 931-1309 | 1981-87 | 273 | 1,036 |
| Food Tech. for Dev't | 936-5113 | 1987-92 | 500 | 0 |
| Iron Deficiency | 936-5115 | 1987-91 | 738 | 0 |
| Total Projects | | | 12,391 | 7,542 |

(Source: USAID Congressional Presentation, FY 1989)

**Appendix B: Persons Contacted**

Harold Alderman
Margaret Andrews
Frances Davidson
William Goodwin
Helen Gunther
Charles Hanrahan
John Hyslop
Helen Jensen
Norge Jerome
Stanley Johnson
Eileen Kennedy
Nicolaas Luykx
Harry Maddox
Sally Mahoney
Melanie Marlett
Judith McGuire
Jeffrey Merriam
Charlotte Miller
Arlene Mitchell
Patricia O'Brien-Place
Per Pinstrup-Andersen
Shirley Pryor
Patricia Rader
Beatrice Rogers
David Sahn
Emmy Simmons
Victor Smith
Kenneth Swanberg
Roberta van Haeften
Joachim von Braun
Jim Walker
William Whelan