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## **Food Security Discussion Paper**

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# **FOOD SECURITY DISCUSSION PAPER**

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## **FOOD SECURITY DISCUSSION PAPER**

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## Executive Summary

Globally, some one billion persons suffer chronic food insecurity, defined as *long-term* consumption of too little food for a healthy, active life. At least another quarter billion people suffer acute food insecurity, defined as *periodic* consumption of too little food for an active and healthy life. The ideal is for all people at all times to be food secure.

The purpose of this paper is to outline a framework for food security, emphasizing the role of food and economic assistance by the Agency for International Development (A.I.D.) in developing countries. The first two sections of the paper establish a conceptual framework and strategy for broad-based, sustainable economic progress to provide food security. The third section outlines causes and cures for transitory food insecurity. The final section details options for A.I.D. strategies for food security uniquely suited to needs of developing countries.

### Conceptual Framework

Food security depends on food availability, accessibility, and proper utilization. In recent decades, the world has had sufficient *aggregate* food supplies to provide all people with an adequate diet, hence food availability has not been the principal problem. The lack of food accessibility at the individual and household level has been far more serious. Accessibility has been constrained by lack of buying power by people with too little human, material, and technological capital to produce enough food or income to feed themselves, and by inability of others to provide sufficient food transfers to them. Some individuals with

access to food do not utilize food properly because of illness, ignorance, or culture. Emphasis in this study is on food availability and accessibility, although education and health programs to improve utilization are noted.

The principal cause of acute and chronic food insecurity is poverty. People with adequate buying power are able to overcome the frictions of time (e.g. unpredictable, unstable harvests from year to year) and space (e.g. local food shortages) to be food secure.

Given the inseparability of food insecurity and poverty, the provision of food security requires a dual approach through national policy: (1) broad-based, sustainable economic development and (2) targeted food or income transfers for those who lack resources, family support, or other means to food security. Economic development is necessary for food security because it is cost-effective and indeed the only feasible means to lift most people out of food and income poverty. But development is not sufficient alone to end food insecurity. A sufficient condition is food and income transfers to food insecure people bypassed by development.

### **Broad-Based, Sustainable Economic Progress**

Broad-based, sustainable economic progress can attack food insecurity by lifting most people out of poverty in developing countries and also by providing the wherewithal to redistribute income and food to the disabled, elderly, and others unable to be food secure without transfers. The goal is self-reliance -- with each developing country progressing to the point where domestic production and export earnings are sufficient to end food

insecurity. Such self-reliance includes sufficient domestic economic surplus to provide transfers to those unable to provide for themselves.

Experience provides a strategy to promote food security through broad-based, sustainable economic progress. Most economic activity and decisions are by the private sector directed by prices set by supply and demand operating in markets. For the private sector to flourish, a lean but effective public sector needs to perform a few functions well. These functions include sound monetary, fiscal, trade, and security policies; provision of infrastructure such as port facilities and all-weather roads; and support for services such as schooling, primary health care, information systems, and agricultural research and extension. Universal access to basic schooling and primary health care not only provide high economic payoffs, they also make development broad-based.

Emphasis on sound, consistent macroeconomic policies and agricultural research and extension helps to make growth sustainable. Investing in environmentally sound practices such as pest- and drought-resistant high-yielding crop varieties, in crop-livestock systems to utilize legume forages in crop rotations, and in conservation tillage are examples of practices and technologies consistent with economic growth, sustainability, and food security.

### **Policies More Specifically for Food Security**

The market alone will not provide food security for all. Some who might otherwise be bypassed can achieve food security by well-chosen public policies that create a future stream of earnings. Others are most cost-effectively provided food security by food and income transfers.

Not all public development strategies are equally effective in providing food security.

Some policies are especially important.

1. *Sound macroeconomic policies.* Sound macroeconomic policies are of value not just for their direct benefit to society but also indirectly in that they are essential for other policies to work. Cross-cutting macroeconomic-related policies such as commercial laws and investment codes provide the atmosphere enabling the private sector and market forces to work. Supportive monetary, fiscal, and trade policies are an overarching need to alleviate poverty and food insecurity. Countries incurring large current account deficits and in general attempting to live beyond their means accrue debt and often end up printing excessive money. Large foreign debt means that considerable foreign exchange earnings go to service debt rather than to purchase imports consistent with food security. Excessive creation of money results in inflation, overvalued currency, and a shortage of foreign exchange.

The most cost-effective "buffer stock" is international trade (imports). Unsound macroeconomic policies deny a country full use of that cost-effective food security tool. The Economic Degradation Process has two phases: (1) an expansionary phase while a nation is living beyond its means and perhaps benefiting food insecure people and (2) a stabilization or structural adjustment phase of retrenchment to a sustainable economy. These two phases average lower economic growth, more instability, and greater food insecurity than

would a sustainable macroeconomic policy. Food aid may be useful to ease the burden on the poor during structural adjustment to a sound economy.

2. *Schooling and related social services.* Standards of living are a function of the level of human and material resources and how efficiently they are used. Even where land reform is possible, it cannot solve everyone's asset poverty, especially in societies that are increasingly urban. But capital accumulation by the poor and non-poor can be expanded widely by investing in human resources through general schooling, vocational-technical training, and on-the-job experience. Universal access to basic schooling and primary healthcare is critical for broad-based development. (Removing racial, ethnic, gender, and wealth barriers to social services is consistent with economic equity and efficiency.) Nutrition education needs to be part of that process.
3. *Infrastructure.* Roads and bridges promote food security by reducing isolation. Low-cost transportation releases local food security from the vagaries of local weather. Arbitrage can occur with food moving from areas of abundance and low prices to areas of shortage and high prices. Improved production inputs can be purchased and farm output sold in a productive commercial agriculture that provides food for domestic consumption and earns foreign exchange for imports. Public investment in irrigation systems can free food production from the caprice of local seasonal rainfall.
4. *Information systems.* Information is essential for efficient food arbitrage over time and space. Modern data collection, processing (e.g. microcomputers),

communication, and transportation systems help private markets to function better. Price information helps markets, consumers, and producers to make better decisions. Crop forecasts provide early warning of food shortfalls or surpluses. Information systems have "public goods" properties as do other policies listed here. That means that private markets alone do not suffice and a public role is justified.

5. *Agricultural research and extension.* Agriculture accounts for the bulk of resources, employment, and people in most low-income developing countries. A productive indigenous agriculture directly provides food for farm operators as well as others and indirectly provides food by earning foreign exchange to purchase imports. A productive agriculture can help to supply the tax base necessary for food assistance transfers. The public role extends beyond improving production. For example, the extension service can work with individuals and private firms to improve food processing and marketing for better nutrition and for longer shelf life and storage. Studies show that agricultural research and extension in developing countries can have a very high economic payoff. Improved technology and management made possible by agricultural research and extension lowers food costs and enhances food security. A more productive agriculture can support investments in people that lead to diversification into small- and medium-scale industry. Diversified income sources help food security.

6. *An environmentally sound agriculture.* Broad-based and *sustainable* economic development is threatened by environmentally unsound practices. Such practices result in soil erosion, salt-buildup and waterlogging of irrigated land, deforestation, desertification, and by chemical contamination of food and water supplies and of field workers. Pressures on land and water resources to supply the food demands of growing populations intensify environmental problems in developing countries. Many such countries lack the public resources required to educate producers or to provide controls and incentives for aligning private and social costs (benefits) essential for an environmentally sound agriculture.
7. *Public safety net.* Broad-based, sustainable economic development will eventually remove most but not all people from food insecurity. Those suffering *chronic food insecurity* rarely get enough to eat. Those who only periodically do not get enough food suffer *transitory food insecurity*. Many of those suffering chronic or transitory food insecurity can benefit from a public safety net. Those who are not able-bodied, who are bypassed by development, and who cannot rely on family or others for food security especially can benefit from a public safety net providing food and income transfers. The height and form of that public safety net is for each country to determine for itself. Much of the assistance to alleviate food insecurity such as food-for-work programs can jointly serve economic equity and efficiency objectives.

Several policies have serious shortcomings.

1. *Public buffer stocks* are costly and difficult to manage properly. However, enough buffer stocks are needed to provide supplies until imports can alleviate unforeseen food shortfalls. International trade is the lowest-cost "buffer stock." Sound monetary, fiscal, trade, and development policy will ensure access to foreign exchange or credit markets for importing food when domestic supplies fall short of meeting needs.
2. *Price controls* on food depress incentives for producers and others to supply additional food. On the other hand, policies to support food prices above market levels tax consumers, unduly burden treasuries, and cause excess production of supported commodities. Developing countries ordinarily have not managed commodity programs well and such programs are best avoided. However, for countries committed to market intervention to stabilize prices, a variable levy is recommended to hold prices within a band around a moving average of past world prices. Taxes on imports when world prices are low are expected to offset subsidies when world prices are high, minimizing the cost of stabilization.
3. *Self-sufficiency* in food is not necessarily a worthy goal. Pursuit of self-sufficiency may cause so much inefficiency that it compromises broad-based, sustainable economic development capable of providing food security. A more worthy objective is *self-reliance*, defined as ability to provide food

security from domestic production and imports made possible by adequate buying power both of individual households and the nation as a whole.

Export cropping need not be restricted. The decision whether to produce domestic food crops or export crops ordinarily is best left to markets.

### **The Role of The Agency for International Development in Food Security**

In broad perspective, the role of A.I.D. in food security is to promote broad-based, sustainable development and a food safety net. Implementing that role must recognize A.I.D.'s comparative advantage, funding limitations, tradeoffs inherent in the *synthesis*, and compatibility with key A.I.D. initiatives.

The general rule is that A.I.D. use its resources where social payoffs are highest to promote food security. Some guidelines are suggested:

1. *Avoid doing things other public agencies or the private sector will do as well or better.*
2. *Avoid activities likely to fail.* Creating an indigenous policy analysis capability can be a wise use of A.I.D. resources in a country receptive to policy reform but can be unproductive if the country has an established record of ignoring policy analysis and rejecting reform.
3. *Seek activities where benefits can be leveraged* by inducing others to pool resources or in other ways join in collaborative efforts to bring success.
4. *Foster activities in which A.I.D. has a comparative advantage.*

A.I.D. has demonstrated comparative advantages and strength in several areas including human capital development, institution building, technical assistance, access to food reserves, and private sector emphasis. Sectoral capabilities in food (including nutrition) and agriculture, education and training, and health services important to food security.

A final area of comparative advantage is *policy reform*. Policy reform matters: Economic growth and eventual food self-reliance are inevitable if a nation follows the food security framework depicted in Section 2.0. On the other hand, economic growth and food self-reliance are unattainable if a country violates too many of the components listed in Section 2.0.

Options for A.I.D. in policy reform are as follows:

1. *Provide policy analysis* -- if the recipient nation indicates an interest in policy reform.
2. *Use Title III food aid, the Economic Support Fund, and Development Assistance to encourage policy reform.* A.I.D. influence may not be decisive in bringing about a balanced current account in a country. But A.I.D. may be able to induce privatization of agricultural input supply and product marketing parastatals by using Title III support to reduce the burden of adjustment.
3. *If a country persists in policies that preclude economic progress and reforms are not feasible, an appropriate donor stance is to provide only humanitarian food (under Title II) and medical aid.* This approach recognizes that aid ineffective in promoting development in one country can be used more cost-effectively in another country.

## Formulating an A.I.D. Operational Framework for Food Security at the Country Level

The A.I.D. Mission Program Officer may be designated to take the initiative in formulating a comprehensive operational food security plan for a specific country. That Officer's broad perspective is critical because food security encompasses virtually every A.I.D. activity in a country -- as well as activities of other developmental institutions, the government, and the private sector.

It is essential to set priorities, utilize A.I.D.'s comparative advantage capabilities, and to collaborate with other donors, the country's government, and others. It is especially important for Missions to look for and work to alleviate constraints or "bottlenecks" to food security not addressed by others, but for which removal would especially facilitate food security.

At the country level, the conflict between the short-term safety net and long-term economic development components of food security are likely to be severe. The Mission Program Officer can help to keep that potential conflict in perspective.

*A comprehensive food security plan for each country requires (1) a food needs inventory to identify those vulnerable to food insecurity and to help design short-term remedial measures such as food transfers; and (2) an economic inventory to identify those vulnerable to poverty, chronic food insecurity, and the causes, and cost-effective cures in a longer-term perspective.* Emphasis in (2) is on economic development. First, consider a *needs inventory*. Devising a national food security plan requires country-specific knowledge of food production, consumption, and marketing at the village, household, and individual level. The depth and detail of the needs inventory will depend on resources and time available. Useful national

inventories to devise safety-net strategies have been assembled in a few weeks at low cost by relying heavily on existing census and survey data and publications.

Now consider the *economic inventory*. The economic inventory encompasses virtually every aspect of a nation's economy ranging from broad macroeconomic and trade information to marketing and production information. To keep requirements manageable, Missions can draw on comprehensive World Bank economic reports found in many developing countries, secondary data from census and other agencies, special surveys, informal and formal local experts, and outside consultants.

Operationally, the food security plan flows from (1) review of the food security situation expected to exist as a result of current activities and (2) identification, in relation to priority goals, of new efforts for Missions, or of modifications and additions to current ones, that will increase food security. In achieving food security, it is useful to identify food insecure groups (1) who will benefit from *economic development* interventions and (2) from *safety net* interventions -- and the most cost-effective options for addressing their needs.

A.I.D. mission plans for food security will differ among countries. Mission food security provisions for early warning, monitoring, review, and evaluation are important.

### *Famine Relief and Early Warning Systems*

*The top priority in an operational food security framework is to respond to famine.* In such circumstances, local and national food supplies may be inadequate. Ready access to PL 480 food reserves is essential in such circumstances. Having an emergency food delivery plan in place before a food shortage becomes critical can speed response time. That plan

includes arrangements for working with other food donors and with PVOs which distribute food.

#### *Operational Food Security Plan by Level of Development*

Any food security operational plan must address developmental and safety net features designed for a country's level of economic development. Policies are unique to each country. Selected options for developing countries at various stages of development are suggested in the text.

#### *The Safety Net, Targeted Assistance, and Food Aid*

Three issues must be confronted in constructing a safety net: (1) the height of the safety net, (2) whether to target transfers, and (3) whether to monetize food aid.

*Height of Safety Net.* As stated earlier, food security often is best served in the short run by food transfers and in the long run by economic development. The market will help make many decisions such as food crops versus export crops, or farm versus nonfarm industry growth, but the market will not determine an appropriate safety net level. That decision is best made by people through markets and representative political processes. A role of A.I.D. is to (1) provide awareness of tradeoffs so that countries can make sound decisions and (2), given the tradeoff selected, work toward cost-effective use of the food and other aid to achieve equity, efficiency, and stability.

*Targeting.* No developing country can afford across-the-board food subsidies; targeting is essential. Targeted transfers are appropriate for each stage of development.

At the lowest income stage, transfers to severely food-deficit families can be targeted informally by health, education, and church workers who identify the food poor. At the second stage, targeting may be by fair price shops stocking foods acceptable to the poor but avoided by others. At a higher stage of development, food stamps or cash transfers may be income conditioned.

*Monetize Food Aid.* This report emphasizes that broad-based, sustainable economic development must be the core of an operational food security framework for any country. This position is consistent with that of most international donor agencies discussed in Annex D. Investment in public infrastructure, public services, policy reform, and agricultural research and extension are central. None of these investments is most easily accomplished by food aid. Food aid becomes fungible (useable for any purpose) if it is monetized (sold in the market for local currency). *Because untied cash aid can be used to purchase food or any other component of a food security strategy giving a higher payoff than food aid, it follows that cash aid is more valuable than food aid (as face value) for food security.*

*For most purposes the most efficient route to food security is to monetize food aid.* Even for a public food aid safety net where food aid donor support is available, it is generally more cost-effective to sell the imported food at the port city, then buy local foods in the interior to serve the nutritional needs and tastes of the local safety net recipients at low cost. *The corollary is that the Economic Support Fund or Development Assistance funds can be more valuable for food security than food aid at face value.* However, food aid *per se* has special value because (1) it is sometimes available when other aid is not and (2) it is vital to

respond rapidly to emergency food needs. Annex F indicates how food aid can be a valuable resource despite the above limitations and institutional restraints on its use.

### *Food Security Review*

The sectoral focus of Mission programs provides a comparative advantage for both food security review *and* for sectoral projects designed to fill critical gaps in the framework for private sector development activities that improve food security. Food security review is designed to identify opportunities to promote food security through modifications or modest additions to projects not necessarily designed for food security. In building a road for example, rerouting at modest cost may make many previously isolated families more accessible to markets. Food security review could tip the balance of research on a cash crop and a food crop with similar overall economic payoff towards the food crop. Food security review could encourage search for new or improved crops that are more drought and pest resistant.

### *Monitoring and Evaluation*

*The (1) food safety net and (2) economic development dimensions of monitoring and evaluation must have different guidelines and procedures. (The PL 480 Performance Monitoring and Evaluation Plan being formulated will detail safety net monitoring and evaluation. We do not attempt to duplicate that effort.) A developmental food security approach is, by necessity, long-run, indirect, and initially elusive in showing results. If food*

*security evaluation relies too heavily on food safety net monitoring and evaluation, then short-term safety net programs will drive out long-term economic development efforts.*

The framework calls for long-term investments in policy reform, infrastructure, and public services essential for eventual food self-reliance. The appropriate procedure is to formally or informally evaluate *ex ante* whether a proposed effort will contribute to economic equity, efficiency, and stability over various lengths of run. Such efforts need to be undertaken if, based on the best judgment and calculation of informed persons, they give promise of raising real national income, distributing it more equitably, and with stability/sustainability. Rates of return on investment; costs, benefits, and their distribution among groups; and coefficients of variation are standard measures of economic performance. In gauging benefits and costs of economic development, prices need to be adjusted for environmental impacts; also *distribution* of benefits and costs takes on significance. Efforts evaluated *ex ante* need to be monitored periodically to determine if they are fulfilling expectations. Developmental efforts that pass the above tests can be expected to contribute markedly to transitory and chronic food security and self-reliance -- but not necessarily in the short run.

Monitoring and evaluating a food safety net requires alternative measures of success. Although public works, health-related food distribution, and other safety-net options may be justified developmentally, much safety net compensation involves unproductive income transfers. Food stamps, targeted subsidies, and self-targeting subsidies that make use of less preferred staple foods are likely to entail program and administrative costs without corresponding development benefits that eventually repay costs. Traditional guides such as

rates of return or economic benefit-cost ratios to allocate resources and outputs will not suffice. Development of the safety net component in a food security strategy requires consideration of alternative techniques such as cost effectiveness (e.g. improvement in diet per unit of spending) and administrative feasibility.

Finally, this report suggests some policies which have received relatively little attention. An example is devolution of power to local, democratic governments responsive to needs for local services and infrastructure. Property taxes are one untapped potential source of revenue for such governments.

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## 1.0 Problem and Perspectives

### 1.1 Problem

Some one billion people chronically consume too little food for a healthy, active life. At least an additional quarter billion people periodically suffer inadequate food consumption as food accessibility is interrupted by unstable weather, prices, and employment, and by pestilence such as drought, disease, and wars.<sup>1</sup> Asia has the greatest number of food insecure people while Africa has the highest proportion of its people rated as food insecure (Reutlinger and Alderman). Asia is making considerable progress in reducing food insecurity; Africa is not. Worldwide, an estimated 18-24 million people die of hunger each year (Alamgir and Arora, p. 2). Numbers are unreliable and probably underestimated. One reason is because many people die prematurely from diseases such as diarrhea and measles that ordinarily are not fatal but cause death among persons weakened by undernutrition.

Food security impacts many dimensions of well being. Women without adequate diets give birth to children with low birth weights and high mortality rates. Mothers cannot breast feed their babies properly. In children, inadequate food consumption can impair cognitive and neurological development which in turn can reduce learning capacity, attention span, and school performance (A.I.D. Policy Paper on *Nutrition*, p. ii). Adults without

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<sup>1</sup>It is extremely difficult to determine how many people are *chronically* food insecure in the sense that they never have access to enough food and how many are in *transitory* food insecurity. We suspect that most people classified as chronically food insecure have at least in some years enough food because many are rural people whose access to food is subject to large fluctuations in local weather.

proper food intake have low productivity and low capacity to be food secure. These adults produce children with problems described above, completing the food insecurity cycle. *The ideal is for all people at all times to utilize food essential for a healthy and active life.*

The Food, Agriculture, Conservation, and Trade Act of 1990 (FACT) amended the Agricultural Trade Development and Assistance Act of 1954 (Public Law 480) to give the Agency for International Development responsibility for administering Titles II and III of Public Law 480 and to make improvement of food security *the* foreign policy objective of the amended Public Law 480 program. The Agency's responsibility for promoting food security extends beyond administration of food aid, however. The A.I.D. Policy Paper on *Food and Agricultural Development* states that

*The overall objective of United States bilateral economic assistance is to stimulate in developing countries broadly-based, self-sustaining economic growth that promotes international peace and stability and that assists people to conquer poverty, hunger, illness, and ignorance. [p. 1, emphasis added].*

## **1.2 Objective**

The objective of this discussion paper is to outline a framework for food security, emphasizing the role of the Agency for International Development (A.I.D.). That framework is designed to:

1. Enhance food security in developing countries receiving U.S. economic assistance,
2. Provide a conceptual framework for preparing an Agency for International Development policy for pursuing food security through U.S. economic assistance programs, and

3. Respond to provisions in the new Public Law 480 which established the enhancement of food security as the foreign policy objective of U.S. food aid programs.

Section 2.0 of this paper establishes a conceptual framework for broad-based, sustainable economic progress to provide food security. Section 3.0 discusses transitory food security and means to deal with it. Section 4.0 lists possible A.I.D. options for food security. Definitions and dimensions of food security are addressed below before outlining elements of a framework to promote food security in subsequent sections of this report.

### 1.3 Definition of Food Security

The World Bank (1986, p.1) defines food security as

access by all people at all times to enough food for an active, healthy life.

Other groups and agencies use similar definitions. The Food, Agriculture, Conservation, and Trade Act of 1990 (PL 101-624) defines food security as

access by all people at all times to sufficient food and nutrition for a healthy and productive life.

According to the Food and Agriculture Organization (FAO) Committee on World Food Security, food security means

that all people at all times have both physical and economic access to the basic food they need [see Huddlestone, p. 72].

The European Community holds that

Food security can most simply be defined as the absence of hunger and malnutrition. For this to be possible, households,

villages, or countries must have enough resources to produce or otherwise obtain food [Kennes].

These definitions encompass dimensions of food security shown in Figure 1. *Accessibility* or effective demand is emphasized in each of the four definitions. This emphasis contrasts with earlier definitions of food security which more narrowly focused on food *availability*. Food availability emphasized policies such as buffer stocks, excess production capacity, and production practices (e.g., diversification, flexibility, drought resistant varieties) to ensure food supply in the face of pestilence and unstable weather from year to year.

Whereas food availability highlighted *supply* of food (from production, stocks, and imports) at the national level and production at the farm level, food accessibility highlights effective *demand* and purchasing power of consumers. Given that *world* supplies of food have been adequate every year in recent decades to provide an adequate diet for every consumer but that millions of persons have gone hungry for lack of buying power from earnings or transfers, food accessibility is a felicitous concept appropriately emphasized in the above definitions.

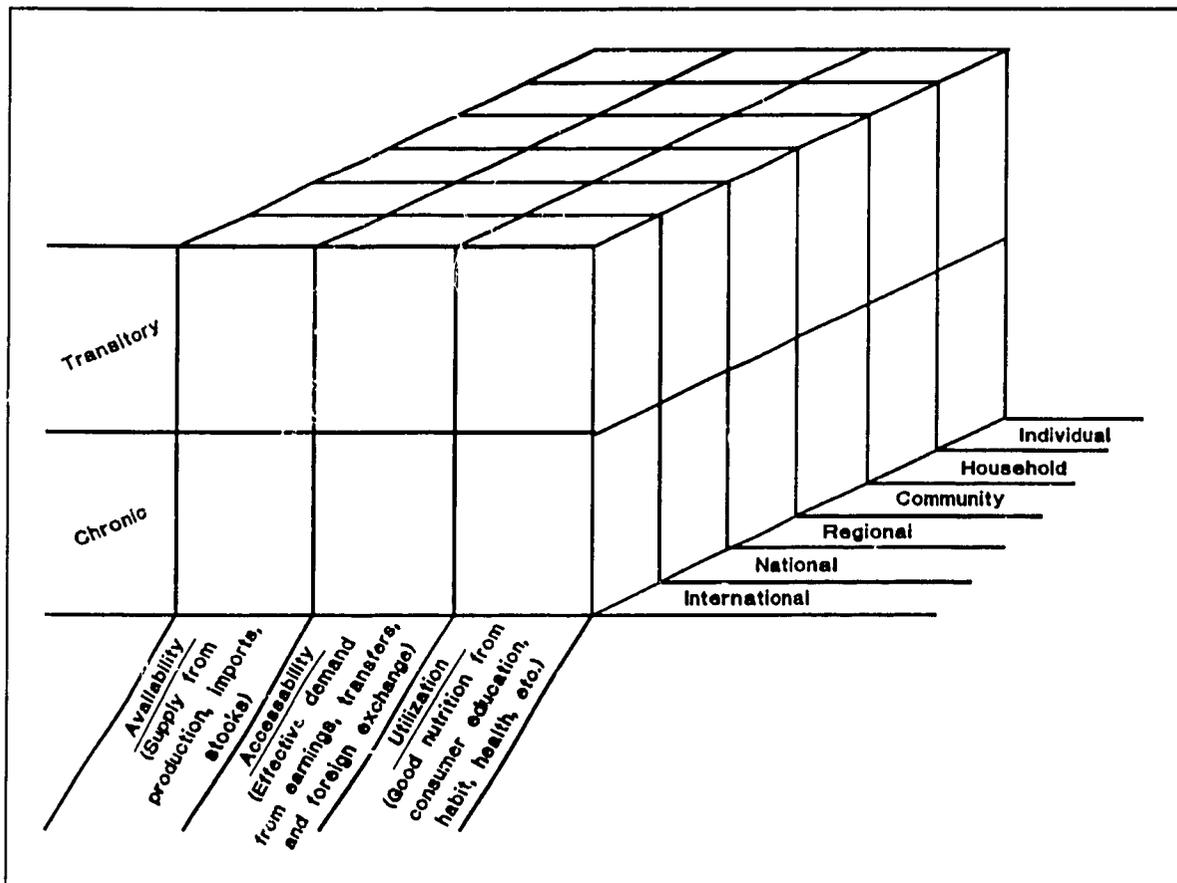
Accessibility has shortcomings, however. Ideally, food security means that all persons at all times *utilize* food necessary for an active and healthy life.<sup>2</sup> People for whom food is

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<sup>2</sup>Others (see Lowdermilk, p. 4) have included *utilization* with availability and accessibility dimensions of food security. According to Lowdermilk, adequate utilization "rests upon the adequate health and nutrition of the individual." The term *food utilization* for purposes of this report has dimensions of food consumption and absorption. Proper food consumption means eating an adequate diet. Those who consume adequate diets may not absorb available nutrients because of digestive and other health problems.

Adequate utilization implies adequate intake of vitamins, protein, minerals, and fiber as well as calories. Malnutrition in *developed* countries often is a very real problem of obesity from chronic excess calorie consumption. The focus of this paper is food insecurity and undernutrition associated with poverty in *developing* countries.

available and accessible but who fail to consume and absorb adequate nutrients experience food insecurity. The definition herein of food security goes beyond availability and accessibility to include proper utilization -- the latter encompassing consumption, digestion, and biological absorption.



**Figure 1. Some Dimensions of Food Security.**

Source: This figure has some similarities to that reported in *Food Security in Africa Cooperative Agreement* between the Africa Bureau and Bureau of Research and Development of the U.S. Agency for International Development, and the Department of Agricultural Economics, Michigan State University.

Improper food utilization is the result of personal tastes, culture, peer pressures, lack of knowledge, inadequate household processing and storage, inadequate food labeling,

misleading advertising, and physical and mental illnesses. *Many of these causes are worthy of public concern.* Proper health care and nutrition education are indeed within the domain of the Agency for International Development's concerns for food security. Issues of utilization are addressed in the A.I.D. Policy Paper on *Nutrition* and by the panel reporting on a PL 480 Performance Monitoring and Evaluation Plan. For that reason, emphasis here is on food availability and accessibility. The third component, utilization, is included in Figure 1, however, to remind that consumer education, information systems, health, and nutrition are components of food security.

Food security may be viewed along other dimensions. Issues at the world level, such as internationally coordinated buffer stocks, can differ sharply from issues at the individual or household level, such as the elderly or young being the residual claimants on the family food supply (Figure 1). Food security policies at the community and regional level will be influenced by communication and transportation linkages. Internationally, a food security strategy for developing countries cannot be properly devised without reference to trade, aid, commodity program, and stock policies of developed countries.

Food security *for all people at all times* goes beyond transitory food supply or buying power shortfalls to encompass the much larger dimension of chronic food insecurity (Figure 1). For chronically food-insecure people, food consumption is hardly ever adequate. Broadening the concept of insecurity beyond the uncertain, unexpected, or random setback recognizes that transitory food insecurity cannot be cleanly separated from chronic food insecurity. Individuals and nations troubled by chronic food insecurity are most prone to transitory food insecurity. Those with resources to avoid chronic food insecurity are likely

to be able to borrow, save, or in other ways escape transitory food insecurity.<sup>3</sup> Thus *food security is inseparable from poverty*.

The concept of chronic food insecurity recognizes dimensions of food availability, accessibility, and utilization *over the long run*. Policy for such a trajectory has few bounds! Because the food insecure are poor people who typically devote 60 to 80 percent of their income for food, food insecurity attends poverty.<sup>4</sup> And because poverty is a function of the level and distribution of national income, *food security cannot be separated from economic development*. In short, food security encompasses disciplines ranging from nutrition at the individual level, to family economics at the household level, to all-weather road construction and maintenance at the regional level, to economic development policy at the national level, and to trade and aid at the international level.

The resources of the Agency for International Development are far too limited to alleviate all sources of food insecurity. For example, road, bridge, and port construction essential to food security typically has been the domain of indigenous governments and of

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<sup>3</sup>Transitory as well as chronic food insecurity are sometimes said to be caused by poverty rather than by inadequate food production. That proposition is oversimplified, however, because agricultural production is the major determinant of the income of the rural poor in many developing countries. Poverty and low production are not separable -- low productivity and low production means low income and buying power, given prices. In agricultural economies, food demand and supply are closely related. Agriculture is the direct source of family food and of exports to provide foreign exchange to import food and hence is the main source of supply. It is also the main income of producers and hence the source of demand and buying power. Analogously, countries are not food insecure (and are not plagued by excessive food prices in their domain) just because they have a poor harvest but because they lack foreign exchange. Again the interaction between demand and supply is apparent because a poor harvest is likely to mean less quantity to export to earn foreign exchange.

<sup>4</sup>The numbers mean that 20 to 40 percent of the income of the poor is spent for nonfood purposes such as shelter, clothing, medical care, and transportation. Hence a food deficit of \$X among the poor will not be filled by \$X of transfer payments because 20-40 percent of those payments will "leak" to purchase other goods and services deemed important by consumers. Food commodity programs or food stamps target families but studies show that these transfers often are traded and hence fungible. Thus food security is not entirely separable from income (in cash or kind) security, and hence from shelter, medical care, etc. security.

the World Bank and other lenders, not A.I.D. However, in developing countries, A.I.D. is recognized for its contributions in nearly all areas relating to food and agriculture. Its personnel need to be familiar with the broader issues of food security even though the Agency clearly is in no position to fund or control every aspect. Hence this paper addresses broader issues of economic development relating to food security.

Other dimensions of food security are revealing. Manarolla (p. 9) uses the term *food self reliance* to refer to a nation's ability to produce food domestically and to import commercially the food it does not produce. Food self reliance gets to the heart of development strategies to eliminate hunger because it recognizes the role of domestic income and foreign exchange on the demand side and domestic food production and food imports on the supply side.

The above definitions avoid defining food security as self-sufficiency. In a primitive state, society engages in subsistence production, autarky (no trade), and self-sufficiency. Famine and other pestilence are common in such societies. As development proceeds and health and nutrition improve, death rates fall and incomes rise, causing a sharp increase in food demand from population growth and income growth. A large proportion of additional income goes to purchase food as formerly poor people improve their diets. Food production does not keep pace with food consumption growth as development proceeds. Fortunately, developing countries experiencing rapid income growth generate export earnings used to purchase needed food from developed countries which have sharply increased food production per capita. As developing economies mature, food demand growth slows as the population growth rate falls with lower birth rates and as a smaller proportion of added

income is used to purchase food. Meanwhile, the supply of food expands as earlier investments in local agricultural research and extension finally pay off with improved practices and technology. Consequently, some developing countries become exporters as they become developed. This transition may require decades of growth. Other formerly low-income countries such as Japan, South Korea, and Taiwan paradoxically became less self-sufficient even as they become more food secure. Thus, *economic development brings food self reliance but not necessarily food self sufficiency.*

Attempts at self-sufficiency can reduce buying power at the household level and economic development at the national level, reducing food security. Buying power as measured by family or individual income is closely correlated with food security as measured by personal food consumption.

*A recurring theme in this report is that food security has two principal components at the national level: (1) broad-based, sustainable economic progress relying on the private sector under supportive public policies to raise most people out of income and food insecurity and (2) targeted food and other transfers to those who lack resources and income or other means for food security.* The following Section 2.0 emphasizes policies for economic development to provide food security.

## 2.0 Elements of a Broad-Based, Sustainable Economic Development Strategy to Promote Food Security

The principal source of food insecurity is poverty. Because the most cost effective means to reduce poverty in developing countries is by economic development, the cornerstone of a successful food security strategy is *economic development*.<sup>5</sup> Many individuals and families are bypassed by the market, hence *economic development is necessary but not sufficient for food security*. Development provides the wherewithal to finance food imports and food and income transfers to those left behind by economic development. The sufficient condition to end food insecurity is that the political will and administrative capacity for essential transfers be present.

Economic development to address food and income insecurity differs from conventional economic development in being *broad-based and sustainable* (BBS). Elements of such a BBS economic development strategy are presented in this section. A brief conceptual framework is outlined before turning to policy options.

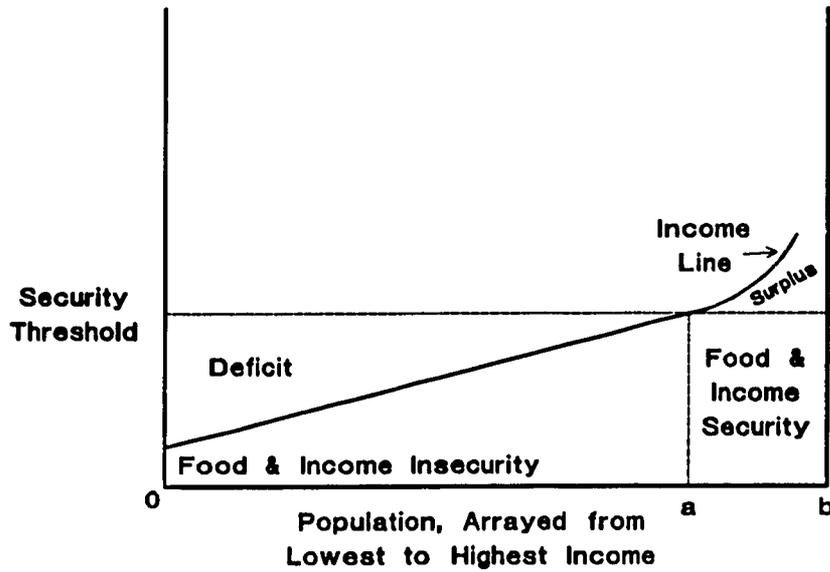
### 2.1 Conceptual Framework for Food Security Under Economic Development

Figures 2 and 3 illustrate issues for food security in a traditional underdeveloped economy (Figure 2) and an economy characterized by economic development (Figure 3). Full income from subsistence and other sources represented by the *income line* in Figure 2A

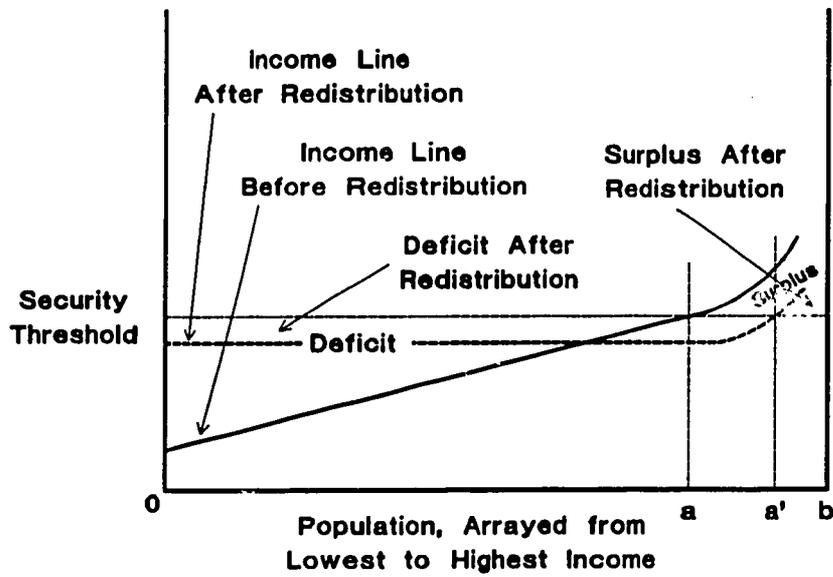
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<sup>5</sup>Food poverty is defined as persons falling below the FAO/WHO calorie requirements which vary by circumstance but average approximately 2300 calories per person. This is also the food security threshold discussed later.

**A. Income Distribution Before Transfers**

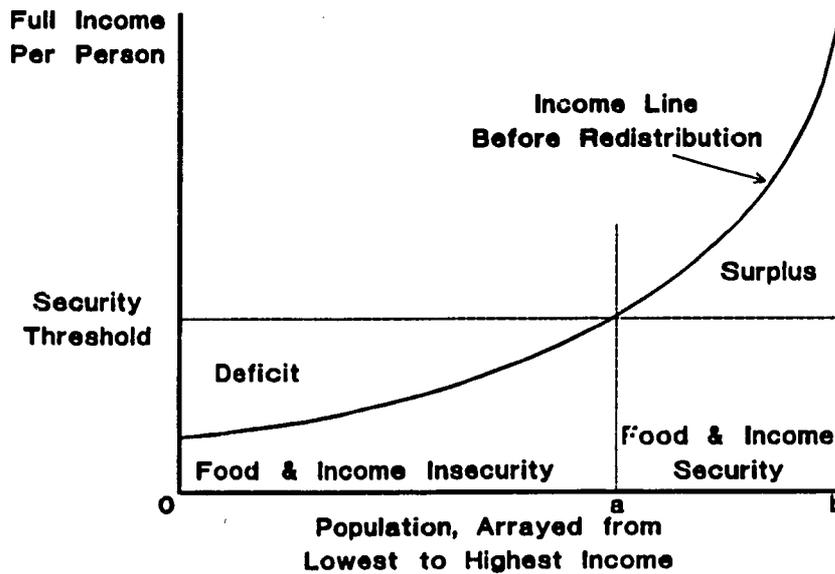


**B. Income Distribution After Transfers**



**Figure 2. Food and Income Security in a Traditional Economy.**

### A. Narrow-Based Economic Development



### B. Broad-Based Economic Development

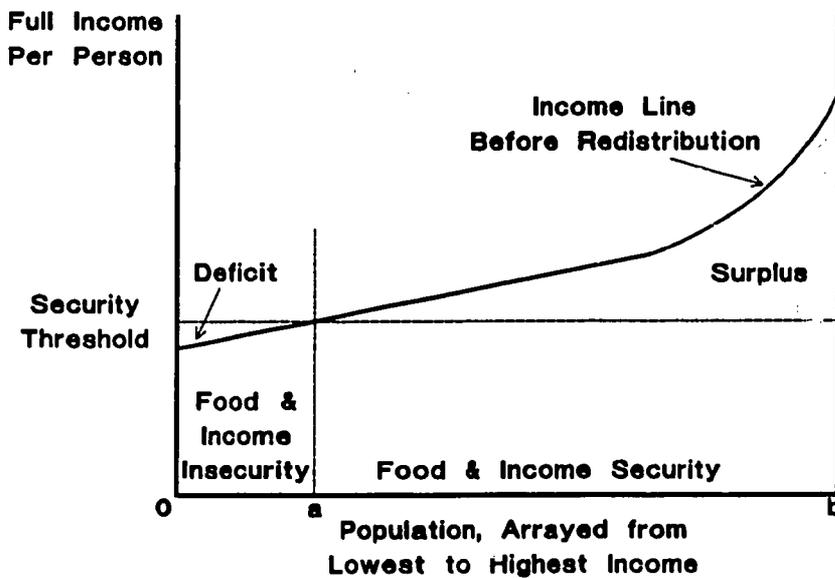


Figure 3. Food and Income Security Under Economic Development.

illustrates that a major proportion of the population  $0a/0b$  is below a socially acceptable food and income security threshold. The huge food deficit in this largely subsistence society is partially closed by redistribution of food and income, mainly within families, from those in surplus to those in deficit. In the hypothetical illustration in Figure 2B, the proportion of persons below the security threshold is actually increased from  $0a$  to  $0a'$  as those near the security threshold make transfers to those in more difficult circumstances. The food deficit is only partially closed. It cannot be closed because real income (output) is too low for the food and income surplus to fill the food and income deficit -- even if redistribution were complete.

The income line after redistribution remains perilously close to (and just under for many persons) the security threshold in Figure 2B. Large numbers of persons consume too little food for an active, productive, and healthy life. Starvation results when the after-redistribution income line falls much below the threshold. Disease and other sources of morbidity and early mortality are all too frequent in a traditional economy before economic development can provide the means for a better life -- either directly from more buying power or indirectly from transfers.

An important point is that a society without economic progress is likely to remain in a precarious situation of food insecurity with many people chronically and acutely undernourished. A crop shortfall or other shock is likely to result in widespread hunger because no reserve of food stocks, buying power, and foreign exchange is available to buffer unforeseeable setbacks from pests, weather, war, or other sources.

Figure 3 illustrates two broad strategies of economic development to reduce food and income insecurity. The first strategy depicted in figure 3A is narrow-based economic growth. One example is a dual economy in which only a portion of the population is favored by public policies for economic growth. This favored sector progresses with human, material, and technological capital formation, raising income well above the security threshold. The sizable surplus may be used to redistribute incomes to fill the food deficit of the non-favored sector. But an economy that has established policies to favor one sector of the nation for growth is also likely to discriminate against the other sectors in food redistribution policies to close the food gap to the left of a in Figure 3A. Of course, some of the food gap will be closed by family and other private redistribution so that the after-redistribution income line (not shown) will be flatter than the before-redistribution curve shown in the figure.<sup>6</sup>

Figure 3B illustrates the preferred strategy of *broad-based, sustainable* economic growth. It is *broad-based* in that policies are designed to raise productivity and buying power of the entire population. It is *sustainable* in that policies avoid short-run gains (e.g., over-exploitation of resources and excessive borrowing, money creation, and government current account deficits) that buy short-run gains at the expense of future growth. It avoids the boom and bust policies of business and political cycles which make for instability and food insecurity. It is efficient, allocating resources where social payoffs are highest to raise income and living standards. The before-transfer income line is so high that few people (Oa in Figure 3B) fall below the security threshold. The substantial surplus provides the

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<sup>6</sup>A public food and income redistribution policy is likely to cost more than anticipated because intra-family and community redistribution will be partially displaced.

economic base for transfer payments so that the after-transfer income line (not shown) can lie above the security threshold over its entire range. The surplus provides an economic base to purchase foreign currency and food imports or to purchase domestic buffer reserves of stocks. The surplus provides the wherewithal to supply public goods such as agricultural research, infrastructure, and schooling services that are efficient sources of future food and income streams. The surplus from economic development supports technology and practices to conserve soil and pursue other dimensions of an environmentally sound agriculture.

A final lesson from Figures 2 and 3 is the existence of tradeoffs and complementarities between development and redistribution. Too much emphasis on redistribution in the early stages of development destroys the surplus of savings and investment required for human, material, and technological capital formation and economic progress. A "pie" of income must exist before equity in the division of that pie can be pursued. Finding the proper mix of economic efficiency and growth versus equity and distributive justice is a challenge to any government. Food and other assistance from A.I.D. can make that tradeoff less onerous. Technical assistance and policy analysis can help to identify equity-growth tradeoffs for decision makers.

In short, the objective of moving all peoples at all times to a position of food security requires a combination of market-oriented development activities, safety nets redistributing food and income, and public and private actions designed to foster both. Such complexity is simplified by the Food Security Pyramid presented in Annex A.

## 2.2 Empirical Evidence of Food Security Promoted by Economic Development

That economic growth reduces food and income insecurity is apparent from long-term data for 11 developing countries as reported in the *World Development Report 1990* (World Bank, p. 48). Each 1 percentage point increment in annual mean income growth reduced the proportion of persons in poverty by 2.3 percentage points over a 10 year period.<sup>7</sup> The *Report* succinctly concluded that "In short, growth reduces poverty" (World Bank, 1990, p. 47). The report also concluded that the poorest of the poor participated in economic growth (p. 48).

The obverse, that food and income shortfalls especially disadvantage the poor, also is important to recognize. For example, because of the greater proportion of income spent on food and more elastic demand for food, relative food consumption falls 10 times as much for the poor as for the wealthiest 5 percent after a given reduction in food supplies (Mellor). That setback for the poor detracts from their already low nutritional status.

In India, the four states with the fastest growth rates in their agricultural sectors reduced the proportion of the rural population in absolute poverty by over half in a twenty year period (1963 to 1983) with similar weather at the beginning and the end. The states that did poorly in agricultural growth actually experienced an increase in the proportion of their rural population in poverty. Countries that have done well in agricultural development

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<sup>7</sup>The equation was  $P = .71 + .23Y$   
(.06)

$R^2 = .61$

where P is percentage point reduction in poverty per year and Y is annual percent growth in mean incomes. Data periods differed by country but were mostly for the 1960s, 1970s, and 1980s. The standard error (in parenthesis) indicates that the coefficient of Y is different from zero at the .004 probability level.

(e.g., Thailand, Indonesia, and Taiwan) have all experienced a radical decline in absolute poverty and hence in food insecurity.

Studies show a close link between income and social indicators other than food security. Infant mortality rises with poverty (World Bank, 1990, p. 31). The incidence of rural malnutrition declines significantly as gross national product increases to approximately \$1,000 per capita based on data for 18 low-income countries shown in Figure 4.

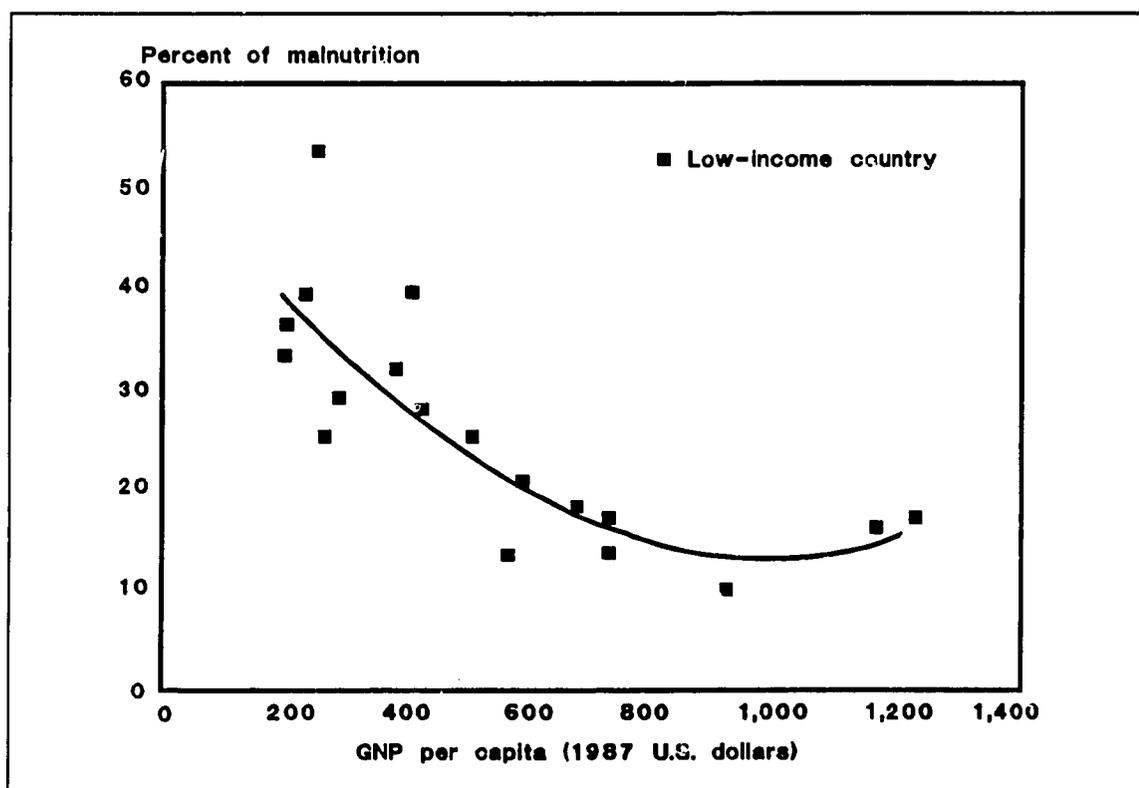


Figure 4. Rural Malnutrition in 18 Low-Income Countries in the Mid-1980s.  
Source: IFPRI, p. 35.

Empirical evidence that poor nations are in no position to undertake redistributions that successfully close food deficits is compelling. Of the 30 lowest income countries in

1988, only two had an average calorie supply of 2300 or more per capita (World Bank, 1991, p. 258). Transfers of at least 15 percent of current gross domestic product (GDP) would be needed to eliminate the poverty gap in Bangladesh (World Bank, 1990, p. 50). Transfers of only 1.1 percent of current GDP would be required in Brazil, a country with greater income. Given the leakage of transfers for administration, to the middle class (to gain their political support), and to others, actual transfers would need to be much larger than indicated. Large transfers require taxes which reduce GDP. Real GDP (deadweight) losses from taxes and other market distortions required to finance transfers are massive in Egypt, for example, where transfers are a relatively high 7 percent of GDP (World Bank, 1990, p. 50).

### **2.3 Role of the Private Sector in Promoting Food Security**

Because the number of food insecure persons is so large and because national income is so low in many developing countries, food insecurity cannot be eliminated by food and income transfers. In the case of the able-bodied, development rather than transfers is the lowest-cost means to food security.

Much of this paper focuses on public policies for food security. That focus must not veil the larger fact that *most of the task of providing food security in developing countries will be accomplished by the private producers and marketers responding to price incentives set by supply and demand in markets.* A food security strategy not harnessing the efficiency of markets will fail. The private sector will make decisions whether to produce food or fiber for home consumption or the market, for the domestic market or for export, and for

consumption or storage. It will determine whether to use labor-, land-, or capital-intensive production methods, whether to employ conventional or new technologies, and whether to borrow or lend. To be sure as explained later, the public sector can influence some of these decisions but it cannot make them because the millions of decisions required daily even in a small economy would overwhelm public decision-makers.

#### **2.4 Public Sector Policies and Investments to Foster Broad-Based, Sustainable Development**

The private sector works well only in an environment of supportive public policy. Providers of foreign assistance often are in a position to promote dialogue, educate, and support appropriate public policies in the developing world, hence knowing what is appropriate public policy to support the private sector is important to donors and developing countries alike.<sup>8</sup>

At issue is what is sound public policy. In October 1991, Clive Crook in *The Economist* (p. 6) stated

In the past few years a new consensus on economic policy has emerged. ... Its elements include: a non-inflationary macroeconomic policy, based on modest budget deficits and prudent monetary policy; greater openness to trade and foreign investment; and *greater reliance on market forces as allocators of resources, especially in industry and agriculture* [emphasis added].

This *consensus synthesis*, although not universal, is widely shared by economists and major international development institutions.

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<sup>8</sup>The *Agricultural Policy Analysis Project* funded by A.I.D. is one of several examples of a policy analysis delivery system. Building a partnership between *business and development* is one of the four key initiatives of A.I.D.

The conclusion of the major World Bank (1990) study of poverty was that countries that have most successfully reduced poverty have encouraged economic growth but have done so with policies that *encourage efficient use of labor* and that *add to human capital of the poor*. A role for the public sector is to provide public goods and correct externalities to help the private sector function more effectively. A relatively lean, modest-size but effective public sector is essential for a well-functioning private sector.

#### 2.4.1 *Achieving Private-Public Sector Synergism*

The public sector needs to perform well the following activities for economic development:

**1. Sound Macroeconomic Policy.**

- \* *Security, stability, and order.* A supportive, stable macroeconomic and legal environment is essential to promote savings, investment, and capital formation in an environment where long-term private and public investments can be planned and carried through. Commercial laws and investment does provide the atmosphere enabling the private sector and market forces to work. Democracy is highly desirable for economic progress. Democracy needs to extend to local governments which can provide essential community services and infrastructure, and have taxing power to support those activities. Excessive military (or unproductive civil service) spending is especially burdensome because

it reduces civilian investment and diverts the able-bodied from gainful employment.

- \* *Property rights.* An institutional system of property rights with official commitment to respect for private property (including that owned by foreign firms) fosters savings, investment, and capital accumulation.
- \* *Fiscal responsibility.* The current account of government needs to be balanced. Deficits during recession must be offset by surpluses during better times. A capital account deficit (borrowing) is justified where returns are sufficient to leave a social dividend after paying interest and principal.
- \* *Monetary restraint.* To avoid inflation, the money supply needs to rise no faster than growth in real output. Sound fiscal policy reduces pressure on the central bank to create money and thereby induce inflation to finance government deficits. Positive real interest rates are important to mobilize savings and direct investment to priority uses.
- \* *Competition.* A competitive environment avoids monopoly power of private or public firms; natural monopolies (where only one firm can operate to supply the market at low cost) are regulated as necessary. Openness to foreign trade and investment is one protection against exploitation by concentrated industries. Parastatals (state owned and operated industries) are best avoided. Free firm entry and exit and

deregulated markets are the norm with exceptions such as for environmental protection.

**2. Liberal Trade Policy.**

- \* *Properly valued foreign exchange.* Fiscal responsibility and monetary restraint will help to avoid an overvalued foreign exchange rate and foreign exchange shortage -- serious threats to food security.
- \* *Open economy.* An economy open to foreign trade and investment needs to be as free of market distortions as possible consistent with environmental protection and collection of taxes to support essential functions. These latter functions such as provision of public infrastructure and social services listed below need to be supported or guided by the public sector, but often are performed most efficiently by private firms.

**3. Infrastructure.** Road, bridge, seaport, airport, electricity, communication, and major irrigation facilities can be worthy public investments serving the private sector and food security. All-weather roads are essential to transport produce from food surplus to food deficit areas and to allow efficient input supply and product marketing activities consistent with increasingly productive farm and nonfarm industries.

**4. Social Services.** Services such as schooling, adaptive agricultural research, extension, information systems, commodity grades and standards, primary health care, and sanitary water supplies are needed. These services such as

extension education, general education, and primary healthcare can teach nutrition and other components of food security. Crop production forecasts and market information on food prices, shortages, and surpluses help markets work better. Credit services can be provided by the private sector but can benefit from public regulatory safeguards and, in early stages, from technical assistance.

5. **Appropriate Taxation (e.g. sales, value added, property tax).** Export taxes are especially onerous because they often entail large deadweight losses that fall on domestic producers and destroy incentives. Property taxes have long been neglected in developing countries. They can entail less deadweight cost than export taxes and may encourage efficient land use. If graduated, property taxes provide incentives to reduce concentration of land ownership. Property taxes can supply revenues to support local public infrastructure and social services.

6. **Environmental Protection (discussed below).**

The above *consensus synthesis* says nothing of land reform, infant industry, agricultural commodity price support, and public employment policies. Successful examples of land reform are sparse. Even "successful" land reform cases such as Japan, Taiwan, and South Korea left a legacy of farming units too small to produce efficiently and requiring massive subsidies from consumers and taxpayers as well as protection from foreign competition. The

potential for equity through human capital "reform" dwarfs opportunities through land reform.<sup>9</sup>

Cases can be found where governments have protected new industry from foreign competition until it became efficient enough to compete without subsidies in world markets (e.g., Taiwan and Korea), where crop procurement prices (minimal forward prices announced before plantings and guaranteed by government) encouraged investment in efficient agricultural production (e.g., Indonesia), and where food-for-work and other public employment measures built needed infrastructure at low cost (e.g., India). However, few governments have sufficient administrative capacity, political will, or discipline to operate such programs efficiently.

Most commodity price interventions either discourage farm production with commodity taxes and price ceilings or tax consumers with excessive price supports. Economic progress and food security are for the most part best served by avoiding such policies.

In some cases, commodity prices are held above market-clearing levels to benefit farmers. However, Weber *et al.* found that in Africa many small farmers are net purchasers of staples and are made more food insecure by high food prices. The disadvantage to small

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<sup>9</sup>With economic development, opportunities for more equitable distribution of wealth is much greater with human resource development than with land reform. Land initially is a major portion of wealth, but becomes increasingly unimportant as economic development proceeds. A vision of future potential for developing countries is provided by the example of the United States. Some 70 to 95 percent of the \$16 trillion estimated U.S. asset wealth was human capital in 1990 (Carlson, pp. 4, 5). *Farm real estate accounted for approximately \$600 billion or 4 percent of that wealth!* Thus broad-based economic development offers vastly more opportunity for equitable distribution of wealth through access to education, training, basic health and sanitation services, and other human capital formation opportunities than through land reform.

farmers of higher food prices is even more pronounced in Asia. Consumers (disadvantaged by high food prices) exceed the number of producers in every country.

In other cases, commodity prices are held below market-clearing levels to benefit consumers. The result is to reduce farm purchasing power; incentives to save and invest in human, material, and technological capital; and to allocate resources to their best use consistent with opportunity costs. The result is to discourage farm production and to subsidize more affluent urban consumers. The efficient policy is to allow border prices (world prices "backed up" to local markets) for traded goods. Nontraded goods (ordinarily neither exported nor imported) will on the average be priced by the market to cover costs of production determined by the value of resources in producing traded goods and services. Despite private storage, fluctuations in food prices arising sometimes from international markets burden the poor. Many governments take measures to reduce variation in domestic farm and food prices below variation in world prices. For countries desiring to stabilize food prices, a policy proposal is made in Section 3.0 for reducing price instability without sizably misallocating resources.

It is ordinarily inappropriate for governments to dictate through price supports or controls the allocation of farm resources produced for domestic food versus export markets. That decision is best left to producers reacting to their own best interests and market incentives. In the early 1980s, analysts (Epplin and Musah, p. 25) estimated that the resources of a typical farm family in Liberia could have access to three times as much rice (the main staple food) by producing tree crops for export and purchasing imported rice rather than by producing rice for local consumption. Export cropping entails risks of

possible interruptions as later events in that country made all too evident. Producers anticipated risks and were diversifying production accordingly between producing rice for household consumption and tree crops for export well before civil strife began in the 1980s.

Export cropping and other diversification from food production is viewed by many as inconsistent with food security. But Staatz *et al.* noted that farmers in highly unstable and low rainfall areas of northern Mali had as much food security as farmers in southern areas with more stable, higher rainfall. The north had adapted to uncertainty by diversifying income sources and relying more on the market for food supplies.

The foregoing *synthesis* for economic development provides considerable scope for tradeoff between goals of economic growth, equity, and stability. The appropriate tradeoffs are best chosen by representative, informed governments. However, *a development policy for food security will differ from a conventional development policy in being broad-based and sustainable.* The interests of food security are best served by allowing prices to reflect scarcity values and guide resource allocations while using targeted food assistance and broad-based growth policies such as investments in human resources to target equity needs of the food insecure lacking resources to meet basic needs.

Elements of a broad-based and sustainable development framework that distinguish it from a conventional development framework are discussed below. Broad-based development emphasizes components of the above synthesis that serve economic efficiency and equity. Every component of the conventional economic development framework outlined above is necessary for BBS development; the difference is in emphasis. But one component must be added to make necessary conditions sufficient for food security -- a

safety net. The next three subsections address broad-based development, sustainable development, and the safety net.

#### *2.4.2 Achieving Broad-Based Development*

The private sector is most successful in achieving broad-based development consistent with food security when nationwide supportive macroeconomic policies are accompanied by growth policies reaching the disadvantaged. Such measures are at once equitable and efficient (in raising national income) by helping people to lead more healthy and productive lives. Examples of disadvantaged groups include landless peasants, small landholders, and the urban poor. These groups often have underdeveloped human resources and have few material resources, hence are especially vulnerable to food insecurity. Targeted food assistance is the only option to provide food security for some, but public investment in schooling and infrastructure can be both equitable and efficient.

##### **1. Schooling and Related Social Services.**

Standards of living are a function of the level of human and material resources and how efficiently they are used. Capital accumulation by the poor can be expanded widely by investing in human resources through general schooling, vocational-technical training, and on-the-job experience. Universal access to primary schooling and health services is critical for broad-based development. Nutrition education needs to be part of the schooling and health service process.

Given limited resources to fund even basic health services, effort may focus on preventative rather than curative procedures. Diarrheal control (through oral rehydration), immunization, family planning, and sanitary water supplies are examples of basic health services. Health and education agencies and personnel can help to identify people vulnerable to food insecurity.

Removing racial, ethnic, gender, and wealth barriers to social services is consistent with economic equity and efficiency. The role of women in food security is especially important. Women account for an estimated 60-80 percent of all agricultural work in Africa (A.I.D. Policy Paper on *Women in Development*, p. 3). Income of the women, not the man, often provides the basic food and health care survival needs of the family. Women often are responsible for food production, meal preparation, and nutrition education. Compared to men, women generally receive less education and less access to land, credit, improved farming inputs, and agricultural extension services in developing countries. Improved access by women to services, inputs, and cost-effective labor-saving technologies can do much to improve food security.

## **2. Agricultural Services.**

Broad-based, sustainable economic development emphasizes allocation of resources to where social returns are highest. *In many of the poorest countries, that requires a focus on agriculture and rural areas because that is where the bulk of people, resources, and opportunities are located.* In such countries, it is typical for half the rural population to be food insecure and for 80 to 90

percent of the food insecure to be in rural areas. It follows that a development strategy accelerating growth in the agricultural sector often is essential for radical reduction of poverty. Productivity advances in agriculture provide the economic base for human resource development through schooling and health services and infrastructure which in turn make possible further productivity gains. Local labor-intensive small- and medium-scale industries form to provide additional employment and diversification of income useful for food security. In other countries or regions where the initial economic base is tourism, mining, or other non-agricultural industry, this same process of development and diversification toward income and food security proceeds, but with different origins.

A productive indigenous agriculture directly provides food for farm operators and others, and indirectly provides food by earning foreign exchange to purchase imports. Improved technology and management made possible by agricultural research and extension lowers food costs and enhances food security. A productive agriculture helps to supply the tax base necessary for food assistance transfers.

The public role extends beyond improving production through adaptive research, extension education, institution building, and technology transfer. For example, the extension service can work with individuals and private firms to improve food processing and marketing for better nutrition and for longer shelf life and home storage. (Information systems are discussed later.)

Studies show that agricultural research and extension in developing countries can have a very high economic payoff. Few developing countries can afford in-country basic research, but the payoff has been almost universally high from applied research emphasizing local adaptation of technologies from elsewhere (see Iqbal). When encouraged to do so (Jordan is a good example), the private input supply sector has strongly supplemented the public sector provision of agricultural research and extension to improve food production and marketing practices and technology.

### **3. Infrastructure.**

An efficient economy requires effective communication and transportation systems. Because these have "public good" properties, the private sector acting alone will not provide the optimal level. However, the public role often is best restricted to funding and regulation while construction and day-to-day operation is by private firms.

Appropriate infrastructure makes private markets work better and raises national income. Such infrastructure serves food security by reducing the frictions of space and time. Food can be quickly and efficiently moved from areas of surplus to areas of shortage. Mobility enhanced by appropriate infrastructure helps entrepreneurs and workers take advantage of the best opportunities available in the country, thereby raising individual and national buying power and food security.

#### **4. Information systems.**

Information is essential to allocate food efficiently over time and space. Modern data collection, processing (e.g. microcomputers), communication, and transportation systems help private markets to function better. Price information helps markets, consumers, and producers to make better decisions. Crop forecasts provide early warning of food shortfalls or surpluses. Information systems also have "public goods" properties. That means that private markets alone do not suffice and a public role is justified.

#### *2.4.3 Achieving Sustainable Development*

Infrastructure, schooling, and agricultural research and extension policies not only make development broad-based, they also make it sustainable. Two additional policies are especially important for sustainability and hence for food security.

##### **1. Sound Macroeconomic Policies.**

The Economic Degradation Process (Tweeten, 1989) beginning with a nation living beyond its means and culminating in a shortage of foreign exchange has two phases: (1) an expansionary phase while the nation is living beyond its means and perhaps benefiting food insecure people and (2) a stabilization or structural adjustment phase of retrenchment to a sustainable economy. These two phases average lower economic growth, more instability, and greater food insecurity than would a sustainable macroeconomic policy.

Countries incurring large current account deficits and in general attempting to live beyond their means accrue burdensome debt and often end up printing excessive money. Large foreign debt absorbs considerable foreign exchange earnings to service debt rather than to purchase imports consistent with food security. Excessive creation of money results in inflation, overvalued currency, and a shortage of foreign exchange. The most cost-effective "buffer stock" is international trade (imports); unsound macroeconomic policies deny a country full use of that cost-effective food security tool. Food aid may be useful in the short run to ease the burden on the poor during structural adjustment to a sound economy which will provide self reliance and food security in the long run (see Annex B).

## **2. An Environmentally Sound Agriculture.**

Broad-based and *sustainable* economic development is threatened by environmentally unsound practices. Such practices result in soil erosion, salt-buildup and waterlogging of irrigated land, deforestation, and desertification. Some practices cause chemical contamination of food and water supplies and of field workers. Pressures on land and water resources to supply the food demands of growing but very poor populations intensify environmental problems in the developing world (see World Bank, 1991, p. 61). Many such countries lack the public resources required to educate producers or to provide controls and incentives for aligning private and social costs (benefits) essential for an environmentally sound agriculture.

So called "low input sustainable agriculture" (LISA) is a relatively recent approach to achieve an environmentally sound agriculture (see Tweeten, forthcoming). The approach has much to offer in attempting to capture the synergisms possible with a systems framework. That framework combines (1) integrated crop management (often employing forage legumes in crop rotations, alley cropping, etc. to reduce chemical fertilizer and pesticide use), (2) conservation tillage (often employing no-till or other residue management techniques to reduce soil erosion and conserve moisture), (3) integrated pest management (employing biological pest control and minimizing pesticide use consistent with "best management practices," and (4) crop-livestock systems to make better use of farming resources including forage legumes and to supply high-quality protein in the form of meat, milk, and eggs.<sup>10</sup>

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<sup>10</sup>Several pitfalls need to be kept in mind when considering LISA as a food security framework:

1. LISA should not be confused with organic farming which excludes all synthetic chemical fertilizers and pesticides. Rejection of prudent economic use of highly productive commercial fertilizers and pesticides can sharply restrain productivity gains and threaten food security.
2. LISA is an unproven approach that needs much basic and applied research and evaluation before being widely adopted by producers. Each of the four components of LISA listed in the text is conventional and has been adopted successfully by many farmers, but the components when combined often reduce yields and net economic returns, especially during a transition period of 4-6 years. (Food aid might be used to ease the burden on adopters during the transition.) The key is to combine the four components listed above (or at least as many as feasible) into a *synergistic* system producing a whole greater than the sum of the parts. That requires above average management by producers and further technological breakthroughs such as improved biological control of pests. Further advancements in basic technologies such as biological control of pests and high-yielding cultivars are essential to make LISA widely profitable. Research in developed countries and in internationally supported research efforts located in the developing world (e.g. CGIAR), as well as research efforts of developed countries will play a crucial role in basic research.
3. LISA will not be adopted unless producers are motivated by profits and other perceived advantages of the approach.
4. LISA entails difficult environmental tradeoffs. Conservation tillage, for example, to save soil may require toxic chemical herbicides to control weeds. Pest-resistant varieties may contain high concentrations of natural toxins hazardous to pests and people alike.

#### 2.4.4 *Food and Income Transfer Safety Net*

The final element required to turn the broad-based, sustainable development framework discussed above into a *food security framework* is a public safety net for those unable to achieve a socially acceptable level of well-being by depending on the market, family, and other sources.

Through misfortune, some people will always lack the capability to provide self-sustaining food security to themselves. The food insecure form a gradation which offers scope for programs ranging from developmental to straight redistributive. For example, food distribution programs can provide free food to the non-able-bodied poor and destitute, education programs can include school lunch programs which attract children to school and relieve food insecurity directly, and road building programs can employ the food insecure and pay them with either food or cash for purchasing food.

Even public efforts to address transitory food insecurity can promote development and need not be solely redistributive transfers. With proper advance planning, public works projects can be initiated to build or repair roads that raise private agricultural efficiency.

Many ongoing programs have the basic administrative structure and the capacity to respond to short-term emergencies. Indeed, ongoing programs become predictors of increased transitory food insecurity as demand for the employment and other benefits

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5. Given the above points, public pursuit of LISA for poor smallholders, renters, and women operators, may detract from providing them with access to productive technology and resources already available to the more wealthy farmers. As a result, food security objectives may be sacrificed.

increases at early stages of a food security problem. These predictors signal larger problems to come.

Safety net efforts can be public or private sector initiatives. For example, private voluntary organizations frequently provide early warning of famine and take the lead in distributing food supplied by the public sector.

## **2.5 Developed Country Domestic Policies Consistent with Economic Progress in Developing Countries**

The foregoing food security framework is most easily achieved in developing countries when developed countries pursue supportive domestic policies. The latter include open markets to developing country exports. Market access is important not only in primary commodities but also clothing, textiles, footwear, processed foods, and other products into which developing countries diversify as development progresses. (The importance of diversified income sources to food security has been noted.) Other important facilitators of growth in addition to direct aid include basic research and holding emergency food reserve buffer stocks -- efforts which developing countries cannot afford. These and other developed country policies to benefit low-income countries are discussed in Annex C.

Global trade liberalization, for which developed countries have taken the initiative but for which developing countries also need to take initiative, has much to offer food security in developed countries. According to estimates in the *World Development Report 1986* (World Bank, p. 131), global liberalization of agricultural commodity programs and border protections would reduce the coefficient of variation in the world price of wheat

from .45 under 1985-type conditions to .10 after liberalization, and in rice from .31 under 1985-type conditions to .08 after liberalization.

All aspects of trade and commodity program liberalization are not favorable to developing countries, however. As developed countries reduce agricultural market interventions, reserve food and feed stocks held by the United States and Western Europe may decline. Developing countries need to be prepared for the impact of such a decline on access to food reserves. In the absence of massive stocks accumulated by commodity programs, governments of developed countries need to give greater attention to special food reserves for responding quickly to food crises that inevitably emerge from time to time in developing countries.

### **3.0 Coping with Transitory Food Insecurity**

Transitory food insecurity poses unique issues for foreign assistance and hence is addressed in this section. To be sure, transitory food insecurity potentially can be alleviated by BBS economic progress because growth makes stock reserves, imports, food transfers, and other coping strategies affordable in developing countries. Despite economic progress, many countries alleviating chronic food insecurity will be unable to cope with unforeseeable large transitory food shocks. Transitory food insecurity arising from drought, floods, pests, and armed conflict frequently cannot be foreseen or protected against. Food aid can be especially important to address transitory food insecurity if in-country food supplies are unavailable. This section addresses problems of and policies for transitory food insecurity.

#### **3.1 Stabilizing Food Prices and Availability**

People need to eat every day. But the ability to acquire food from current income or from current self-provisioning production fluctuates greatly over the seasons and from one year to the next. Seasonal fluctuations are fairly predictable. Annual fluctuations are random; at best only the probabilities of supply in future years are known.

Much private and public economic activity in low-income agricultural economies is devoted to stabilizing access to food. Subsistence farmers diversify crops and cultivation practices, they stagger planting times, they choose cultivars resistant to climatic adversity, and they spread harvests of various crops over as much of the year as feasible. They also store commodities. Similarly, market stabilization is fostered over time and space by

*arbitrage*, defined as buying when and where prices are low and selling when and where prices are high. Obtaining proper access to food consumption over time and space comes at significant cost, whether the stabilizing is done by the private or the public sector.

Although often not recognized nor appreciated, the role of private action in stabilizing people's access to food is critical and continuing. Fundamental questions addressed here are: (1) what is the appropriate role of the public sector in stabilizing people's access to food, and (2) what are the most cost-effective means to accomplish that role?

### *3.1.1 Seasonal Instability Between Harvests*

Daily consumption requirements and access to food are aligned within a season mostly because the private sector engages in a great deal of stabilization. Only poor people suffer from seasonal hunger. However, even they are not necessarily well served by government programs stabilizing access to food reserves on their behalf. Often, assistance that augments their overall annual income through greater productivity is more cost-effective.

### *3.1.2 Stabilizing Against Fluctuating Harvests*

For a subsistence farming household, transitory food insecurity can mean having less than the usual food reserve in the granary, seeking outside employment, sharing food with other families, and selling less market surplus. For people who purchase their food in the market, a major concern is how to cope with fluctuating and often unpredictable food prices due to the instability in national and international food production.

While instability in the food supply is usually the major source of unstable food prices, unstable exchange rates and fluctuating demand also contribute. In the extreme case of famine, people suffer from a dramatic shortfall in access to food.

To illustrate the cost of insuring consumption against random fluctuation in food supply, prices, and income among years, consider a Robinson Crusoe living in a very unstable climatic environment and relying for his consumption on a single food crop. If he is risk averse, he could insure consumption against a string of bad harvests by building facilities to store supplies severalfold as large as his annual consumption requirements. Costs of the storage facilities, spoilage, interest, and management would accrue.

His other option would be to forego storage but employ more resources for production. To be confident of having enough food, each year he must produce more than what he can use in most years. Whether (1) storage or (2) producing useless surpluses is the least costly option for stabilization depends on the relative cost of storing and producing food.

The above example illustrates two central propositions: One is that stabilization in the face of instability can be very costly; the other is the good fortune of not living on an isolated island. The absence of high correlation in production among nations enables national and international trading to be the most promising instrument for achieving stabilization. Poor crops in one place are offset by bumper crops in other places, leaving overall world food supplies with only modest year-to-year variation. If every farmer and country held individual stock reserves independently to buffer their own production, reserves would have to be vastly larger than with open world trade and internationally accessible stocks.

Different foods, often grown in different locations and subject to different growing conditions, can be substituted in human diets. Thus trade is a powerful and relatively low-cost option for stabilizing people's access to food everywhere if yields tend to average out among regions, if people are not too isolated from each other, if transport costs are kept low, and if policy barriers are not erected against trade.

As in the case of seasonal food insecurity, the private sector plays a major role in reducing the instability caused by random events affecting food harvests in different years.<sup>11</sup> (As much as 90 percent of all storing at any particular time takes place on farms and in homes, even when countries hold sizable public stocks.) Yet, major differences exist between mechanisms for coping with seasonal and inter-year transitory food insecurity. Brisk international trading is likely to be the more cost-effective buffer instrument in the case of the latter, while local storage and intra-country trade are more important for assuring stable seasonal access to food.

For developing countries, buffer stocks are a costly instrument for inter-year stabilization. Stocks often have to be held for several years and storage facility costs accrue even when the storehouses are empty. Private entrepreneurs usually face high risk and hence require a premium return on their resources to justify holding buffer stocks. There is much uncertainty about the timing and the profitability of the operation. Timing of purchases and sales to cover storage costs is made difficult by unpredictable domestic

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<sup>11</sup>*Buffer* stocks are for inter-year stabilization, *seasonal* stocks are for seasonal (within-year) stabilization between harvests, and *pipeline* stocks are minimal stocks in transit and on shelves for markets to function.

harvests and foreign markets. Fluctuating exchange rates and government trade policies sensitive to political considerations add to the uncertainties.

Studies (see Reutlinger *et al.*) which simulate the profitability of an investment in inter-year buffer stocks in an open, free market have repeatedly shown that they are not profitable. An exception is when they are held on a small scale, in which case they provide little stabilization. Private traders hold few buffer stocks.

So the important question remains: Is potential instability in the access to food a legitimate concern for public intervention? If consumers prefer instability to paying the high cost for buffer stocks, why have publicly financed storage operations? Some of the possible arguments in favor of a public role in enhancing stability in food availability and prices are reviewed briefly here.

1. It is sometimes administratively more difficult and costly to augment people's purchasing power than it is to increase the stability of food prices and availability.
2. Some individuals and households cannot master the self-discipline necessary to save (or store) for a "rainy day."
3. Finally, a public role might be justified to correct externalities. Stability in food markets benefits more people than those directly paying for the stabilizing. Stability decreases the cost of doing business throughout an agrarian economy. For example, it saves on costs specifically associated with accelerating and decelerating economic activity of many kinds. Also, the

private sector might demand a higher return to cover risk and hence store less than a public sector which can average out risks.

One study (Pai and Tweeten) indicates that government buffer stock policies offer little or no improvement over reliance on the private sector. This conclusion was for the United States but it is not clear that developing-country governments would perform any better.

The most effective way for governments to contribute to the alleviation of transitory food insecurity is do to promote economic development and efficient food markets. Development assures the needed purchasing power on a "rainy day" to acquire food from outside the affected region or from previously stored supplies. Well-functioning food markets are important because they lower the cost of transforming commodities in time and space, the basic prerequisite for stable prices. At present, markets rarely operate efficiently because of underinvestment in public infrastructure and because of restraint of trade -- usually by governments and aggressively promoted by special interest groups. Therefore, it may be efficient as well as desirable from a humanitarian perspective to consider some public intervention.

### **3.2 Cost-Effective Public Roles in Stabilization**

In discussing public policies to address transitory food insecurity, it is important to distinguish between relatively mild, frequently occurring fluctuations in the access to food and sudden, unpredictable famines or near famines. The former are predictable in a probability sense. The latter are rare and are not predictable from historical data. Most

recent famines occurred as a result of war, political upheaval, or other infrequent and unpredictable causes for which neither the public nor private sectors can make adequate food provision at affordable cost.

### 3.2.1 *Mild and Frequently Recurring Instability*

The next few paragraphs briefly review the efficacy of various public instruments for stabilizing prices and supplies beyond what could be expected from a well-functioning market. Before proceeding, two issues applicable to the implementation of stabilization by any method are examined: (1) the source of instability and (2) the problem of porous borders. Policy responses such as buffer stocks, variable tariffs, and self-sufficiency also are addressed.

*The Source of Instability.* The widespread belief that unstable domestic food prices and supplies are mainly caused by fluctuations in domestic food production and stock operations is much oversimplified. The fortunes of indigenous agriculture matter more as a provider of individual buying power and earner of foreign exchange.

Any country today has the option of consuming food that is produced domestically or imported. This means that in a country that trades (poor countries caring for a stable food supply can hardly afford to do otherwise), the price and availability of food is determined by its border price which in turn depends on the world price and the exchange rate.

International prices of cereals have been relatively stable in recent history, in part because of American buffer stocks accumulated under commodity programs. With less

worldwide intervention in markets American buffer stocks would decline from 1950-90 levels but the European Community would help to buffer world prices by transmitting more world price signals to its producers and consumers. The net impact of freer trade would be far more stable world prices according to the *World Development Report 1986* of the World Bank cited in Section 2.0. Real exchange rates have been and can be expected to remain quite unstable. Perceiving correctly the potential role of foreign trade and finance must be an essential component of any assessment of available instruments for stabilization. Because exchange rates are largely a function of macroeconomic policies as noted in Section 2.0, the role of sound macroeconomic policy to address transitory food insecurity is reaffirmed.

*Porous Borders.* Whatever the instrument chosen for influencing the stability of food prices and supplies, a government unable to control the movement of commodities across its borders will have difficulty implementing a public stabilization agenda which differs from the "judgment of the market."

If commodities "leak" across borders -- as is especially the case in small countries with long borders and underdeveloped enforcement agencies -- any stabilization measure will be less effective and more costly than suggested by the usual calculations which ignore the porosity of borders. One way of getting around this problem is for neighboring countries to synchronize their stabilization policies -- something that is rarely likely to happen. It would be generally undesirable to seal borders and pursue an independent food security strategy even if it were possible. Free trade not only supplies food, it also constrains

governments from pursuing costly market distortions which reduce real income and foreign exchange earnings essential to buy food.<sup>12</sup>

We now turn to three instruments of potential use to stabilize food supplies and prices. Each has shortcomings.

#### 1. Variable Tariffs.

As indicated earlier, markets ordinarily are best left to allocate without pricing interventions. Pan-seasonal and pan-regional pricing (that holds prices constant over the marketing year and among regions) interferes with arbitrage and is unwise. An importing country intent on stabilizing food supplies and prices can do so at minimal net Treasury or national income loss with a variable tariff. The practice is for the government to impose an import tax in years when the border (world) price is unacceptably low, and paying an import subsidy when the border price is unacceptably high. The preferred method is to keep domestic prices within a band of (say) 20 percent above and below a moving average of world price.<sup>13</sup> Because the tax collected

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<sup>12</sup>For so called *nontraded commodities* (whose domestic price lies between the import and export price), prices will fluctuate without generating border trade. Many nontraded commodities such as local fruits and vegetables are highly perishable and hence not amenable to buffer stock stabilization. If prices are forced to diverge from supply-demand conditions by government interventions, national income usually is lost. Many economists conclude that the optimal policy ordinarily is to let commodity markets work (with appropriate provision of public goods and adjustment for externalities), and to use direct income or food payments rather than prices to provide equity to the poor.

<sup>13</sup>Some form of variable tariff has been used in Chile, Papua New Guinea, Cote d' Ivoire, and South Korea (Knudson and Nash, p. 4). The preferred method is to tax food imports by the shortfall of the difference between the world price and (say) 20 percent below a moving average of past world prices. A subsidy is paid equal to the excess of the difference between the world price and (say) 20 percent above a moving average of past world prices. This keeps domestic food prices within a band 20 percent above and below the moving average of the world price. Properly managed, the fund should average no net cost to government. A pitfall is incentives for corruption. Depending on how the stabilization scheme is operated, importers may have reason

when border prices are low and the subsidy paid when border prices are high tend to offset each other over time, the budgetary and economic cost of such a stabilization policy could be low. A similar scheme could be applied to a food exporter to help stabilize domestic prices.

The record of the European Community variable levy is not encouraging. But forms of the approach have been used with varying degrees of success in several developing countries (see footnote 13).

Before the scheme is attempted in developing countries, the main questions are: (1) can the program be administered competently to avoid corruption, (2) will governments use a biased reference border price resulting consistently in either subsidies or taxes, (3) will governments master the self-discipline to operate and maintain a "stabilization fund," (4) can borders be controlled to prevent exports when domestic price is below the border price and to prevent illegal imports when domestic price exceeds the border price, and (5) can the procedure avoid "exporting" instability to the other countries, creating more unstable world food prices?

Without attempting to address these questions in any detail, it is important to note that foreign assistance can play a positive role by influencing governments to discard costly and ineffective stabilization schemes. Foreign assistance (financial and food aid, bilateral and multilateral aid) can be provided in counter-cyclical fashion -- more in years when the aid-receiving

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to underreport or overreport their import prices. If they report prices correctly, incentives are to import excessively high quality foodstuffs to avoid paying a tax or to receive a subsidy.

countries need more budgetary resources and foreign exchange to subsidize food prices and less in other years when taxing is in order and foreign exchange is less needed.

## **2. Buffer Stocks.**

Modest size buffer stocks are useful to respond to unexpected food shortages before imports arrive.<sup>14</sup> Calculations based on realistic assumptions over many years of data suggest that aggressive foreign trading is a more effective and less costly way than buffer stocks to stabilize a country's supply and prices. Storing money is cheaper than storing commodities. Money earns interest; buffer stocks cost interest, depreciation of facilities, and spoilage. Except for a country under the threat of military embargo, a developing country takes no more risk by depending on supplies from foreign markets than by relying on its domestic production and domestically held buffer stocks (World Bank, 1986).

One argument in favor of buffer stocks is that grain rather than money must be stored, irrespective of cost considerations, because it is difficult to master

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<sup>14</sup>The IMF has sought with limited success to facilitate borrowing by food-short developing countries to finance imports. The IMF's Compensatory Financing Facility (CFF) and the Food Financing Facility were set up to help countries troubled by export shortfalls and high import prices. The STABEX program of the European Community for Africa, Caribbean, and Pacific countries also were designed to help. The IMF Food Facility was an extension of CFF, making medium-term credit available for excess cereal imports not offset by export earnings. Loans for cereal imports were available for up to 100 percent of the IMF quota for a period of five years, with two years' grace, at an interest rate of 7 percent (Alamgir and Arora, p. 173).

Not much use has been made of the Food Facility. During 1981-87 only seven countries benefitted from it. Only two least-developed countries out of 42 drew on it (Alamgir and Arora, p. 176). The Compensatory and Contingency Financing Facility (CCFF) of the IMF, set up in 1988, offers other possibilities. With its focus only on countries implementing IMF-supported adjustment measures, that facility too is unlikely to be widely used by developing countries.

the discipline to save (foreign exchange) in years of good harvests. There is some justification for holding buffer stocks if a country's food price instability depends more on domestic availability and demand and less on the border price. Such is the case for "nontraded goods" characterized by a large gap between the import and export price so that the country's comparative advantage suggests self-sufficiency over a wide range of border prices. The most likely reasons for a large gap between the import and export price is geographic isolation, poor road and port facilities, underdeveloped markets, and price interventions. The appropriate long-term solution is to overcome as many of these constraints as possible.

### **3. National Food Self-Sufficiency.**

Countries unwilling (or in a few instances unable, e.g., Malawi in recent years) to rely on trade as an instrument for stabilization can deliberately limit their options to self sufficiency. Previous sections noted the high cost of relying on national buffer stocks or chronically committing resources to food production in excess of those needed in a more stable environment. In a normal year, the surplus output from the effort to be sure of producing enough results in depressed prices and production incentives. The consequence may be less production and food shortages in future years. These measures and price supports erode a country's financial resources to import or in other ways adjust to a short domestic crop.

### **3.2.2 Droughts, Floods, and Wars**

Much of what has been said so far applies also to infrequent but drastic shortfalls in domestically produced food which, if unchecked, can result in famines. The majority of famines in the world today, however, are not the result of natural calamities but are caused by wars and civil disorders. Developing countries would be unwise to put large quantities of grain in storage for such events with very low probability of occurrence.

An alternative available in most countries is early warning systems that improve ability to make import arrangements and appeal for foreign aid before food shortages become severe. Attention must be given to assuring sufficient port capacity to handle much larger than usual imports.

The appropriate instruments for assuring stable food supplies even to disaster stricken populations are trade (imports) and modest stocks sufficient only until food imports can arrive. This presumes discipline in the management of fiscal policy and of foreign exchange by developing countries' governments and accessible international financial markets for borrowing and saving.

### **3.3 Summary Comments on Alleviating Transitory Food Insecurity**

Government and external assistance agencies can play some role in stabilizing the food supply, particularly in the case of sudden breakdowns of the normal source of food supply. But far more important for reducing transitory food insecurity and avoiding famines is the creation of conditions whereby all people have stable and sufficient purchasing power and well-performing food markets. These conditions will not be achieved in many countries,

hence there is no alternative to massive periodic relief operations, preferably with more attention than in the past to cost-effectiveness and to international cooperation among donors (see also A.I.D. Policy Paper on *International Disaster Assistance*). The following summarize key principles for foreign assistance to reduce transitory food insecurity.

### 3.3.1 *Reduce Poverty in a Cost-Effective Way*

People and well-functioning markets are the best judges of how much to invest in stabilization. Wherever possible this means that foreign assistance should contribute to raising productivity and hence incomes (in money or in kind) from enterprise. Foreign assistance can play a major role in helping to restructure food distribution programs for cost-effectiveness so that more benefits target the food insecure without undue distortion of incentives for production.

### 3.3.2 *Facilitate Countries' Ability to Stabilize Food Prices and Supplies Through Foreign Trade Transactions*

Foreign assistance and, in particular, food aid can assist countries in coping with the unstable demand for foreign exchange that results from using foreign trade (food imports) to offset fluctuations in domestic food production and foreign exchange earnings. Food aid is appropriate periodically to aid countries which have made no provision for foreign exchange to purchase food imports under domestic food shortages. *It is unwise for countries to grow dependent on "emergency" food aid; instead countries need to follow policies that ordinarily avoid food crises.* Of course, food aid should not be denied when people face famine.

### *3.3.3 Take All Reasonable Steps to Provide Early Warning*

The appropriate policy is to avoid famines, but when they are unavoidable A.I.D. and other agencies must act quickly to provide relief before long-run damage can occur. Sometimes emergency food aid can be combined with needed public works. Soil conservation measures and pre-designed public work programs are examples. Except for those unable to work, no sharp distinction need be made between relief and development assistance. Allowing human and other capital to deteriorate in the aftermath of a calamity is costly in lost development in subsequent years.

### *3.3.4 Promote Well-Functioning Markets*

Foreign assistance can help to improve the structure of food markets. It can encourage policies that promote competition, savings, investment, and technological progress. Technology can reduce the cost of transporting and storing commodities. Governments and foreign assistance can contribute to investment in public infrastructure, communication, and information in support of markets. They can encourage private and cooperative credit programs which in turn can improve private marketing and commercial storage. Governments can avoid macroeconomic policies which create instability, uncertainty, and high real interest rates -- the latter discouraging storage. In short, policies to address transitory food insecurity and chronic food security (see Section 2.0) are similar.

## **4.0 The Role of The Agency for International Development in Food Security**

In broad perspective, the role of A.I.D. in food security is to promote the *synthesis* for broad-based, sustainable (BBS) development and food safety net described in Section 2.0. Implementing that role is complex and must recognize A.I.D.'s comparative advantage, funding limitations, tradeoffs inherent in the *synthesis*, and compatibility with key A.I.D. initiatives. This section addresses these issues.

### **4.1 Comparative Advantage and Focus of A.I.D.**

A.I.D.'s short-run comparative advantage is ability to supply food quickly in response to severe transitory food insecurity. A.I.D.'s long-term comparative advantage lies in promoting BBS economic development. Funding and other limitations preclude A.I.D. from undertaking the entire *synthesis* outlined in Section 2.0. The Agency must narrow its focus to be effective. The general rule is that A.I.D. use its resources where social payoffs are highest to promote food security. This rule too must be narrowed for application. Some guidelines are suggested:

1. *Avoid doing things other public agencies or the private sector will do as well or better.* Funding constraints call for a collaborative and facilitative role rather than direct financial support for balance of payments (better left to IMF) or large infrastructure investments (better left to World Bank and private investors). Although it can ill-afford to underwrite the *synthesis*, A.I.D. can

promote macroeconomic policy education and dialogue with national governments of developing countries and other institutions to foster broad-based, sustainable development along lines outlined in Section 2.0. A.I.D. can make modest but strategic use of its resources to create incentives for governments to follow the *synthesis*.

2. *Avoid activities likely to fail.* A.I.D. would be unwise to establish a policy advisory group for a government opposed to formation or advice of such a unit.
3. *Seek activities where benefits can be leveraged* by inducing others to pool resources or in other ways join in collaborative efforts to bring success. Another form of leveraging is for A.I.D. to support development by promoting public services and infrastructure that encourage rather than compete with the private sector, and that raise rather than lower real national income.
4. *Foster activities in which A.I.D. has a comparative advantage* -- as discussed below.

Comparative advantage can also be viewed from the perspective of cross-cutting capabilities or sector analysis. A.I.D. has demonstrated strength in several areas.

1. **Human Capital Development.**

A recent BIFADEC report noted exemplary achievement by A.I.D. in promoting development through education and training. This human capital development has been accomplished by in-country efforts and by sending local students abroad for higher education and training. These people become

educators, managers, technicians, and leaders. Knowledge has high payoffs contributing to better decisions and to economic progress.

**2. Institution Building.**

Another strength of A.I.D. is institution building, defined to include professional staff and administrative capabilities as well as physical structures. Examples include research and extension services, universities, and credit institutions.

**3. Technical Assistance.**

A.I.D. cannot maintain internal expertise in all dimensions of food security, but it has flexibility to draw on outside help -- subject to budget constraints. That capability can be especially important as relatively recent frontiers of food security such as bioengineering and sustainable systems are advanced. Technical assistance can help to formulate comprehensive operational food security frameworks for countries.

**4. Access to Food Reserves.**

Administration especially of Title II of PL 480 gives A.I.D. access to food reserves. Timeliness is essential to respond to famine, hence that accessibility places A.I.D. in pivotal position to address severe transitory food insecurity. When use of counterpart currencies are considered along with direct food transfers, A.I.D. is positioned to address a wide range of dimensions of food security. Safety net programs established through A.I.D. can prevent or

alleviate temporary food insecurity when the World Bank, IMF, and developing country governments undertake structural adjustments.

**5. Private Sector Emphasis.**

A.I.D.'s special emphasis on private sector development, apparent in the *business and development partnership* initiative, is critical to a food security framework. (Annex E details the compatibility of food security with current A.I.D. initiatives.) Private sector activities and resulting economic development must furnish (1) the domestic food supply, (2) the foreign exchange needed to buy remaining food requirements, and (3) the effective demand needed to clear markets. Private sector activity can be complemented by the Agency's skills in designing food aid and other targeted interventions for (1) helping vulnerable populations achieve independent food security through entry into the private economic system and (2) providing a safety net for those temporarily or permanently unable to achieve that goal. Food distribution by PVOs has been a continuing component of food security.

**6. Sectoral Capabilities.**

Human capital development, institution building, and technical assistance listed above are cross-cutting capabilities that contribute to sectoral capabilities. A.I.D.'s sectoral capabilities match well with requirements of the food security framework outlined in Section 2.0. Examples are comparative advantage in food, agriculture, education and training, and health sectors (see Annex E).

A.I.D. has a long tradition of sectoral expertise in food and agriculture, including nutrition, although relative emphasis has declined in recent years. Elements important to improve agriculture include education, research, and extension outreach in technology adaptation and transfer, establishment of credit institutions, and the like. Marketing, information systems, and nutrition efforts of A.I.D. have been related to food and agriculture.

Primary health services also are a sectoral capability of A.I.D. Such services, along with food, agriculture, and education listed above are components of A.I.D.'s *family and development* as well as other initiatives (see Annex E).

#### 7. Policy Reform.

Policy reform efforts of A.I.D. have at times been brilliant and at other times failures (see Coutu). *Policy reform matters: Economic growth and eventual food self-reliance are inevitable if a nation follows the food security framework depicted in Section 2.0. On the other hand, economic growth and food self-reliance are unattainable if a country violates too many of the synthesis components.*

Technical assistance, human capital development, institution building, and mission staff provide capabilities to supply world-class policy advice. The problem is not the policy delivery system; *the problem is lack of effective demand for policy reform.* To be sure, large welfare gains have been possible from policy reform. But that potential gain does not translate into effective demand if those who make policy decisions deem that reform is inappropriate.

Options for A.I.D. in policy reform are as follows:

1. Provide policy analysis -- if the recipient nation indicates an interest in policy reform. Assist in developing indigenous policy analysis capabilities available to governments. Expatriates may be necessary in the short run, but the longer-term goal is competent and objective local policy analysis capabilities, especially in ministries of food, agriculture, planning, and finance.
2. Use Title III food aid, the Economic Support Fund, and Development Assistance to encourage policy reform. Such aid can cushion adjustments, especially for the poor who may be most disadvantaged by reforms. In the long-term, the poor can be major beneficiaries of policy reform. These same considerations hold for structural adjustment programs of the World Bank and economic stabilization programs of the IMF.
3. If a country persists in policies that preclude economic progress and reforms are not feasible, an appropriate donor stance is to provide only humanitarian food (under Title II) and medical aid. This approach recognizes that aid ineffective in promoting development in one country can be used more cost-effectively in another country.

#### **4.2 Formulating an A.I.D. Operational Framework for Food Security at the Country Level**

Thus far, this discussion paper has addressed food security broadly. The paper now turns to an operational food security framework or plan for the individual country. The A.I.D. Mission Program Officer may be designated to take the initiative in formulating a

operational food security plan. That Officer's broad perspective is critical because food security encompasses virtually every A.I.D. activity in a country -- as well as activities of other developmental institutions, the government, and the private sector.

Many of the foregoing considerations apply to the food security framework for a country. That is, the country framework seeks broad-based, sustainable economic development and a food safety net to alleviate food and income poverty and eventually realize food self-reliance. The country plan recognizes that development needs far outstrip Mission resources. Therefore, it is essential to set priorities, utilize A.I.D.'s comparative advantage capabilities, and to collaborate with other donors, the country's government, and others. It is especially important for Missions to look for constraints or "bottlenecks" to food security not addressed by others, but for which removal would especially facilitate food security.

At the country level, the conflict between the short-term safety net and long-term economic development components of food security are likely to be severe. The Mission Program Officer can help to keep that potential conflict in perspective. The following pages address components of the operational food security framework including inventory needs assessment, famine relief and early warning systems, formulating the food security plan, setting priorities, and monitoring and evaluation.

#### *4.2.1 Inventory of Food Security*

*A comprehensive food security plan for each country requires (1) a food needs inventory and (2) an economic inventory to identify those vulnerable to food insecurity, the causes, and*

*cost-effective cures.* First, consider a *needs inventory*. Devising a national food security plan requires country-specific knowledge of food production, consumption, and marketing at the village, household, and individual level.<sup>15</sup> Information is useful on food consumption patterns, cultural preferences, price and income elasticities, and the extent, timing, and capability of involvement of individuals in the market and in work (earnings). The depth and detail of the needs inventory will depend on resources and time available. Useful national inventories to devise safety-net strategies have been assembled in a few weeks at low cost by relying heavily on existing census and survey data and publications. This is supplemented by expert opinions from field extension and health workers, teachers, churchmen, donor agency experts, and others. Special, small surveys are taken to fill data gaps. (Some of these same sources can be used to provide early warning systems for food security.) Much of the above information is most useful to design safety net programs.

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<sup>15</sup>Early warning, monitoring, review, and evaluation systems can operate at a macro or micro level. Manarolla provides a useful example of a macro system. He devised a food security index and a performance or food security progress index for a group of 65-70 countries. The food security index was based on subsidies of national food self-reliance to measure food availability, and household food access to measure food accessibility. Countries were ranked according to the composite index of food security. They were also categorized by means of a two-way matrix classification as follows:

		<i>National Food Self-Reliance Index</i>	
		Least	Most
		(category)	
<i>Food</i>	Least	1	2
<i>Accessibility</i>			
<i>Index</i>	Most	3	4

Policies were suggested to target uniquely the food security requirements of each of the four categories above. With refinements in data and analysis, the approach can be a basis for *broad* policy orientation. However, greater detail is needed to design food security policies and programs for nations and smaller units.

Now consider the *economic inventory*. The economic inventory encompasses virtually every aspect of a nation's economy ranging from broad macroeconomic and trade information to marketing and production information. To keep requirements manageable, Missions can draw on comprehensive World Bank economic reports found in many developing countries, secondary data from census and other agencies, special surveys, informal local experts, and outside consultants.

Operationally, the food security plan flows from (1) review of the food security situation expected to exist as a result of current activities and (2) identification, in relation to priority goals, of new efforts for Missions, or of modifications and additions to current ones, that will increase food security. In achieving food security, it is useful to identify food insecure groups (1) who will benefit from *economic development* interventions and (2) from *safety net* interventions -- and the most cost-effective options for addressing their needs. For example, able-bodied safety net recipients may benefit from food-for-work programs while the non-able bodied require pure transfers. Some of the food insecure can grow home gardens and others can receive help from family and community.

Responding to the Congressional mandate that food aid be used to improve food security, the strategy can earmark aspects of activities for funding through monetization, and can identify direct distribution of donated commodities as part of targeted development or safety net programs.

Missions must give special attention to the difference between goals expressed as the capacity to grow or buy enough food and the more ambitious aim of assuring adequate individual *utilization*. In many cases, achievement of access to food will *not* be accompanied

by adequate individual food intakes because of poor eating habits, control of income by a nutritionally insensitive parent, or the existence of competing needs. By at least considering the likely consumption outcomes of proposed projects, the food security strategy can often be modified to improve intake without jeopardizing achievement of other goals. Coordination of agricultural and other economic development activities with already existing health and education efforts, for example, can alleviate food insecurity induced by the influence of advertising on consumption. Public policy can make private advertising a positive influence on eating habits.

Because circumstances differ, A.I.D. mission plans for food security will differ among countries. However, most comprehensive plans will contain certain components, several of which are discussed below. Mission food security provisions for early warning, monitoring, review, and evaluation are important.

#### *4.2.2 Famine Relief and Early Warning Systems*

*The top priority in an operational food security framework is to respond to famine.* In such circumstances, local and national food supplies may be inadequate. Ready access to PL 480 food reserves is essential in such circumstances. Having an emergency food delivery plan in place before a food shortage becomes critical can speed response time. That plan includes arrangements for working with other food donors and with PVOs which distribute food.

Although broad-based, sustained economic development eventually will enable a country to become food self-reliant, in many countries that ideal of self-reliance will remain

elusive for decades. Where a country is not self-reliant, A.I.D. must address problems of food insecurity until self-reliance is achieved. Specific measures for addressing *transitory* food insecurity include institution building to have in place (1) early warning systems to give advance notice of food insecurity, (2) administrative structures and plans to distribute food assistance on short notice, (3) provision for financing from internal or external sources, (4) available food supplies from PL 480, in-country stocks, and imports, and (5) an appropriate distributional network of in-country public and private organizations, and of multilateral and other organizations and agencies coordinating food assistance.

Working with governments, NGOs, PVOs, and other agencies, A.I.D. can play a pivotal role in establishing a food security network and *early warning system*. Networks of local health, school, government, and PVO personnel can assist in keeping current the information system originating from the national survey of food security. After the immanent transitory food insecurity of famine is addressed, the next step is specific measures to promote economic development and food security in a plan of action unique to each country.

#### 4.2.3 *Operational Food Security Plan by Level of Development*

The first priority given to famine relief appears to contrast with the theme of this report -- that food security can come only with elimination of poverty through economic development. That same conflict between short run and long run will characterize a plan of action. Any food security operational plan must address developmental and safety net

features. *The danger is that in a search for quick and transparent results, short-term measures will drive out the long-term developmental measures.*

A food security operational framework must be designed for a country's level of economic development. Appropriate policies are unique to each country. Selected options for developing countries are suggested below. We emphasize that the options are only illustrative and in practice a plan needs to be carefully tailored to each country based on the food security framework presented in Section 2.0, comparative advantage of A.I.D., and the local circumstances as apparent from the needs inventory.

**1. Low-Income Country.** (Income under \$250 per capita, most people in agriculture.)

- *Food safety net* of targeted food assistance to respond to potential famine. Ability to provide food or income transfers too low to go beyond minimum protection. Low-cost food security measures such as home food gardens need to be encouraged by extension services and other agencies.
- *Increased agricultural productivity.* Technology transfer through technical assistance and indigenous adaptive agricultural research and extension outreach. Upgrade capabilities of research, extension, and other public service personnel. This is likely to be the principal focus of A.I.D. in early stages. Commitments need to be 10 years or longer to ensure continuity of efforts.

- *Rudimentary improvements in infrastructure.* Improvements are costly relative to tax base, but even modest improvements in roads, bridges, port facilities, irrigation systems, and communication can enhance food security. Funding may be a limitation so need to utilize food for work, ties with World Bank, etc. Provision needs to be made for recurrent costs.
- *Structural adjustments.* Monetary, fiscal, credit, and competition policies are likely to be chaotic. Institution building efforts to bring macroeconomic order and move away from a command and control economy toward market orientation can begin. Foreign debt restructuring may be necessary. Title III counterpart funds, Development Assistance, and Economic Support Funds can encourage some changes, but also need to work with IMF, etc.
- *Health and education.* Primary schools and health clinics can be improved and extended, along with a tax system to support these and other services and infrastructure. (Military and unproductive public service employment may need to be curtailed.)

2. **Intermediate-Income Country.** (Income \$250 to \$750 per capita, approximately half of people in agriculture.)

Many of these same policies apply to low-income countries but at higher levels. The food safety net can be expanded. Improvements in public services, infrastructure, and macroeconomic and business environment can

begin to pay off in economic growth and larger tax base to fuel further economic progress and food security. Additional possible areas of policy emphasis include:

- *Agribusiness sector diversification and growth.* Technical assistance to stimulate food processing, storage, and export industries.
- *Industrial development.* Encouragement for labor-intensive small- and medium-scale industry especially in rural areas. Vocational-technical skill training, improved primary education, and business and engineering training stimulate entrepreneurship, technology, capital formation, and worker productivity.
- *Institution building.* Secondary and higher-education schooling improved and expanded. Local governments encouraged, given more responsibility for local services and infrastructure. Financial institution intermediaries between savers and investors become more critical to help mobilize savings and expand investment.

**3. Higher-Income Developing Country.** (Income over \$750 per capita, more than half of people not in agriculture.)

Again, a food security strategy for a higher income country builds on that outlined above for lower-income countries. At this level of development, however, a country needs to prepare for independence from foreign aid. That means food self-reliance and ability to manage its own macroeconomic

policies for economic and political stability and growth. Some policies will become more prominent.

- *Protection of natural resources and the environment.* By this stage of development, internal capabilities can be present to analyze benefits and costs of public policies. Technical and managerial competence to carry through worthy projects, and ability to finance them will be present. Where the above capabilities are not present, joint ventures will be commonplace.
- *Democratic institutions and human rights.* Representative government, respect for human rights and private property, a free press, an informed citizenry, and other dimensions of democracy can provide an atmosphere for truly broad-based, sustainable economic progress. Equity of opportunity in political and economic processes can provide an atmosphere for ending food security. At this third stage, devolution of democratic processes to local governments may be most successful. Community involvement is useful at all stages of growth, but it becomes especially beneficial as investments in people and representative government pay off. Local governments can supply local services and infrastructure drawing on local property and other taxes.

For expository purposes in the foregoing discussion, food security strategies were outlined for stages of economic development. In fact, the process is continuous but policies

must change over time. *Local A.I.D. missions must tailor strategies to the needs of each country.* Some policies will be *cross-cutting*; affecting nearly all activities at all stages. An example is human, material, and technological capital formation at all stages for nearly all activities.

#### 4.2.4 *The Safety Net, Targeted Assistance, and Food Aid*

Three issues must be confronted in constructing a safety net: (1) the height of the safety net, (2) whether to target transfers, and (3) whether to monetize food aid.

*Height of Safety Net.* As stated earlier, food security often is best served in the short run by food transfers and in the long run by economic development. The market will help make many decisions such as food crops versus export crops, or farm versus nonfarm industry growth but the market will not determine an appropriate safety net level.<sup>16</sup> That decision is best made by people through markets and representative political processes. A role of A.I.D. is to (1) provide awareness of tradeoffs so that countries can make sound decisions and (2) given the tradeoff selected, work toward cost-effective use of the food and other aid to achieve equity, efficiency, and stability.

A safety net set too low helps no one. On the other hand, a food safety net set too high absorbs donor- and host-nation resources, cutting off opportunities for economic growth and self-reliance. Food must not be subsidized to the point that its low cost and ready

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<sup>16</sup>The safety net level is part of a perennial issue of growth versus equity. This discussion paper emphasizes public investments in public health, education, infrastructure, and agricultural research that simultaneously promote growth and equity. The paper also emphasizes efforts to improve agricultural efficiency to reduce food costs, especially benefitting low income consumers. But the paper avoids preoccupation with equity because it begets policies that promote neither growth nor equity as evidenced by Eastern Europe and Tanzania.

availability cause it to be wasted or fed to animals. The shared striving for security has held families and communities together in developing countries. Too high a safety net can undermine the family.

*Targeting.* No developing country can afford across-the-board food subsidies; targeting is essential. Targeted transfers are appropriate for each stage of development. At the lowest income stage, transfers to severely food-deficit families can be targeted informally by health, education, church, and PVO workers who identify the food poor. At the second stage, targeting may be by fair price shops stocking foods acceptable to the poor but avoided by others. At a higher stage of development, food stamps or cash transfers may be income conditioned.

*Monetize Food Aid.* This report emphasizes that BBS economic development must be the core of an operational food security framework for any country. This position is consistent with that of most international donor agencies discussed in Annex D. Infrastructure, public services, policy reform, and agricultural research and extension are central. None of these is most easily promoted by food aid. Food aid becomes fungible (useable for any purpose) if it is monetized (sold in the market for local currency).

Food aid *per se* has special value because (1) it is sometimes available when other aid is not and (2) it is vital to respond rapidly to emergency food needs. For the latter, accessible food reserves must be drawn upon on short notice for direct distribution to people starving because local food is unavailable. Turning from transitory to chronic food insecurity, food aid can be directly distributed by health clinics to at-risk groups such as pregnant and lactating women and their infants, and by schools in lunches for low income

students. If the right kinds of food aid are available, supplies can be targeted to poor people by fair price shops or other self-selecting mechanisms. In the above instances of transitory or chronic food insecurity, food aid can be valuable.

*Because untied cash aid can be used to purchase food or any other component of a food security strategy giving a higher payoff than food aid, it follows that cash aid is more valuable than food aid (at face value) for food security.*<sup>17</sup> However, food aid is often more available. In part this is because \$1 of food aid effectively costs the American government less than \$1 given that the alternative is to pay American farmers not to produce. In short, food aid may be less valuable than unspecified cash aid but the availability of food aid and opportunities to monetize it for serving critical needs means food aid can serve a useful purpose.

*For most purposes the most efficient route to food security is to monetize food aid.* Even for a public food aid safety net where food aid donor support is available, it is generally more cost-effective to sell the imported food at the port city, then buy local foods in the interior to serve the nutritional needs and tastes of the local safety net recipients at low cost. *The corollary is that the Economic Support Fund or Development Assistance funds can be more valuable for food security than food aid.* Annex F indicates how food aid can be a valuable resource despite the above limitations and institutional restraints on its use.

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<sup>17</sup>Andersen and Tweeten (pp. 436, 437) found for 1964-66 that food aid had only 34 percent of the real aid component of cash aid. However, the cost to the U.S. Treasury of food aid was low because of commodity stock surpluses having low alternative use value, hence food aid was economically justified. That study is outdated; food aid is now more costly to supply because of less excess capacity in American agriculture. This implies that for optimal use it needs to have a cash-equivalent real aid component greater than the 34 cents on the dollar found in 1964-66.

#### 4.2.5 Food Security Review

The sectoral focus of Mission programs provides a comparative advantage for both food security review *and* for sectoral projects designed to fill critical gaps in the framework for private sector development activities that improve food security. Food security review is designed to identify opportunities to promote food security through modifications or modest additions to projects not necessarily designed for food security. In building a road for example, rerouting at modest cost may make many previously isolated families more accessible to markets. Food security review could tip the balance of research on a cash crop and a food crop with similar overall economic payoff towards the food crop. Food security review could encourage search for new or improved crops that are more drought and pest resistant.

Emphasis on food security implications of agricultural sector projects could overcome relative neglect by the public sector of efforts to improve agricultural marketing. Interventions to improve market information and crop forecasting, and to strengthen the infrastructure that supports private food distribution can complement private sector activities to increase food security.

Helping a country to develop more effective private and public systems for disaster relief, with or without direct food assistance, may be an appropriate activity for addressing temporary food insecurity. Making regional, community, family, and individual food security explicit goals of rural development programs can incorporate some vulnerable populations into the market system and facilitate attainment of food security.

Because food security problems are multi-sectoral, developing a food security review does *not* call for a set of "food security projects." As with other A.I.D. concerns (e.g., environment and women in development), a food security strategy must be "interstitial," filling gaps identified by reviewing the implications and consequences of current activities. It depends, too, on tilting private economic development toward the food security goal. As with a strategy addressed to improving the condition of women, the food security strategy must also seek to bring into the economic system those who are capable of, but have so far not succeeded in, benefitting from that system.

#### 4.2.6 *Monitoring and Evaluation*

Finally, monitoring and evaluation are continuing needs to improve food security. Food insecurity changes almost from day to day and among households and regions. Those changes properly influence safety net programs but need not influence development programs.

*The (1) food safety net and (2) economic development dimensions of monitoring and evaluation must have different guidelines and procedures. The PL 480 Performance Monitoring and Evaluation Plan being formulated will detail safety net monitoring and evaluation. We do not attempt to duplicate that effort.*

A developmental food security approach is by necessity, long-run, indirect, and initially elusive in showing results. *If food security evaluation relies too heavily on food safety net monitoring and evaluation, then short-term safety net programs will drive out long-term economic development efforts.*

The food security framework outlined herein deemphasizes glamorous projects that produce quick, showy but short-lived results. Instead, the framework calls for long-term investments in policy reform, infrastructure, and public services essential for eventual food self-reliance. The appropriate procedure is to formally or informally evaluate *ex ante* whether a proposed effort will contribute to economic equity, efficiency, and stability over various lengths of run. Such efforts need to be undertaken if, based on the best judgment and calculation of informed persons, they give promise of raising real national income, distributing it more equitably, and with stability/ sustainability. Rates of return on investment; costs, benefits, and their distribution among groups; and coefficients of variation are standard measures of economic performance. In BBS economic development, prices need to be adjusted for environmental impacts, and the distribution of benefits and costs take on significance. Efforts evaluated *ex ante* need to be monitored periodically to determine if they are fulfilling expectations. Developmental efforts that pass the above tests can be expected to contribute markedly to transitory and chronic food security and self-reliance -- but not necessarily in the short run.

An illustration can help to reveal the difference between short-term safety net and long-term development. In agriculture, a narrow food security focus might emphasize projects teaching urban households how to raise a home garden, can food, and obtain sanitary water. A longer-term development focus would upgrade capabilities of agricultural research and extension services so that these personnel would undertake *nationwide* food security projects of similar types. In addition, the long-term approach could deliver high yielding, drought- and pest-resistant cultivars to growers everywhere.

Monitoring and evaluating a food safety net requires other measures of success. Although public works, health-related food distribution, and other safety-net options may be justified developmentally, much safety net compensation involves unproductive income transfers. Food stamps, targeted subsidies, and self-targeting subsidies that make use of less preferred staple foods all involve program and administrative costs without corresponding development benefits that eventually repay costs. Traditional guides such as rates of return or economic benefit-cost ratios to allocate resources and outputs will not suffice. Development of the safety net component in a food security strategy requires consideration of alternative techniques such as cost effectiveness (e.g. improvement in diet per unit of spending) and administrative feasibility. As stated earlier, the decision of how much emphasis to place on the safety net versus economic development is not for A.I.D. to make but the Agency can help to identify tradeoffs for those who make the decision.

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# Annex

## Annex A

### Food Security Pyramid

The current status of food security is depicted by the broad base of a Food Security Pyramid (Annex A Figure 1) representing the one billion people chronically food insecure and the one quarter of a billion in transitory food insecurity. The goal of improved food security is represented by progress towards the point of the pyramid at which food insecurity has been eliminated.

The front face of the pyramid is comprised of two segments representing selected policy packages for dealing with chronic and transitory food insecurity. Each of those packages is divided further into the components efficiently addressed by markets and development and the components requiring direct public action to provide a safety net of food and income transfers.

The side face of the pyramid designates the continuum of action from international through various levels of national organization, both public and private, reaching the ultimate objective of the family and the individual man, woman, and child within the family. Because of human disability and misfortune, the ultimate objective (the point of the pyramid) will not be reached solely by market processes. Hence specific public food distribution programs will continue to be necessary. This paper treats the range of public

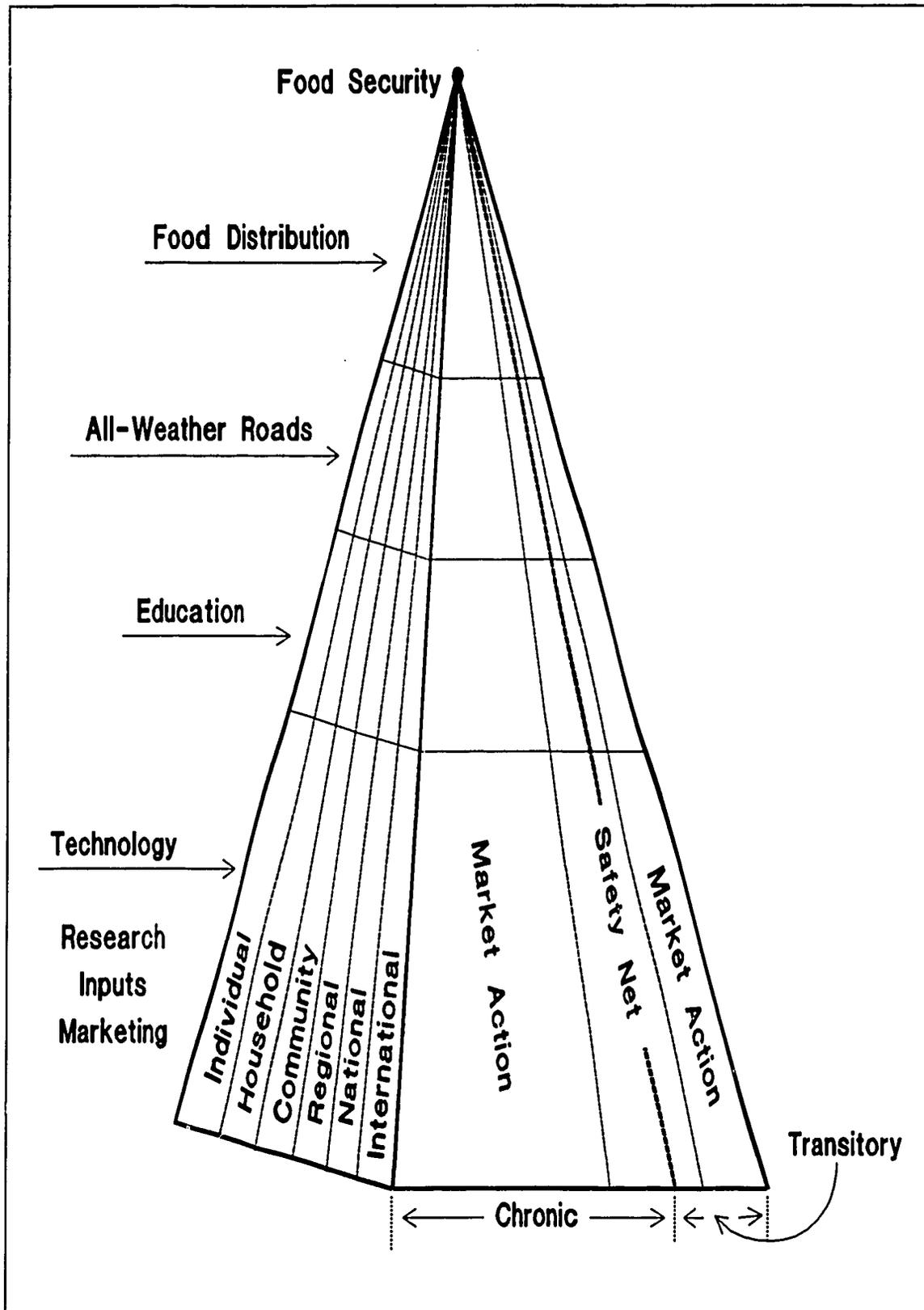


Figure 4. Food Security Pyramid.

approaches to achieve food security: those that broaden the base and increase the efficiency of market-oriented development and those that target safety nets on the most needy.

Because developing countries have very limited national income and because the number of people with incomes so low that they cannot command adequate food for a healthy, active life is so massive, food security cannot be achieved solely by income transfers. Thus most of the width of the pyramid, both for chronic food insecurity and transitory food insecurity, is comprised of market-oriented growth activities. Those activities are much more numerous than what is depicted on the Food Security Pyramid. The Pyramid only includes those activities most oriented towards food security. Thus as development proceeds, the need for public transfers required to achieve food security diminishes. (In fact, actual transfers may increase despite the smaller need because the means to provide them rises -- they are filling previously unrecognized needs.)

Categories of public effort to create food security are depicted as horizontal bands on the pyramid, with those having the most direct effect near the top of the Pyramid and those having the most indirect effect near the base. Each of those activities has dimensions ranging from individuals and households to the nation and the world -- and so slice across the pyramid in each direction. Each is important in dealing with both chronic and transitory food insecurity.

## Annex B

### Structural Adjustments

Food security of the most vulnerable in society may be threatened by structural adjustments called for by the International Monetary Fund (IMF) and the World Bank. Loans are extended to heavily-indebted countries to help them through the difficult adjustment to sound economic policies. Several observations are appropriate (see Tweeten, 1990):

1. Structural adjustment loans are extended to countries which have been living beyond their means and have accumulated massive debt they are unable to repay. Austerity is inevitable -- sooner or later. The adjustment loan should reduce the burden of austerity.

The changes in policies called for by the World Bank and IMF follow the *synthesis* presented in Section 2.0, which is sound economics as best economists can determine. The hardships are unavoidable consequences of nations giving up unsustainable macroeconomic policies (living beyond their means) rather than consequences of the reforms -- privatization, an end to market distortions, and the like.

3. Reforms may cause transitory food insecurity even as they contribute to long-term food security by returning countries to economic policies for sustainable

economic progress. Reforms in structural adjustments could ease transitory problems. The poor frequently are most disadvantaged by austerity measures. Food assistance can target the food insecure and make structural adjustment programs less traumatic.

4. Further indebtedness incurred to support structural adjustment does not resolve the debt problems of an already bankrupt country. Debt writeoff is often essential (it happens *de facto* anyway as countries are unable to service debt) before structural adjustment reforms can return countries to a sustainable economic growth path.
5. The best way to avoid the hardships of structural adjustment is to end unwise policies *before* they cause excessive debt, inflation, overvalued currency, and foreign exchange shortage described as the Economic Degradation Process (Tweeten, December 1989). A.I.D. can play a critical role in providing policy advice toward the *synthesis* (depicted earlier) before the economy deteriorates.

## Annex C

### **A Note on the Role of Developed Country Domestic Policies Fostering Food Security in Developing Countries**

This section concludes by noting that food security policies of less developed countries (LDCs) will be most successful if carried out in a world of supportive developed country (DC) policies. Several such DC policies are listed below (Tweeten, 1989, pp. 226, 227):

**1. Open Markets to LDC Exports.**

If countries do not export, they can't import, and the world loses. Opening up DC markets could do much to promote trade, development, and food security in LDCs.

**2. Hold Emergency Food Reserves.**

LDCs will not hold adequate food reserves to meet emergency food needs. Nor is it economic for them to hold such reserves. Purchasing food in export markets when supplies are short is much cheaper for LDC food security than are buffer stocks held in the country or attempts at food self-sufficiency. The *IMF Cereal Facility* was a laudatory attempt to make loans of foreign exchange to poor countries for food imports in times of domestic food and foreign exchange shortages. It has been little used, in part because lending terms were judged to be too costly or restrictive and food security was linked

to policy reforms unacceptable to borrowers. Whether LDCs have foreign exchange or not, they must have a place to turn for food supplies to avoid famine when nature and pestilence combine to provide a small domestic crop or when food is inaccessible because of civil strife. Buffer food reserves will be held mainly by food-exporting developed countries.

**3. Basic Research in DCs.**

LDCs cannot afford basic research but it is the single brightest hope along with population restraint for dispelling the Malthusian specter in the long run. Biotechnology offers vast promise, but LDCs cannot afford the luxury of investing in costly research with uncertain payoffs and large spillover of benefits to other countries.

**4. Adaptive Research in LDCs.**

A high priority is for LDCs to have local research capacities for adapting research from elsewhere. Poor LDCs have been unable to train, attract, and hold the brightest and best scientists available to them. Failure to maintain continuing support for such efforts is a major oversight which needs to be corrected. *This deficiency will be corrected only with assistance from DCs.* A.I.D. and other donor funds can help pay for research, training, and infrastructure investments.

**5. Improve Infrastructure in LDCs.**

The market alone will not provide adequate infrastructure; public sector involvement is essential as noted earlier. LDCs acting alone will not build

sufficient infrastructure for food security. Loans or grants from DCs can help to fund public infrastructure, helping private markets to work better. But as roads, for example, are built, provision must be made to maintain them.

**6. Human Resource Development.**

The DCs can help LDCs improve educational and vocational training facilities and services. Contributions of donors to education can include education of current and prospective teachers in DCs, teaching apparatus such as audio-visual equity, facilities, school lunches, and the like. Another need is low-cost primary health care employing local talent. Contributions of donors can include pharmaceuticals, technology, and training for family planning, immunization, sanitation, and the like.

**7. Macroeconomic and Commodity Program Policies.**

Unfavorable monetary and fiscal policies in the United States and high rigid commodity price supports especially in the European Community and Japan have had mostly unfavorable repercussions for LDCs in recent decades. One result is trade barriers to protect DC industry, unstable world prices, and unfair competition in agricultural commodities. Ending or sharply revising such policies in developed countries would assist LDCs.

According to estimates in the *World Development Report 1986* of the World Bank (p. 131), global liberalization of agricultural commodity programs and border protections would reduce the coefficient of variation in the world price of wheat from .45 under 1985 type

conditions to .10 after liberalization, and in rice from .31 under 1985 type conditions to .08 after liberalization.

As developed countries reduce agricultural market interventions, reserve food and feed stocks held by the United States and Western Europe may decline. Developing countries need to be prepared for such changes. In the absence of massive stocks accumulated by commodity programs, governments of developed countries need to give greater attention to special food reserves for responding quickly to food crises that inevitably emerge from time to time in developing countries.

## **Annex D**

### **Positions of Other Agencies Regarding Food Security**

Information was reviewed on the food security positions of the following international organizations: the World Bank (WB); the International Fund for Agricultural Development (IFAD); the World Food Programme (WFP); the World Food Council (WFC); the Food and Agriculture Organization of the United Nations (FAO); and the European Community (EC); two bilateral organizations, the Overseas Development Administration (ODA) of the United Kingdom and the Canadian International Development Association (CIDA); several private voluntary organizations (PVOs); and three research institutions, the International Food Policy Research Institute (IFPRI), Michigan State University (MSU), and the Institute of Development Studies (IDS).

This review first summarizes positions of key donor agencies. It then summarizes positions on key issues.

#### **Food and Agriculture Organization of the United Nations (FAO)**

While nearly all donors address the issue of food security explicitly and emphasize its relation to the development process, FAO carries the approach to its ultimate. It has set forth a schemata for national food security involving smallholder food production and then applied that to specific countries. The cases delineate in full detail the development

projects and policies which are needed to achieve food security. The action plans give specific attention to the needs of the small-farmer food deficit households.

The most detailed effort to date entailed a major field effort delineating the specifics for Zambia within the general conceptual framework. The effort starts with the objective of food security and then traces through the agricultural production needs to achieve food security. This is, of course, in the context of the FAO emphasis on self reliance rather than self sufficiency but recognizes the important role of the small farmer whose production can be increased. In the case of Zambia, substantial effort is placed on increasing the supply and utilization of work stock to increase the labor productivity of farmers operating in a land abundant country but with extraordinarily low levels of labor productivity and consequently inadequate food production and income to achieve food security. The case also emphasizes increased use of fertilizer and improved cropping patterns.

Once the food insecurity problem has been diagnosed and the project needs delineated, a full costing is carried out within a computable framework for which the methodology and computer programs have been carefully developed. The approach is being applied to other counties in addition to Zambia.

### **International Fund for Agricultural Development (IFAD)**

IFAD, in keeping with its orientation to the poor, has an explicit and detailed approach to food security which is detailed in a book issued by IFAD on that subject. IFAD's approach to food security emphasizes the impoverished, food deficit producer. It especially emphasizes the role of poor women, disproportionately represented among the

hungry poor. The IFAD approach to food security is clear on the role of cash crops as a means of raising the incomes of food deficit households and thereby providing the purchasing power for increased food intake.

IFAD notes the common circumstance that food deficit households which increase production of a cash crop also increase their production of the food crops which they consume in the home. That is because the increased income from the cash crops provides the means for purchasing inputs which increase the productivity of both the land and the labor of the impoverished small farmer. The converse is noted: increased food crop production achieved by productivity-increasing innovations also releases resources for cash crop production which further increases resource productivity, family income, and food security. Thus cash crops and food crops may be highly complementary in achieving food security.

IFAD also notes complex interactions. It is not uncommon for production increases to be associated with transfer of control of income from women to men and for that in turn to change family expenditure patterns to the detriment of food security. IFAD gives attention to dealing with such complexities of achieving increased food security. It is an institution rich in knowledge of how to deal with food security in a practical, operational context.

IFAD is following its detailed statement of food security needs with another major book dealing with poverty problems especially found in the rural areas of low income countries. That work provides detailed analyses of IFAD's wideranging efforts to raise incomes and increase food security.

### **World Food Program (WFP)**

Perhaps because WFP is clearly at the cutting edge of food security problems through its efforts to reduce both transitory hunger in the context of emergency food relief and the broader problems of chronic food insecurity through food use in development problems, it does not have an explicit statement of food security and its role in food security. Nevertheless, it is clearly directing its resources at food insecurity situations and provides a wealth of operating experience in providing food in grossly food insecure situations.

WFP has operating experience not only in emergency relief, but in food-for-work programs as well as with monetization of food aid. It works closely with other institutions, including recent strong working relations with the World Bank intended to combine food with other resources for relief of food insecurity.

### **World Food Council (WFC)**

The World Food Council explicitly treats food security problems in its ministerial meetings and its country strategies. The Council, as a body bringing together persons at the ministerial level to discuss food problems, provides a major forum for focus on food security. Its positions are developed by a small staff from the work of other institutions and thus falls in the mainstream of food security views and programs. It works actively to obtain consensus on action programs devoted to food security.

## **The World Bank**

In keeping with its broad mandate as well as its position that food security is an approach, not a project area, the World Bank does not develop food security projects. However, food security receives explicit attention at the country operations level. For example, a major document from the World Bank for Malawi is entitled "Malawi Food Security Report." It was provided by the Agriculture Operations Division in the Southern Africa Department of the Africa Region. The 98 page document is part of a joint effort with the World Food Program and the Food and Agriculture Organization to develop food security strategies for several African countries. It delineates basic issues including the problems associated with structural adjustment programs, analyzes the food availability and malnutrition situation, the range of problems in increasing food production (particularly in food insecure households), the policies needed for improvement, and the specific government institutions for food security. The Malawi case is particularly instructive because of the unusually large proportion of the population in food insecure circumstances. The report represents an approach that AID would find beneficial to examine and perhaps emulate in specific countries.

Comments below center on the definition of food security, the extent to which transitory and chronic food security are differentiated, the relation of food security to poverty, the relation of food security to development, and the specifics of programs and policies for dealing with food insecurity.

## **Definitions**

Definitions were reviewed in Section 1.0. The World Bank's definition of food security is widely accepted. In essence then, food security is seen as a very broad concept aiming at access to food for all people at all times to achieve an active and healthy life. In contrast, Section 1.0 of this report includes utilization (consumption, absorption) along with availability and accessibility as dimensions of food security.

## **Transitory and Chronic Food Security**

In keeping with the broad definition of food security, both transitory and chronic food security are explicitly of concern to essentially all the institutions reviewed. The European Community is more explicit than most of the other institutions in noting the role of micronutrient (e.g. vitamins, minerals) deficiencies as an element of food insecurity. Because this element of food insecurity may occur among people with adequate income to provide basic calorie sources, it leads into a different set of problems and policies.

## **Relation to Development**

Again, in common with the encompassing definition, virtually all of the agencies take a clear position that broad-based development must deal with the bulk of the food security problem. In most cases, this is made explicit. The Overseas Development Administration of the United Kingdom has expressed a particular caution that a concern for short-term food security should not divert attention away from long-term economic development to deal with food security problems. The ODA explicitly notes that this long-term strategy may result

in greater food insecurity over the short term. This view is not contradicted by the other development agencies and research institutes, but PVOs have a different perspective.

Although by no means universal, a substantial proportion of private voluntary organizations take in essence a "food-first" approach that emphasizes increasing food production without examining the role of food production in broader development. In practice, these same PVOs tend to take a negative view towards commercialization of agriculture, particularly in the form of agricultural export commodities. This brings those PVOs into direct conflict with the position of FAO favoring self-reliance over self-sufficiency.

### **Relation to Poverty**

All of the institutions emphasize that poverty is the root cause of food insecurity. The EC statement, however, goes a step further to indicate problems of food security for those who are not in poverty. It does this through its emphasis on the micronutrients. In a well-articulated position, IFAD explicitly relates its poverty reduction program to food security.

### **Programs and Projects**

While the various agencies have very similar views with respect to definitions and the relationship between development and poverty, they differ according to their various comparative advantages in their programs and projects. Several of the institutions emphasize that food security is a way of looking at a problem, and is not the basis for food

security projects. That is quite explicit on the part of the World Bank and ODA, but it characterizes most of the other institutions as well.

The World Bank gives a very central place to macro policy as a critical element of a food security program. It is notable in this context that the EC, the International Fund for Agricultural Development, and the Food and Agriculture Organization of the United Nations all explicitly note problems with food security arising from the structural adjustment programs of the World Bank and the International Monetary Fund. It is recognized that processes of improving macro policy may have negative food security implications that need to be treated. FAO also gives considerable emphasis to macro policy with specific mention of the positive role of trade, but urges caution regarding difficulties which may arise in open-trading regimes. FAO gives particular attention to price policy, noting both positive and negative aspects.

Development of national food strategies as a means of diagnosing food security problems and for ameliorating them bulk large with the European Community, and also receives specific attention from ODA of the United Kingdom. In the context of sectoral policies, the World Bank is particularly clear on the importance of rural and agricultural development as specific sectoral emphases for dealing with problems of food security. FAO, of course, emphasizes the agricultural sector. It is in the process of formulating extraordinarily detailed and intricate programs for achieving food security through growth in the agricultural sector. Some FAO country projects explicitly focus on food security. Such projects fully budget for and treat an entire range of rural development needs for food security. The program for families is particularly detailed.

While most institutions emphasize achieving food security through general programs of growth and poverty alleviation, the International Fund for Agricultural Development emphasizes a number of project areas. It gives particular attention to the role of women in achieving food security and to projects that may improve the capacity of women to increase food security. IFAD also gives special attention to the role of inadequate credit and credit institutions in creating an environment of food security. In part, this attention is motivated by de-emphasis by other donors of the role of institutional credit.

The World Food Programme emphasizes food aid both in dealing with chronic and transitory food insecurity. Food security is explicit in the World Food Programme's food aid programs. FAO also draws specific attention to the role of food aid in dealing with both chronic and transitory food insecurity, and spells out programmatic approaches to increase the usefulness of food aid in this context. The EC is explicit about the importance of food aid, noting that it comprises 20-30 percent of all EC aid to developing countries, and delineates means for making it more useful for achieving food security.

In this context of a positive view of food aid (from the World Food Programme, FAO, and the EC, as well as the intellectual support for it from the Sussex group), it is notable that many of the private voluntary organizations tend to have a very negative view of food aid except for famine relief. It is thought of as breeding dependency and interfering with the growth of food production which they view to be of primary importance to achieving food security. Thus, once again we find many PVOs in a somewhat contrary position to the central tendency of the other foreign assistance and development analysis

groups. Of course, several large PVOs such as CARE effectively use large amounts of food aid to promote food security.

The FAO gives explicit attention to stocks and stocking policy, but does so in a trade context. In other words, FAO is not pushing for food self-sufficiency, but rather a sufficient level of stocks to carry a country over until emergency supplies can be brought in from outside.

Two particular points from the analytical institutes are worth emphasizing. The IFPRI group has documented the "coping" strategies of poor, food insecure people. The IFPRI research continually draws attention to non-farm income as the key ingredient of food security for poor rural people.

The Michigan State University group documents substantial differences among relatively small geographic areas in the programmatic components of food security programs, arguing that food security must be tuned to local conditions. It notes that mandated high food prices designed to assist agriculture may increase hunger in rural areas because most rural people are net food buyers. It also notes that cash cropping can be consistent with food security in part because it supplies capital for technology to more efficiently produce food. The Sussex group has constructed position statements detailing effective use of food aid to achieve food security.

### **Conclusions Regarding Other Institutions**

From this brief review, behind which lies a massive amount of documentation, clear support is apparent for the broad World Bank-based definition of food security, for seeing

food insecurity as arising basically from poverty, and for developing a solution to food insecurity based on economic development particularly in the agricultural and rural sectors. There is also broad agreement that food security involves both transitory and chronic elements.

The emphasis on development is particularly supported by the EC and ODA emphasis on food strategies. The emphasis on macro policy comes through clearly from the World Bank, FAO, and ODA of the United Kingdom. A prominent role for food aid shows in several of the institutions, contradicted only by a substantial number of private voluntary organizations. PVOs recognize the importance of emergency food aid to avert starvation. Indeed, they frequently distribute such food aid supplied by the United States, the EC, and other donors. There is, in general, little in the review to argue for projects targeted specifically to achieve food security, although IFAD and some other institutions give emphasis to targeting the poor which of course is the equivalent to targeting food security. Beyond this broad support for the approach which we are taking, it is well to reemphasize the Michigan State University point regarding the importance of tuning programs specifically to the needs of particular areas (they illustrate with the case of "white maize" in areas of Zimbabwe), and to the implications of various coping strategies and non-farm income sources as emphasized by IFPRI (calling for relatively more short-run support in areas where coping strategies are poorly developed.<sup>1</sup>

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<sup>1</sup>The overall success of expanding production and building stocks of white maize in Zimbabwe tended to veil the fact that semiarid area smallholders, the majority of all smallholders, experienced limited benefits. For broad-based benefits, technologies must be appropriate to the various types of households and resource bases, investments to expand public infrastructure and social services are needed, and alternative sources of income are useful to diversify and expand buying power.

## **Annex E**

### **Food Security and Key USAID Initiatives**

AID has specified four basic initiatives to orient its activities into the 1990s -- the democracy initiative, the business and development partnership initiative, the family and development initiative, and the environment initiative. At issue here is how food security relates to these initiatives.

Food security complements the pursuit of democracy, enhancement of family values and family structures, and protection of the environment. Food security is synergistic with the operation of markets and the enhancement of a business and development partnership. Certainly, enhancement of the business development partnership (and its ancillaries of market orientation and growth of the private sector) is essential to economic growth needed for food security. Development of democratic institutions provides an institutional framework important to the long-term solution of food security problems.

#### **Democracy, Food Security, and Agricultural Growth**

In countries where 60-80 percent of the population lives in rural areas, democratic participation cannot be separated from the enfranchisement of rural people and the development of rural local governments. A population of hungry people hardly provides a foundation for democracy.

Our treatment of food security emphasized the importance of self-reliance as compared to self-sufficiency in food -- at the international, the national, and the local level. Greater food security can be achieved by higher levels of productivity and attendant buying power that arise from commercialization and trade. But for that to happen, there must be a rural infrastructure, including all-weather roads, effective food storage and processing facilities, health clinics, and schools.

The resource requirements for public services and infrastructure are so great that they are unlikely to be achieved without the development of local government, bringing rural people into the process of raising and deploying the funds for rural investment. The efficient way to bring that about is for local people to band together in local governments which can raise taxes and administer the expenditure of those taxes for things that local people want. Rural people have always been clear that they want roads, schools, and clinics. They will get them with democratization of the countryside. Property taxes have not been much used in developing countries but could be one means to support such infrastructure and services without creating severe market distortions.

Democracy finds its fullest flowering in local government where people vote for representatives who are close to them and carry out functions which are understood and monitored. Devolution of power (in the sense of democratic local government) can forward the process of achieving food security. In addition, democratically-based local government can provide the mechanisms for food distribution if famine or other crises strike. Democratization and providing rural people with needed services and infrastructure could

accelerate rural development, diminish poverty, and stimulate national growth essential for food security.

Few developing countries have even a nascent effective local government system. The United States has much to offer in helping to build the basis for those institutional structures, and doing so through technical assistance of various types. Thus, we find a two-way street between food security and democracy. On the one hand, food security is necessary to achieve democracy; on the other hand, democracy can do much to facilitate the types of rural growth which can ensure food security.

### **The Business and Development Partnership - Privatization and Market Processes**

As noted in Section 2.0 of the text, the private sector constitutes the major engine for economic development and food security. Section 2.0 detailed public policies likely to be most effective in guiding private sector growth to benefit the poor. Considerable scope also exists for the private sector to play a role in food distribution programs addressing transitory food insecurity arising from crop failure and the conditions of famine. Effort is needed to identify what distributional functions the private sector can fulfill and how the public aspects of distribution can best mesh with those potentials.

The agricultural and nonagricultural sectors in rural areas operate primarily at the family and somewhat higher than family level size of enterprise. A rapidly growing national rural market provides the favorable base for rapid growth of small and rapidly developing medium-sized enterprises, not only in agriculture but, far more importantly, in the rural nonagricultural sector. The fast growth of Taiwan is explained partly by the rapid growth

of medium-scale enterprises in rural areas. Such medium-scale nonfarm enterprise growth is happening in virtually all developing countries which provide vigorous growth in national markets through rising agricultural productivity and incomes. The development of that business partnership in rural areas means growth of labor-intensive industry. Labor-intensive industries lend themselves least well to public management and most well to private enterprise. The rapid growth in employment through such firms is the second leg (after agriculture) of dealing with food security through growth.

Again, foreign assistance can play an important role in the development of this business and development partnership. It can do so by helping to build the institutional structures to support such business. That includes the institutional framework for providing physical infrastructure of all-weather roads, electricity, and communications so essential to business enterprise, particularly that located in rural areas. As stated earlier, improvement in communication and information systems and market structures promote food security by enhancing the ability to move food quickly in response to the transitory food security problems connected with poor crop years. In this context, there is scope for imaginative efforts by foreign assistance to help growth of crucial private sector activities in rural development. The purpose is to stimulate rather than displace private activities, correct market distortions rather than create them, and to raise rather than lower real national income.

## **The Family and Development**

As noted in Section 2.0, economic development and food security arise from material, technological, and human capital formation. The greatest capital potential is human capital in developing countries. The family household directly creates human capital and indirectly creates such capital by supplying the motivation, health, and competence for children to succeed in school, skill training, and on-the-job experience. Food insecurity retards minds and diverts families from human capital formation.

Children represent a majority of those in absolute poverty and hence food insecurity. The initiative with respect to family and development within A.I.D. can make a major contribution to achieving food security by noting particularly the plight of children. At issue is how intrahousehold allocations relate to them, and how to create an environment for their achieving a high nutritional status within a given level of income. Further, food security for children is essential to the other elements of an enhanced family environment, not just improving education and health.

Assuring adequate food supplies to every family must be the centerpiece of a family-oriented initiative. This report emphasizes the bulk of the improvement in food security must come through developmental and growth processes. But that process can be turned around: strong family structures operating through family farms and rural family businesses help food security. In many developing countries, extended families are held together by the need for mutual food and income security through sharing. Food security programs must take care to preserve and strengthen that family structure rather than undermine it.

Women play a key role not only in preparing but in producing food and feeding children. Food security is enhanced by programs helping women to become more efficient and effective producers and consumers. Agricultural production and income earned by women are allocated in higher proportion to meeting food security needs of children than are production and income of men. Women emphasize food production for home consumption. Education of women is also important for available income to be allocated most efficiently to providing nutritional security. Within any given income level, educated women can play a major role in seeing that the income is expended efficiently to achieve high nutritional status. Section 1.0 defined food security in the ideal as utilization of sufficient food by all persons at all times for an active and healthy life. Through education, women often are the nexus between food accessibility and proper nutrition.

### **Environment and Food Security**

Americans are rightfully concerned about the environment, not only within their own country but globally. Destruction of the environment in distant lands affects all of us -- in developed and underdeveloped countries alike.

Environmental concerns provide a particularly powerful argument for diminishing food insecurity through processes of growth. The bulk of destruction of the environment in developing countries is perpetrated by poor people under the pressure of poverty and population growth who expand cultivation into areas unsuited for annual crops. In the tropics, this includes destruction of forest for lumber and firewood, and to make way for shifting (slash and burn) cultivation. This also includes destruction of perennial grasses on

the dry margins. Environmental destruction creates food insecurity in the longer run; conversely, food security reduces pressures to destroy resources. Technology raising the productivity of agricultural land and labor allows a drawing back from shifting cultivation and destruction of the arid perennial grasslands. Production then can concentrate in less fragile ecological conditions. Sustainable agricultural technologies can help to supply food using less synthetic chemicals and petroleum fuels. Thus, a positive two-way interaction is apparent between food security and environmental objectives.

The commercialization processes incident to accelerated growth in agriculture will allow specialization in production of those commodities best suited to specific ecological conditions. Such specialization is not possible in a low-income subsistence agriculture as population and food demand pressures mount. With subsistence, each family must produce its minimum needs in a manner most productive of calorie production irrespective of the nature of the ecological resources. Hence, subsistence agriculture is not compatible with environmental care or with food security.

## Annex F

### Food Aid as a Resource to Reduce Food Insecurity

Food aid can be a valuable resource in the portfolio of foreign assistance in spite of some characteristics that make it more difficult to program than money. According to Public Law 480, food aid is not to displace commercial food imports nor discourage domestic production. Where the country is a net food importer, food aid may displace commercial imports but need not reduce incentives to local producers. If a nation is a food exporter, it is difficult to import food aid without expanding commercial exports of the recipient. *However, food aid targeted to expand consumption by the poor can raise food demand as much as supply.* This can enhance food security without reducing indigenous production incentives or commercial imports.

Food aid that reduces local prices benefits consumers but diminishes incentives for producers. *But, properly used, food aid that reduces domestic production in the short run may increase production in the longer run.* The reason is that the counterpart funds from monetized food aid may be used to support public infrastructure and services that increase productivity of indigenous producers, thereby lowering production costs and increasing output. In this context, several suggestions are offered to A.I.D.

1. Interpret the commercial-import requirement of PL 480 flexibly, and emphasize food aid to countries which are or otherwise would be food

importers. One reason is because food aid can promote food security over the long run through economic growth. Economic progress will bring greater commercial imports from the U.S. even if the aid displaces some commercial sales in the short run. A number of studies indicate that greater agricultural productivity in third-world countries expands American farm exports (see Paarlberg).

2. Recognize that food aid costs the U.S. government less than cash assistance because the alternative often is to pay American farmers not to produce or to incur high costs for storage. For countries where food aid clearly would reduce local incentives to produce food, but where PL 480 is the only aid available, an alternative is to provide cotton or surplus fiber commodities may be an aid option. Food security is enhanced by investing local currency counterpart funds to expand food production efficiency and consumer buying power.
3. Food aid counterpart funds and other foreign assistance need not, of course, be invested solely to expand local cash crop production for export. It can be used to advance productivity of local nontraded food crops that do not compete in international markets. Or funds can be used for industries other than agriculture -- wherever income and employment generating payoffs are highest.
4. One desirable way to avoid diminishing incentives for local producers or displacing commercial exports is to promote food security by targeting food

aid to expand consumption among the disadvantaged. Correcting under-consumption can add as much to domestic demand as food aid adds to supply so trade and prices are unaffected.

Sometimes the above approaches can be combined. A well-planned long-term food-for-work investment in roads or a school-lunch program to encourage school attendance may displace little indigenous production while contributing significantly to broad-based economic progress and food security.

Needs of the food insecure usually can be met most cost-effectively by supply assistance indirectly. Except in the case of sudden disasters, direct delivery of food aid is usually an inefficient instrument for meeting the specific food needs of people. Delivery costs may be less if left to the commercial trade and the target population may prefer other than the commodities available from food aid.

Food aid should not be used to subvert appropriate food security policies. Yet, this is precisely what occurs when food aid, like other commodity aid, is monetized inappropriately or haphazardly. For instance, wheat aid that is sold to a mill for less than the price of wheat available from other sources (commercial imports or domestic procurement) in effect provides a food subsidy at the same time that A.I.D. and other external assistance agencies have negotiated long and hard for the abolition of such subsidies.

If most of Title I, Title II, and Title III food aid is to be monetized and food aid from other countries is also to be monetized, some basic food marketing issues must be addressed: the timing of sales, the mode of selling (through auctions, etc.), and the

utilization and the control of funds from the proceeds of the sales. The PVOs handling most of Title II food aid have so far enjoyed much independence, with rights encoded in U.S. food aid legislation. There needs to be dialogue between A.I.D. and the PVOs if there is to be greater coordination on monetization and on the implementation of a consistent policy for improving food security.

## **Annex G**

### **List of Persons Contacted**

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<sup>1</sup>These documents may be ordered from the A.I.D. Development Information Services Clearing House, Suite 1010, 1500 Wilson Boulevard; Arlington, VA 22209-2404, Telephone (703) 351-4006, Telefax (703) 351-4039. Please specify the Document I.D. No. when ordering.