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# A PRIMER FOR IMPLEMENTING A SUCCESSFUL FOOD POLICY PROGRAM THE CASE OF RICE IN GUINEA BISSAU

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# A PRIMER FOR IMPLEMENTING A SUCCESSFUL FOOD POLICY PROGRAM
# THE CASE OF RICE IN GUINEA-BISSAU

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# SECTION I

# INTRODUCTION

## A. Review of Policy Reforms[1]

After independence, Guinea-Bissau (GB) adopted an economic system of centralized planning with heavy emphasis on market control by parastatal institutions. By 1980, the misallocation of resources, growing deficits, and slow growth placed the country in severe economic difficulties. The growing foreign and national deficits and overvalued currency lead to increases in external borrowing to maintain the economy. By 1983, the foreign credit line was exhausted and the country was more dependent than ever on foreign aid which contributed about two-thirds of government revenue.

The growing economic distortions and mounting debt service finally forced policy reforms. The main reforms were devaluation, increased producer prices for main crops, limits on wage increases, consumer price adjustments reflecting import costs, liberalized marketing, increased income taxes, and restricted government expenditure. These basic reforms have been further adjusted to include complete removal of price controls on food and other consumer items, complete liberalization of the marketing system, and removal of consumer subsidies.

## B. Purpose and Objective

In view of these unprecedented policy reforms and market liberalization program, USAID/Bissau underwrote a rice market study to learn more about the significance of these changes for paddy production, rice distribution, and consumption. Rice represents the most important agricultural commodity in the country and is also the staple food of the nation.

The study was carried out during November-December, 1989 and the results are contained in FFGI Technical Assistance Report, RICE PRODUCTION AND MARKETING IN GUINEA BISSAU A CONTRIBUTION FOR POLICY DIALOGUE. One of the critical findings is the lack of a long-term food policy which would allow Government of Guinea-Bissau (GOGB) to carry out the necessary facilitating functions to strengthen the development of dynamic and competitive rice production, distribution, and consumption sub-sectors, while at the same time accounting for social-equity issues.

The purpose of this complementary technical assistance report is to provide a foundation for discussions and reviews, with the objective of developing a sound, long-term national food (cereal/rice) policy and implementation strategy for the country.

It is hoped that workshops, seminars, and discussions among relevant parties will provide the appropriate forum for deciding on a realistic and flexible approach for achieving the objective. Participants to these meetings should include public sector representatives (policy decision makers and planners,

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[1]Reference No.7, p. 274.

researchers, and educators), private sector representatives (market agents, producers, and consumers), and international finance, donor, and development agency representatives (USAID, World Bank, IMF, FAO, OXFAM, etc.)

This "policy primer" report contains five sections, Section I being the introduction. Section II provides an introduction to planning and implementing food policies. It contains a brief review of this difficult but critical topic, including (1) general policy orientation, (2) policy definition, (3) policy goals, (4) policy strategies, and (5) gains from trade. Section III discusses issues related to policy goals and strategies, including (1) efficiency or the need to maximize national income, (2) rational for less than total dependence on markets, (3) cost of non-efficiency issues, and (4) taxation and its side-effects. Section IV reviews instruments available for policy implementation at different levels, including (1) macroeconomic, (2) microeconomic, and (3) international trade. The importance of policy ranking and evaluation are also highlighted. The last section discusses certain prerequisites which are critical for a successful food policy program, including (1) political, (2), macroeconomic, and (3) administrative, technical, and financial components.

For the development and write-up of this "food policy primer" report, the authors have relied heavily on the literature listed in Annex 1. Sections, paragraphs, and sentences have been lifted from the literature and amalgamated with our findings. This is indicated by the footnotes. This approach saved having to write another lengthy treaty on food policy, and permitted ready alignment of the presentation to fit the situation in Guinea-Bissau. This approach also provides interested readers the opportunity to link the brief discussions of topics contained in this "primer" with more in depth treatment contained in the literature.

## SECTION II

## PLANNING AND IMPLFMENTING FOOD POLICY

### A. The Role of Agriculture in Economic Development

Agriculture can play a leading role in the development process of a nation. Given the importance of agriculture in terms of the numbers of people it employs, increasing the incomes of the people involved in agriculture is often seen as the most direct method of increasing the welfare of the largest group of people in the population.

Alternatively, if policy-makers decide that the development efforts of the nation should be directed to developing an industrial sector, agriculture will play a supporting role, providing resources and a tax base for use in developing the industrial sector.

Under either development strategy, but especially under the agriculture-first development strategy, the agricultural sector can play a significant role in the development of an economy. The agriculture-first strategy has several recognized advantages over the industry-first strategy:

> First, growth in the agricultural sector is usually based on the strengths of the existing natural and human resources. Thus, the agricultural sector may depend on fewer imported inputs and produce more exportable goods than an infant industrial sector.
>
> Secondly, increased income in the agricultural sector encourages the population to remain in the rural areas where their skills are more applicable rather migrating to a city where they may be unable to find work.
>
> Third, increasing income in the agricultural sector usually increases the demand for goods and services that can be produced in the country, thereby providing the basis for other indigenous businesses.
>
> Fourth, over time, the experience, skills, and capital from the operation of agricultural marketing and processing enterprises are applied in the operation of nascent industries.

The policies that are chosen to influence activities in the agricultural sector depend on the role that agriculture is expected to play in the growth of national income. This role depends on the relative size of the agricultural sector and the growth strategy selected by national policy-makers.

The extent to which this role is realized depends on the actions government takes to insure that agriculture plays its proper role. Government leads individual producers and marketers to play their proper roles through government actions which influence the prices producers and marketers respond to and, therefore, the profits they obtain from their productive activities. In

effect, the producers and marketers are paid for their contribution to the achievement of societal objectives.

The process of directing each producer/marketer to perform as desired could be handled through direct negotiation with each individual; however, the process is greatly simplified by using the market to direct the use of resources through appropriate price signals (this implies that the government is concerned with the market's ability to transmit the proper signals to the desired recipients). The set of actions taken by the government to influence prices and, indirectly, the behavior of its citizens is called policy.

B. Policy Defined

Policy has broad and narrow meanings. In its narrow sense, policy is a single decision or action taken to contribute to the achievement of some goal or objective. The word, decision, is used to include the possibility that the government decides not to act. Individual policies are often called policy instruments. In its broader sense, policy is the complete set of these individual policies or policy instruments. Agricultural or food policy is the set of government decisions, actions, or interventions that influence:

- Public investments affecting agricultural revenues and costs,
- the allocation of research funds to improve farming and processing technologies which influence prices and profits, and
- the level and stability of output and input prices.

C. Policy Goals

There is no country on earth whose government does not to one degree or another intervene in food production, distribution, and consumption. The forms of interventions range from complete central planning and control of production and distribution (and therefore consumption) to complete private sector production and distribution, with the public sector intervention limited to facilitating functions such as infrastructure, communications, information, monitoring, regulation, and research.

Regardless of the socio/economic/political approach taken for planning and implementing food policies, the basic policy goals, strategies, and instruments available are the same. The degree of emphasis given to any one of them depends on the socio/political environment of the country. The degree of complexity and implementation depends on the socio/economic condition of the country and the administrative capacity and resources to carry out the public programs.

Food policy goals are synonymous with several more general social welfare objectives which are considered desirable by members of societies. When taken as a group, these objectives are seen as beneficial and something positive to

strive for. However, individual objectives may address contradicting goals which are not easily resolved. These goals include:[2]

1. Efficient economic growth: To use both human and physical resources in a manner that maximizes national income, i.e., the total value of income generated by the economy.

2. Improved income distribution: To improve the equality with which the national income is shared.

3. Nutritional floor for all citizens: To achieve levels of nutritional intake by all members of society which will allow them to become healthy and productive members.

4. Food security for the country: To achieve certain protection from uncontrollable external and internal situations which can present a danger to the food supply of the country.

5. Political stability: To achieve a stable political environment which averts inertia and allows policy reforms without creating insecurity, or resulting in social unrest. This goal is probably assured if the first four are achieved.

These five social welfare objectives of food policy apply only to those agricultural commodities which are "important" to the nation, since applying them to unimportant commodities would result in a loss of efficiency in terms of resource allocation. The "importance" as to whether or not a given commodity would fall within the realm of food policy, and therefore government intervention is measured in one of four ways.[3]

1. Staple food: The commodity is the chief wage good in the society and forms a significant share - 20 to 50 percent - of the average consumer's budget. This factor alone often makes food (price) policy analysis a macroeconomic concern.

2. Income: The commodity is a major source of farm income. This is important for two reasons. Changing the price alters farm incomes and hence farm expenditures on goods and services that provide employment to many people. Price changes also cause farmers to change input use and alter their cropping patterns and hence affect national agricultural production.

3. Trade: The commodity is important in the country's international trade as an export or an import. Either way, changes in domestic or international prices are likely to alter trade volumes and hence the foreign exchange balance.

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[2]Reference No. 1, page 264, and Reference No. 5, page 20.

[3]Reference No. 1, page 266.

4. Government budget: The commodity is important to the government budget, either as a generator of revenue or as a significant drain because of large subsidies. Public expenditures create the need for a government to raise money through taxes. This cannot be ignored in favor of either efficiency or income distribution.

It would seem that rice in Guinea-Bissau meets the test of "importance" in each case. First, being the staple food of the nation with an apparent consumption in excess of 100 kg/cap/year, and an average annual income of less than US$200/cap/year, rice easily exceeds 20 percent of the average consumer's budget.

Second, rice is the most important crop in the nation, cultivated on approximately 50 percent of the land area under cultivation. It is produced throughout the country and by nearly all ethnic groups. In the most important rice growing areas it is the only crop that can be produced.

Third, rice which used to be the leading export is now the leading import commodity, representing a considerable drain on foreign exchange. However, apparent volumes of rice re-exported to neighboring countries represent a net foreign exchange transaction for the nation. It is conceivable that GB could regain the status of a net exporter of rice.

Fourth, while rice itself is not a source of income for the national budget, it indirectly contributes through the tax revenues generated by cashew exports. This roundabout way of generating income comes through the direct barter linkage between rice and cashew.

By these measures, rice is a prime candidate for positive public intervention through the facilitating functions of food policy analysis, strategies, and instruments, as well as other more general public functions such as the provision of infrastructure, communications, information, provision of credit and others which benefit economic development in general.

D. Policy Strategies[4]

If these welfare objectives are valid reasons for having a national food policy, and there is agreement that the measures of importance make rice a valid candidate, then the next step would be to address the strategies available for implementing such food (rice/cereal) policy aimed at satisfying the objectives.

Strategy in the context of food policy can be thought of as the plan of action or approach to be taken in order to achieve the underlying welfare objectives to the highest degree possible. Once selected, an initial strategy is continued for as long as the basic assumptions which led to its selection hold. Flexibility to change strategies, however, is essential since the initial conditions are likely to change, calling for an evolutionary or even complete change in strategy or action plan, with concurrent implications for all five welfare objectives.

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[4]Reference No. 4. pp 9-15.

While there is an unlimited number of possibilities on the continuum between the strategy of full "self-sufficiency" and excessive "trade dependence", what follows is an attempt to give consistent and analytical meaning to three basic strategy concepts for use in the discussion of food policy. These three concepts highlight the differences in approaches and their implications. Once a basic strategy is selected as a probable candidate for policy implementation, further fine tuning can be accomplished as it is developed and executed.

1. Trade-dependence[5]

Trade-dependence is not often articulated as a policy by governments, but many countries find themselves to a greater or lesser extent dependent on other countries for basic food commodities. This strategy implies a situation of excessive imports of foodstuffs relative to capacity to pay in foreign exchange.

Unlike self-reliance, which entails a dependence upon the existence of international markets for food and foreign exchange, trade-dependence implies a dependence upon particular foreign countries (or the international community in general) to provide either supplies of food or the finance for the purchase of such supplies.

A trade-dependent situation (TDS) is characterized by the following components:

a. Prices to domestic producers lower than world market prices.

b. Subsidized prices to consumers of imported commodities which shift demand away from domestic products otherwise adequately available.

c. Reliance on concessional import supplies for a significant portion of food consumption.

d. Borrowing of foreign exchange to maintain imports of foodstuffs.

Trade-dependence might develop as a result of an attempt to keep food prices low in urban areas, through direct food subsidies and administered market prices, or from the taxation of agricultural production to generate revenue for other types of development. It might also happen not as a result of deliberate policy, but as a consequence of an overvalued exchange rate that in effect subsidizes imports and taxes exports. The lure of easily available food at concessional terms might also prompt governments to neglect domestic agriculture and rely unduly on imported food.

It seems that the above description of trade-dependence closely matches the socio/economic environment and events that existed in Guinea-Bissau between 1963 and 1983. The first two characteristics were common policy instruments, while the last two reflect the country's situation by the early 1980's. By 1983, when

[5]Reference No.4 pp 14-15

the first set of policy reforms were implemented, the "foreign credit line was exhausted and the country was more dependent than ever on foreign aid."[6]

The critical issue was how dependence on food imports should be reduced by expanding domestic food production, by changing exchange rate policy, or by shifting resources into export sectors or into activities that reduce the need for imports. Since 1986, a second set of policy reforms have addressed these issues with encouraging results. Rice production is again increasing, and exports of cashews, peanuts, bees wax and honey seem to be turning around.

Being in this positive transitional phase, it seems that the model of self-sufficiency, and more likely the model self-reliance, beckon as alternative food policy strategies. Combined, these two strategies offer appropriate guidance to assist policy makers in formulating a sound long-term food policy framework for the nation.

2. Self-sufficiency[7]

At the other extreme we find a situation where all food needs (in this case rice) are met from domestic production. This situation is often espoused as a desirable policy strategy to protect the country or national sovereignty from external forces. The most extreme form of self-sufficiency is "autarky", a situation in which a country's production meets domestic production, but no trade occurs to off-set shortfalls or surpluses. By extension, the degree of self-sufficiency is the proportion of national consumption covered by the country's own production.

A self-sufficiency strategy (SSS) is considered to include the following elements:

a. Restrictions on the importation of foodstuffs from abroad so as to make the domestic price of such importables measurably above their comparable world prices.

b. Prices of farm commodities to producers significantly greater than the equivalent of imported commodities, together with the provision by the public sector, if necessary, of adequate domestic marketing institutions to bring the goods to market.

c. Prices of products to consumers which discourage consumption of imported commodities or restrictions on access by consumers to imports.

d. Rationing of foreign exchange so that the importation of food-stuffs is made more difficult.

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[6]Reference No.7, p 274.

[7]Reference No.4. pp 9-11.

The strategy of self-sufficiency emphasizes increases in agricultural production and, by implication, restriction of consumption by means of either direct taxes on food or controls on food imports. The aim can be self-sufficiency at all times, in "normal" years, or in periods of hardship. The greater the emphasis on full self-sufficiency, the greater the need to implement these four elements to a wider extent.

The strategy can be long-, medium-, or short-term. A long-term implementation scenario would put more emphasis on general infrastructure investment in agriculture, research, and extension. A medium-term approach would put more emphasis on market functions, working through price signals, monitoring and control. A short-term approach would use actual quantitative controls in trade and distribution. Generally, a combination of the three time periods is used to implement self-sufficiency strategy.

This strategy of self-sufficiency is often espoused by countries that are concerned with the continuity of food supplies from abroad. Countries with large populations, and hence food requirements that are significant relative to the volume of trade in world markets, can feel more vulnerable to both economic and political events if they depend heavily on imports. Such countries often express concern that major exporters might exert leverage over them in domestic and foreign policy matters. The notion that national sovereignty, security and independence are compromised by substantial food imports can be greatly reduced or eliminated by understanding the role and nature of the international players in a particular commodity.

The same concern that leads large countries to look mainly to domestic production for food (rice) supplies--the absolute size of their consumption requirements--makes any policy decision by these countries of international significance. Thus national policy decisions and strategies in large rice producing and consuming countries such as Indonesia, Thailand, Vietnam, Philippines, and the U.S.A. (not a large consumer, but a leading exporter) are of great significance to small countries in which rice is the main production and staple crop, but are not big enough to make a major difference in the world markets for rice.

Because "self-sufficiency" is such a relative term, in practice, the definition of the objective of this strategy is often left ambiguous, perhaps because some governments prefer not to be specific in stating policy goals.

3. Self-reliance or international trade adjusted[8]

Self-reliance refers to a strategy where food needs are met from a deliberate combination of domestic production and imports and where such imports of food are paid for on a commercial basis by export earnings (from agricultural or other exports). This strategy is distinguished from self-sufficiency, where imports are discouraged, and from trade dependency, where the cost of food imports are subsidized to provide low prices for consumers. As with self-sufficiency, the self-reliance strategy can be long-, medium-, or short-term.

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[8]Reference No.4, pp 11-14.

For our purposes a self-reliance strategy (SRS) is defined to comprise the following elements:

a. Low restrictions on the importation of foodstuffs leading to domestic price levels roughly "in line" with the trend levels of (normal) world prices.

b. Farm prices not elevated on average much beyond the levels indicated by availability of imported commodities.

c. Consumer prices not tilted in favor of domestic goods and quantitative restrictions not placed on imported supplies.

d. Allocation of adequate foreign exchange by government authorities to allow importation of foodstuffs.

The essence of this strategy is to take full advantage of the existence of world markets for agricultural commodities while at the same time paying domestic producers the full value of their production. The notion of self-reliance through trade is that the relative scarcities of goods on world markets determine the domestic production pattern. For many countries self-reliance involves increases in production, and perhaps exports, of certain agricultural commodities.

The issue is not whether to trade, but how to develop the capacity of the human and physical resources of the country to increase the benefits from trading. Whether agricultural or food production fits into the best pattern of specialization will depend on the nature of the resource base and the alternative uses of labor and scarce capital. Specialization within agriculture as well as between agriculture and other sectors is a phenomenon of a trade-oriented strategy.

The central advantage of a strategy of self-reliance is that a country both avoids the potential extra costs of self-sufficiency arising from inefficient domestic production and reduces the possible risks associated with the trade dependency. Depending upon those costs and risks, a self-reliance strategy could result in either a high or low degree of self-sufficiency. The level of imports is not in itself a complete measure of the extent to which a country follows a self-reliant strategy; the capacity to earn or save foreign exchange also needs to be taken into account.

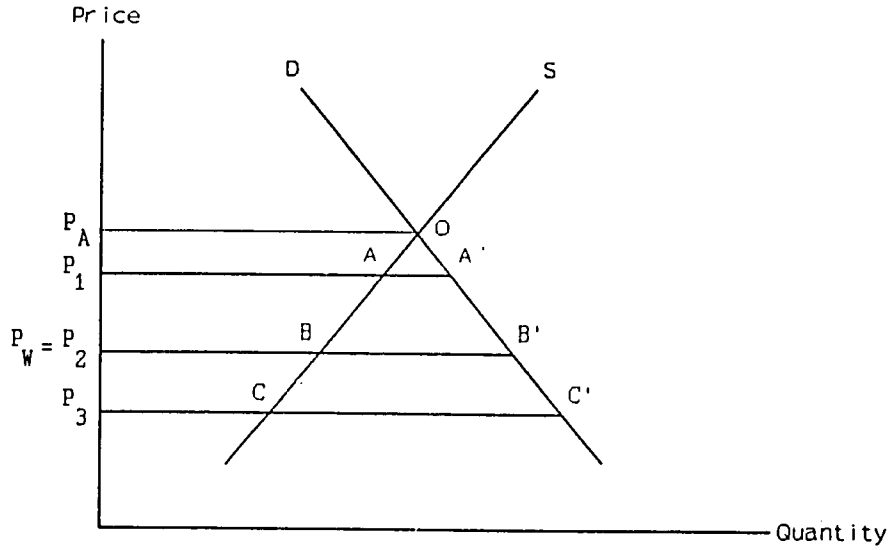
The nature of the vulnerability of such open economies to world market events differs according to the size of the country. Small and medium-sized countries are less likely to experience supply problems with grains and other traded food stuffs. There is little chance of political strings attached to trade flows when small lots can be purchased readily in the market place. Price variation, however, hits both small and large importers alike. Countries that engage extensively in trade will tend to make use of a range of instruments, including foreign exchange reserves, food reserve stocks, and trading on commodity futures markets, to avoid the disruption that might otherwise come from fluctuations in world markets.

4. Strategies compared[9]

The three strategies are compared in summary form in Figure II-1. A situation reflecting a tendency towards "self-sufficiency" is represented by the domestic price level $P_1$, which is above the world market price $P_W$. The extreme for of self-sufficiency is represented by the price level $P_A$, the autarky price (a national policy of complete self-sufficiency and non-reliance on imports, exports, or economic aid). In a dynamic sense this extreme situation can be achieved by restricting demand (moving demand along the demand curve back to 0) through such means as rationing, or by restricting the amount of foreign exchange for imports, in which case the price would rise to $P_A$.

FIGURE II-1

REPRESENTATION OF THREE ALTERNATIVE STRATEGIES IN A STAPLE FOOD MARKET




$P_1$ = Self-sufficiency
$P_2$ = Self-reliance
$P_3$ = Trade-dependence

Self-reliance is represented by a domestic price level $P_2$, at roughly the level of the long-run international price. If this price level is taken as the appropriate "border price", then producers will allocate resources to the production of the commodity (say rice) accordingly, and allocate the rest of their resources to other productive uses. The deficit, if any is imported and paid for by the surplus foreign exchanged earned by the agricultural or industrial sectors.

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[9]Reference No.4, pp 15-17

A domestic price level $P_3$ is likely to be associated with the situation identified as "trade-dependent". Imports at CC' are higher than under the two other strategies, and likely to grow over time as investment in agriculture is discouraged (by low prices, for example).

E. The Gains from Trade: Taking Advantage of Comparative Advantage

If the possibility of trade is available, national income can usually be increased by specializing in the production of goods which can be sold profitably on the international market. With the foreign exchange earned from these transactions, the nation can purchase from the international market those items which it can purchase cheaper than it can produce them at home.

To a certain extent, a nation is like a family. It can live better by having its members earn income through the sale of goods or services and then use that income to purchase the many things it needs rather than attempting to produce all the things it needs. It was Adam Smith who said:[10] "It is a maxim of every prudent master of a family never to attempt to make at home what it will cost him more to make than to buy." In order to know what to produce at home and what to purchase from the market a family or a nation must know what the prices in the relevant market are.

1. Comparative advantage[11]

A country or individual can usually earn more income by producing those items which can be produced comparatively cheaply and trading the surplus production for those things it produces comparatively expensively. For the gains from trade to be realized, the nation or individual must have a comparative advantage, relative to its trading partners, in the production of a tradable good. A comparative advantage is the ability to produce a tradable commodity comparatively less expensively than trade partner. It is important to understand that a comparative advantage rather than an absolute advantage is the requirement for trade to result in a net increase in goods produced. An example may be the best method of understanding this concept.

Assume that two countries have the opportunity of trading two commodities. Let one country have an absolute advantage in the production of both commodities. Lets assume that country A can produce cashew nuts for 4 pesos per kilo and rice for 2 pesos per kilo. Country B can produce cashew nuts for 6 pesos per kilo and rice for 12 pesos per kilo. These facts are represented in Table II-1.

TABLE II-1

COMPARATIVE PRODUCTION COSTS

| Production Costs per Kilo of: | Country A | Country B |
|---|---|---|
| Cashew nuts | 4 | 6 |
| Rice | 2 | 12 |

[10]Reference No. 8, Page 16.

[11]Reference No. 8, Chapter II.

Country A has an absolute advantage in the production of both commodities because it can produce each commodity at a lower cost than can country B. In spite of this, the total welfare of both commodities can be increased if each country specializes in the production of the commodity for which it has a comparative advantage. Notice that country A can produce rice at 2/12=1/6 and can produce cashew nuts at 4/6=2/3 of the cost in country B. So, even though country A has an absolute advantage in the production of both goods, its advantage in the production of rice is comparatively better than its advantage in the production of cashew nuts. Conversely, although country B has an absolute disadvantage in the production of both commodities its comparative advantage is in the production of cashew nuts. It can produce cashew nuts at 6/4=1.5 of the cost in country A while rice production costs 12/2=6 times the cost in country A.

The potential to increase total welfare through specialization and trade can be demonstrated with these example numbers. Lets assume initially that the two countries are not trading and that both countries are using all of their available resources to produce both rice and cashew nuts within their own borders. If country A decides to increase the production of rice, it must reduce the production of cashew nuts to release some resources to be used in the production of the extra unit of rice. Reducing the production of cashew nuts by one unit releases enough resources to produce two units of rice in country A because cashew nuts are twice as costly as rice to produce in country A. So, at the cost of one unit of cashew nuts, the world production of rice has increased two units.

To prevent total (world) production of cashew nuts from falling, country B must increase its production of cashew nuts by one unit. To do this, country B reduces its production of rice by one unit to free up resources to devote to the increased production of cashew nuts. But reducing rice production in country B by one unit releases enough resources to produce two units of cashew nuts.

Thus, by changing the utilization of resources within the two countries, total production of rice and cashew nuts have increased by one unit each. Trade between the two countries would allow them to share this increased production such that the consumption of both rice and cashew nuts could increase in both countries. Country A could trade one of its newly produced units of rice for one of the newly produced units of cashew nuts in country B. This would provide each country with the exact amount of each commodity it had in the previous situation. However, under the new circumstances each country would have an additional unit of rice or cashew nuts which it could use to increase its welfare. The results of the specialization process, using the example here are shown in Table II-2.

TABLE II-2

THE GAINS FROM SPECIALIZATION

| | Changed Production in Countries A and B | | | | |
|---|---|---|---|---|---|
| | Reduced | | Increased | | Total |
| | A | B | A | B | |
| Commodities | | | | | |
| Rice | | -1 | +2 | | +1 |
| Cashew nuts | -1 | | | +2 | +1 |

A simple way for an individual country to determine its comparative advantage is to compare the ratio of commodity prices within its economy with those in its trading market. Using the present example, country A would compare the ratio formed by dividing its cost of producing rice by its cost of producing cashew nuts with a similar ratio developed from the costs of production in country B. The ratio of rice to cashew nuts costs in country A is 2/4, while the ratio of costs in country B is 12/6. Comparing these ratios reveals that the ratio for country A is less than the ratio for country B (2/4 < 12/6). Thus, country A has a comparative advantage in the production of rice.

Notice that this same equation signifies that country B has a comparative advantage in the production of cashew nuts. Since there are only two countries in the comparison and since neither can have a comparative advantage in both commodities, a comparative advantage in rice for country A implies a comparative advantage in cashew nuts for country B. This can be seen by inverting the ratios and re-comparing. In this case, the ratios become the price of cashew nuts divided by the price of rice. When these are compared, country B's ratio is less than that of country A, i.e., 6/12 < 4/2. Thus, country B has a comparative advantage in the production of cashew nuts.

Notice also that the ratio of prices expresses the opportunity cost of producing the commodity in the numerator of the fraction in terms of the commodity in the denominator. For example, the ratio of rice price to cashew nuts price in country A, 2/4 = .5 implies that the cost of producing an additional unit of rice in country A is one-half of a unit of cashew nuts. That is, when all resources are being used to produce either rice or cashew nuts, country A must give up one-half a unit of cashew nuts to produce one unit of rice. Thus, when the ratios of rice to cashew nuts prices are compared, they reveal that the opportunity cost of producing rice in country A is lower than in country B. Inverting the ratios and re-comparing reveals that the opportunity cost of producing cashew nuts is lower in country B than in country A.

### 2. Graphical representation of the gains from trade

The concept of opportunity cost, i.e., the notion that a nation must give up the production of some goods to increase the production of other goods, can be used to develop a graphical representation of the gains from trade. The representation will be somewhat artificial since we can use only two goods in our graphs. Figure II-2 shows a graph with vertical and horizontal axes on which are graphed the quantities of rice and cashew nuts produced by an example economy. If all resources in the economy are devoted to the production of rice, the country can produce the quantity represented by the point A. To produce any cashew nuts, the country must give up some production of rice to release resources for the production of cashew nuts.

The amount of rice that must be given up to increase production of cashew nuts is represented by the curved line connecting points A and B. Thus, the curved line is a graphical method of representing the opportunity cost concept discussed above using ratios. For example, in order to produce D units of cashew nuts (that is, the number of units of cashew nuts represented by the distance between points O and D on the horizontal axis), the country must reduce production of

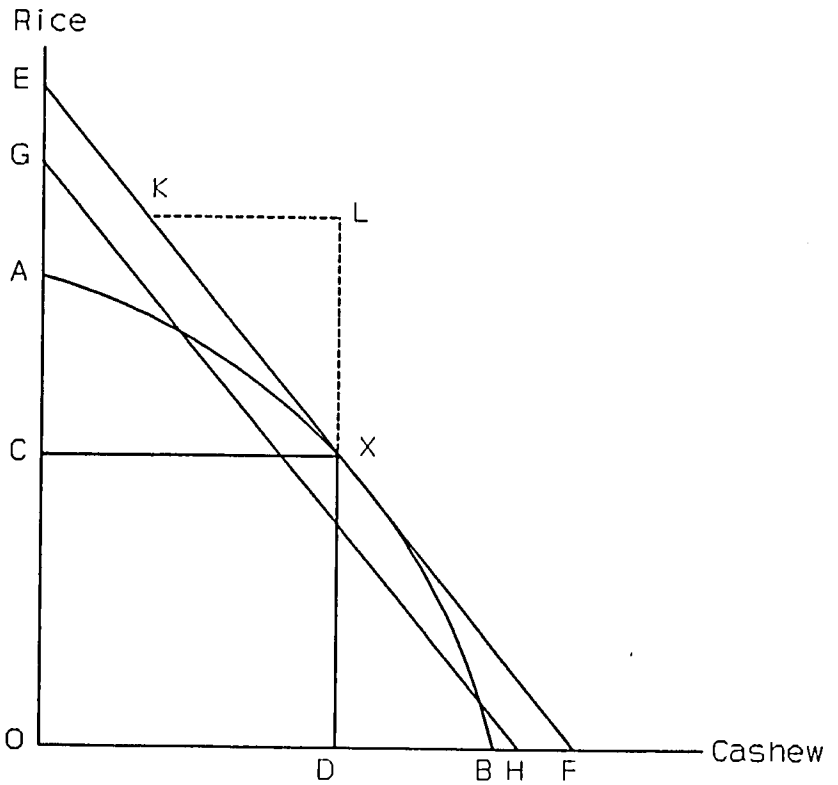
rice by AC (the number of units of rice represented by the distance between points A and C on the vertical graph).

The curved line connecting points A and B is called the production possibility curve or the production possibilities frontier. It shows the maximum amounts of rice or cashew nuts that can be produced by the economy when all resources in the economy are being used efficiently. It is quite typical for an economy to be operating inside the production possibilities frontier due to inefficiencies in resource use. The position of the production possibilities frontier can be shifted to the right by increasing the human, physical, or technical resources available for use in the economy.

The problem of deciding what combination of rice and cashew nuts to produce to maximize the benefits to the nation is solved by reference to the opportunity cost ratio in the international market. This cost ratio is represented by the line connecting points E and F. The ratio represented by this international price line is the ratio OE/OF. This ratio is not disturbed by the parallel movement of the international price line on the graph; however, right-ward shifts of the international price line do represent increases in total income. Thus, the line connecting points G and H represent the same international price ratio but a lower level of income than that represented by the line connecting points E and F.

FIGURE II-2

GAINS FROM TRADE



The level of income earned from the production of the commodities is represented in Figure II-2 by the intersection of the international price line with a point on the production possibilities curve. A nation would want to position itself on the production possibilities curve such that it could reach the highest level of income possible. In the Figure, this point is represented by point X. At the point of maximum revenue, the opportunity cost ratio of the nation's production possibilities curve is exactly equal to the international price ratio. Recalling that price times quantity equals revenue, it can be seen that revenue for the nation will be maximized if the nation positions itself at point X and produces and sells OC of rice and OD of cashew nuts.

The equality of the nation's opportunity cost ratio with the international price line reflects the comparative advantage of the nation in relation to the opportunity cost in the nation's trading market. The analysis of comparative advantage above indicates that a nation should specialize in the production of that commodity for which it has a lower opportunity cost than its trading partner. Note that points on the production possibilities curve to the left of point X represent points where the opportunity cost of producing rice within the economy is less than that in the international market place (as represented by the international price line). Points on the production possibilities curve to the right of point X represent points where the opportunity cost of producing rice is greater than that represented by the international price line.

The comparative advantage concept has two short-comings. First, if the prices in an economy are distorted by government intervention, the calculation of the comparative advantage ratios will be made more difficult by attempts to adjust the distorted prices to their true values. Secondly, knowledge of the comparative advantage cannot indicate how far a nation should go in specializing in the production of a given commodity. That is, it does not indicate how much of the nation's resources should be devoted to a certain commodity and how much should be employed in other uses. The graphical analysis overcomes this shortcoming and indicates how precise estimates of this information can be discovered given sufficient information to develop mathematical representations as illustrated in Figure II-2. Fortunately, the need for such formidable mathematical calculations is eliminated by simply following a free trade policy which allows prices in the international market to dictate which products and their respective quantities should be produced and traded on the international market or consumed within the economy.

With the opportunity to trade, the nation need not consume exactly what it produces. It can sell different amounts of rice and cashew nuts according to its preferences. Trade is represented by a position on the international trade line. For example, if the country had a high preference for rice, it could consume more rice than it produces by producing at point X and trading at point K, importing XL quantity of rice and exporting KL quantity of cashew nuts. Given the freedom to make this choice, it can be assumed that such a position relative to production, trade and consumption represents a higher level of welfare for the nation than the non-trade position at point X.

## SECTION III

## ISSUES RELATED TO POLICY GOALS AND STRATEGIES

Governments are typically concerned with promoting and balancing a number of often conflicting objectives of food policy such as (1) efficiency, (2) income distribution, (3) food price stability, and (4) food security. The tradeoffs among them and their costs need to be evaluated when formulating a food policy and strategy for the nation. Following is a brief exposure to these issues to assist policy planners in bringing them into focus when formulating a cereal policy and strategy for the country.

### A. Efficiency: To Maximize Growth of National Income

A primary goal of many nations is the improvement of the welfare of their citizens. Generally, this is achieved by increasing the total income earned by the nation through economic development. National income is the total of the value of all goods and services produced within the economy or transferred into the economy from outside. Generally, national income can be increased by using all resources in their most efficient use. Efficient use of resources occurs when the maximum amount of benefit is obtained from the use of each resource. If any resources are used inefficiently, the total amount of goods, services, and national income is reduced below that which could be achieved through the efficient use of resources.

This implies that the producers/consumers must have access to the relevant markets. The maximization of income through the sale of goods and services and the maximization of welfare through the use of that income to purchase goods and services depends on the producer/consumer's ability to obtain the best prices possible. Artificial barriers to access to the best market, be it a village-level market, a national or an international market, restrict citizens ability to maximize their welfare. This implies that individual and national income can be maximized through unrestricted access to all markets, including international markets. Thus, achieving a primary goal of most societies, maximizing the welfare their citizens, can be approached through the maximization of income which depends on the maximization of resource use efficiency as defined by international market prices.

### B. Rational for Less than Total Dependence on Open Markets

In spite of the allure and simplicity of the income and welfare maximization concepts, there are two basic reasons why these goals are seldom fully achieved. First, markets often fail to achieve the level of perfection which, in theory, would cause all resources to be used in their most efficient uses. Secondly, "non-efficiency objectives," motivated by political forces, often take precedence over efficiency objectives. For example, unforeseen events often cause volatility in prices which require adjustments that can be quite costly in terms of human welfare. The market-directed response to such events is often considered so costly in terms of human welfare that intervention is demanded. Non-efficiency objectives include (1) food price stability, (2) food security, and (3) income distribution.

1. Correcting market failures to improve societal welfare

A primary rational for government intervention in the unrestricted action of the market is to correct "market failures." A major class of market failure occurs when market power--the ability to set prices--is imbalanced between buyers and sellers. Another class of market failure results from the market's reduced ability to recover the costs of providing a wide variety of goods and services which facilitate or "make easier" the operation of the market. Included in this group of facilitating goods and services is the physical infrastructure (roads, ports, etc.) of a nation and the provision of a legal (or institutional) and monetary environment that facilitates business activity. Also included is the provision of information in three broad categories: education, research, and market information on prices, quantities, and qualities.

Another class of market failure results from the market's reduced ability to recover the costs of activities that reduce or increase social welfare through changes in environmental quality. Many activities produce beneficial or detrimental side effects or "externalities" for which there is no market. Detrimental externalities include soil erosion, environmental pollution, reduced public health, and the over-utilization of common property resources.

2. Non-efficiency objectives

In cases involving the correction of market failures, welfare can be increased unambiguously through government actions or interventions because efficiency is enhanced. The effect on societal welfare of the achievement of non-efficiency objectives is not as clear. These objectives are termed "non-efficiency objectives" because their achievement generally reduces the efficiency of resource use in the economy and, therefore, reduces national income. That is, non-efficiency objectives are achieved at the cost of reduced national income. Nonetheless, non-efficiency objectives are often pursued by national policy-makers because they feel the achievement of the objective is worth its cost in terms reduced national income. Correctly managed, the programs used to achieve non-efficiency objectives can yield net benefits to society. However, there are substantial forces associated with such programs which can prevent their efficient management and reduce or reverse their beneficial effect. Problems also arise because the benefits and costs of achieving non-efficiency objectives are not easily quantified. Thus, it is difficult for policy-makers to compare the benefits with the costs and decide how far to pursue a particular objective. Quantitative policy analysis seeks to contribute to this decision-making process by attempting to quantify both the costs and the benefits of achieving a particular objective.

a. Food security: To ensure that consumers have access to adequate food supplies

This objective relates to the nation's ability to obtain adequate supplies of basic foods at stable, affordable prices. Restated in "political" terms it implies the assurance that most people in the economy will have enough to eat. Extreme settings of this objective can have detrimental effects on national income and welfare. At one extreme, the extreme of total self-sufficiency

(autarky), the nation losses the benefits of specialization and trade. At the other extreme (trade-dependence), the nation gives up its independence.

National programs aimed at achieving "food self-sufficiency" via national production of most food items are doomed to fail, and in the process quite capable of bankrupting the economy. There is no reason, especially for small countries to produce everything. On the contrary, by developing the capacity of the human and physical resources of the country (1) food production can be fitted to the best pattern of agricultural specialization and (2) the benefits from trade can be maximized. Thus, agricultural specialization and trade are most likely to result in a higher level of food security, at less cost.

The other extreme, trade-dependence is something the citizens of Guinea-Bissau are already familiar with, and the consequences of which are still very vivid.

b. Income distribution: To allow particular groups to benefit

The distribution of income is a fundamental problem of societies which is not easily solved by either capitalistic or socialistic systems. Often the debate over the proper distribution of income is couched in terms of an assumed trade-off between equity and efficiency--equity being the situation in which all people obtain their fair share of the income derived from their labor. The reason market-oriented economies have difficulties dealing with this problem is that under a market-directed system, income is distributed according values that are determined by the relative quantities of factors of production. (Factors of production are the resources, including human resources, devoted to the production of some product.) Thus, the owners of scarce resources generally receive the largest payment or share of income derived from their use. The market-determined distribution of income, then, is based on the existing pattern of ownership of resources. This fact constrains the policy-makers use of the market to achieve a desired pattern of income distribution.

For example, in societies where the ownership of scarce resources is concentrated, a redistribution of national income will be difficult to achieve through market processes. In such cases, income distribution can be achieved through a direct and continuous transfer of income from the owners of the scarce resources or through a distribution of the ownership of the scarce resources. A middle, longer-term path is to tax the owners of the relatively scarce resources and use the revenue to expand national income in areas which rely less on the existing, scarce resources. The widespread interest in expanding national income may derive some of its attraction from the notion that sharing a growing income may require less sacrifice than redistributing a fixed amount.

Perhaps, the most difficult food policy dilemma faced by developing nations is the distribution of national income between rural and urban portions of the population. The dilemma arises from a desire to achieve two conflicting goals. First, is the desire to stimulate the growth of a strong agricultural sector, an objective which can be accomplished most efficiently by allowing the prices of goods produced by the agricultural sector to increase. This reduces directly the nation's ability to achieve the conflicting objective of providing low cost food to its urban populations. One method in which this distribution of income is achieved is through the operation of a price stabilization program as

discussed under the section on food price stability below. A second method in which a distribution of income between urban and rural groups can be achieved is through exchange rate and international trade policies.

An overvalued exchange rate lowers the cost of imports, including food and the imported inputs used by urban industries, and raises the price of exports. This taxes the agricultural sector by lowering the domestic price of commodities consumed within the nation and raising the price to international buyers of commodities produced for export. Thus, imports are encouraged while exports are discouraged and national income is distributed from agricultural to urban groups.

National policy-makers are often under pressure to intervene in the market-determined distribution of income from groups whose primary concern is not survival but, quite simply, a larger share of the national income. Often the initial requests or justifications for special assistance are based on unselfish goals relating to the growth of the national economy. For example, preferential interest rates or prices on inputs or outputs are requested as a means to getting new industries started. In the longer term, these forms of intervention have increasingly detrimental effects on the economy's efficiency as the specific distortion in resource use is transmitted to a widening network of resources.

In this regard, it is helpful to visualize an economy as a system in which each individual component is linked, with varying degrees of intensity, to every other component of the system. Thus, it is virtually impossible to affect one component without affecting all of the others. Thus, a distortion in economic efficiency will spread throughout the system as does an infection in a living organism. Ecologists have expressed this same notion relating to ecological environments by saying: "You cannot do just one thing."

c. Food Price Stability

Total dependance on the market can be as dangerous to a nation as it can be to an individual family due to the shocks that often disturb the smooth flow of products and income. These shocks are often caused by random natural events such as droughts, floods, or storms. Human-made events such as wars, economic mismanagement, or sudden changes in market operations can be additional causes of substantial shocks that effect the prices and quantities of goods on the market.

These shocks can affect the welfare of individual consumers by changing the amount of their income they must spend on essentials such as food. Producers incomes can be directly affected by changes in the prices of the products they produce. Unstable prices also play a major role in influencing producers decisions regarding risks in producing for the market and thus influence the development of a market-oriented agricultural sector. Price variability also can have quite significant effects on national budgets as the cost of governmental assistance programs are often related directly to international prices.

An example of this difficult non-efficiency issue of food policy is contained in Table III-1, which summarizes the effects of a price change on rice consumption by "poor" and "rich" consumers. Low income consumers typically spend

60 to 80 percent of their income on food. In some countries, one staple food may account for 40 to 60 percent of the food expenditure, as does rice in Asia (is this representative of Guinea-Bissau?).

The impact of price changes can be very dramatic, and as expected the poor are more responsive to price changes than more affluent segments of the population. For example, in Sierra Leone a 10 percent increase in the price of rice would cause the poorest 16 percent of the rural population to reduce their rice consumption by 21.6 percent (since for every 1 percent increase in price they would reduce their consumption by 2.16 percent). In Brazil a 10 percent price increase would lead to a drop in rice consumption by the poorest 15 percent of the population (rural and urban) of over 40 percent. High income groups are, as expected less responsive to price changes.

While there may be substitutes for rice, they may not be as nutritious and readily available. If the commodity in question is the most important staple food, the dilemma is greater for low income groups who cannot afford, or do not have access to substitutes.

TABLE III-1

PRICE ELASTICITIES OF DEMAND FOR RICE AMONG LOW-INCOME AND HIGH-INCOME GROUPS

SELECTED COUNTRIES

| | Low income | | High income | |
|---|---|---|---|---|
| Country | Percentile | Price Elasticity | Percentile | Price Elasticity |
| Bangladesh (rural) | 10 | -1.30 | 90 | -0.83 |
| Brazil | 15 | -4.31 | 90 | -1.15 |
| Colombia (Cali) | 1 | -0.43 | 93 | -1.19 |
| India (rural) | 3 | -1.39 | 96 | -0.39 |
| India (urban) | 1 | -1.23 | 92 | -0.21 |
| Indonesia | 8 | -0.73 | 87 | -0.72 |
| Philippines | 12 | -0.73 | 87 | -0.40 |
| Sierra Leone (rural) | 16 | -2.16 | 84 | -0.45 |
| Thailand | 12 | -0.74 | 87 | -0.46 |

Source: Reference No. 1, p 284.

The market-provided solution to price, quantity, and income irregularities--crop insurance and futures markets--may not be available to many nations and their producers/consumers. Thus, nations often intervene in the market to stabilize prices (or the flow of commodities) as a means of stabilizing the incomes and welfare of selected groups of people and the impact of such fluctuations on government budgets and expenditures. If managed efficiently, these actions can result in net increases in societal welfare. The actions taken by government in this regard are generally known as price stabilization policies.

Options for achieving a degree of price stability and reducing uncertainty to both producers and consumers include (1) buffer stocks, (2) import/exports, (3) foreign exchange reserves, (3) participation in futures markets, or (4) a combination of these. In each case a government unit is involved, sometimes in combination with the private sector. The basic procedure involves a counter-cyclical market intervention by a government agency to support producer prices when they tend to fall below a certain "guaranteed" minimum (usually at harvest and shortly thereafter), and to inject sufficient quantities into the retail market when consumer prices threaten to exceed a "maximum" level. As long as producer and retail prices stay within this band the government does not intervene.

C. The Heavy Cost of Non-Efficiency Objectives

In the short term, the benefits of such interventions are undeniable as they may preserve domestic tranquility as well as save the lives of many citizens. In the longer term, however, such interventions can be detrimental to the health of the economy and the independence of the nation. Unless extremely well managed and backed by sufficient financial and infrastructure resources, as well as transparency of operations, these types of interventions can easily generate enormous cost over-runs, fail to achieve any degree of stability relative to its cost, and even worse fail to benefit those groups originally targeted.

Perhaps, the most damaging effect of attempts to achieve many types of non-efficiency objectives is the creation of pressure groups whose primary concern is to have their special status maintained. These groups tend to use part of the assistance they receive in political campaigns to maintain their status. These activities, which are termed "rent-seeking activities,"[12] not only make changing the situation more difficult, but also divert national resources into relatively unproductive uses, thereby reducing national income.

The perverse short and long term effects of attempts to achieve non-efficiency objectives signal the need for extreme caution when designing efforts to achieve these objectives.

D. Side Effects of Taxation

One necessary intervention that all governments make into the unrestricted action of the market is for the collection of taxes. Governments strive to obtain the revenue required for their operations in the most efficient manner possible. This often implies that taxes are levied at control points such as ports of entry where the people or their goods are concentrated. This relieves the government of the cost of going to the people. Tax collection efficiency also implies that the largest income-producing sectors of the economy will pay most of the taxes. In many developing countries, these two factors imply that agriculture will be relied on as a major source of government revenue.

The current export tax on cashew nuts is a fitting example of the need to tax and its side effects. While necessary (how necessary?) and easy to collect,

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[12]Reference No.10, pp 198-229.

this tax implies certain disadvantages as well. Market prices, distorted by the tax will have consequences not yet foreseen (or analyzed prior to implementing such tax?). The relative comparative advantage has been decreased by the amount of the tax, affecting production incentives.

Without knowing the supply elasticity it is difficult to measure how cashew production would respond if the tax is eliminated or reduced, except that it probably would respond positively. Would a lower tax level lead to higher production and export levels, thus offsetting the loss in tax revenue? Would more taxes be generated? This is one example of the type of questions that policy makers should formulate and attempt to answer prior to and after implementation to monitor the impact of such international trade policy instrument.

Some of the important considerations relating to an export tax can be illustrated with the use of a simple graph such as found in Figure III-1. In the figure, $P_w$ represents the world price of the commodity being exported, cashew nuts. The distance between $P_w$ and $P_{T1}$ on the vertical axis represents the per-kilo amount of the export tax. In the absence of the export tax, producers would produce the amount of cashew represented by OB (the distance on the horizontal axis between points O and B). This amount is found through reference to the intersection of the world price line with the domestic supply function, S. Of the amount produced, OA would be consumed within the country. The amount OA is determined by reference to the intersection of the world price line with the domestic demand function, D. The difference between what is produced, OB, and the amount consumed domestically, OA, is the amount of exports, represented in the Figure by the line segment, AB.

When an export tax is levied on each kilo of cashew nuts being exported, the export price of the commodity is reduced by the amount of the tax. Producers and exporters respond to the reduced price by reducing the amount of the commodity they produce and export. Consumers respond to the lowered price by increasing the amount they consume. With reference to Figure III-1, consumers now consume $OP_{T11}$. Producers now produce $OP_{T12}$. The amount exported is reduced from AB to the quantity represented by the distance between $P_{T11}$ and $P_{T12}$. The revenue derived from the export tax is equal to the per-kilo tax times the number of kilos exported. In the Figure, this total value is represented by block 3. Note that this area is bounded by horizontal lines from points $P_w$ and $P_{T1}$ and vertical lines from points $P_{T11}$ and $P_{T12}$.

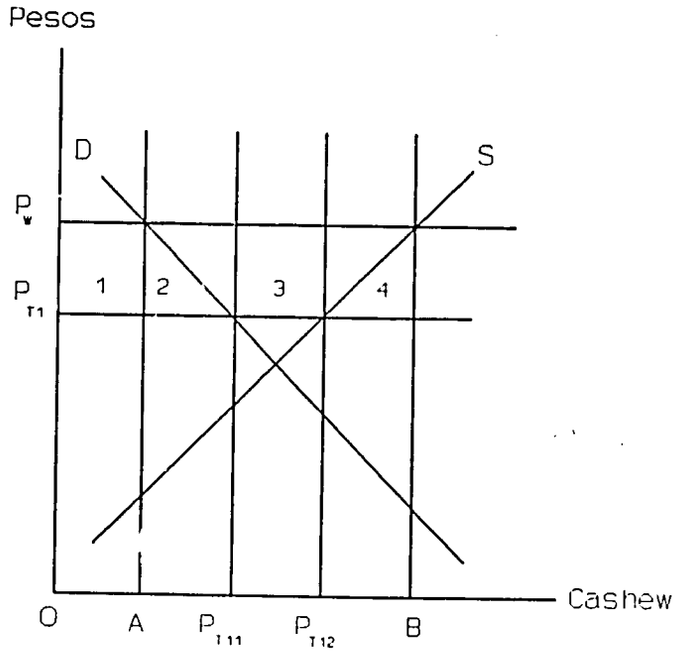
After the tax is imposed, national consumers are better off because they can purchase a larger quantity of cashew nut at a lower price. The value gained by consumers is the area bounded by the horizontal lines from points $P_w$ and $P_{T1}$ and the diagonal demand function, D. This area can be seen as all of block 1 and half of block 2. Producers lose a great deal more value than the consumers gain. Producers lose the area bounded by the horizontal lines from points $P_w$ and $P_{T1}$ and the diagonal supply function, S. This area can be seen as all of blocks 1, 2, and 3 and half of block 4.

Government gains the value represented by block 3. The result of the tax has been to transfer value from producers to consumers and to the government. However, note that the process results in a net loss of value to the society

because the value taken from producers is not totally transferred to other groups. The amount of this net loss, in this case, is the value represented by the two triangular areas adjacent to block 3 or the upper halves of blocks 2 and 4. Notice that the two triangular areas which represent the net loss in value to society will sum to one complete block of value. This net loss is often called a "dead weight" loss. Thus, this society has given up one block of value in order to collect one block of value in taxes and to transfer some value from producers to consumers.

FIGURE III-1

EXPORT TAX ILLUSTRATION 1



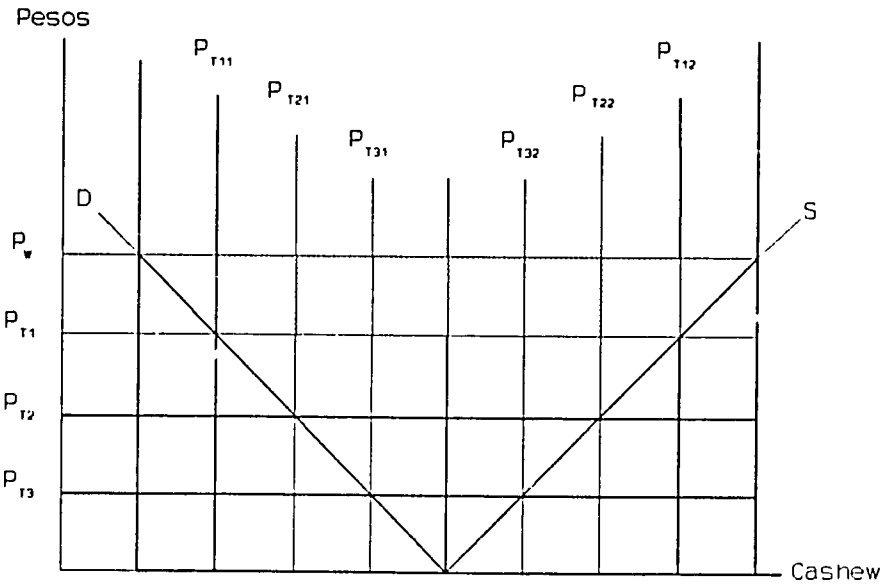

The explanation why a net lost can be expected is that the reduction in production releases resources from the production of cashew nuts. These resources were being used to produce cashew nuts because that was the best use of these resources. If they are not used to produce cashew nuts they will either be unemployed or used in a production system in which their efficiency is not as great as it was in the production of cashew. As a result, the total output of the economy is reduced.

In spite of the net loss in societal value, the export tax may be the most efficient method of collecting government revenue available. The question then becomes: what level of tax generates the most tax revenue? Figure III-2 can be used to illustrate how increasing the per unit export tax on a commodity can increase or decrease the tax revenue derived from the export tax. We will incrementally increase the export tax from zero to three units of tax per unit of exported commodity and observe how the total tax revenue first increases and then decreases as we increase the tax. We will also note how much value (the dead weight loss, triangular areas on either side of the tax revenue block) is lost through the process.

Referring to Figure III-2, when an initial tax (equal to $P_w - P_{T1}$) is levied, the tax revenue collected by the government is equal to 6 blocks. This total revenue block is bounded by horizontal lines from points $P_w$ and $P_{T1}$ and vertical lines from points $P_{T11}$ and $P_{T12}$. The dead weight loss is equal to one block. Now, if the tax is increased by one unit of value, the total tax per unit of commodity will be the difference between $P_w$ and $P_{T2}$. The total tax revenue will be now be equal to 8 blocks. This total revenue block is bounded by horizontal lines from points $P_w$ and $P_{T2}$ and vertical lines from points $P_{T21}$ and $P_{T22}$. The total dead weight loss is now equal to four blocks. Thus, by increasing the tax, total tax revenue increased by two blocks of value and total dead weight loss increased by three blocks.

FIGURE III-2

EXPORT TAX ILLUSTRATION 2




When the per unit tax is increased a third time, so that it is equal to $P_w - P_{T3}$, total tax revenue falls to 6 blocks of value, while total dead weight loss increases to 9 blocks of value.

Obviously, the example used for this presentation is very simplified. It assumes the slopes of both the demand and supply curves are equal to negative or positive .5. In an actual analysis, it would certainly be unlikely that the two slopes would have the same absolute value. However, the point of this demonstration--to demonstrate the importance of analysis in setting an export tax to generate tax revenue--has been accomplished.

## SECTION IV

## POLICY IMPLEMENTATION INSTRUMENTS

Policy instruments are the individual actions that governments take to influence prices and the behavior of producers and consumers to achieve a defined policy objective. When discussed singly, policy instruments are often called policies. Thus, a "policy" may be a single policy instrument or a set of policy instruments contributing to the achievement of a policy objective. Policy instruments relating to agricultural policy have impact at any or all of three levels: (1) the macroeconomic level, (2) the microeconomic level of the individual firm, and (3) the international trade level.

### A. Macroeconomic Level Policy Instruments

Macroeconomic-level policy instruments may have the greatest influence on the activities of individual consumers and producers; yet, it is at this level that the conflict between national goals and agricultural sector goals may result in settings of policy instruments that constrain or even discriminate against growth in the agricultural sector. Policy instruments at the macroeconomic level include the (1) currency exchange rate, (2) the minimum wage rate, and the (3) interest rate on borrowed capital. These three policy instruments have been called macro-prices by some policy analysts.

Both the currency exchange rate and the interest rate are heavily influenced by activities having the very highest priority of government: the management of the budget (fiscal and monetary policies), inflation, and the terms of trade between the rural and urban sectors. Thus, it is understandable that conflicts may arise between the national objectives relating to the agricultural sector and a large industrial sector. This conflict may arise by design, that is, by deliberate shifts in national policy or by default as when budgetary problems and inflation cannot be controlled. However, policy-makers at both the national and agricultural sector levels should be aware of the effects of changes in these macro-prices on the various sectors in the economy to insure that changes in these variables are given the amount of attention they deserve.

### B. Microeconomic Level Policy Instruments

Before the widespread recognition of the importance of macro-prices on the development of agriculture, agricultural policy focused on influencing prices with a direct link to agriculture. Thus, agricultural policy focused on prices faced by producers and marketers of agricultural products. The policy instruments used to influence these microeconomic-level prices include:

Public investment in facilatory goods and services: Public investment affecting revenues and costs throughout the total economy is best exemplified by improvement in public infrastructure--roads, bridges, ports, and etc. Investment in infrastructure has the broadest support among development specialists as the category of policy instruments contributing most unambiguously to the development of an economy. Infrastructure development reduces the private costs of transportation and thereby expands the area from which or to which products can be marketed.

This not only assists the agricultural sector but also expands the market for businesses located in the urban areas.

Public investment in production, marketing, and utilization research: Public investments in information collection and transfer also increase the size of market areas through information flow while enhancing the competition and efficiency of market transactions.

Public investment in education and training: Public investment in education increases the productivity of the nation's people and, thus, their income generating capability.

Public investment in land reclamation and water resource development: Public investment in the development of water and land resources (such as balahna reclamation projects) expands the fixed resource base of the nation and can pay positive dividends if implemented properly.

Taxes, subsidies, and quantitative restrictions on specific inputs or outputs: Taxes, subsidies, and quantitative restrictions on specific inputs or outputs can be applied at three levels:

a. At the level of purchased inputs, e.g., an agricultural chemical subsidy or a tax on agricultural wages.
b. At the final product level, e.g., a tax or subsidy or quantitative restriction on agricultural commodities.
c. At the consumption level, e.g., consumer subsidies or quantitative limits on certain commodities.

C. International Trade Level Policy Instruments

Policy instruments at the level of international trade are generally recognized as taxes, subsidies, and quantitative restrictions placed on exported or imported commodities. However, there is considerable effect on international trade from various public investments. An obvious example is the public investment in port facilities and in the training of personnel to operate these facilities.

D. Ranking or Prioritizing Policies for Implementation

There is wide-spread agreement among development specialists that the certainty of obtaining beneficial effects on development decreases as policy makers move from public investments in facilatory goods and services toward influencing the level and stability of input and output prices. The beneficial effects of investments in facilatory goods and services are widely accepted. Conversely, the beneficial effects of policies to influence the level of input and output prices to achieve non-efficiency objectives are widely questioned. Finally, there is a growing recognition that sector-level policy must be consistent with macroeconomic policy. Policies affecting macroeconomic variables such as the exchange rate, wage and interest rates have a dominating influence on the incentive value of most prices in an economy.

Macroeconomic policies set the terms of trade between the rural and urban sectors and either encourage or penalize agricultural production. Investments in facilatory goods and services and the correction of market failures increase the efficiency of resource use within an economy and thereby increase the level of national income. Policies that effect input and output prices are more difficult to implement and evaluate and often distort the efficient use of resources in ways that are not obvious initially. The short and long term effects of price manipulation often have opposite effects on resource use efficiency and national income. Finally, the fact that such policies encourage rent-seeking activities implies that the perverse effects of the policies will be difficult to reverse even if they are recognized.

Given this general agreement on the likelihood of deriving positive benefits from policy implementation, an obvious approach to selecting policies for implementation is to concentrate first on policies that aline macro-prices with the nation's overall strategy for development. The most important macro-price, affecting prices received by agricultural producers, is the currency exchange rate. Next in line of importance are the nation's policies regarding wage rates and interest rates. Perhaps next in order of priority are policies to correct market failures and influence the level of facilatory goods and services. Once national policy at this level is under control, then attention can turn to the more difficult area of influencing specific input or output prices. The major policy objective at this point may be maintaining a stable supply of basic food commodities at affordable prices and will be influenced by the variability of supplies and prices on both domestic and international markets.

E. Policy Implementation Process

The process of policy development (including food policy) and implementation outlined above is a sequential process which builds upon established foundations of appropriate policy and knowledge. A visual illustration of this sequential process is shown in Figure IV-1. In the Figure, pyramids are used to emphasize that policies at the upper levels of the pyramids must be based or "built" on the foundations provided by the knowledge, policies and the results of policies at lower levels of the pyramids. Two pyramids are used to separate generalized, national level policies from sectoral policies. Agricultural policy, represented in the upper pyramid, must be based on its share of the national budget and the set of generalized government services provided to all sectors. Ultimately, agriculture's share of the national budget is based on the nation's strategy for development, which may or may not be an agriculture-first strategy.

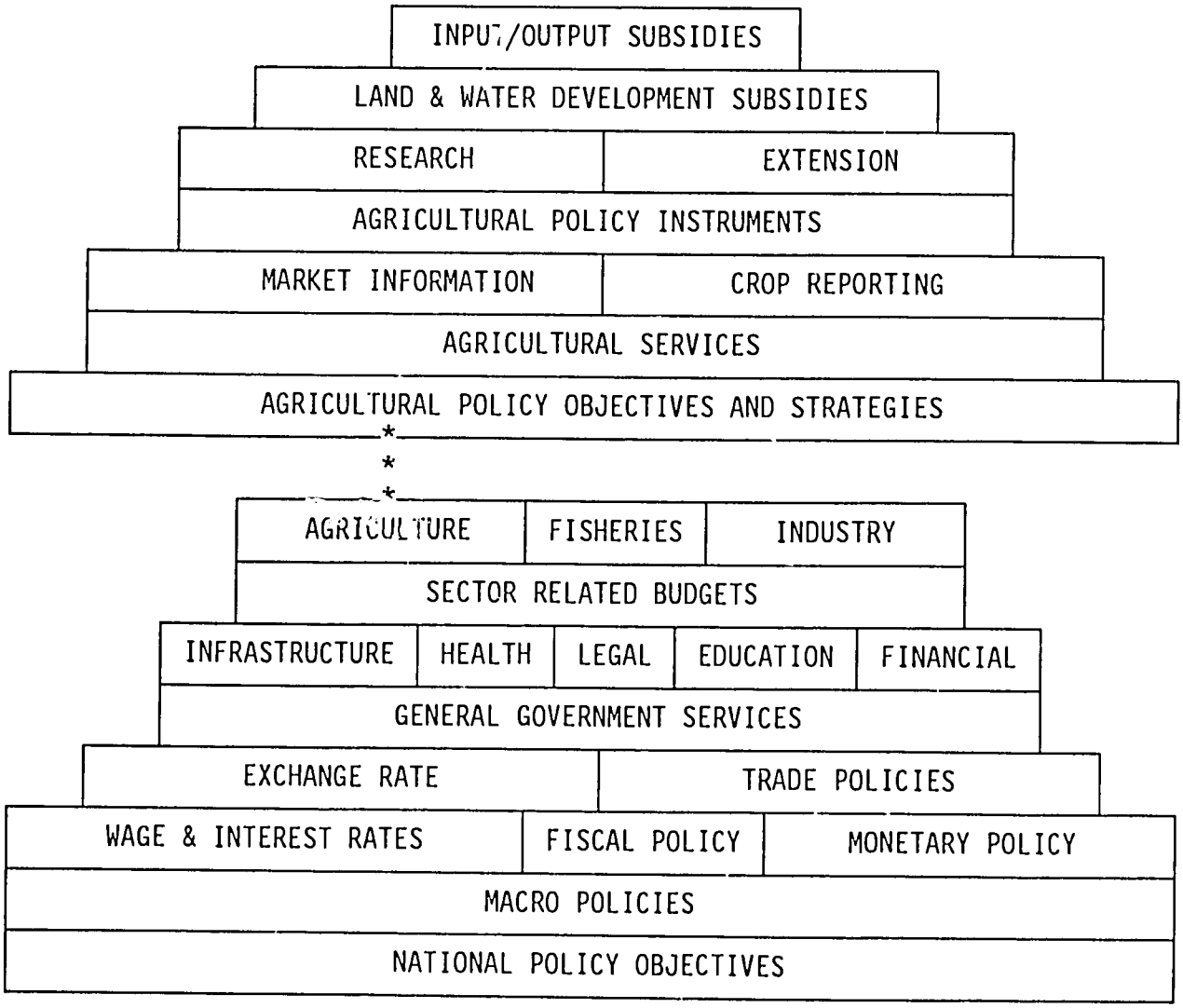
The lower pyramid emphasizes that macroeconomic policies, such as wage and interest rates, fiscal and monetary policies, determine the currency exchange rate. The exchange rate, coupled with trade policies, are an expression of the nation's development strategy. A liberal trade policy and a market-determined exchange rate favor agricultural development in comparison to an overvalued exchange rate and restrictive trade policy which favors urban manufacturers and consumers. An overvalued exchange rate increases the prices to foreign buyers of domestically produced products and lowers the price of imports for domestic buyers. In this situation, rice imports, for example, would be encouraged while rice and cashew exports would be discouraged. Thus, agricultural policy should be based on a favorable macroeconomic foundation which is set at the national

level. This point is emphasized because macroeconomic policy has often been set without regard for the policy needs of agriculture.

Once national policy is set and the budget for agriculture decided, agriculture-specific policy can be developed. This process is illustrated in the upper pyramid of Figure IV-1. This pyramid emphasizes that policy instruments must be based on the objectives of agricultural policy, the strategy for implementing the policy objectives, and knowledge of the situation as defined by marketing and production information. The arrangement of policy instruments on the pyramid is intended to illustrate an increasing level of complexity as the policy instruments impact increasingly specific issues. For example, changing input prices (via a subsidy) is a direct intervention in the market and will entail a more complex economic management problem for government than will research and extension programs that respond to producer's needs as defined by liberal market forces.

FIGURE IV-1

THE SEQUENCE OF POLICY DEVELOPMENT & IMPLEMENTATION



## F. Evaluating the Benefits and Costs of Policies

Since government interventions in the pursuit of policy can have unintended and perverse effects and since the achievement of many policy objectives are obtained at some cost (in terms of a reduction in national income), it is important for policy-makers to have some method of evaluating the probable effects and costs of policy objectives under consideration. This is the objective of quantitative policy analysis.

Traditional quantitative policy analysis requires large amounts of data and analytical ability--two factors that are generally in limited supply in many developing countries. A partial solution to this quandary is a method of policy analysis that takes these limitations into consideration by focusing on farm-level budget data and simple analytical methods. The approach of the Policy Analysis Matrix (PAM)[13] method is to compare the private and social costs, returns and profits of significant agricultural production systems.

The PAM determines what array of private and social profits or losses are produced by a particular production system, given the accompanying set of policy instruments. Private and social profits can diverge when the government subsidizes or taxes the production system such that the true resource cost of the system, i.e., the social cost, is different from the private cost. Social profit is a measure of the economic efficiency of the system. Private profits are used to encourage or discourage private producers in regard to a particular system. The difference in private and social profits is the cost (or value) of the policy set being applied to the system.

In spite of its simplicity, the PAM does have a basic requirement for farm-level budget data which limits it utility in some cases. However, this data requirement, coupled with the decision to utilize the PAM in policy analysis, can motivate the first step in the process: the collection of farm-level budget data.

Other, more simple approaches can be used first to adjust to the current information base available. As such data base is improved and analysts are trained, more elaborate models of policy analysis and monitoring can be designed, or adapted, and implemented.

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[13]Reference No. 9, Chapters I and II.

## SECTION V

## PREREQUISITES FOR A SUCCESSFUL FOOD POLICY PROGRAM

For a food policy program to succeed, certain components must either be in place a priori or must be implemented in step with the policy program in an efficient and effective manner. Failure to establish such capability to implement and monitor the program will most probably lead to results which will fall short of stated policy goals. The three critical components include (1) political, (2) macroeconomic, and (3) administrative elements.

### A. Political Component

The political component contains elements which are characterized by their political traits. These go beyond policy itself and are defined in the political arena. However, because they are critical for a successful policy program, they must be robust enough to transcend major political events such as elections and government changes. Also, in order to conserve such support, they must be transparent enough to be understood and accepted by the majority. The critical political elements are as follows.

#### 1. Definitive objectives

The basic food policy objectives must be stated in a very definitive and decisive manner. They must be formulated with a long-term view and with sufficient robustness to withstand obstacles which are temporary or political in nature.

#### 2. Political and social acceptance

Complete understanding by the whole socio/political spectrum is essential. Complete acceptance, while more difficult to achieve is also critical. Without acceptance and political support from the constituents and their representatives, a given food policy is unlikely to succeed.

#### 3. Consistency and integrity in execution

In order to be successful, a basic food policy program must be carried out in a consistent and transparent fashion. Transparency assures integrity in execution. Frequent and abrupt changes or inconsistencies will lead to erosion of confidence in the program and withdrawal of support.

### B. Macroeconomic Component

The macroeconomic component contains three elements which are highly interrelated, and unless maintained at levels which are realistic and relevant to the economy, are fully capable of undermining any effort in this area. All three are very sensitive to the rate of inflation, which in turn is affected by monetary and fiscal policies. Since a low inflation rate over the long-term facilitates economic growth, prudent and realistic monetary and fiscal policies are the basic foundation for a sound macroeconomic framework.

1. Exchange rate

The value of the national currency is reflected in its exchange rate vis à vis other currencies, usually those of trading partners. It is the most important macro price which establishes the link between the national economy and international markets. Three conditions are possible, an overvalued, a fairly priced, and an undervalued exchange rate.

A fairly priced exchange rate is the only one which reflects the true economic cost of international transactions and which does not create a bias pro or against a certain population group (urban versus rural), a locally produced commodity for consumption or export, or an imported item. It is neutral and treats everyone equal by reflecting true costs.

An undervalued currency would create a situation in which the rural population would be favored since food imports would cost more than what they are really worth. Urban dwellers would be incurring an implicit tax, transferred to rural dwellers in the form of higher domestic prices for agricultural commodities. A situation like this would encourage the production of export commodities and penalize the production of non-traded commodities, leading to misallocation of resources within the agricultural sector. An undervalued currency is, however, the exception rather than the rule.

An overvalued currency is a very common occurrence in many developing countries, with very undesirable consequences for the agricultural sector and the economy in general. An example is perhaps the best way of demonstrating the sequential negative effects of an overvalued currency:

Setting: The major force affecting the real incentives embodied in market prices are the nation's rate of inflation relative to their major trading partners and the official exchange rate. These two factors are strongly affected by government policies relating to the role of agriculture in the national development process and the equity/efficiency trade-off relating to the terms of trade between urban and rural interests. The terms of trade between urban and rural populations relates to the relative prices of the goods and services produced by these two groups. The rural group produces primarily tradable (exportable) or non-tradable (nonexportable) agricultural commodities. The urban group generally produces non-tradable goods and services (often with imported inputs) which are sold to the rural population.

Consequence of overvalued currency: If the government is strongly committed to supplying low-cost food to a large urban constituency, an effective policy instrument for achieving this goal is an overvalued exchange rate. This lowers the cost of imports, including food and the imported inputs used by urban industries, and raises the price of exports. This policy penalizes the agricultural sector by lowering the domestic price of commodities consumed within the nation and raising the price to international buyers of commodities produced for export. Thus, imports are encouraged while exports are discouraged and the internal terms of trade are turned against the agricultural sector.

An overvalued currency also tends to generate budgetary deficits as revenues from the agricultural sector decrease and public assistance to the urban sector increases, compounded by rural-urban migration. Often these budget deficits are balanced by governmental borrowing from the central bank. These borrowing increase the money supply and result in higher inflation rates. The increased inflation rate causes the currency to be further overvalued (because domestic inflation rate is higher than those of trading partners) and the incentive value to agricultural producers of domestic prices is further reduced, further decreasing agricultural production and increasing import levels.

2. Interest rates

Interest rates reflect the cost of borrowing capital for long- or short-term (seasonal) investments. Normally, long-term investments carry a higher rate due to increased risk of capital loss by the lender (borrowing to build a cashew processing plant or a rice mill). Borrowing for seasonal investments such as working capital for processing, marketing or production are less costly since collateral is more easily disposed of and the time involved is less.

As with the exchange rate, three conditions are possible, namely (1) a negative interest rate, (2) and appropriately priced rate, and (3) an excessive positive rate.

A negative real interest rate (an interest rate which is below the rate of inflation) will not reflect the true cost of capital and lead to uses which discriminate against labor as an input. Furthermore, "cheap" capital or financing increases the demand for additional capital which requires additional monetary expansion. This in turn leads to further inflationary pressures. Inflation affects the exchange rate and leads to the undesirable results explained above.

An excessive positive real interest rate (an interest rate which is several points above the underlying inflation rate) penalizes the use of capital and favors labor input over capital. In the short-term major users of capital such as construction industry, inventory dependent industries, and capital intensive manufacturing, are penalized to the point of severely reducing output and thus employment, or completely shutting down.

It goes without saying that an appropriately priced real interest rate will allow adequate levels of borrowing without causing inflationary pressures, discouraging economic expansion, or creating a biased against labor.

3. Wage rate

Wages reflect the value of labor for the different skills needed in the economy. Thus, an untrained worker will not command the same wage as a trained worker. Nevertheless, the average wage level in the economy has the same impact as interest rates through its relative value, that is whether it is over- under- or appropriately priced. Two examples of the interest/wage rate combination might suffice to show their potentially negative impact on a food policy program.

Setting: Governments often have the objective of raising the income of workers and select minimum wage rates as a direct method of increasing workers incomes. On the other hand, reduced interest costs are sometimes used for the purpose of encouraging investment. Unfortunately, these policies often result in reduced employment and lower total national income.

Possible consequence of high wages-low interest cost: First example Artificially high labor costs and/or low capital cost will encourage the development of labor saving, capital intensive technologies because innovation attempts to conserve the use of high cost factors of production. In this case, the use of the relatively high cost factor, labor, would be reduced, while the use of capital would expand. As labor is artificially displaced without finding alternative productive employment, total national income decreases. Rural unemployment or underemployment results in migration to the cities which have little or nothing to offer for unskilled farmers. If food production drops, higher import levels are needed to offset deficits.

Second example: Public investment affecting revenues and costs is best exemplified by the allocation of research funds to improve farming and processing technologies (e.g. higher yielding varieties and improved postharvest handling and processing technology). For new technologies to be adopted, they have to be appropriate for the adopter. This implies that the adopter is capable of applying the technology and that the technology is economically efficient. The fact that economic efficiency is defined by society-specific market prices links this type of research directly to the dilemma of capital versus labor. The possibility for waste is enormous. First, if researches lack the relevant information of the capital/labor prices faced by the adopter the technology developed will be inappropriate, and will not be adopted. In this case, production is not enhanced, putting additional pressures on the food policy program. Second, the research not only wastes research funds, it also contributes to the preservation of a distortion in efficient resource utilization.

C. Administrative, Technical, and Financial Component

Aside from being affected by the political and macro components, the success of a food policy program will also depend on the quality of the administrative and technical resources utilized as well as the financial support it gets to cover recurrent costs. The following is a brief review of the elements of this component.

1. Administrative capacity

The type of administrative skills required to manage and guide a food policy program oriented towards trade reliance is rare in developing countries. This situation is exacerbated by low public salaries, high personnel turnover, untrained personnel, and equipment shortage. Additional training, commensurate salaries and definitive and clear policy objectives would contribute to overcoming this constraint.

2. Analytical, technical and research capacity

It is perhaps in this area, and point No.3 below, where the "Achilles heel" of most public administered programs can be found. Inadequate analytical, technical, and research capacity combined with an information base of dubious quality produces results which lead to wrong recommendations to policy decision makers, and faulty decisions. Sooner or later policy makers learn to distrust these recommendations, begin to establish their own data bases and make decisions based on hunches and intuition alone. Policy decisions, defended on that basis become political ones, devoid of analytical content. Decisions are made "ad hoc" without any assessment of potential impact prior to implementation, and without any assessment of ramifications beyond the immediate political goal of the policy maker.

Analytical, technical and research capacity must be applied at different levels and results used upwards, parallel, and downwards. Solid analytical and research results are communicated to policy makers in appropriate time and form for them to have sound information on which to base decisions. The horizontal use of research results is critical for other ministries and institutions such as the Central Bank, Ministry of Planning, Agriculture, Commerce, etc., all of which have one connection or another to the basic issue of food policy. For example, the Central Bank needs to know how much rice is likely to be imported since this will affect the amount of foreign exchange needed, the budget, the allocation of the budget, etc.

Downward use of research results is needed to guide most research efforts in agricultural development. For example, without the economic parameters linking development of production and postharvest technologies to the market system, it will be impossible to assess the potential for adoption by farmers and market system participants. Many times technologies were deemed appropriate but were not adopted, simply because the socio/economic aspects were forgotten (Chinese rice threshing machine?). Sometimes technologies are adopted at a furious rate and everybody boasts over the success without being able to tell why, or being able to assess the ramifications of such adoption (small rural mills in the South?).

Listed below are some of the types of analysis and research, both economic and technical, that need to be undertaken, some continuously and others not, in order to successfully implement a food policy for the nation. The list is by no means complete and would grow as the program is implemented.

Rice production: This would include analysis of rice production, yield, area, and projections by system, production cost by system, technology adaptation and adoption, changes in production patterns, potential developments to increase yields, etc.

Rice marketing: Periodic analysis and update of structure, conduct and performance of the rice marketing system. Some of the critical information and analysis would include prices and margins from farm gate to consumer by marketing stage, prices and volumes by marketing level at specific time intervals, marketing costs by function, etc.

Rice utilization: Patterns of rice utilization by income and ethnic group, industrial use, area, other uses, etc.

Rice trade: Monitoring of regional rice trade to trace flow movement and reasons, and therefore consequences on national production, marketing and consumption, etc.

Comparative advantage: Since rice is a tradeable commodity the issue of comparative advantage is critical. Since comparative advantage is a relative term, periodic updates are crucial to assess the shifts in it, in order to align food policy accordingly.

International rice production and trade: Rice is a "thinly" traded commodity where minor volume changes in the international market lead to major shifts in the world price. Periodic updates on the international rice situation and outlook are essential to keep the domestic food program on track.

Development of models and systems of analysis: Since some of the analysis and research will be repetitive, and personnel change will continue to plague the public sector, this type of analysis and research should be standardized and institutionalized as much as possible. Also, the use of private sector or non-profit research institutions outside the government can provide excellent analytical and research resources and continuity.

3. Information base and quality

Since the quality of results will reflect the quality of information used, the need for a reliable information base and access to regional as well as international information is critical. For food policy analysis the information needed is well reflected in the type of analysis that needs to be undertaken (see No.2, above). Most of the information will be limited to volumes, prices, margins, costs, profits, as well as situation and outlook reports prepared by major trading countries such as U.S.A., Indonesia, Thailand, etc.

Access to regional information can be obtained through embassies, the International Trade Institute in Geneva, the West African Rice Development Association, or through direct subscriptions to public sources in relevant countries.

4. Financial resources

While the issue and challenge of food policy is already on the agenda of the Ministries of Planning and Agriculture, additional financial resources are needed to upgrade the information base and improve the analytical and research skills of the staff. While a standard project approach can address this first phase, beyond that, a financial commitment for recurrent costs must be assured to continue the program when the project is terminated.

Realistic project and policy program goals are essential to avoid promises which financial resources are unable to deliver and, on the other hand avoid setting goals which are below the potential that can be reached.

ANNEX 1

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