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TABLE OF CONTENTS

SECTION

1. Papers presented:

1.1 Improving Livestock and Meat Marketing in the Third World.....Donald E. Farris

1.2 Grain Marketing Development in Third World Countries.....Donald W. Larson

1.3 A Comparative Analysis of Fruit and Vegetable Marketing in Developing Countries...R. W. Schermerhorn

1.4 Fertilizer Marketing Systems and Policies in Developing Countries.....M. S. Mudahar & E. C. Kapusta

1.5 Recent Evolution of Urban Wholesale/Retail Food Distribution Systems in the Third World..Kelly Harrison

1.6 Rapid Reconnaissance Guidelines for Agricultural Marketing and Food System Research.....John S. Holtzman

2. Workshop Report

2.1 Commentary

2.2 Schedule

2.3 List of Participants

2.4 Comments on the Papers:

2.4.1 Livestock.....Harold M. Riley

2.4.2 Grains.....James D. Shaffer
Grains.....Bruce L. Gardner

2.4.3 Fruits & Vegetables.....Erdener Kaynak
Fruits & Vegetables.....Harold M. Riley

2.4.4 Fertilizer.....Paul L. Farris
Fertilizer.....James D. Shaffer

2.4.5 Urban Food.....Erdener Kaynak
Urban Food.....Bruce L. Gardner

2.4.6 Guidelines.....Frank Meissner
Guidelines.....Paul L. Farris

2.4.7 Response to Comments.....John S. Holtzman

IMPROVING LIVESTOCK AND MEAT MARKETING IN THE THIRD WORLD

by

DONALD E. FARRIS, PROFESSOR

Department of Agricultural Economics

Texas A & M University System

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TABLE OF CONTENTS

	Page
ABSTRACT	iii
BACKGROUND	2
A. Developed Countries	5
1. United States	5
a. Packing in large cities	6
b. Decentralization	7
c. Development package	8
d. Effective demand	9
2. Other developed countries	11
B. Developing Countries	12
1. Marketing	13
2. Consumption	14
3. Examples of marketing development	15
4. Examples of marketing development problems	17
PROBLEMS IN THE THIRD WORLD	19
AFRICA - Nature of Subsector	22
A. Low Productivity	22
B. Small Stock to Increase	24
C. Small Stock Marketing	25
D. Marketing Policies	28
E. Marketing Efficiency	31
F. Marketing Pastorial Livestock	35
G. Summary	36
LATIN AMERICA - Nature of Subsector	37
A. Low Costs - Low Prices	38
B. Consumption	39
C. Livestock Marketing and Slaughter	42
D. Retail Markets	43

TABLE OF CONTENTS - Continued

Page

E. Marketing Policy 45

F. Summary 46

ASIA - Nature of Subsector 47

A. Marketing 48

B. Marketing for the Small Farmer 49

C. Future Changes 49

SUMMARY 50

RECOMMENDATIONS 51

A. What needs to be done 51

B. Marketing Improvements 51

RESEARCH PROGRAMS 54

REFERENCES 58

FIGURES
Figure 1 Meat Consumption 4
Figure 2 International Trade Flow of All Meat, 1977 10
Figure 3 International Trade Flow of Beef, 1977 10
Figure 4 Contribution of Goats and Sheep to the Meat Supply of a Sahelian of Mali 26
Figure 5 Seasonal Variations in Females Lactating in Sudan 26

TABLES
Table 1 Meat Price Statistics for Ghana and Tanzania 30
Table 2 Per Capita Meat and Egg Consumption Projections for 1985, by Region 40
Table 3 Average Retail Food Prices in Selected World Capitols, March 3, 1981 41

ABSTRACT

IMPROVING LIVESTOCK AND MEAT MARKETING IN THE THIRD WORLD

Few areas of the agricultural sector differ as much between developed and developing countries as the livestock-meat subsector. In the Third World it appears to lag development of the general economy and the agricultural sector. The evolution of the livestock-meat marketing in developed countries is summarized and related to Third World progress. Effective demand pulls the development of livestock-meat marketing as evidenced by the meat export industry utilizing more improved practices than the domestic oriented industry.

There is wide variability in the livestock-meat marketing development in the Third World. A rather common problem, however, is that price and/or export tax policies tend to hold domestic prices for meat and livestock below international levels, discouraging the use of improved practices. A list of research and development projects ranging from study of alternative price policies to specific feasibility of marketing facilities are outlined.

Change in the livestock-meat subsector in the developed countries has been evolutionary. There is no historical evidence that there will be a "meat revolution" to parallel the "green revolution" in the Third World. Some changes in infrastructure such as changes in price policy, market structure and market services can be made at relatively low cost and result in significant improvement in market performance.

IMPROVING LIVESTOCK AND MEAT MARKETING IN THE THIRD WORLD*

By Donald E. Farris**

Few areas of agricultural marketing differ as much between developed and developing countries as the marketing of livestock and livestock products. Consumers selecting fresh meat in a modern supermarket self-service counter from among a wide variety of attractive transparent packages is a common occurrence in developed countries. The meat may be used immediately or kept in the refrigerator several days or frozen for use later. In many developing countries fresh meat often is purchased at an open stall in a central market having no refrigeration. The consumer's order is cut from a carcass that was slaughtered the night before and the product will be consumed that day. This kind of difference continues back through wholesaling, processing, marketing live animals and the production system.

Key innovations that modernized the meat marketing industries of the developed countries began with rail transportation, refrigeration, mechanized processing and specialization of enterprises.

In the developed countries, sanitary slaughter followed by refrigeration permits transporting long distance and temporary storage, if necessary, at all points in the marketing system. Refrigeration, coupled with rapid transportation, can maintain a continuous flow of fresh (or processed) meat to large population centers while maintaining the peak of quality. Effective demand as a result of higher income is necessary to support the level of quality and services prevailing in the developed countries. Improving marketing in

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**Professor, Dept. of Ag. Econ., Texas A&M University System, College Station, Texas 77843.

developing countries that is consistent with a lower effective demand is clearly a greater challenge than most development professionals expected two or three decades ago. Perhaps the lack of progress is at least partially due to concentrating on improving production without simultaneously dealing with marketing and marketing policies. The experience of the last two decades makes it very clear. Progress in the livestock-meat subsectors of the Third World is very difficult and a long-run process. The pattern of progress at best will be evolutionary if the history of the developed countries is followed. There simply is no historical evidence that a meat revolution will parallel the "green revolution."

Objective

The objective of this report is to assist the Agency for International Development, Bureau of Science and Technology (AID S&T/RD) in developing a program of research and technical assistance activities in the area of livestock and livestock products marketing to promote agricultural development in low-income countries.

More specifically, this paper will (1) Briefly describe the nature of livestock and meat marketing, including its progress as economies develop, (2) Identify key problems limiting development of the livestock-meat subsector in the Third World, and (3) Propose programs and research that would enhance the rate of development in Third World livestock-meat systems.

BACKGROUND

Development of the livestock and meat subsectors in different parts of the world has progressed at vastly different rates. The path of development has been somewhat different; however, it has followed the same general

pattern, with some exceptions in the details, of course. Development has been pulled by great differences in effective demand, by the general level of development of the economy and by the level of development in agriculture in the country. Although the path of development has differed in detail the patterns of the developed countries have been similar as they adapt technology and management systems to special problems in their own livestock-meat subsectors.

Red meat is more palatable and is expensive relative to vegetable protein sources and as a result, effective per capita demand for meat generally increases with income (Figure 1). The relative price of meat compared to other foods also influences this rate of increase. Perhaps that explains why Latin America, Eastern Europe and Oceania points are to the left of the curve and East Asia is to the right in Figure 1. Oceania has relatively low priced meat and East Asia much higher prices.

Costs of production and marketing meat have been greatly influenced by developments outside of the subsector. The tremendous reduction in the cost of producing animal feeds since World War I have reduced the cost of production of meat, especially in the developed countries, and in some developing countries that are net exporters of agricultural products. Improvements in transportation, especially the declining cost of truck transportation since World War II, have reduced marketing costs substantially. The commercial meat industry accelerated with the advent of mechanical refrigeration. Improved communications also facilitate the development of livestock and meat marketing.

Some areas of the Third World have made significant advancements in livestock production and marketing such as Northern Mexico and the Pampas area

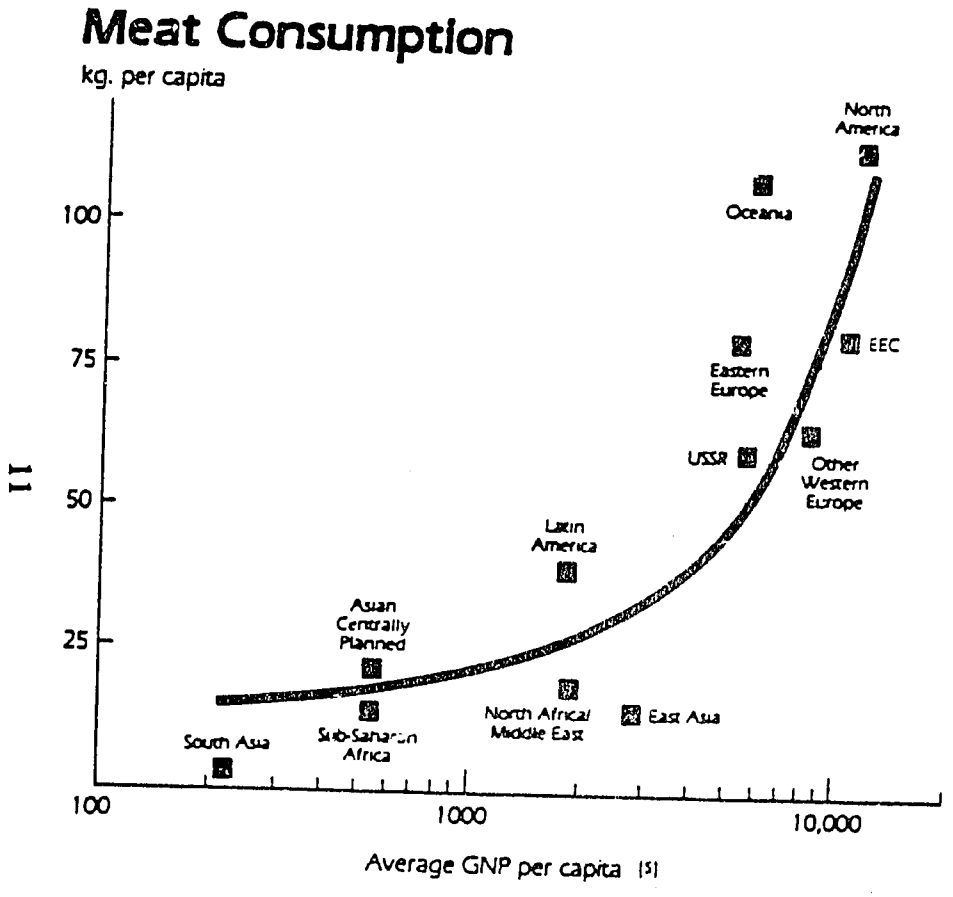

Figure 1

Source: Winrock International, "A Summary: World Agriculture - Review and Prospects into the 1990's."

of South America. The pastorial areas of Africa, on the other hand, have made only minor improvements, despite improved methods introduced by the colonialists. Overall, progress in the Third World is disappointing, however.

Crotty (p. 1) states, "The gap between the attainable and the attained, with existing pastorial resources and knowledge, is wider than in any other major enterprise. For example, annual output per head of cattle is 14 lb. of beef and 10 gal. of milk in the countries with the poorest one-third of the world's population; it is 140 lb. of beef and 140 gal. of milk in the countries with the the wealthiest one-third. [That is a difference of ten times!] The shortfall in respect to cropland is much less: yields of cereals and pulses in the poorest countries are two-thirds those of the wealthiest. Production of beef per head of population in the countries with the poorer half of the world's population, already low, is declining."

A comparable comparison of productivity in marketing is not available. However, it can be observed that the difference in the use of marketing methods and systems between developed and developing countries is as striking as are the differences in production.

DEVELOPED COUNTRIES

United States

Reviewing the evolution of the livestock-meat marketing development in the U.S.A. may provide some perspective as to what is involved in our own development. Progress in development began in the colonial period, but most of the modern industry has emerged since the 1900's. The first commercial meat packing plant was established in Boston in 1662, most likely producing only barrelled cured pork. Auction selling of livestock was reported as early as 1676. The Brighton Market, established near Boston in 1756 was the first public stockyard of record where all were invited to buy and sell.

Livestock were transported by canal boats, river barges and by steamboats. Over land, they were moved by trailing (trekking) to population centers where they were slaughtered by commercial packing plants or by individuals. The long Texas cattle drives began about 1842 -- one to New Orleans and one to Missouri. In 1846 a herd was driven to Ohio for feeding and 1855 one was driven from Texas to New York City.

The development of the railroads resulted in a system where cattle were driven to the railroad then transported to the major cities for slaughter or to the Midwest or Northeast for feeding. Being a central railroad terminal in the Corn Belt made Chicago a logical meat packing center which produced pork to ship to the East. The first refrigeraged car of dressed beef was made in 1877. The refrigeration was natural ice (Williams and Stout).

Packing in large cities

The focus of the meat industry marketing was the large cities in the Midwest and the Northeast. Practically all the rail centers had stockyards that were surrounded by packing plants. Meat products were shipped out of these centers by refrigerated rail cars. In the 1920's some local distribution was performed by trucks. The meat packing centers dominated meat marketing until after World War II when modern trucks facilitated movement of packing plants to cattle and hog fattening areas. This resulted in a sharp increase in direct sales of slaughter livestock to packers, bypassing the livestock terminal markets. In the meantime, country auction markets developed to handle the specialization taking place as more specialized cow-calf operations needed a local market where farmers could sell a few calves or a single cull cow at a time. By the 1950's the U.S. for the first time had as many beef cows as dairy cows and the cattle feedlot industry began to expand from the farmer-feeder lots of the Midwest to the large commercial

lots in California and later to the Southern Plains of Texas and Oklahoma. The meat packing industry had decentralized and specialized.

Decentralization

The flexibility of efficient refrigerated rail and truck transportation made it possible to deliver meat over long distances in a short time. This allowed slaughter plants to locate in the production areas where most of their supplies were within 100 or 200 miles of their plant. It is much more efficient to ship about 50 percent fewer pounds of meat long distances than livestock where there is a modern transportation system available.

In the 1980's, it appears the meat industry of the U.S.A. is mature - not that there are not more changes on the horizon - but the growth for the first time since the 1930's appears to have leveled off. At this point, there is a wide variety of methods and systems. There are still old plants operating in cities; and there are still small plants in rural areas slaughtering only a few head a week. The major portion of the business, however, is specialized large scale slaughter and processing plants in or near the production areas.

There is a mandatory national system of health and sanitation inspection. There are national grade standards for voluntary use by the industry, as well as a national market news and supply reporting system.

Most of the slaughter livestock are sold direct to packers, bypassing public markets where producers have truckload volumes to sell. All types of markets exist, including a few electronic markets for lamb and feeder cattle that handle only a small volume to date. Most of the cow-calf operators use local auction markets, some of the larger ones sell direct or through order buyers, however. The auction market appears to be an efficient method of exchange for small lots of livestock. Producers are aided by an innovation called the "gooseneck trailer". Since its invention a little more than 20

years ago it has become the preferred method of short distance hauling of livestock. Being close to the ground, it is easy to load and unload and is more stable at highway speeds.

Development package

The developments in technology such as transportation, refrigeration, mechanized slaughter, and modern supermarkets are all rather obvious conditions that support development in all the perishable food industries. The less obvious developments are the role played by a stable political and economic environment. Meat industries are capital intensive and require long range investments. Reliable government services such as market news, livestock and crop supply reports, and grades and standards facilitate the development of efficient pricing and buying and selling.

In the United States order buyers commonly take orders by phone from farmers who need a truckload of stockers to graze seasonal pastures like winter wheat in the Southern Plains or mountain valley summer pastures. They may in turn place this order by phone with one or more dealers at public markets. Both feeder and slaughter cattle are sold direct from producer to buyer by phone (although a relatively small portion of the total volume). This is made possible by mutual trust and supported by the knowledge that verbal contracts and agreements are enforceable by law. The Packers and Stockyards Administration of the U.S. Department of Agriculture has a prompt payment regulation that requires payment within 24 hours of purchase. Most of the U.S. truckload wholesale meat transactions are traded by phone and/or telex between buyer and seller. These trades often take place utilizing official USDA grades and within the buyer's standard buying specifications. They may relate to a standing contract that specifies the buyer's quality, trim and weight specifications, with prior agreement that price is determined

by a specific market quotation a few days later (the approximate delivery time).

These activities are extremely efficient marketing methods that rely on modern technology, but the system works because the industry organizations and the government cooperate to see that the necessary rules, regulations and services are available for a smoothly operating subsector.

Some of this technology has been and will continue to be transferred to the Third World (not necessarily without modification); but for it to result in the most effective development the necessary infrastructure, legal and economic framework and management must be there in a package. Furthermore, all of it is not necessarily cost reducing. Some of it is quality enhancing, quality maintenance, convenience and cost increasing. Effective demand to pay for this technology must also be in place. This does not mean that a U.S. type slaughter plant or feedlot would be appropriate for the least developed areas of Africa. On the contrary, smaller, lower cost plants with minimum facilities (and most likely without refrigeration) would be more appropriate.

Effective demand

To illustrate the key role of effective demand, the large affluent market of the U.S.A. is the largest beef producer and at the same time the largest beef importer in the world. Imports consist mainly of frozen boneless beef used mostly for grinding from Oceania and Central America. Australia depends on the U.S.A. for about 50 percent of its exports (Figures 2 and 3). When record beef supplies were being marketed in the U.S.A. and other areas of the world in 1975-77, the price of thin cattle in interior Australia dropped essentially to zero. The same was true of week-old bull dairy calves in the U.S. Cull cow prices in interior Tanzania would have been near zero because the international price would barely cover the cost of transport and

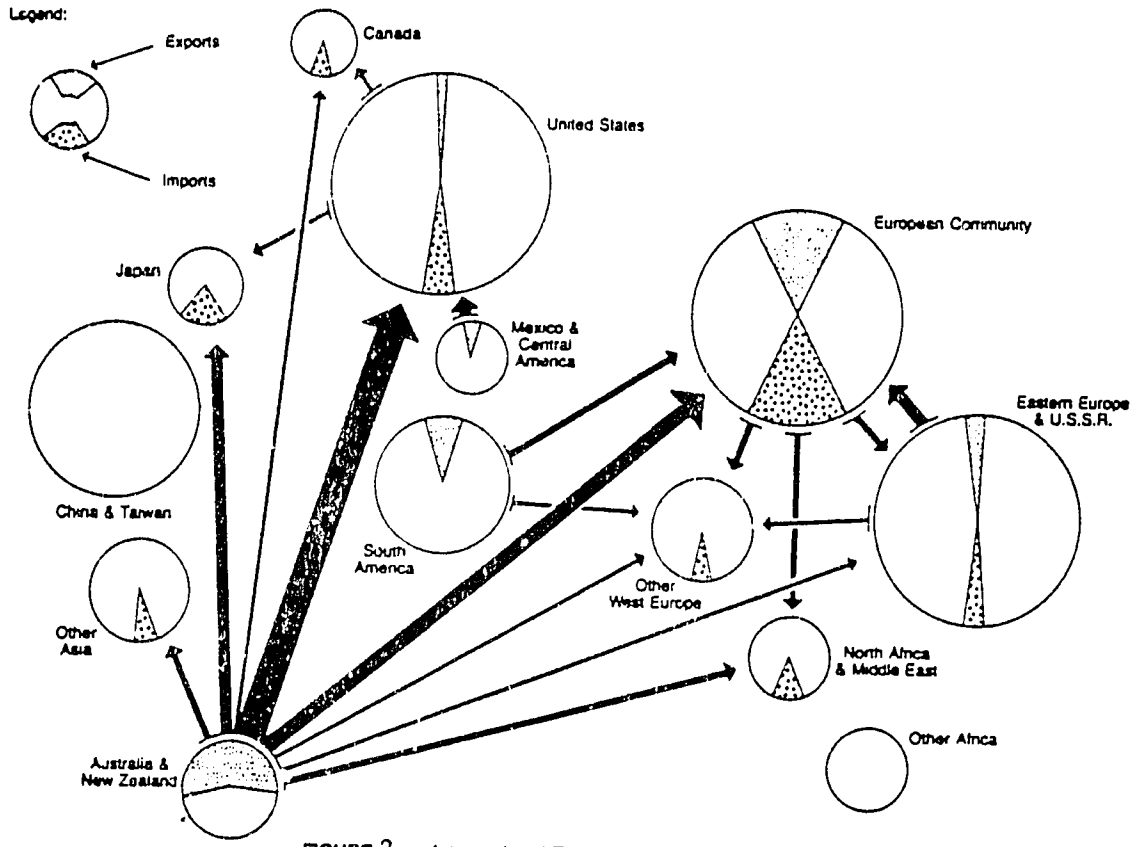

FIGURE 2 — Interregional Trade Flow of All Meat, 1977

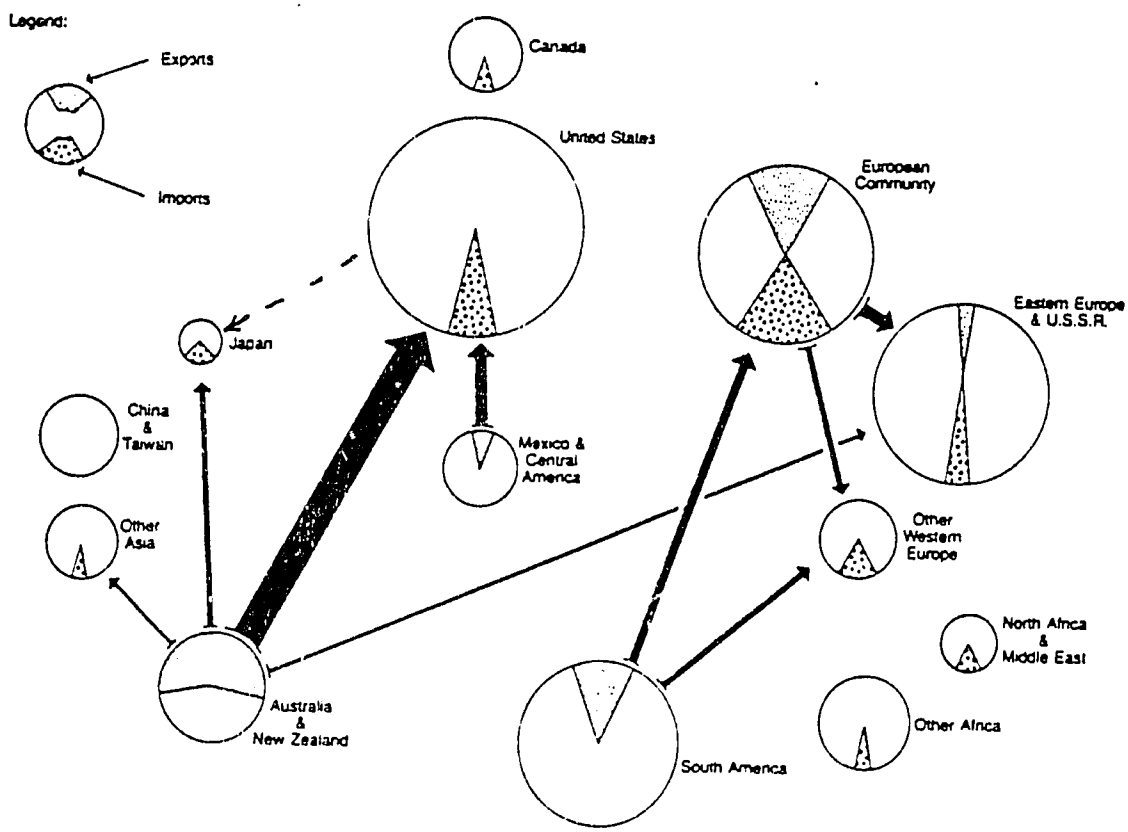

FIGURE 3 — Interregional Trade Flow of Beef, 1977

processing, however, the Tanzanian Government had established a minimum price.

The evolution of the United States livestock and meat subsector involves some phases found currently in many Third World countries. In the early stages of development, there was communal grazing and trekking cattle to market. As late as the 1930's there was still a hot meat trade and it was not uncommon for subsistence farmers to slaughter their own meat supply and sell the surplus to neighbors or local townspeople.

One trend that appears rather clear (but not easy to document), is that the Third World is still in the process of increasing the number of public markets and the percentage of livestock being sold through public markets; whereas, the developed countries have passed that phase and are increasing the percent of livestock sold direct to buyers, bypassing the public markets. Public markets serve the role of assembling small lots of non-uniform livestock. Once an operation has a truckload of uniform livestock to sell at one time, direct selling is often more efficient (Farris, 1983).

Other developed countries

Other developed countries are following the same general trends as the U.S.A. using about the same technology; however, the scale is not as great and there is not the same degree of specialization. In Scandanavian countries, producer cooperatives play a leading role in livestock and meat marketing. In Eastern Europe, the State is directly involved in physical handling as well as pricing. The livestock-meat subsector appears to be one of the most difficult enterprises for socialist states to operate efficiently because of its complexity and difficulty in being standardized.

In recent years, Japan's affluence, import and price policies have sharply increased the price for beef. These high prices have been an incentive to grain feed steers in confinement (partly with imported grain and

hay) to slaughter weights of 1300-1500 pounds! The economic signals are so strong that once a calf is born, every improved practice is used to get the maximum total beef from it. The Japanese have developed the most intensive cattle production and beef marketing system in the world as a direct result of their high price policy for beef since the 1970's.

The EC, likewise, has subsidized their dairy and beef industries. Once the largest beef deficit area of the world (Figures 2 and 3), they became the largest beef exporter in 1986, as a direct result of high internal prices for beef that reduced consumption and stimulated production. Heavy subsidies are being used to "dump" the surplus beef into the international market. This has "spoiled" the 1986 international market for beef, depressing it to $650 per metric ton for frozen boneless beef. This is the lowest since the international depression in beef in 1975-77, and has been devastating to beef producers in the exporting countries of South America. The EC experience is another classic example of how the livestock-meat subsector responds to effective demand. In this case it was artificially high prices, whereas, the Australian case in 1975-77 (and that of all other exporting countries) was artificially low prices due to import barriers in alternative markets when the U.S. market collapsed.

The lesson here is that the EC policy makers apparently were not able to see the rapid rate and extent of development in the livestock-meat subsector as a result of their high price policies. The higher prices for cattle encouraged more fertilization of pastures, more stored feed and production of the existing inventory to heavier weights.

Developing Countries

The striking documentation of lack of development in the livestock-meat subsector is the low productivity of livestock production enterprises.

Developed countries with only 35 percent of the cattle in 1979, produced 67 percent of the beef (Simpson and Farris, p. 6). Behind these simple data are many complex factors contributing to low productivity such as low calving rates, high calf mortality and a much longer time required to reach slaughter weight than typical in developed countries. In the tropics where there are wet and dry seasons it is not uncommon for cattle to lose almost as much weight during the dry season as was gained in the wet season. It may take a steer 5 years to reach 800-900 pounds. Failure to use stored feed in stress periods is a source of substantial waste of food resources and a major barrier to subsector development in much of the developing world. This problem involves economics, marketing, production, management and government policy. It results in a great deal of waste of animal and grazing resources. Its relationship to marketing is the interdependence. In some cases a low price or trade policy that keeps the domestic price lower than the international market discourages stress period feeding.

The policy of free communal grazing in many parts of Africa makes the herdsman's perceived cost of gain per animal essentially zero, whereas, all other alternatives such as the use of stored feeds have a cost. In high risk survival of livestock areas, there is a tendency to focus on cost minimization. In many African countries there is no safe place to store money. Banks typically are not used and alternative investments are scarce. A herd of livestock may be about the only way for a people in rural areas to store and accumulate wealth. Livestock-crop operations are complimentary, especially in terms of handling cash flows without using a bank.

Marketing

In marketing it is difficult to find development problems that appear as severe as the obvious low productivity of livestock. It is not nearly as easy

to measure the waste involved in trekking cattle long distances to market, because the waste is born by society rather than the individual operators. Cattle must be grazed enroute and if they are trekked for a week or a month they have cost society that time of grazing without any gain plus some shrink and death losses. Likely a larger cost is the disease and ticks that are spread through the route to market.

In Tanzania cattle were shipped in open top rail cars designed for hauling materials like sand or gravel. There were no provisions for feed, water, or shade on trips from the interior to the coast that ranged from two to four days. Shrink and death loss was often excessive, most of it avoidable with a little extra expense and management (Farris, et al., 1976). Constructing low cost slaughter plants in the surplus production area so that long treks are not necessary is an alternative, but the infrastructure sometimes is not adequate to support it. The large number of cattle that die of starvation from severe drought also is a major waste. Adequate meat canning capacity and marketing programs to facilitate moving cattle to other areas could reduce this waste.

Consumption

Developing countries consumed 25 percent of the world beef supply in 1977, only 6.7 percent of the pork, 19 percent of the poultry and 46 percent of the sheep and goat meat. On a daily per capita basis, in 1977 meat consumption in the developed group of countries (including poultry) averaged 207.7 grams; in the centrally planned Communist countries of Eastern Europe, Russia and China it was 80.1 grams and in developing countries it was 30.6 grams. "The developing group's average daily meat consumption barely exceeded one ounce, a meat intake equivalent to two small hamburger patties per week — but that was a 40 percent improvement over their 1967 meat diets." (Wheeler,

et al.).

Considering this low level of meat consumption and the fact that the developing countries have the fastest growth in population rates, there is little likelihood that Third World meat supply will be adequate in the foreseeable future. This is an overriding problem that requires attention at the highest levels of governments and international organizations.

Examples of Marketing Development

Available published information on successful marketing development in the livestock-meat subsector is scarce. Most of the available literature relates to problems. Many of the obvious successes are in the developed countries.

1. A Japanese example has application to the marketing of small lots of livestock in many areas of Asia. Coming out of World War II Japan had a major land tenure reform that limited the amount of land any farmer could own. Livestock production involved many small operators with only one or a few head per year to market.

Being members of a federated cooperative organization mainly oriented to crops, the cooperative, however, established livestock auction markets for feeder cattle, custom abattoirs and carcass auction markets for slaughter cattle and hogs. The principal objective was to provide effective market access to small livestock producers. They have clearly accomplished that in a period of about 30 years. This is a pattern that could be useful in other Asian countries.

2. In colonial Africa following World War II there was an active commercial beef marketing and processing industry in East and Southern Africa. The primary product was canned corned beef exported mainly to Europe. These operations were given privileged entry into the European community. Kenya and

Botswana have continued to export canned beef at a premium over the international market. Tanzania, despite donor loans and assistance to a parastatal organization, lost their sanitation and health certificate about 1975 and have had to sell at a substantial discount to other markets since. The point of this example is that it shows what can be done in tropical Africa and it shows that improved methods must be continued to maintain development.

3. During the 1970's both Tanzania and the Philippines had projects to establish public livestock markets. It was easier to provide facilities than to achieve an efficient low cost market operation. However, these appear to be successful projects although the original pricing policy in Tanzania related to the markets was not a success (Farris, 1983).

4. According to Jahnke (p. 165), the Kenya Dairy Cooperative established in 1954 was successful in that it provided effective marketing services for a large number of small dairymen in Kenya following independence. This project established a package of production and marketing services including a credit program and included construction of feeder roads.

5. In the 1970's, Syria, in response to the strong demand for live lamb and mutton in the Persian Gulf states, developed a specialized fattening industry. Lambs were imported from Turkey, grazed on small grain in Northern Syria (some were grain-fed in confinement) and trucked to the Persian Gulf for sale at a premium price. At the same time Damascus, Syria was importing lower cost lamb carcasses from Bulgaria. This overcame one of the problems often encountered in the Third World where operators are inclined to try to own livestock the entire production cycle rather than specialize and make use of the competitive advantage of other operators who have higher quality or more abundant forage.

One negative aspect of this program was the livestock market in the City

of Allepo. The largest market in the country had no improvements except a seldom used scale and a few buyer pens. It was mainly a meeting place with no organization, no seller pens, no loading docks and no market news except by word of mouth. Sales were by private treaty. There were many buyers and sellers when I visited the market in 1979, and one might say the marketing system was performing well. The progressive aspect of market performance was lacking because they had not made use of the widely adopted improved methods of operating a livestock market. The problem is that it takes organized action on the part of an industry group or the local or national government, and apparently some interests (probably the buyers) liked it just the way it had been for many years.

Examples of Marketing Development Problems

1. In Damascus, Syria the parastatal meat company operated a modern plant for lamb and mutton slaughter with an overhead rail system. It had a separate section for custom or do-it-yourself cattle slaughter. This was a bed system instead of a rail system as the volume was low.

The plant appeared to be efficiently operated in 1979 and had good sanitation and veterinarian inspection. Sheep carcasses were held overnight under refrigeration. The next morning carcasses were railed out of the cooler and transferred to the distribution company - also a parastatal. Carcasses were weighed on a modern on-the-rail scale. From this point forward sanitation management and marketing deteriorated. Carcasses were lifted off the rail for tagging. They usually were rested on the floor of the loading platform while being tagged with the weight, total price and buyer's name. Carcasses were then loaded on the floor of an insulated truck that had the rear doors removed for convenience of unloading at the many stops. The trucks went down dusty unpaved streets where carcasses were delivered to the small

privately owned shops. Orders were filled along the route exactly in the order that carcasses came out of the cooler. If a butcher ordered two carcasses they could both be top quality lambs or one might be an old ewe. There was no grading and all the carcasses were the same price, so that every time an old ewe was unloaded there was a great deal of yelling and arm waving. The buyer had no recourse and usually had to make an emergency purchase from a small (uninspected) slaughterer to service his customers with the quality they preferred. This is an example of a problem that could be rather easily and inexpensively solved, but the person who had the authority apparently did not want to be bothered, or did not know there was a problem (Sullivan and Farris, 1980).

2. In South America most agricultural exports are taxed - sometimes at the same percentage rate, sometimes at a differentiated rate. Five of the beef exporting countries in South America were studied in 1973 and it was shown that the export tax system was a disincentive to export the higher value added beef products. In all of the countries there was chronic unemployment and a critical need for foreign exchange. The GNP multiplier was estimated at 3.3 for exporting live cattle, whereas bone-in carcass sections or frozen boneless beef had a multiplier of 4.0, canned beef was 4.4 and cooked-frozen bas 4.9. We found no case where the higher valued product had a lower percentage export tax to provide an incentive to generate more employment and economic activity (Simpson and Farris, 1974).

This is one of several policies that discourage development in an industry where several South American countries have an absolute, as well as a competitive advantage in trade.

3. Many countries in the Third World use food price control to indirectly augment consumer income and/or minimum prices to augment producer

income. A typical problem with meat and livestock is that quality differentials are either very simple or absent. This discourages practices that would improve quality.

In Tanzania, the parastatal livestock marketing company was the dominant buyer of cattle, supplying all of the cattle to the only commercial slaughter plant in the country and also buying immature cattle for the state owned ranches.

The price policy was a flat price regardless of location and a small premium as weight increased. This automatically made young cattle the lowest price. Since small herdsmen, traders, and butchers could react to the fixed price of the parastatal buyer, the result was that most of the cattle offered to the livestock marketing company were lowest quality, mostly cull cows, at a long distance from the capital city on the coast. Advice from expatriot advisors had no impact. It was only after several years when the international market improved and very few cattle were being offered to the parastatal company that the policy of fixing cattle prices was dropped. The way for government to best help small farmers and herdsmen is to provide public markets, try to control fraud and supply credible market information. Other examples are listed later, but a set of related problems in developing the livestock-meat subsector are summarized below.

Problems in the Third World

1. Progress in livestock-meat partially is tied to the economy.

   Lack of progress in livestock-meat subsector is partially related to the lack of development of the economy: (a) The lack of legal and economic environment to foster efficient markets and business practices. (b) Lack of development of infrastructure such as roads, transportation and utilities hinder use of modern marketing, processing and refrigeration.

2. Low effective demand due to low incomes.

   Low effective demand is such that most consumers cannot pay for convenience, and services that enhance and maintain quality of meat. As a result there are fluctuations in supplies and meat often must be consumed the same day it is slaughtered.

3. Marketing livestock is expensive.

   Livestock marketing systems in the Third World are relatively expensive compared to those in developed countries, partially because transportation and exchange is expensive. For this and other reasons, they often do not properly facilitate exchange of livestock in moving them to slaughter or to better pasture in other areas for those animals not ready for slaughter. Government regulation of marketing and marketing agents often interferes rather than facilitates efficient movement.

4. Slaughter facilities are inadequate.

   Livestock slaughter facilities are generally very simple. Some slaughter is primitive, especially in Africa, often employing no facilities at all. Poor sanitation and no health inspection is often a problem. Sanitary and efficient slaughter facilities with proper inspection and waste disposal can be provided in sizes suitable (from the small village to the large metropolitan area) at low cost per head of livestock. This would appear to be a good investment for any society. For long-run efficiency in the livestock-meat subsector there must be seasonal and cyclical excess capacity in slaughter plants to handle emergency conditions during drought, otherwise many animals die of starvation. This excess slaughter capacity is a common condition in the U.S. - where stored feed is commonly available. Where the entire livestock population depends on the standing forage the excess capacity is even more important. Careful planning of

slaughter plant location, size and design is necessary for economical operation, however. Vacant and abandoned plants do not contribute to development.

5. Meat processing is mostly for export.

   Meat processing, if done, is mostly for export and does not provide the Variety, convenience and storability available in most developed countries. For some countries, permitting a low import restriction for imported meat processed products may be the most economical way of providing consumers with these product alternatives.

6. Government services inadequate.

   Government services required for inspection, market news and other market intelligence such as available supplies, and grades and standards are often inadequate. The cost for these services is mainly the cost for personal salaries. In most cases these economies have high unemployment rates and the indirect cost to the economy would be relatively small.

7. Price control often distorts incentives and discourages technology.

   Market, custom, or government regulations may not provide producers with the proper incentives for improving quality and timing of marketing livestock. Price fixing is not uncommon and this distorts the signals between consumers and producers. Government price setting generally is unable to provide the refined incentives to obtain the quality and/or service on which consumers and suppliers would agree in its absence. Often this discourages the use of more technology or services.

8. Lack of off-season feed supplies.

   The practice of permitting cattle to lose substantial weight during the dry season (or winter) delays slaughter 1-3 years. This compounds overstocking problems and results in a waste of both cattle and range

resources. It does not provide consumers with a continouos supply of uniform quality.

9. Shortage of trained management and marketing. There is typically a shortage of trained management and marketing professionals in the Third World. The problem is most acute in the countries that recently gained independence. Mainly because the subsector has so much variability, there is perhaps no other enterprise where there is a greater need for decentralized management and marketing; and this depends on a relatively large number of skilled operators.

AFRICA - Nature of Subsector

Low Productivity

Tropical Africa is one of the least developed world regions with most of the world's poorest countries. The economies of these countries are varied but most of them depend heavily on agriculture. Foreign exchange often depends on a few export agricultural commodities. "The performance of livestock as a part of agriculture is particularly disturbing. While some modest productivity improvements have taken place in cropping, livestock production increases in the past have been largely due to numeric expansion of herds and flocks rather than to improvement of the productivity. Overgrazing and resource degradation characterize livestock production over much of the region while the apparent potential in other regions is not used at all," observes Jahnke (p.1.).

Major livestock areas like the Sahel and parts of Eastern Africa are high risk drought areas where there is a constant threat affecting the survival of livestock and people. Livestock systems are typically subsistence, but a few improved operations exist on large ranches from the Colonial period and in the highlands, but dairy operations have a competitive advantage in the highlands.

Most of the cattle in tropical Africa are herded by subsistence farmers or semi-nomads or nomads and are basically kept for milk. Sheep and goats are kept for a more regular family meat supply. The herds are mixed species and multipurpose, used for milk, meat, fertilizer, hides, and a store of wealth.

Wild animals are a constant predator threat in many areas and livestock are typically brought back to the boma at night for protection from animals and from theft. Tsetse flies and the diseases they carry prevent the use of some of the more productive grazing areas. Jahnke says that tsetse flies cover about 40 percent of tropical Africa.

Southern Africa has achieved a higher level of development in livestock production and marketing. In South Africa the livestock industry is modern with methods similar in many respects to Europe and North America despite the coexistence with wild animals in some areas. Commercial feedlots are used in South Africa and the marketing system is a mixture of private enterprise and government regulation. Livestock products account for 37 percent of the total value of agriculture (South African Dept. of Agriculture).

Livestock marketing in Subsaharan Africa consists mostly of trekking cattle to market or to the railroad for the trip to the abbatoirs or packing plants. In villages, local butchers often slaughter with little or no facilities. Livestock markets are primitive and generally with poor facilities. At auction markets operated by the government-owned parastatal marketing company in Tanzania, there was substantial private treaty trading outside the auction, partly because it was too slow. A simple change in facilities and management could have changed that. Many of the cattle are purchased in the villages and then sold to other herdsmen at public markets, local butchers or a slaughter plant in the city. In several countries the government, in the form of a parastatal corporation, operates the export

oriented plants and the slaughter plants in the cities where the meat is consumed.

Although there are cases of unused poorly located and poorly operated plants, there is a shortage of plant capacity and a shortage of small plants to serve small villages. A village facility consisting of a concrete pad with drainage, running water and equipment to hoist and move carcasses for skinning and cleaning is an improvement over no facilities.

Small Stock to Increase

Subsaharan Africa has more than one-third of the goats in the world and almost one-fifth of the sheep. Ownership of small stock is extremely variable among Africans. Herd sizes are greatest in the drier areas. In the humid coastal zone of West Africa there may be only one or two small stock per family. In many cases, the small stock provide most of the family meat supply as cattle and camels are generally regarded as dairy animals. Meat, milk and skin production from African small ruminants is, respectively, 16, 14 and 15 percent of the world output from goats and sheep. Goats produce altogether about three times as much milk as sheep (Wilson).

Wilson explains, "Goats assume more importance than sheep as the management system moves from nomadic to sedentary and from purely pastorial systems to mixed crop-livestock systems...."

"With increasing pressure on land due to higher human population levels, it is probable that numbers of small ruminants, in part because of their wider dietary range, are increasing relative to cattle. An additional advantage accruing to small ruminants is their early physiological maturity and rapid reproductive rate. Because of their ability to produce a greater number of twin births, goats are undoubtedly also increasing faster than sheep."

Small stock can provide food for the family after severe droughts much

quicker than cattle and camels. They have a longer term ability to withstand difficult conditions, according to Wilson.

With small stock combined with the cattle herd, herdsmen are able to reduce the seasonal variability in the family food supply as illustrated by Figures 4 and 5. In addition, their production recovery from long-term drought is faster. Wilson provides data which shows small stock slaughter in four countries at 35 percent of the herd in 1970 prior to drought, then slaughtering at 43 percent in 1976 after the drought.

A number of authors predict that small stock will be a more important source of meat and milk in Africa in the future (both absolutely and relative to cattle), especially for the smaller operator's family food supply, but also for commercial markets. Some of these same authors also note that the marketing system is generally not as well organized to service the small stock industry as it is for cattle. This means that in some areas, special attention must be given to small stock marketing.

Small Stock Marketing

Little detailed published information on marketing small stock in the Third World appears to be available. An unpublished report prepared by Bassett and Harston for USAID in Botswana provides information that applies to several areas of Africa.

At the outset they point out that effective demand is a key factor in determining the role of an agricultural enterprise when there are close substitutes in a market economy. They observe that sheep and goats often appear to be only supplementary, as the market does not appear to have much direct bearing on the ratio of cattle to small stock in the production systems of Botswana.

Local sales of small stock to neighbors and to local abbattoirs accounted

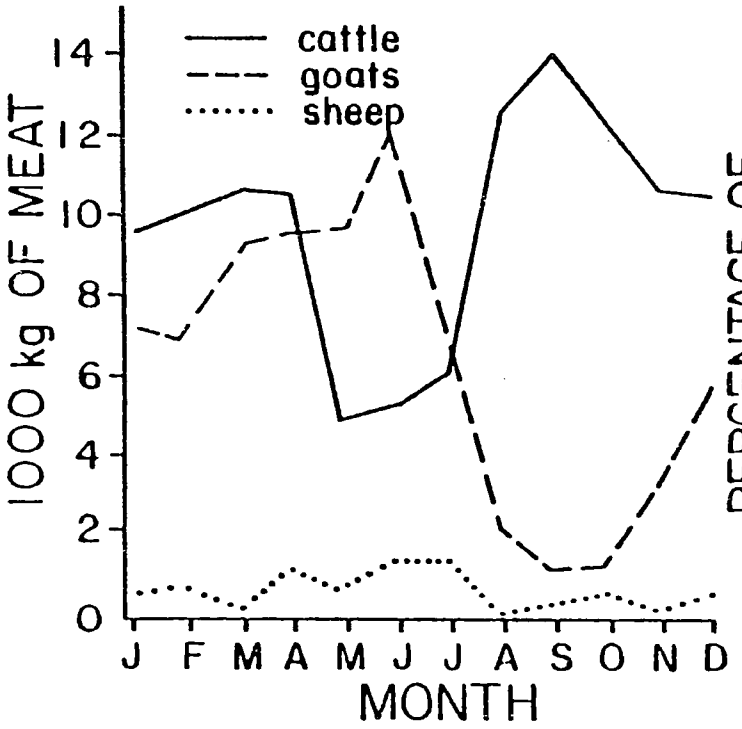

Figure 4 Contribution of goats and sheep to the meat supply of a sahelian town in Mali

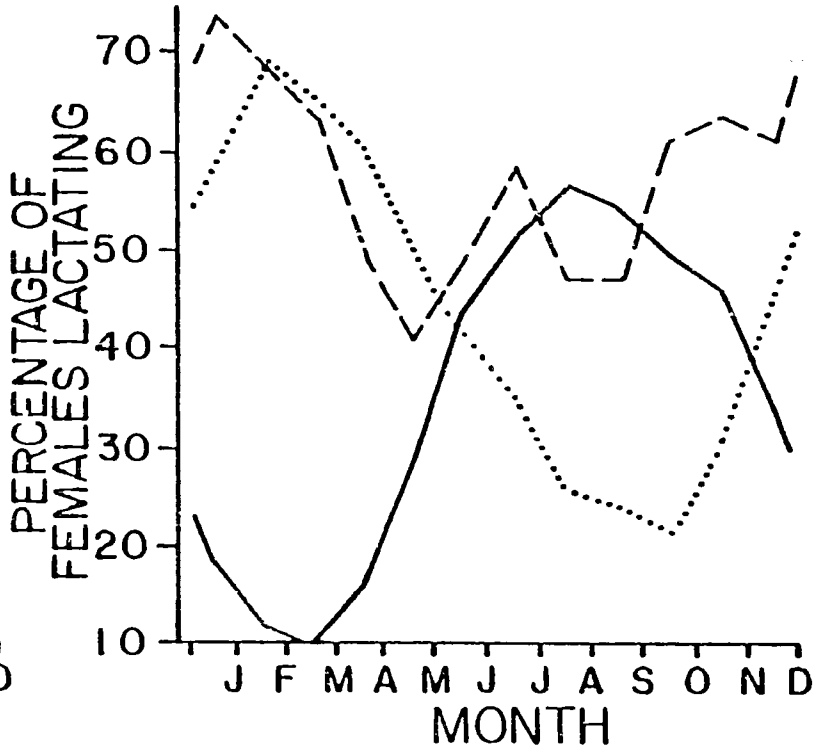

Figure 5 Seasonal variations in females lactating in Sudan

Source: Wilson, Trevor R., Livestock Development in Subsaharan Africa, J.R. Simpson and Phylo Evangelou, Eds. Westview, 1984.

for more market transactions (41%) than any other type of buyer, according to a market survey. Traders were second with 36%. Cooperatives made 17% and direct sales to Botswana Meat Commission (B.M.C.) were 6% of the transactions. Apparently the number of head per transaction was the inverse of transactions by type of buyer, according to Bassett and Harston.

They observed that marketing of sheep and goat meat was irregular and neither the butcher or consumer can be assured of a dependable supply because of the absence of a marketing system that slaughters and distributes the product in a regular and predictable manner. B.M.C. is geared to large volume handling for export and not oriented to local distribution.

"The prices for sheep and goat in the local butcher shops is surprisingly high, even higher than beef in some cases. The butchers and others in the marketing process could possibly handle the meat at smaller margins if the volume were greater and supply more constant," Bassett and Harston speculated. Clearly, improved marketing systems emphasize higher volume and lower margins. However, higher marketing margins on sheep and goat meat are typical even in developed economies due to a variety of factors, a primary one being a lower yield of retail meat from live sheep and goats compared to cattle. For example, a lamb or goat produces about a 50 percent or less carcass yield, whereas, a steer will produce about a 55 percent carcass yield.

Bassett and Harston observe that the country has only one commercial slaughter plant and suggest that the feasibility of one or more small slaughter plants located in the rural areas near the source of goat and sheep production should be studied. The feasibility of this type of operation depends on the reliability of quick delivery to the consumers. Generally where the "hot meat trade" is common, slaughter plants need to be close to the population they are expected to serve.

Recommendations

The report notes that the most frustrating problem that producers of small stock face is the inadequate market for small stock compared to a ready export market for beef. Suggestions for improvement in small stock marketing made by Bassett and Harston are recommendations that would apply to many of the countries in Africa. These were:

(1) Establish a timely market news service along with reports of available supplies

(2) A grading system that facilitates communicating prices classified by different qualities or livestock characteristics

(3) Strengthen cooperative marketing to provide an alternative to traders

(4) More specialization in production and marketing

(5) Improve government services, including regulation of country livestock market practices

(6) Allow B.M.C. prices to be more flexible, reflecting seasonal factors as well as the differences in export and domestic demand

(7) Additional slaughter facilities to serve the domestic market

(8) Establish a land tenure reform that would facilitate controlling stocking rates consistent with available resources.

Marketing Policies

Sullivan states that livestock-meat subsectors in many subsaharan countries are operating at low levels of technology and commercialization. He argues there are a variety of reasons, but a central impediment is price policy.

Frequently, price policies have the effect of providing the urban areas with lower priced meat than an open market system. The result is distortion of trade patterns with more live cattle exports to neighboring countries and

more of the better quality livestock being slaughtered by the "black market" and/or local butchers rather than the commercial slaughter facilities. Meanwhile, producers have less incentive to market livestock in a timely manner and engage in improved production and marketing practices.

Sullivan cites two examples to illustrate the market performance problems when government attempts to control prices of such a decentralized industry with highly variable quantities and supplies. He compared market performance of Ghana and Tanzania's livestock-meat subsectors in 1979 when both countries were controlling their respective red meat markets. Market performance for each is compared with the 1969-71 period when there was less control. Ghana, on the West Coast of Africa, is a net importer of meat and livestock, whereas Tanzania, on the East Coast, has been an exporter of livestock and meat.

"Government's role in the livestock meat subsector of each country varied in degree. Each country undervalued its domestic production to supply inexpensive animal protein to urban consumers by instituting price ceilings on meat. .... Retail meat prices were controlled and based on a formula pricing mechanism," according to Sullivan. These prices are shown in Table 1.

"An overvalued exchange rate in Ghana distorted the market price for imported beef. .... Beef was undervalued compared to other scarce goods available. The shortage of red meat in the government shops was evidence of the distortion of price as a rationing mechanism," Sullivan reports.

"In Tanzania the live animal price for cattle paid by the government marketing board was a flat price based on a weight range with no differential for quality, season or location of purchase. Government also fixed the price at retail for beef. The government retail prices were not competitive, being about 65 percent of the actual retail market price" (Table 1), Sullivan explains. In addition to shortages of meat in the capital city of Dar es

Table 1. Meat Price Statistics for Ghana and Tanzania, 1979

Country	Meat Product	Border Price at Govt. Exchange Rate	Border Price at Shadow Exchange Rate	Govt. Retail Price	Market Retail Price
		Currency/KG			
Ghana	Beef	N¢1.26	N¢5.49	N¢3.35	N¢7.00
	Lamb and Mutton	--	--	N¢4.32	N¢20.00
	Goat	--	--	N¢4.32	N¢20.00
Tanzania	Beef	--	--	Tsh 5.90	Tsh 9.32
	Lamb and Mutton	--	--	--	Tsh 9.00
	Goat	--	--	--	Tsh 9.00
	Canned Beef	Tsh 10.10	--	--	--

Source: G.M. Sullivan

Salaam there was a shortage of supplies for the beef canning plant producing corned beef for export.

Sullivan states, "The potential for administered prices to improve the orderly development of the livestock industry in Subsaharan Africa is perceived as low, administered prices are usually based on political and social concerns rather than on efficiency principles."

Most governments are not willing to let the free market be the sole allocator of agricultural products. When deviating from this approach, policy makers and citizens need to be aware of the likely impacts of the specific policy, and in the Third World the question should be asked, "What would this do to development?" In the last two cases, they clearly would have a negative impact on livestock development. Tanzania has since moved back toward open market pricing. I am not aware of any changes in Ghana.

In all areas, governments and government agencies apparently prefer to foster development; however, there are always conflicting political and social objectives. To make effective and timely policy, policy makers and agency heads need a flow of accurate information concerning developments in all aspects of the subsector. My impression is that this is one of the critical problems in most African countries. Under these circumstances, a decentralized open market system is likely to be more effective in fostering development. An example of this problem was experienced by a State owned dairy farm in Tanzania in 1975. Despite a shortage of pasture, the manager had the entire crop of bull calves on hand. Some were nine months old. He explained that he had been unable to get permission from the Central Government official to sell them.

Marketing Efficiency

One can find a wide range of differences in livestock and meat marketing

methods even in the same city in Africa. Meat sold to the very poor may not use any marketing methods or tools that were not in use a century ago. Quality, sanitation and service would be about as low as a century ago. For the higher income and the tourist trade, the level of use of technology is higher and so is product quality, sanitation and service. This improved system, however, accounts for a very small part of the total volume.

In marketing livestock, improved practices depend a great deal on development of transportation, communication, and commerce. Despite the lack of development in these areas there are some studies that report "efficient" and "satisfactory" marketing systems.

Janke (p.90), reviewing the Michigan State University livestock marketing studies by Herman (1979) and by Staatz (1979) noted findings of generally good performance in the functions of distributing livestock and meat products at reasonably low costs. Herman's study in Upper Volta specifies evidence of a high degree of competition, low concentration ratios (among buyers and sellers) and the absence of overt collusion. Other measures show traders' margins to be consistent with transportation and transaction costs. Even the traditional trekking has its cost advantage over rail or truck, because "... in rail or truck transport — shrinkage losses become a major cost item." Transportation is often expensive and lacks dependability; however, the problem of shrinkage can be controlled. On long distance hauling one simply must off-load livestock for rest, feed and water. In the United States there is a law that requires it. If shrinkage is a major problem, then the system is not "efficient." Traders may cope with this problem by managing to trek livestock using free or low cost grazing and water enroute to avoid shrink.

In countries where open markets exist and traders are allowed to enter without any effective barriers, good market performance might be expected

(considering the lack of infrastructure) if government is also providing minimum marketing services. Where inefficiencies are much more likely to exist is when government sets prices and parastatals are involved - in some cases with the charge to replace "private middlemen." Under these circumstances, signals from consumers to producers are distorted and inefficiencies usually follow. In Evangelou's study of cattle marketing efficiency in Kenya's Maasailand, he concludes that, "In terms of the market structure-market conduct-market performance model a generally efficient level of performance is inferred from the market's structure and traders' conduct. Though mean returns per sale for traders, (especially those operating in the Kajeado sample area) appear excessive, trading risks and past non-sale options help to explain the trading margins."

He reports that although truck transportation is being used for both feeder and slaughter cattle, the economics over the long run was still not clear. Before it becomes a widespread marketing alternative more market oriented production conditions must prevail and meat price controls must be changed to permit prices to cover transport costs. Evangelou raises as many questions as he answers about marketing efficiency because the gross marketing margin just for buying live cattle and trekking to the Nairobi area for slaughter was 90 percent. Ownership changed hands enroute and the total trekking costs were 20 percent. Evangelou was unable to explain the high profit margin. Other estimates were 18, 21, and 13 percent that involved ownership of just one week. He summarizes that, 'Local-level trading mechanisms in Maasailand are not an overriding constraint to the region's livestock development. Apparent sources of inefficiency, from nonpublic price negotiations at poorly equipped markets to the long-distance trekking of stock, do not create undue costs or constrict product flow, under present

production conditions." It appears that these margins are higher than would be encountered in most developed countries for moving livestock comparable distances. The 90 percent gross margin is extreme. Evangelou feels the others are representative.

Kenya's livestock-meat subsector appears to be more developed than some other African countries. In production there are several alternative systems such as group ranches, cooperative ranches and private ranches where some degree of control over stocking rates and grazing patterns is exercised. The fact remains, however, that livestock and meat production and marketing in East Africa apparently had a higher level of development of the livestock-meat subsector three decades ago than at present. There were more specialized operations using improved production and marketing practices. This should provide some assurance that the traditional system can be improved if basic policies are established and proven management and marketing practices being used in Southern Africa and on other continents are adapted (not directly adopted) to the Subsaharan livestock-meat subsector.

Jahnke's discussion of crop-livestock production systems in the highlands of tropical Africa relates improved production and marketing systems where intensive production methods introduced in the colonial period are being continued to produce higher quality beef from fodder and/or grain feeding. He suggests that beef will continue to lose competitive position to dairy in the highlands as population pressure increases, accompanied by decreasing average farm size. He reports that economics does not justify growing out and feeding male dairy calves on many of the intensive dairy systems as these are killed as small calves. He suggests that use of small stock for meat in these areas will gain in importance.

Although there has been grain feeding of cattle in Kenya, Jahnke (p.

213) holds that although there are special circumstances that favor it as prices fluctuate, that there is a tendency to swing back to the grain price/live cattle price ratios which shows the USA and Canada with the most favorable ratio at 1:10-12 and some countries in Africa with the least favorable price ratio of 1:2-3, where the EC countries are 1:7-8 and Australia and Argentina are 1:4-5.

Jahnke, in his publication entitled "Livestock Production Systems and Livestock Development in Tropical Africa," says "There are not many striking examples of successful livestock development in Tropical Africa. Dairy development in Kenya is one and it therefore appears justified to focus on this example when discussing dairying as a livestock development possibility.

"Large scale dairy production, mainly aimed at the urban market and at exports, reached its peak shortly before independence, when about 600,000 grade dairy cattle were kept on large farms, practically all owned by Europeans." A small holder dairy project that had its beginnings in 1954 is playing a vital role in Kenya continuing to be the only net dairy exporter in Africa. These dairies are part of a cooperative program that assembles, processes and markets the milk (Jahnke, p. 169).

Marketing Pastorial Livestock

Under communal grazing conditions pastorialists are being given free grazing privileges with rights to deteriorate the pastorial areas. Under these circumstances the cost of keeping a steer from four years old to six years old is essentially zero, but the gain in value must be examined against the value to the society of the use of that grazing for other livestock, especially lactating females. When pastorial livestock is viewed from the macro system, its inefficiency becomes more apparent because of the conflict of individual actions with that of the group of pastorialists. Grazing fees

that would be put back into range improvement would place an incentive not to waste range resources just because they appear to the individual to be free and have no alternative use.

There will be little if any long-run improvement in pastorial livestock production and marketing unless the pastorial area is either converted to individual parcels or is managed by a group or by the State where range and marketing improvement is central, viewing the entire area as one production unit. The managing group must recognize that as long as individual herdsmen or extended families maximize their own self-interest by maintaining the largest possible herd, the herds and the range will have low productivity.

Sullivan, Farris and Simpson studied a village controlled grazing area and evaluated by a range-herd simulation model several alternative production and marketing practices. A simple village marketing policy requiring unproductive cattle to be sold at the beginning of the dry season increased the ten year average annual value of a village herd output by 18 percent for one village with moderate rainfall (818 mm.) and 31 percent in a village with lower rainfall (537 mm.).

Summary

Production and marketing efficiency is very low in Subsaharan Africa. Some areas use essentially no improved technology or methods. The result is no increase in per capita meat supply or quality improvement in the last 20 years. The primitive system is extremely wasteful of animal agricultural resources. Marketing and price policy problems often discourage development.

Governments must make some fundamental changes in price, marketing and land tenure policies if they wish to encourage improved practices. Progress in increased small stock production and marketing should be given special attention as many professionals believe this has the greatest potential

development payoff.

Improvement in market structure, market policy and market services could be a great stimulus to development; however, this requires commitment from top level administration.

There are some African examples of improved production and marketing systems; however, there are still professionals that are skeptical as to whether practices widely used elsewhere in the world can be adapted to their country. This suggests that regional conferences, training programs and research would be productive in increasing awareness, knowledge and potential of livestock-meat subsector improvement.

LATIN AMERICA - Nature of Subsector

The level of development in the livestock-meat subsectors is generally higher in Latin America than is the case for Africa (except for South Africa). Land tenure in Latin America established private property early in its development and large cattle operations became rather common. Some of these were oriented to meat exports to Europe. Development has been more on the order of that in the United States rather than Western Europe mainly because of the large specialized cattle and sheep operations. European influence can be seen in the operation of markets, packing and retailing, however. The main role of refrigeration in development is for export, although refrigerated sevice meat cases are common in cities, but the "hot meat trade" is still common, especially in the lower income areas. Use of self-service refrigerated retail meat cases is not widespread. Trekking cattle to market is not uncommon, but modern truck transportation is used in most areas to move livestock. Some of the older highways in Argentina were designed with wide

spaces on both sides for driving cattle to market.

Low Costs - Low Prices

Like all large areas, there is great diversity in Latin America. In the beef exporting countries of Central and South America the large scale specialized commercial operations are low cost-low return per unit businesses. In most cases returns not only are insufficient to cover regular confinement feeding of grain, they are not adequate to pay for the use of stored feed during stress periods. There have been times, places and conditions where confinement feeding of livestock for slaughter has been done. During the growing prosperity of Mexico in the late 1970's, grain finishing of cattle became an important industry in Northern Mexico. It was tried in Brazil in 1973, but government changes in maximum prices for beef made it unprofitable to continue.

Export taxes are in many cases levied on meat directly and sometimes indirectly by a differentiated rate of exchange on exports. This causes the domestic price of livestock to be below the international price and discourages the use of some improved production and marketing practices.

In different areas (but sometimes alongside the large scale) are smaller operations directed mostly to local markets or to producing feeder animals for the fattening areas with higher quality forage. Marketing problems are more acute for smaller producers for all the same reasons as elsewhere. They have less market information, and often do not have transportation for hauling livestock and therefore have to depend on traders for their market. This can be an efficient outlet if there is easy access to market information and other traders.

In many areas the tropical climate and poor quality forage result in low productivity. Production costs are low because forage is available the

year-round. In the lowlands of Bolivia and Columbia, for example, most steers are at least four years old before slaughter. Practically all the heifers are kept for replacements because of low calving rates.

Marketing

Some of these cattle in Bolivia are slaughtered in the lowlands and the meat shipped by plane to La Paz. With this system, refrigeration is not required.

Consumption

Per capita consumption of meat in South America was projected to exceed the world average of 32.5 kg. in 1985. Argentina was by far the highest at 119.5 kg. (just below the U.S.A. at 120), Venezuela was second at 47 and Brazil third at 44.4. Other South America averaged 34. Middle America averaged 30.9 (Table 2).

Beef accounted for most of the Argentine meat consumption, whereas, for the rest of Latin America it accounted for about one-half. Pork and poultry shared most of the rest about equally, except for Venezuela where poultry at 14.8 kg., accounted for about 3 times the consumption of pork.

In most areas pork is more expensive than beef because pork requires grain feeding. Two decades ago poultry was also more expensive than beef in most places, but poultry prices are currently lower than beef in most of the region. The difference, however is usually much more narrow than in North America and Europe. This is indicated in Table 3 which shows pork cuts as high or higher than chuck roast, and chicken 63 percent of the chuck roast price in Buenos Aires and 59 percent in Mexico City in March, 1981. Chicken in Washington, D.C. was only 17 percent of the chuck roast price and in Paris and Madrid, only one-third the chuck roast price. This extremely low retail price for poultry meat coupled with a wide variety of product forms and

Table 2. Per Capita Meat and Egg Consumption Projections for 1985, by Region

Regions	All Meat	Beef	Pork	Sheep & Goat	Poultry	Eggs	Milk[a/]
	Kg./Capita						
United States	120.19	62.93	27.34	0.99	28.93	15.99	240.17
Canada	114.69	62.25	25.40	1.24	25.80	12.57	272.73
EC-6	86.92	30.64	37.94	1.83	16.51	14.31	362.79
EC-3	77.94	27.36	28.28	7.90	14.40	13.72	365.09
Other W. Europe	74.38	22.85	29.62	4.54	17.37	14.18	265.77
Japan	37.35	6.71	16.99	3.17	10.48	19.62	88.69
Oceania	129.30	71.44	13.70	27.56	16.60	12.57	220.74
South Africa	43.95	22.85	3.23	7.56	10.31	6.30	113.19
Eastern Europe	80.00	21.76	40.65	2.65	14.94	15.10	357.84
Soviet Union	62.06	32.07	16.76	4.69	8.54	15.75	423.98
China	23.38	2.32	15.31	0.89	4.86	4.45	6.03
Middle America	30.92	15.73	6.43	1.68	7.08	7.71	130.76
Argentina	119.49	95.82	9.91	3.93	9.83	8.15	203.99
Brazil	44.39	27.47	9.11	0.58	7.23	4.12	121.03
Venezuela	47.03	25.99	5.87	0.39	14.78	8.51	99.32
Other South America	34.05	21.45	4.88	2.73	4.99	5.20	102.13
H. Inc. N. Afr. & M. East	29.92	5.16	0.34	11.40	13.02	6.90	64.43
L. Inc. N. Afr. & M. East	19.29	7.31	0.04	8.45	3.49	4.71	25.55
East Africa	15.49	10.66	0.78	1.51	2.54	1.84	35.42
Central Africa	9.58	4.87	0.79	2.52	1.40	1.60	12.67
India	1.29	0.33	0.11	0.66	0.19	0.11	14.79
Other S. Asia	4.59	2.01	0.03	1.96	0.59	0.73	12.22
Thailand	13.29	4.47	5.23	0.00	3.59	4.72	13.72
Other S.E. Asia	10.40	1.67	6.86	0.06	1.81	2.72	5.41
Indonesia	3.41	1.40	0.86	0.36	0.79	0.64	4.62
H. Income E. Asia	25.50	4.90	12.37	0.33	7.90	11.31	27.04
L. Income E. Asia	15.10	3.34	7.77	0.19	3.80	5.05	36.32
Rest of World	21.62	10.06	4.66	3.71	3.19	6.11	39.37
World	32.48	12.73	10.95	2.25	6.55	6.45	98.8

a/ FAO

Source: Winrock International

TABLE 3. Average Retail Food Prices in Selected World Capitals
March 3, 1981

	Paris	Madrid	Wash. D.C.	Buenos aires	Mexico city
	(U.S. dollars per kg.)				
Steak, sirloin, bnls.	9.72	7.44	9.46	7.12	4.78
Roast, chuck, bnls.	9.68	5.07	7.47	6.67	4.36
Pork chops	4.98	3.86	5.71	6.67	4.53
Roast pork, bnls.	5.73	5.94	3.90	9.34	6.16
Bacon, sliced pkgd.	18.84	7.91	3.13	11.57	4.42
Broilers, whole	3.45	1.65	1.30	4.18	2.57
Eggs, doz.	1.90	1.28	2.18	1.91	.90
Cheese, cheddar	7.35	7.55	3.86	12.01	11.90
Milk, whole, liter	.62	.47	.73	1.56	.47
	Index Based on Chuck Roast Price				
Steak, sirloin, bnls.	1.00	1.47	1.27	1.07	1.10
Roast, chuck, bnls.	1.00	1.00	1.00	1.00	1.00
Pork chops	.51	.76	.76	1.00	1.04
Roast Pork	.59	1.17	.52	1.40	1.41
Bacon, sliced	1.95	1.56	.42	1.73	1.01
Broilers, whole	.36	.33	.17	.63	.59
Eggs, doz.	.20	.25	.29	.29	.21
Cheese, cheddar	.76	1.49	.52	1.80	2.73
Milk, liter x 10	.64	.93	.98	2.33	1.08

Source: Compiled from USDA, FAS, Foreign Agriculture, April, 1981.

convenience are the reasons the U.S. has the highest per capita poultry consumption of any country despite the abundance of red meat. Pork and poultry prices not being lower relative to beef in Latin America is partially due to the higher relative cost of grain production versus forage production than in North America and Europe.

Livestock Marketing and Slaughter

Livestock marketing facilities in Latin America vary widely. Typically there are the large markets for slaughter cattle in the major cities with the slaughter plants nearby. The decentralization of slaughter plants to the production areas has not taken place in Latin America as is the case in North America (with a few exceptions such as Bolivia and Brazil). A principal reason is that marketing unrefrigerated meat is common practice. Under this system slaughter plants need to be near consumers. For plants oriented toward the export trade it would appear the economics would favor location closer to cattle finishing areas -- once the outlook for growth in exports becomes clear. Exceptions are where some of the cuts from the carcass must be marketed in the "hot meat" trade of the coastal cities. Slaughter plants for export must meet international standards and this includes refrigeration unless it is strictly a canned meat plant.

Among the slaughter plants for domestic markets there is great variability. Some are not managed well in terms of maintaining acceptable sanitary standards. Improvement in facilities and health and sanitary standards is needed in many plants as pollution and sanitation become a bigger problem in most cities. New plants should consider including refrigeration.

The cost of adequate slaughter and processing facilities for meat is such a relatively small part of the total retail price of the meat that most societies should not cut corners on this aspect of the marketing system.

More general livestock markets especially for feeder cattle and cows are located in the production areas. They differ slightly from U.S. markets but appear to be reasonably efficient. No doubt one could find small producers with the usual small volume marketing problems. The main problems, however, often relate to government price and tax policies and lack of effective government market services.

Retail markets

Wholesale and retail prices are often controlled or influenced by government - resulting in depressed producer prices and fewer improved production and marketing practices. In addition, quality differentiation is not as clearly rewarded as in the developed countries. In some cities, inshipment from other areas is not easy, either because of city officials, labor union leaders (or both). Where prices are not controlled this results in misallocation and price inefficiency. Where prices are controlled, it may result in the level of quality being lower than in a city where there is easy entry for wholesalers and retailers.

Harrison, et al. studied retail and wholesale markets in Cali, Columbia; La Paz, Bolivia and Recife, Brazil. They observed that, "Some of the highest profit levels in the traditional urban food system are found in the institutions specializing in meat marketing.... In the case of Cali, these (high) profit margins are primarily the result of limited space availability within the public market for meat retailing and municipal restrictions on the number of meat wholesalers who can purchase through the city slaughterhouse.

"The existing meat system provides a minimum of consumer services and results in an unnecessarily low quality product. Improved services and quality could be provided at the same or lower costs. Pricing and transaction practices do not facilitate the transmission of consumer preferences through

the system. Inadequate sanitation in meat handling endangers the health of consumers and reduces the meat's eating qualities."

Harrison, et al. recommended improved sanitation and health inspection, special attention to improving the performance of wholesaling and retailing in the low income areas. Noting that most consumers have no refrigerators (56 percent in Cali and Recife) they recommended that the unrefrigerated meat marketing tradition be continued, but that more refrigeration be considered for those customers who could afford to pay for it.

Available data for analyses of marketing performance in the literature is scarce. Fenn (p. 157) reported 1972 livestock-meat marketing margins in Lima, Peru that appear on the surface to be what one would expect of competitive markets. The farmer's share of the retail price was 65.7 percent for prime grade cattle, 64.3 percent for prime grade sheep and 75.3 percent for prime grade pigs. This is generally higher than many developed countries and is certainly higher than the U.S. producer margins.

If one knew the local circumstances they might suspect that the marketing margins ranging from 25 to 35 percent paid for a minimum of consumer services and sanitation as in the Harrison, et al. study reported above. Furthermore, one could speculate that low income consumers preferred not to pay for added services and sanitation. Because consumers are not in a position to evaluate sanitation it becomes the responsibility of government in most societies to establish and enforce minimum standards.

It is also not uncommon in many Latin American countries that government has fixed maximum retail prices for meat; therefore, the marketing firms follow a strategy of minimizing costs. This often leads to reducing the quality and amount of services. Where markets are not providing alternatives in products and services, it is usually because governments have not created

the economic environment for this to be done or unknowingly enacted policies that directly discourage it.

A comprehensive set of studies of market performance in Third World countries would be very useful, especially if they were done so that comparisons among countries could be made.

Marketing policy

Marketing takes place within the legal and economic framework of the economy where it is located. All countries have different economic policies, but a rather common policy in much of Latin America is to tax exports and/or establish maximum prices for important food products; whereas many developed countries subsidize or protect agriculture markets and subsidize producers. In the case of an export tax (sometimes in the form of a differential exchange rate) the maximum domestic price is the international price for a specific quality of meat less the "export tax". This subsidizes consumers at the expense of producers and tends to discourage the use of improved production and marketing practices. Bale and Litz estimated the domestic price of beef in Argentina was 72 percent of the border (or international) price for 1976. In 1967, an Argentine rancher explained that a rancher typically could only afford to spend money on absolute essential practices such as minimal health care and fencing. At that time live fat cattle were U.S. $8 per cwt., about one-third the price of U.S. fat cattle. The market situation for Argentina and other South American beef exporters has not improved since 1967 except for short periods.

In a study of Brazil's beef and dairy policy, da Silva, et al. stated that "Policy makers have used the domestic market and external trade to hold down the price of beef to consumers and to increase the supply in the off-season. They conclude that a high rate of implicit taxation was imposed

on the beef and dairy producers during 1949-1979. Farm level prices were more than 30 percent below free trade levels. reducing beef production and exports, while lowering prices to urban consumers. They concluded that when the effects of price distortions and production disincentives are combined, large economic losses are seen to be the result of government policy.

Summary

In many Latin American countries livestock and meat markets are held below the free market equilibrium levels either by government setting prices, or by export taxes being levied on meat exports. The result of this is that producers subsidize consumers (and in some cases the non-agricultural sectors) with the export tax. Lower levels of improved production and marketing practices are the result. Typically, calving percentges are lower than the U.S. and cattle are older when they reach slaughter weight.

Livestock markets operate reasonably well in some areas, but all could be improved with (1) More attention given to providing adequate government market services such as more timely and complete market news and supply information, (2) Extra attention by local governments to providing marketing support for small producers. This might involve organizing transportation services for livestock on market days, as well as establishing additional low cost public livestock markets with minimum facilities that might operate once a week or once a month to serve small producers who do not have direct access to an existing market.

There should be a study to improve market performance of the national market by improving the market conditions for pricing at all levels in the livestock-meat industry.

Governments should develop rules and policies that (1) Assist in decentralizing meat packing where refrigeration is feasible, (2) Improve

standards of health and sanitation at slaughter, processing plants and at retail stores.

ASIA - Nature of Subsector

This section is brief for several reasons. First, the author has limited field experience in Asia, second, the literature available on livestock meat marketing was limited, and third, some of the same ideas and principles covered earlier also apply in the Asian Third World.

The discussion of livestock and meat marketing in Asia must focus on the fact that most production units are very small. Mostly they are supplementary enterprises to a subsistence crop operation where the farmer may market only one or two animals per year. In this context there are some marketing techniques that appear very unusual to the Westerner such as immobilizing a pig in a wicker cage while being transported and displayed at a central market for sale. There are also some examples of large scale integrated operations in poultry and pork that rely on imported feedstuffs and/or processing plant byproducts.

Although effective demand is improving, per capita consumption of meat in Asia is lower than most of the rest of the world. The emphasis is more on pork, fish and poultry and less on beef. High income East Asia was estimated to consume 25.5 kg. in 1985. Half of it was pork and one-third was poultry. Low income East Asia was estimated to consume 15.1 kg. Again, half was pork and one-third was poultry (Table 2). In India there is very little meat consumed, but dairy products are important. In Muslim areas there is little, if any, pork eaten. Cattle and buffalo are used for power and milk and most slaughter is old animals. As Asia develops, the demand for meat and poultry will increase significantly. The experience of Japan and other higher income Asia demonstrates that. China, the world's largest pork producing and

consuming country (Compare Figures 2 and 3.) will surely try to increase pork and poultry production as income increases. A recent China survey of school and college age children and young adults showed many were undernourished and only 2 or 3 percent overweight (Houston Post, Dec. 3, 1986). One would suspect this problem is common in most of the Third World countries in Asia. China has an estimated per capita meat consumption of 17.6 lbs. per year, 90 percent of it is pork (Hoefer and Jones, p. 2).

Marketing

It appears that improving livestock-meat marketing in Asia should be approached from three directions:

(1) Where there is a crop or farm supply cooperative or parastatal organization serving the producers in an area, they might consider extending their services into livestock-meat marketing. This follows the Japanese concept of the role of cooperatives, and they have ben very effective in providing small producers with marketing services.

(2) Develop specialized, integrated production-processing operations that utilize imported feedstuffs if necessary. Taiwan and Japan have had great success in this direction.

(3) Maintain low import restrictions and permit low cost livestock feed, meat, poultry and dairy products to be imported to fill the growing demand. Since the EC has essentially closed its markets to its former suppliers of meat - Oceania and South America; these areas have had surpluses and great difficulty finding markets. If the objective is development of Third World Asia, the best economics is to give access to the areas of the world with surplus agricultural resources. If Asia would permit importation of meat and dairy products with only a low tariff, the total exports from Oceania could be marketed there (See Figure 2). This is not likely to

happen, but there should be discussions in this direction, because an optimum development path involves exploiting your competitive advantages.

Marketing for the small farmer

In subsistence farming areas, transportation, marketing livestock, and meat processing are sometimes rather primitive. Markets are often not specialized and have little or no facilities. Often livestock and meat are part of a central market for all types of products. National and municipal governments often operate markets, abattoirs and regulate market conduct.

In Thailand, a livestock market may simply be a meeting place for private treaty trading. In the Philippines, the Marcos regime started a series of auction markets to serve small producers. The auction system did not work because it operated too slowly, however, the facilities are being used; they were converted to private treaty trading with commission men representing each seller.

Future changes

There is a trend toward more public markets for livestock in the developing world. Public markets have long been an efficient way of selling small lots of non-uniform livestock. The next step for some areas where the volume is available is likely to be more specialized facilities and services, including specialized transportation services for assembling the livestock.

There is room for a substantial upgrading of marketing facilities and services at all levels. Viable projects would appear to be feasibility studies followed by pilot projects that are oriented toward more specialized marketing, processing and marketing services. As an economy moves from subsistence farming systems to a more commercial orientation, the markets should also simultaneously make the transition.

The emphasis in other sections on government services and regulations

that create a legal and economic environment for free and open competition also applies here. In some cases, however, there is a need for government to encourage and foster producer marketing organizations so that efficient volumes can be achieved.

SUMMARY

Livestock and meat marketing in both developed and undeveloped countries appears to have lagged that of other agricultural commodities and products. Apparently much of the reason is the complex nature of the product, its perishability, its wide variability in quality and the difficulty of producing consistent uniform retail packages of the product. In less developed economies without good transportation, communication and refrigeration; problems of livestock and meat marketing development are compounded.

There are many rather simple and inexpensive improvements that can be made in marketing and processing methods, in facilities and government policy and services. Some of them may have little, if any, perceptible impact, but the path to progress is to continue to try those methods and approaches that have been shown to be useful elsewhere. On the production side, it appears that many range and animal husbandry practices commonly used elsewhere are negated in a communal grazing setting where stocking rate is not controlled. In both production and marketing, price control negates many attempts at improvement. Dramatic improvements involve drastic changes and large projects that significantly change the system. There are few examples of sudden breakthroughs or drastic changes in the history of livestock and meat marketing in developed countries. Progress historically has been evolutionary rather than revolutionary.

In developed countries, marketing accounts for substantial value added to the product, in many cases from 30 to 50 percent of the retail price.

Apparently in developing countries it averages considerably less: however, there is wide variability. In subsistence type livestock operations where the meat is sold locally, the margin would be low, but supplying urban areas significantly increases the marketing costs.

Although it may not necessarily be the highest priority, most Third World areas could make noticeable improvements in livestock and meat marketing at modest costs to the public or private sector, especially if they are willing to examine the entire subsector and be willing to make changes in policies and government services.

Most projects would have a higher probability of success if they include provision for training programs. Both private and public activities need to consider some type of continuing training programs, especially for new employees.

RECOMMENDATIONS

Some Third World marketing problems may be easily assessed and one can proceed directly to working on improvements without research or a task force report. Other problems are complex, requiring careful planning and research to achieve good results. Those concerned with development should ask questions and start plans for improvement.

What Needs to be Done

1. Examine policies that set prices of livestock and meat. Do these provide incentives for improved production and marketing practices? Do they allow flexibility to serve different markets and different tastes with different products?
2. Evaluate government services to the marketing system. Are they adequate to protect the public health? Do they provide necessary market information at all levels in the system. Are grades and standards adequate? Are

markets regulated to prevent fraud? Is there free entry into marketing?

3. What facilities are needed? Is there sufficient slaughter capacity to handle seasonal and cyclical peaks? Are there sufficient local market facilities to serve small producers?
4. Available literature on livestock meat marketing is very scarce compared to production literature in the Third World Encourage university studies and publications on improving livestock-meat marketing. Earmark part of USAID Third World graduate student support for marketing research with a requirement for publication.
5. Develop some pilot projects on improved marketing. There has to be experimentation on the part of someone to make progress. In some cases it may be desirable to operate pilot projects that change the marketing system at some specific level or location.
6. In pastorial areas devise programs to provide incentives for timely off-take of livestock. One alternative is to charge grazing fees to be used to improve the range and to send a signal that holding unproductive livestock on communal grazing property is not free. The fees could be used for projects to improve the range.
7. Conduct regional short courses in livestock-meat marketing for administrators and managers from several countries. If possible tie these in with in-country training in the Third World. It is not uncommon for management of parastatal marketing companies or cooperatives to have no marketing training or experience prior to being appointed to a position with marketing responsibilities.

Marketing Improvements

Marketing systems the world over have the possibilities to be improved because economic systems are dynamic and are influenced by all sorts of events

including an onrush of technology. A list of potential improvements for an area as diverse as the Third World could be very long but they can be classified under four categories.

1. Marketing efficiency, involving projects designed to lower total cost. This often involves improved technology; however, improved management is critical, also. Increased efficiency may involve projects such as the feasibility of facilities location and operation — like livestock markets, slaughter plants, wholesale and retail outlets, and improved transportation and refrigeration.

2. Marketing alternative product forms and qualities to obtain a higher price. This could involve changing both the production and marketing system to produce a superior retail product. Increased quality such as faster growing, younger slaughter animals, coupled with improved marketing methods that maintain quality or enhance it by further processing.

3. Marketing policy - government and industry policies that create the legal and economic framework within which the market functions. Typically, Third World governments have played an active role in controlling both market structure (operating parastatals, restricting entry) and market conduct (controlling price, allocating supplies) with the result of rather poor market performance, in some cases, especially in the efficiency and the progressiveness dimensions.

If policies are in place that encourage private enterprise, reward innovation, and insure competition, then the industry is likely to make progress in an evolutionary fashion with few, if any, intervention programs. On the other hand, if policies do not foster open market activity and private investment, then progress generally depends on government intervention projects. In all cases, it is very important for government to maintain

policies and monitor and report performance and make available to the public the indicators of industry market performance (Farris, 1986).

4. Market Services.

Inspection standards and services to assure proper sanitation and disease control are essential. Timely market information such as market news and supply information allow the market to adjust to changing conditions.

Develop and monitor grades and standards that facilitate quick and easy communication in the market. It is often desirable to develop and monitor operating rules for privately owned abattoirs and public markets. In some cases it appears necessary for governments to provide credit services, and own and operate public markets.

A market system can be operated in many ways, but all types, from free enterprise to state owned and operated, must be monitored so that the public and its representatives can evaluate its market performance. Otherwise, either private or public market operations will begin to serve interests other than the general public.

RESEARCH PROGRAMS

The lack of published research on livestock-meat marketing leaves a wide range of research needs in the Third World. Depending on the situation, projects could range from a complete subsector marketing assessment to a very specific project such as the feasibility of a marketing or processing facility. The following categories are suggested to guide further research planning.

1. Subsector marketing assessment.

If a large or long-term project is being planned, it may be desirable to first do a quick assessment of marketing of the entire subsector before all aspects of the project are finalized.

The "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food System Research in Developing Countries" may be appropriate for this purpose, depending on the amount and type of research already available. A quick, informal assessment can be made much easier by the investigators observing the markets and interviewing operators, but for a large project a formal assessment study can provide the specific programs that follow, depending on findings of this assessment. They could involve any or all of the following, listed roughly in order of scope from comprehensive to more narrow projects.

2. Analyses of the Market Structure, Market Conduct and Market Performance.

Many of the marketing problems in the Third World are a result of there being no deliberate attention to what is required in terms of laws, rules and regulations to create an environment to achieve good market performance. Open markets under free entreprise do not operate well unless government has policies in place that maintain competition and protect the right of relatively free entry into the business. It may also require a credit program for this right to be viable where there has been a history of restricted entry.

Likewise, a market system managed or dominated by price control or a parastatal may not perform well unless performance is monitored and policies are designed to provide incentives for good performance. At the very least, prices and margins in other countries should be compared as a first rough evaluation. Generally, when any agency group or parastatal is protected from foreign and domestic competition, one can expect market performance to decline.

A comprehensive comparative market performance study of several

countries in a Third World region would be useful to establish a basis for considering policy changes to improve market performance.

3. Analyze Alternative Pricing and Marketing Policies to improve development.

A common problem in the Third World is that prices are often controlled to achieve goals such as a transfer of income. This distorts quality incentives as well as reduces incentives to adopt improved marketing practices. Research that would estimate the impact of alternative policies on development in the livestock-meat subsector would be useful for designing price policy to encourage development.

4. Evaluate the Impact of Alternative Government Services on Development.

For a market system to perform well a variety of government services are needed -- from operating public markets to developing and offering grading services, inspection services and enforcing rules that prevent fraud in livestock transactions.

5. Small Stock Market Development Aanalysis

It appears that small stock will become a larger portion of the meat diet especially in Africa. Increased production may require new slaughter facilities, public markets and wholesale distribution systems. In some cases educational programs may be required to promote acceptance and efficient use of sheep and goat meat.

6. Feasibility of Integrated Broiler and Pork Operations in Asian Third World.

Low income Asian countries have the lowest per capita consumption of meat and poultry. Urban areas could be supplied pork and poultry from integrated operations using imported feed grains. The

feasibility of such operations needs to be estimated, especially the effective demand, however. Japan and Taiwan have been quite successful with this type operation.

REFERENCES

Abbott, J.C. "Alternative Forms of Marketing Enterprise for Developing Countries," Invited Paper, XIX International Conference of Agricultural Economists, Malaga, Spain. (1985) p. 1-10.

Bale, M.D. and Ernst Lutz. "Price Distortions in Agriculture and Their Effects: An International Comparison." Amer. J. Agr. Econ. (1981) 63:8-22.

Bassett, James W. and Clive R. Harston. "Sheep and Goat Marketing Problems in Botswana," Texas A&M University, Unpublished Report. (1975) 43 p.

Crotty, Raymond. Cattle Economics and Development. Commonwealth Agricultural Bureaux. (1980) 253 p.

Dahl, Gudrun and Anders Hjort . Having Herds - Pastorial Herd Growth and Household Economy. Stockholm Studies in Social Anthropology, 2 Dept. of Soc. Anthropology, University of Stockholm. (1976) 335 p.

Da Silva, J.A.B.B., T. Young and W.B. Trail. "Market Distortions in Brazilian Agriculture: An Analysis of the Effects of Government Policy on the Beef and Dairy Sectors," J. Agr. Econ. (1985) 36:397-407.

Davenport, A.C. "The American Live Stock Market - How it Functions," Drovers Journal Print, Chicago. (1922) 174 p.

Farris, D.E. "Designing Agricultural Markets for Good Performance," Quar. Jour of Int. Agri. (1986)25:234-243.

_____ . "World Trends in Livestock Marketing." Paper presented at the Fifth World Meat and Livestock Marketing Congress, Nashville, Tenn. Tex. Agri. Exp. Sta. Tech. Art. No. 19003 (1983). 17 p.

Farris, D.E., et al. Tanzanian Livestock-Meat Subsector, Vol. 1, International Programs, Texas A&M University, College Station, TX 77843. (1976) 114 p.

Fenn, M.G. Marketing Livestock and Meat. FAO, United Nations, Rome, FAO Marketing Guide No. 3, 2nd Ed. (1977) 198 p.

Fitzhugh, H.A., H.J. Hodson, O.J. Scoville, T.D. Nguyen and T.C. Byerly "The Role of Ruminants in Support of Man." Executive Summary, Morrilton, Ark. 72110. (1978). 14 p.

Harrison, Kelly, Donald Henley, Harold Riley, James Shaffer "Improving Food Marketing Systems in Developing Countries: Experiences from Latin America." Latin American Studies Center, Michigan State University, Research Report No. 6. (1974) 133 p.

Hoefer,J.A. and P.J. Tsuchitani, Eds., Animal Agriculture in China, A Report of the visit of the CSCPRC Animal Sciences Delegation, CSCPRC Report No. 11, Nat. Acadamy Press, Washington, D.C. (1980) 197 p.

Jahnke, Hans E. "Livestock Production Systems and Livestock Development in Tropical Africa." Kieler Wissenschaftsverlag Vauk. (1982) 253 p.

Longhurst, W.M. and H.F. Heady, Eds., Report of a Symposium on East African Range Problems, sponsored by the Rockefeller Foundation. (1968) 119 p.

McCoy, J.H. Livestock and Meat Marketing. AVI, Westport, Conn. (1979) 479 p.

McDowell, R.E. "Are U.S. Animal Scientists Prepared to Help Small Farmers in Developing Countries?" Dept. of Animal Science, Cornell University, Cornell International Agriculture Mimeograph 58. (1977) 23 p.

Mittendorf, H.J. and W. Krostitz. "The Marketing System - A Dynamic Force in Livestock Production," Chap. 5, Development of Animal Production Systems. B. Nestel (ed) Elsevier Science Publishers B.V. Amsterdam. (1984).

Riley, Harold and John Statz. "Food System Organization Problems in Developing Countries." Agricultural Development Council Report 23, Dec. 1981 (14 p.).

Riley, H.M. and M.T. Weber. "Marketing in Developing Countries." MSU Rural Development Series, working paper. Dept. of Agri. Econ., Michigan State Univ., East Lansing, MI 48824, (1979) 30 p.

The Rockefeller Foundation "The Role of Animals in the World Food Situation." Working papers. (1975) 101 p.

Saunderson, M.H. "Some observations on East African Livestock Ranching Development." The Florida Cattleman. Nov. 1977.

Simpson, J.R. and Phylo Evangelou (Eds.). Livestock Development in Subsaharan Africa. Westview Press, Boulder, Colo. (1984) 407 p.

Simpson, J.R. and D.E. Farris. "Economic Multipliers as a Criterion in Beef Export Policies." Beef Cattle Research in Texas - 1974. Tex. Agr. Exp. Sta. Consolidated Progress Report (1974).

Simpson, J.R. and D.E. Farris. The World's Beef Business. Iowa State Univ. Press, Ames, IA. (1982) 334 p.

South African Dept. of Agriculture.. Agriculture in South Africa. Chris von Rensburg Publications (Pty) Ltd., Johannesburg. (1983) 194 p.

Sullivan, G.M. "Impact of Government Policies on the Performance of the Livestock-Meat Subsector." Livestock Development in Subsaharan Africa. J.R. Simpson and Phylo Evangelou, Eds. Westview Press, (1984) pp. 143-162.

Sullivan, G.M. and D.E. Farris. "Livestock Marketing," Chapter III, Syria Agricultural Sector Assessment. Vol. 4, Agricultural Marketing Annex, USDA, USAID and the State Planning Commission of the Syrian Arab Republic (1980) 106 p.

Sullivan, G.M., D.E. Farris and J.R. Simpson. "Production Effects of Improved Management Practices in East African Cattle Grazing Systems." Q. Jour. Int. Agri. (1985) 24:22-37.

Sumberg, J.E. and K. Cassidy, Eds. Sheep and Goats in Humid West Africa. Proceedings, Int. Livestock Centre for Africa, P.O. Box 5659, Addis Ababa, Ethiopia. (1985) 74 p.

U.S. Dept. of Agriculture, ERS. "Sub-Saharan Africa - Situation and Outlook Report," Washington, D.C., RS-86-9, July, 1986. 55 p.

Wheeler, R.O., G.L. Cramer, K.B. Young and E.Ospina. "The World Livestock Product, Feedstuff and Food Grain System." Winrock International - Technical Report, Morrilton, Arkansas, 72110. (1981) 85 p.

Williams, W.F. and T.T. Stout. Economics of the Livestock-Meat Industry. The Macmillan Co., N.Y. (1964) 802 p.

Wilson, R.T. "Goats and Sheep in the Traditional Livestock Production Systems in Semi-Arid Northern Africa: Their Importance, Productivity and Constraints on Production," Livestock Development in Subsaharan Africa, Westview Press, Boulder, Colo. (1984).

Winrock International. "World Agriculture - Review and Prospects into the 1990's." Morrilton, Arkansas 72110. (1983) 52 p.

GRAIN MARKETING DEVELOPMENT IN THIRD WORLD COUNTRIES

by

DONALD W. LARSON, PROFESSOR

Department of Agricultural Economics

Ohio State University

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61

INDEX

	Page
Introduction	1
Changes in Grain Production and Consumption	3
Changes in Grain Production	3
Changes in Grain Consumption	7
Grain Marketing System Changes	11
Changes in Grain Market Organization and Performance	11
Evolution of Grain Marketing Systems	17
Factors Contributing to Change in Grain Marketing Systems	20
A Program of Research and Technical Assistance in Grain Marketing	24
References	42

12

LIST OF TABLES

Table 1 - Combined World Supplies, Utilization, Trade and Stocks of All Grains in 1985-86, Projections for 1986-87 and Comparisons with Selected Recent Years in Millions of Metric Tons 29

Table 2 - World Wheat Production, Utilization, Trade, and Carryover Stocks in Millions of Metric Tons in 1985-86 and Selected Recent Years 30

Table 3 - World Coarse Grain Production, Utilization, Trade, and Carryover Stocks in Millions of Metric Tons in 1985-86 and Selected Recent Years 31

Table 4 - World Milled Rice Production, Utilization, Trade and Carryover Stocks in Millions of Metric Tons in 1985-86 and Selected Recent Years 32

Table 5 - Cereal Equivalent Conversions Factors 33

Table 6 - Per Capita GNP and Annual Per Capital Food Consumption in Cereal Equivalents for Selected Countries, 1966 and 1982 34

Table 7 - Prices to Producers as a Percentage of Prices Paid by Consumers in Selected Countries (1970-1980) 35

LIST OF FIGURES

Figure 1 - Food Consumption and Income 1966-82 36

Figure 2 - Real Farm Prices of Cereals and Retail Food Prices in Africa, Asia, Latin America and Near East, 1967-83 37

Figure 3 - World Food Marketing Systems 38

Figure 4 - Rice Marketing Channel in Northeast Brazil, 1967 39

Figure 5 - Corn Marketing Channel in Cauca Valley, Colombia, 1968 . . 40

Figure 6 - Marketing Chains in Kenya 41

Grain Marketing Development in Third World Countries

By

Donald W. Larson

Introduction

Developed and developed country governments as well as international donors recognize the importance of grain marketing in the economic and social development of third world countries. In these countries, grains account for a major part of farm income and consumer food expenditures. In addition, grain marketing typically includes a large number of producers, consumers and intermediaries who are economically and politically powerful. Improvements in grain marketing that reduce food costs or improve farm income can accelerate the economic and social development of third world countries. For these reasons, identification of ways for third world countries and international donors to improve grain marketing merits further investigation.

The general objective of this paper is to help AID S&T/RD develop a program of research and technical assistance activities in the area of grain marketing to promote agricultural development in third world countries. The specific objectives are to: (1) describe the major changes in grain production, consumption, and marketing in third world countries; (2) trace the evolution of grain marketing systems using a temporal and cross section approach; (3) analyze the main factors contributing to change in the grain marketing system; and (4) identify future research and technical assistance needs in grain marketing.

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*Consultant to Sigma One Corporation and Professor of Agricultural Economics at The Ohio State University

The analytical approach selected is that of a food system which includes the crop and livestock sectors of the economy. The participants in the food system that produce, transform and distribute agricultural products and inputs include input producers, input suppliers, agricultural producers, domestic traders, importers and exporters, processors, wholesalers, retailers, institutional buyers and consumers. One may look at the food system in a horizontal dimension by analyzing firms at a particular stage that perform a similar set of functions such as rice millers. One may also look at the food system in its vertical dimension as a commodity subsystem such as grains that cuts across all the different functions of the system from producer to consumer. These functions include input distribution, farm production, assembly, storage, transport, processing, wholesaling and retailing. The vertical subsystem for grains is the main focus of the present report.

For purposes of this report grains are defined to include rice, wheat, corn, sorghum, millet, barley and oats. Grain marketing developments during the last twenty years are emphasized because it is a period of rapid change in grain markets, it is consistent with the objectives of the paper, and it is the time period that the author knows best. Whenever possible research results and secondary data are used to document the changes in grain markets since the mid-1960s. In addition, the personal experiences of the author in some 35 developing countries during the last twenty years are an integral part of this study of grain markets in developing countries.

The next section of this report examines changes in grain production and consumption in the world during the last twenty years. The emphasis is on developing countries, but one cannot separate what happens in developing countries from the rest of the world when studying a widely traded commodity such as grains. The following section analyzes the changes in grain market organization and performance and the evolution of grain marketing systems. The factors contributing to change in the grain marketing system of third world countries are evaluated in Section IV. A program of applied research needs and technical assistance in grain marketing are identified in the concluding section.

Changes in Grain Production and Consumption

Changes in Grain Production

World grain production has increased at a fairly steady rate since the mid-1960s, so that production has generally kept pace with utilization. In some years (most recently 1983-84) production has failed to keep pace with consumption because of poor crops in some major producing countries such as the U.S. and Canada. World grain stocks reached a low of only 11.6 percent of utilization in that year but have increased very rapidly in recent years so that grain stocks are currently at very high levels (Table 1). Despite abundant global food supplies, there have been severe shortages in a number of developing countries of Africa because of drought, government policies and political instability. Food shortages are likely to continue to be a problem on at least a periodic basis for many African countries despite some recent efforts to solve the problem.

World grain production has increased faster than world population growth rates and is the main reason for the increasing world grain stocks in recent years. The production and utilization imbalance is most severe in the developed countries because of low population growth rates (less than one percent annually compared to over two percent annually in the developing countries) and stagnating economies. Grain production has increased steadily in the developed countries in the last twenty years and is now about 1800 pounds per capita annually. In the same period, grain production in developing countries has remained practically unchanged at about 400 pounds per capita annually. In Africa, grain production per capita has declined slightly during the last twenty years and also shows a great deal of variability from year to year, whereas in Asia and Latin America, grain production per capita has increased slightly and is much less variable from year to year. Because of this production uncertainty, grain marketing systems and government policy in Africa may have to be very different from those in South America and Asia. A very effective grain importing system is essential in those countries with highly variable grain production from year to year.

The two grain production success stories of the last twenty years are India and China which have changed from net grain importers to net grain exporters. In India and China, this has been accomplished through the introduction of higher yielding cereal varieties, increased use of fertilizer and irrigation. In addition to those technical factors, China also changed its government policy toward the agricultural sector so that workers now have monetary incentives to expand production. The European

Community has also become a net exporter in recent years in large part because of the high internal price support system that has been established for EC farmers who produce grain and other commodities.

When one looks at world grain production in terms of wheat, coarse grains and rice, the production and utilization picture changes quite dramatically among the three grains. World wheat production has been growing faster than utilization for the last several years so that stocks as a percent of utilization are approaching 25 percent, the highest level in many years (Table 2). A similar situation exists for world coarse grain (corn, sorghum, barley, and oats) production which has increased much more rapidly than utilization in recent years. Stocks as a percent of utilization are near the 25 percent level and are expected to increase even further because utilization is only growing at about three percent annually, much less than the growth rate of production (Table 3). Only in rice is the rate of growth of production nearly in balance with the 3.3 percent average growth rate of utilization so that stocks have increased slightly to about 7 percent of world utilization. However, it should be noted that the rice stocks of North Korea, Laos, Vietnam, and China are not included and that these countries produce nearly 60 percent of the world's rice crop (Table 4).

The world supply-demand imbalance that causes the increasing world stocks is concentrated in wheat and coarse grains rather than rice and is mainly a problem of large crops in developed countries rather than developing countries. Rice is relatively more important in the developing countries of the world. Good weather in combination with high support prices and subsidies in the developed countries (EC and US) are the most important reasons for the surplus wheat and coarse grain production.

The increases in world grain production have led to many changes in the structure of farming in developing countries during the last twenty years. With the introduction of higher yielding varieties plus modern inputs and irrigation, farms have become more specialized in the production of a few commodities rather than the diversified, wider range of commodities produced in the past. This is particularly true in countries such as Taiwan, India, Brazil and Colombia where farmers have adopted the "Green Revolution" technologies. In many other countries, particularly in Africa, farming has changed very little in the last twenty years and continues at a subsistence level with only small surpluses above family consumption needs to market. Increased specialization means that the marketed quantity from each farm has increased even faster than grain production so that the marketing system has had to grow rapidly to handle increasing amounts of grain. As a result of the increased production and specialization, farmers are more dependent on the market place to purchase their output and supply their inputs. Because of this increased dependence, the economic consequences for producers of a marketing system that fails to provide the appropriate marketing services in a satisfactory manner are more severe.

Income to grain farmers has probably increased in the 1970s because of higher grain prices and yields in most countries of the world. The favorable prices attracted more farmers and more land to grain production and farmers increased their use of modern inputs such as fertilizers and improved seeds. From the use of these modern inputs, world rice yields have increased about 62 percent, wheat yields about 85 percent, and coarse grains about 70 percent since 1961. World yields are currently about 2.1 metric tons per hectare for wheat and coarse grains and 3.1 metric tons per hectare for rice. World wheat and rice yields have increased more rapidly

than coarse grain yields because of the rapid adoption of higher yielding hybrid varieties, increased use of fertilizer, expanded areas under irrigation and improved farm management practices (Wisner and Nourbakhsh). Millet yields, however, have remained essentially unchanged in this same time period and millet is the food crop of many of the poorest and most vulnerable farm families in Africa.

The above factors may have contributed to a dualistic structure in farming with an increasing number of large, commercial farms producing large quantities for market and a continuing substantial number of small farms producing mainly for home consumption with a small surplus to sell in the market. The small subsistence farms tend to rely on traditional varieties with little use of modern inputs and low yields. This dualistic structure appears to be most common in several countries of Latin America (Bolivia, Brazil, Colombia, and Ecuador) and less common in Africa and Asia (Taiwan and Korea), because of a more evenly distributed land ownership pattern. The existence of this dualistic structure and the implications for grain marketing in third world countries deserves more research attention.

Changes in Grain Consumption

World demand for grains has increased at a moderate rate in the early 1980s because of a world recession in which world grain utilization increased only slightly faster than the world's population growth rate. Changing population growth rates and growing per capita incomes are the main factors influencing the demand for grains in the diet. High population growth rates (near 2.5 percent annually in many developing countries)

create an expanding market for grains; however, as development occurs these population growth rates will decline to much lower levels and slow this source of demand for grain.

Because corn has a lower price relative to other cereals, corn has a wider range of uses than other cereals such as rice and wheat. Corn is used for direct human consumption, industrial processed foods, industrial non-food products such as starches, livestock feed and most recently for ethanol production to blend with gasoline. Corn for direct human consumption is largely concentrated in the developing countries where per capita consumption is about twenty kilograms annually. The per capita consumption of corn for human food is substantially less than that for wheat and rice, about 45 and 82 kilograms per capita annually, respectively. Per capita consumption of corn as a human food is very high in a few developing countries such as Mexico, Guatemala, Honduras, Kenya, Malawi, Zambia and Zimbabwe where the per capita human consumption is about 100 kilograms annually. In several other African countries, the per capita consumption of corn direct for human food is about 40 kilograms annually (CIMMYT).

Worldwide, about 65 percent of corn use is for animal feed and 27 percent is for human food and the rest is for other uses. The proportion of corn used for livestock feed increases rapidly with per capita income. In developed market economies, per capita corn use is over 200 kilograms annually, with about 80 percent of the use as a livestock feed. For example, in the U.S. per capita corn use equals about 480 kilograms annually with about 430 kilograms of that amount for livestock use. For countries below US$300 per capita GNP, the percentage of corn for livestock feed is small; however, the proportion increases rapidly for countries with per capita GNP above US$650, and is over 80 percent for most high income

countries (GNP per capita of US$6,000). Thus, demand for corn as a livestock feed can be expected to increase rapidly as incomes grow in the middle income countries and can lead to major changes in the grain marketing system as livestock feeding, feeds and processing become more important.

Growing per capita incomes are the most dynamic factor influencing the demand for grain through changing consumption patterns for grains and meat. As incomes grow, consumers increase the proportion of livestock products in their diet which greatly increases the demand for grain to produce the livestock products. Consumption of livestock products is much more resource demanding because about 11 pounds of grain or grain equivalent livestock feed are required to produce one pound of beef (Table 5). Grain direct for human consumption will tend to decline with increasing incomes compared to livestock products and other products such as fruits and vegetables.

The dynamics of this income and food consumption relationship for a selected number of countries have recently been studied by Rask and are shown in Table 6 and Figure 1. Growth in GNP per capita and food consumption in cereal equivalents per capita between 1966 and 1982 among sixteen countries reveals several interesting results. At low income levels (GNP per capital of about $400 annually) food consumption expenditures consist of about 55 percent on cereals, 30 percent on fruits and vegetables and 15 percent on livestock products while at high income levels (GNP per capita of about $6,000 annually) food consumption expenditures consist of about 55 percent on livestock products, 30 percent on fruits and vegetables and 15 percent on cereals. Several middle income countries such as Taiwan, Korea, The Philippines, and Brazil experienced rapid economic growth and rapid

food consumption growth from 1966 to 1982 while some of the higher income countries such as the U.S. and Canada changed food consumption very little as a result of income growth (Figure 1). Food consumption in cereal equivalents per capita tends to reach a saturation point at higher income levels, causing the proportion spent on food to reach low levels (currently 16 percent of income in the U.S.) while that proportion of income spent on non-food increases rapidly. In addition, at high income levels consumers want more marketing services or conveniences rather than simply more food. This leads to a faster growth in the demand for marketing services than for food.

Grain marketing systems will need to evolve most rapidly in the middle income countries (GNP/capita of $1,000 to $6,000) because the food consumption in cereal equivalents per capita is increasing most dramatically with income growth. As Figure 1 demonstrates, the quantity of grain consumed will be increasing rapidly in these middle income countries so that the amount of grain moved through the marketing system will be increasing rapidly. More efficient physical facilities will be needed and the economics of grain marketing will become more important to producers and consumers. The marketing system will also change because the sources of demand for grain are changing. Livestock feeders, feed manufacturers and industrial processors will emerge as the most important markets for grains rather than retailers selling grains direct for human consumption as the main source of demand. Grain quality and grades and standards will be more important in the marketing system because the livestock feeders and industrial processors will probably emphasize the need for quality products more than intermediaries in the traditional marketing system. As this surge in the demand for grains occurs, countries may also find that

domestic production will need to increase rapidly or else grain imports will increase rapidly to satisfy this demand. If grain imports increase rapidly, large investments will be needed in modern grain handling facilities at ports and interior consumption centers. In the low income countries, the grain marketing system will change more slowly because of the low levels of demand for cereals and slow economic growth rates. Population growth rates and urbanization will likely be more important factors affecting the evolution of the grain marketing system in low income countries. In high income countries where food consumption has leveled off and population growth rates are low, the grain marketing system will also change more slowly.

Income distribution in the growth process can have major impacts on the grain marketing system. If the benefits of economic growth are not evenly distributed among economic classes, the demand for grain and marketing services will lead to very different marketing systems. If income is highly concentrated, a modern system with a broad range of high quality products will probably emerge to serve the needs of a very small percentage of the population, and the traditional system will continue to serve the large majority of the population offering a limited range of low quality products. A modern grain marketing system will probably grow much less rapidly in a country with a highly concentrated income compared to a country with a more equitable distribution of income.

Grain Marketing System Changes

Changes in Grain Market Organization and Performance

Grain market organization and performance have progressed to an improved system in many developing countries during the last twenty years. Further improvements in the organization and performance of grain marketing

systems can and will be made in the next few years as countries experience economic growth. Many changes in grain market organization and performance can already be identified; some of these changes contributed to improved performance and others did not.

As grain markets have grown, the number and size of market participants appears to have also increased, although data on a country by country level to substantiate this is not available to the author. In the traditional marketing system, the number of participants appears to have increased without much change in the size of the operation because of the nature of the traditional labor intensive system from consumer to producer. The fact that it is a very labor intensive system with little capital equipment suggests that few economies of scale are likely to exist within the traditional grain marketing system. One indication of the lack of change in the size of operation of these businesses in the traditional grain marketing system is that these units tend to be owner-operated businesses that are limited to the size that one person can effectively handle with family labor and some hired employees. A large corporate form of organization has not emerged within the traditional grain marketing system of third world countries. Another indication of this relatively stable size of operation is that the vast number of central wholesale markets constructed throughout Latin America and Africa during the last twenty years essentially replicated the same size of grain facility that existed in the traditional system prior to construction of these facilities. Much was accomplished through construction of these wholesale facilities but the size of operation was not significantly changed (Panagides, Larson and Pessoa).

In the modern system, the number and size of participants have probably increased through time. The new technology of supermarkets in combination with better rice and wheat milling equipment as well as food or feed processing equipment have contributed to a larger size of operation. The modern system seems to have captured most of the growth in grain markets due to population and income changes by increasing the number and size of its operations.

The number and type of market transactions have also changed through time because of the increasing importance of the modern marketing system. In the modern system, the supermarkets, flour mills, rice mills and cooperatives have increasingly moved to contracting and vertical integration to improve coordination in supply channels and to reduce the number of transactions between producer and consumer. In the traditional system, the type of transactions (usually spot market prices with intermediary credit) has remained essentially unchanged, while the number of transactions may have actually increased from producer to consumer because of the greater number of participants in this system. Each participant must have a few transactions daily to earn enough money to survive in the subsistence economy.

For a variety of reasons, grain quality and product mix have improved in the last twenty years. The market provides a much wider range of product qualities to satisfy the tastes, preferences and incomes of the consuming population. Rice in Brazil is an example of a situation in which the consumer can choose from a wide variety of rice qualities with different prices and brands. The large supermarkets carry several different brands of rice including their own private label plus those of rice millers and some farmer cooperatives. The introduction and expanding use of grain

grades and standards in many developing countries has contributed to better quality grain products. Better seed varieties, more efficient processing machinery and improved grain storage and handling have contributed to better quality grain products as well.

Governments have made large investments in marketing infrastructure in the form of better roads and highways, railroads, port facilities and storage facilities to reduce transportation and handling costs in the grain marketing system of most developing countries. Some developing countries still have a long way to go in terms of this basic marketing infrastructure so that the opportunity to further reduce transport and handling costs in these countries is large. Bulk handling of grain products may be one of the opportunities to further reduce handling costs in third world countries. The widespread use of handling grain in bags in third world countries suggests that there may be significant barriers to bulk handling of grains in these countries. The economics of bulk handling versus bag handling of grain in different developing countries needs further investigation. Better farm to market roads and even highways between major trading centers could lead to much lower marketing costs for grain. Northeast Brazil, Colombia, Ecuador and Bolivia are but a few examples of countries in which additional improvements in marketing infrastructure are needed. Bolivia has many producing areas isolated from markets because of poor roads that are impassable during much of the year and with very high transportation costs when passable. Cochabamba, a major grain producing area of the country, is linked to the capital city of LaPaz by a very poor road that greatly increases transport costs. It is a time-consuming trip

over a road that is very damaging to trucks and four-wheel drive jeeps. Northeast Brazil and other countries have road conditions similar to that described for Bolivia.

In the last twenty years, the developing countries have invested large amounts of resources in modernizing existing grain storage and handling facilities and building new facilities with all the necessary grain drying, grading and quality control equipment. Although these facilities are owned and operated by some government parastatal marketing organization in most countries, private merchants also own and operate significant amounts of grain storage capacity with all the appropriate equipment. However, governments seem to have decided that grain warehousing is an activity that belongs to the public sector. For the government-owned storage facilities, poor location and management are important reasons for the low rates of utilization of the storage capacity and consequently the relatively high storage costs.

There appears to be relatively little on-farm storage capacity in most countries and what does exist tends to be inadequate for proper grain storage and handling. On-farm storage capacity is limited despite numerous attempts by international organizations to promote and finance on-farm storage facilities. The reasons for a lack of on-farm storage certainly merit further research efforts.

The investments in transport and storage infrastructure plus the improvements in grain handling have all contributed to reduced product losses in grain marketing. Grain marketing losses due to poor transportation methods, grain storage and handling methods and farm harvesting methods were estimated to be very high (15 to 20 percent of production) in many countries during the late 1960s and early 1970s (FAO). Nearly twenty

years later, these losses seem to have been reduced to much lower levels in many developing countries. In modern, commercial, well-equipped grain storage facilities, the losses due to storage and handling are very low; however, losses in rural areas, especially on farms, may still be quite high. There is some evidence that large scale state-owned grain storage facilities have large losses compared to commercial and farm storage because of the differences in management attention to the details of grain storage.

One of the most significant changes in grain markets has been the shift from the high and fluctuating world market prices observed throughout the 1970s to the relatively low and more stable prices of the mid-1980s (Figure 2). Developing countries in Africa, Asia, Latin America and the Near East were able to protect domestic producers and consumers from much of the world market price variability during the 1970s. In these countries, domestic prices tended to lag world prices and also tended to be lower than world prices until 1981. World prices moved downward in 1981 and have declined further since 1983. An important question for grain marketing and for domestic producers and consumers is whether third world countries will attempt to protect their domestic markets from the low prices of the 1980s as they protected their markets from the high prices of the 1970s. The highly profitable prices of the 1970s attracted many resources to grain production in developing countries (Brazil and Argentina, for example) in order to achieve domestic self-sufficiency, reduce dependence on expensive grain imports or to compete on the world market for exports. The return to these resources is declining significantly in the 1980s so that some of the resources will likely exit grain production in

the rest of the 1980s. The rate of exit will depend on the degree of protection that third world countries choose to provide to their grain producers.

Although the evidence on the change in grain marketing margins through time is not available for most developing countries, some limited information across countries at different points in time is presented in Table 7. The price paid to producers as a percentage of the prices paid by consumers for rice, corn and sorghum varies considerably among the countries. For rice, the producer share tends to be highest in the Asian countries and lowest in Africa with Latin America in between these regions. These margins are affected by a number of factors such as the distances between producing and consuming areas, the adequacy of transportation, the services provided and costs of the services, and government policies toward the marketing sector in all these countries. More than anything else, these results show that a large amount of diversity exists among countries for the same commodity and that more information is needed before one could draw firm conclusions about market performance from the margin data of these countries.

Evolution of Grain Marketing Systems

Three parallel marketing systems for grains and other products have emerged in developing countries during the last twenty years. These three systems are: the traditional food marketing system, the modern food marketing system and the institutional food marketing system (Figure 3). Grain products are marketed through all three systems with some significant differences among the three systems because each system tends to serve the needs of a particular clientele best (Riley et al., Slater et al.). The traditional system consists of a large number of small merchants at all

levels of the marketing system and tends to serve the needs of the small farmers and low income consumers who sell or buy in small quantities a lower quality product at the low end of the price range. The small farmers and low income consumers have a large number of transactions and frequently obtain credit from merchants to finance their activities. The modern system consists of a small number of large firms that are integrated horizontally and vertically and tend to serve the needs of large farmers and higher income consumers who buy or sell in larger quantities a better quality product at higher prices. These are self-service operations that provide no consumer credit. Grain farmers in the modern system are more likely to have credit from formal financial institutions, frequently at subsidized rates of interest, than from marketing intermediaries. The institutional system is essentially a public sector marketing system that tries to serve all producers and consumers and generally has not performed well in developing countries because of high operating costs, management inefficiencies, political interference and other reasons.

Three examples of these marketing systems for grain products are shown for rice in northeast Brazil in 1967, corn in Colombia in 1968, and grains in Kenya in the early 1970s (Figures 4, 5 and 6). In each country the modern system was small but making an impact for rice and corn marketing in these countries many years ago. The institutional system was also small and not significant in the Brazil and Colombia marketing systems. The institutional system was much more important in the grain marketing system of Kenya. The traditional system was the dominant force in the grain marketing system of all three countries. If those studies were to be repeated today, the results would very likely show a rapid increase in the importance of the modern system, a stagnating but surviving traditional

system and a more important institutional system. The modern system and to a lesser extent the institutional system have captured most if not all of the growth in grain markets from population and income increases. The supermarkets have become important change agents in these marketing channels and have improved the vertical coordination of the production-distribution system to serve better the consumers and producers (Harrison et al.).

Although the institutional system has grown in importance in grain markets because governments have pumped large amounts of resources into government-owned parastatals, marketing boards and consumer retail stores to help low income consumers and producers, there is a growing dissatisfaction with the results in a number of countries such as Kenya, Brazil, Ecuador, and India (Heyer, Lele, Southworth et al., Larson). They have become large, unmanageable, inefficient and very costly government bureaucracies that have failed to accomplish their stated mission. The costs of intervention in markets have been high while the benefits to producers and consumers may not be that high. Some countries such as Ecuador and Brazil have launched efforts to deregulate markets, reduce government intervention in markets and regain control of government parastatals; however, the results are not final and the number of countries willing to implement such changes may not be large.

The rate of evolution of grain markets depends to a large degree on the rate of economic development of the country. If countries grow rapidly, the dynamics of income and population changes will create an opportunity for rapid change in the grain marketing system. Brazil, Colombia, Korea, Taiwan, and Thailand may be examples of countries where rapid economic growth has led to a rapid evolution of the grain marketing

system. Guyana and Bolivia may be examples of countries where economic stagnation for extended periods of time has adversely affected the development of the grain marketing system. The grain marketing system in these countries has not improved in recent years and may have regressed. Government intervention in grain markets plus macro-economic monetary and fiscal policies have had profound impacts on the economy of these countries and on the performance of the grain marketing system.

The development of commodity exchanges for cash and futures contracts has been an important innovation in grain markets during the last twenty years in developing countries. The establishment of these exchanges has been an important activity to improve the pricing of grain products through an open, competitive market with prices determined by supply and demand. The exchanges represent an effort to move away from a government administered pricing system for grain products to a market determined pricing system. Argentina, Brazil, Colombia, Ecuador and Pakistan are some of the countries that have established commodity exchanges to improve the pricing of grain products. A major problem of most of these exchanges is that the government continues to play a pivotal role in grain trading so that the exchanges are not functioning in a freely competitive market. Diagnostic studies of the pricing efficiency gains (losses) from the introduction of commodity exchanges in third world countries would have important policy implications for many of the countries considering this pricing innovation.

Factors Contributing to Change in Grain Marketing Systems

Rapid economic growth may be the single most important factor contributing to change in grain marketing systems. Brazil, Costa Rica, Taiwan, and South Korea have experienced rapid economic growth since the middle

1960s that also contributed to rapid change in the grain marketing system. Grain production, consumption, and marketing have evolved to better systems in terms of the quantity and quality of product, coordination of supply channels, grain handling and storage methods, number and size of participants, marketing infrastructure, information and other factors. Guyana and Bolivia may be be examples of countries where economic stagnation contributed to little or no economic development or change in the grain marketing system. The most rapid evolution of grain marketing systems seems to occur when GNP per capita surpasses US$400 to US$500 and where the distribution of income is most evenly distributed such as Taiwan. In Brazil, the high concentration of income has slowed the evolution of the grain marketing system, particularly in the northeast of the country. In the south of Brazil where the fruits of economic development are more widely distributed, the grain marketing system has been able to grow and progress more rapidly. Where income is highly concentrated, a dualism tends to exist in the production-distribution system with the small producers and consumers served by traditional, small scale merchants and the large producers and consumers served by the large scale, modern self-service merchants. This dualism is readily apparent in many Latin American developing countries.

Rapid urbanization of developing countries (urban areas growing at a rate of six percent or more annually) forces dramatic changes on the grain marketing system because increasingly large quantities of grain must be moved from the area of production to the urban consuming areas. Large investments in marketing infrastructure and information systems are needed to provide stable supplies of quality products to urban consumers at the lowest possible cost. The more distant are the production areas from the consumption areas, the more complicated becomes the marketing task.

An urban industrial bias in government policy of developing countries affects the nature of the grain marketing system. The government's desire to keep food prices low for urban industrial workers and to hold down the inflation rate may result in food subsidies, retail price controls, over-valued exchange rates and other policies that benefit urban consumers at the expense of rural producers. Retail price controls that hold down consumer food prices benefit urban consumers at the expense of rural producers (Larson). Government subsidies on food are also much more likely to be available to urban consumers than to rural consumers.

Overvalued exchange rates and other trade policies that directly or indirectly tax exports and subsidize imports will benefit urban consumers of food imports while taxing domestic producers of export crops such as grains. With an overvalued exchange rate, the domestic currency costs of an imported commodity are less than what would be the costs at a free market equilibrium exchange rate so the consumers of an imported commodity are subsidized. Producers of an export commodity are taxed because they receive less in terms of domestic currency for exports than they would receive at a free market exchange rate. In Costa Rica, The Dominican Republic and Honduras, for example, overvalued exchange rates in past years have subsidized wheat and coarse grain imports that benefitted local consumers at the expense of local producers. The imported product substitutes for domestic production and consumption of grain products or other close substitutes (Larson and Vogel). Such policies can have major impacts on the grain markets because of the distortions in relative prices introduced by these policies. In addition, the policies may be an important factor determining whether a national grain marketing system developes that is based upon domestic production and consumption or whether a delivery

system for imported grains is developed. The overall costs to domestic grain producers and the marketing system compared with the benefits to domestic consumers needs further analysis in many third world countries.

Government marketing boards and parastatals are widely used in developing countries to regulate the marketing of grain and other products. Typically, these government institutions have a monopoly control of imports and exports, set minimum producer prices, regulate markets with a buffer stock policy, and buy and sell in the domestic market. These boards are major factors in grain marketing and pricing in most countries of Africa and Latin America. Because of their power and resources, the boards can promote the modernization of grain marketing or they can attempt to destroy the incentives to improve the system. Research studies of marketing boards and parastatals by Larson, Lele, Southworth and others have generally found these institutions to be inefficient, non-responsive to consumers and producers, more costly than private sector trading, and very expensive for governments to finance. One should bear in mind, however, that parastatals were promoted because of the belief that one could not depend on private markets to perform certain functions. Market failure may still be a problem in the grain markets of some third world countries. In addition, governments may have political as well as economic objectives for parastatals that influence the performance of these institutions. Careful examination of parastatals and other alternatives on a country by country basis, taking into consideration the economic as well as other political objectives, may be the best way to improve the performance of grain marketing systems.

Better information in cash grain markets has emerged in many developing countries during the last twenty years because of improved communication facilities and government development of daily market information services that are linked to important production and consumption centers. Information on prices, quantities, and qualities is available to improve arbitrage among markets and from one time period to another. Since a few of these market news services have been operating for many years, an evaluation of the costs and benefits of these services might be valuable to international donors and third world countries.

An important factor retarding development of grain markets is the strong negative attitude toward intermediaries in many developing countries. Government policies that typify this attitude are anti-speculation laws that prevent merchants from storing grain and credit restrictions that prevent private merchant access to bank credit. The marketing intermediaries are caught between producers and consumers and fail to satisfy either group. Improved communication between private grain merchants and the government plus a better understanding of marketing functions could weaken this bias and lead to policy changes that improve performance of the grain marketing system.

A Program of Research and Technical Assistance in Grain Marketing

A program of applied research and technical assistance in grain marketing should include the following components: (1) applied research that focuses on important issues in grain marketing in several countries over a four to five year period, (2) technical assistance to AID missions and host country governments that may be of a short and long term natures, (3) graduate degree and non-degree training of U.S. nationals and foreign nationals in grain marketing, and (4) information exchange of research

results and implementation activities through workshops and periodic newsletters sent to interested researchers, policy makers and international donors.

The applied research component of the program should be problem oriented, diagnostic and prescriptive in nature. The objective of the research would be to assist missions and host governments to improve the performance of the grain marketing system. An important part of the applied research would be a policy dialogue among AID missions, researchers and host countries regarding marketing problems, research results and policy options to improve performance. Another dimension of the applied research component would be case studies of marketing innovation success stories in various countries that could be prepared in a short period of time for possible use in other countries and missions. It will be useful to differentiate two types of research. One involves technical problems of grain marketing that influence costs and productivity and the other involves the institutions of the market and related policies. The technical problems address the functions of storage, transportation, processing, retailing, grading, financing, risk bearing, etc. The second type of research addresses the market institutions such as pricing institutions, parastatals, marketing boards, taxes, tariffs, subsidies, market regulations, coordinating mechanisms, etc. All these have a profound impact on market performance. Changes that reduce costs and improve quality have the potential for increasing the real income of producers and consumers and contributing to economic development of the country.

Some examples of the more important applied research issues that need to be examined are as follows. Additional issues have been identified in earlier sections of this paper.

The costs and benefits to producers and consumers of the wide array of government policy instruments such as price and margin controls, exchange rates and other taxes and subsidies that are used to intervene in grain markets need to be evaluated. Price stabilization and buffer stock policies that are implemented through government parastatals and marketing boards have been very costly to developing country governments and frequently have failed to accomplish the government's food policy objectives. The cost effectiveness of these activities needs to be examined more carefully to determine whether the objectives can be accomplished more cheaply with the current institutions or whether some other alternative can accomplish the objectives at lower cost.

Better market information, especially outlook information, is needed by developing countries so that they can estimate more accurately grain production and utilization and formulate correct policies toward imports and/or exports of grains for their country. To be effective, this must be forward looking information and not historical information. The numerous examples of incorrect decisions to import and export grain based on inadequate production and utilization data in third world countries could be avoided with reliable and timely outlook information. Such incorrect decisions have usually been very costly to these countries.

Additional work is needed on uniform grain grades and standards in most third world countries so that value of products to the end user can be more accurately reflected through prices back to the grain producer. This would improve resource allocation decisions of producers and consumers and lower cost through commodity trading by grades and contracts rather than personal inspection of each lot for sale.

Ways to improve small farmer grain marketing are still needed. The local country and foreign assistance efforts to help small farmers market their products have usually turned out to be more expensive than the traditional grain marketing system. The link between marketing and credit especially for small farmers has never been thoroughly studied and analyzed in developing countries to determine the economic co~ and benefits of this relationship between intermediary and small farmer.

The modern marketing system has found ways to improve coordination in supply channels through vertical integration and contracting. New ways to improve coordination in the supply channels of the traditional system are needed to enhance its long-term viability in grain markets. In a few countries farmer cooperatives have been a means to improve performance of the traditional system. Case studies of the reasons for these success stores need to be completed and disseminated.

Information to document the evolution of grain marketing systems in developing countries is quite limited. Temporal and cross section studies of grain marketing systems are needed to clarify the understanding of the evolution and performance of these systems and their contribution to the ecomomic development of third world countries.

The technical assistance component would utilize researchers and consultants to provide short term technical assistance to AID missions and host countries on grain marketing problems. The technical assistance would draw upon the on-going applied research results discussed above to assist in the solution to these problems. Where appropriate, long term technical assistance would also be available to missions and host countries. A roster of researchers and consultants by area of expertise, availability, language capability, experience, etc. should also be developed as part of

this component. Holtzman's rapid reconnaissance guidelines for agricultural marketing research will be especially useful for these short term assignments.

The training component would include graduate degree and non-degree training of U.S. nationals and foreign nationals in grain marketing. People trained in marketing are needed to conduct research on marketing problems, to work in private and public sector marketing firms, to advise government policy makers on marketing problems and to train public and private sector intermediaries in marketing and management. People trained in agricultural marketing in developing countries seem to be in short supply today. Many centers and programs in third world countries that trained people in practical non-degree marketing programs 10 to 15 years ago are no longer training people today. Financial support for graduate degree training of foreign nationals and U.S. nationals also seems much more limited today than 10 to 15 years ago.

The last component of the grain marketing program is an information exchange system. This would include workshops in third world countries where decision makers, international donors, marketing intermediaries and researchers would discuss marketing problems, research results and alternative solutions to those problems. A periodic newsletter that presents abstracts of research results and examples of successful implementation activities would also be a part of this component. The newsletter would be sent to all interested decision makers, researchers, and international donors.

Table 1: Combined World Supplies, Utilization, Trade and Stocks of All Grains in 1985-86, Projections for 1986-87 and Comparisons with Selected Recent Years in Millions of Metric Tons

July-June Trade Years	Production	Utilization	Total Trade	Ending Stocks[a]	Stocks as % of Utilization
Projected					
1986-87	1,643	1,615	194	348	21.6
Preliminary					
1985-86	1,662	1,584	194	320	20.2
1984-85	1,643	1,594	219	242	15.2
1983-84	1,482	1,554	208	181	11.6
1982-83	1,544	1,511	201	252	16.7
1981-82	1,498	1,462	210	219	15.0
1980-81	1,446	1,460	215	183	12.6
1979-80	1,423	1,447	198	197	13.6
1978-79	1,462	1,435	177	221	15.5
1976-77	1,362	1,308	158	196	15.0
1971-72	1,197	1,179	110	183	15.6
1966-67	1,007	981	104	169	17.2

[a] Excludes total stocks in most communist nations due to lack of published data. Stocks are an aggregate of individual marketing years and do not reflect stocks at a single point in time.

Source: U.S. Department of Agriculture, Foreign Agricultural Service Foreign Agriculture Circular, Grains, FG 10-85 (Washington, D.C.), July 1985. Includes wheat, milled rice, and coarse grains.

Table 2: World Wheat Production, Utilization, Trade, and Carryover Stocks in Millions of Metric Tons in 1985-86 and Selected Recent Years

July-June Trade Years	Production	Utilization	Total Trade	Ending Stocks[a]	Stocks as % of Utilization
Projected					
1986-87	504.0	503.1	91.5	125.3	24.9
Preliminary					
1985-86	502.4	494.4	85.5	124.4	25.2
1984-85	515.6	500.2	106.9	116.4	23.3
1983-84	490.4	488.4	102.9	98.5	20.2
1982-83	479.1	467.8	98.6	96.4	20.6
1981-82	448.4	441.5	101.3	85.1	19.3
1980-81	442.7	445.6	94.1	78.2	17.5
1979-80	424.4	444.2	86.0	81.0	18.4
1978-79	446.8	430.2	72.0	100.9	23.9
1976-77	421.3	385.8	63.3	99.8	26.2
1971-72	350.9	344.2	52.00	81.0	23.5
1966-67	306.8	279.9	56.0	82.1	29.4

[a] Excludes total stocks in most communist nations due to lack of published data. Stocks are an aggregate of individual marketing years and do not reflect stocks at a single point in time.

Source: U.S. Department of Agriculture, Foreign Agricultural Service, Foreign Agricultural Circular, Grains, FG-10-85 (Washington, D.C.), July 1985. Includes wheat and wheat products.

Table 3: World Coarse Grain Production, Utilization, Trade, and Carryover Stocks in Millions of Metric Tons in 1985-86 and Selected Recent Years

July-June Trade Years	Production	Utilization	Total Trade	Ending Stocks[a/]	Stocks as % of Utilization
Projected					
1986-87	818.2	790.5	90.2	199.5	25.2
Preliminary					
1985-86	843.1	775.1	83.0	171.8	22.2
1984-85	809.3	780.1	101.0	103.7	13.3
1983-84	685.1	758.7	92.5	65.1	8.6
1982-83	778.8	753.0	90.2	138.7	18.4
1981-82	768.8	738.6	96.6	113.0	15.3
1980-81	732.0	742.1	108.8	82.8	11.2
1979-80	740.6	740.0	99.2	92.7	12.5
1978-79	751.7	746.0	92.7	92.2	12.4
1976-77	703.5	684.2	83.9	78.2	11.4
1971-72	629.9	616.2	49.3	87.0	14.1
1966-67	521.2	520.2	40.0	76.1	14.6

a/ Excludes total stocks in most communist nations due to lack of published data. Stocks are an aggregate of individual marketing years and do not reflect stocks at a single point in time.

Source: U.S. Department of Agriculture, Foreign Agricultural Service, Foreign Agricultural Circular, Grains. (Washington, D.C.), FG 10-85 1985; FG 6-85, April 1985.

Table 4 : World Milled Rice
Production, Utilization, Trade and Carryover Stocks in
Millions of Metric Tons in 1985-86 and Selected Recent Years

July-June Trade Years	Production	Utilization	Total Trade[a]	Ending Stocks[b]	Stocks as % of Utilization
Projected					
1986-87	320.6	321.4	11.9	23.3	7.2
Preliminary					
1985-86	316.3	314.0	12.3	24.0	7.7
1984-85	318.3	313.8	11.5	21.7	6.9
1983-84	307.1	307.4	12.5	16.9	5.4
1982-83	285.5	289.5	11.9	17.3	6.0
1981-82	280.6	281.4	11.6	21.3	7.6
1980-81	271.0	272.3	13.1	22.1	8.1
1979-80	258.1	262.6	12.7	23.3	8.9
1978-79	263.7	258.6	12.0	27.8	10.8
1976-77	236.8	238.4	10.6	17.7	7.4
1971-72	216.4	218.8	8.7	15.3	7.0
1966-67	179.3	180.7	7.8	10.6	5.9

a/ Exports are computed on a calendar year basis.

b/ Excludes total stocks in most communist nations due to lack of published data. Stocks are an aggregate of individual marketing years and do not reflect stocks at a single point in time.

Source: U.S. Department of Agriculture, Foreign Agriculture Service, Foreign Agricultural Circular, Grains, (Washington, D.C.), FG 9-84 June 1984; FG 10-85, July 1985.

Table 5 : Cereal Equivalent Conversion Factors

Commodity	Conversion Factor
Plant Products[1/]	
Cereals	1.0
Pulses	1.0
Roots and tubers	0.2
Fruits and Vegetables	0.2
Oil Seeds	1.2
Raw Sugar	1.1
Tree Nuts	1.0
Livestock Products[2/]	
Beef, veal, lamb and goat	11.0
Pork	4.3
Chicken, turkey, ducks and geese	2.3
Eggs	4.4
Milk products	0.6

1/ Adapted from Gilland

2/ Estimated based on USDA Livestock-Feed Relationships

Source: Rask

Table 6: Per Capita GNP and Annual Per Capital Food Consumption in Cereal Equivalents for Selected Countries, 1966 and 1982

Country	GNP/Capital 1966	GNP/Capital 1982	Food Consumption in Cereal Equivalents/Capita 1/ 1966	Food Consumption in Cereal Equivalents/Capita 1/ 1982
	- - $ 1985 - -		- - - Metric Tons - - -	
Lower Middle Income				
Pakistan	$373	$410	.31	.38
Philippines	574	873	.39	.51
Nigeria	298	960	.30	.27
Upper Middle Income				
Turkey	900	1,460	.95	.95
S. Korea	390	2,070	.38	.63
Brazil	964	2,340	.80	1.03
Taiwan	1,200	3,000	.47	.96
Mexico	1,447	3,146	.66	.80
Yugoslavia	1,032	3,627	1.06	1.50
Greece	2,269	4,636	1.18	1.45
High Income				
Italy	3,802	7,380	1.28	1.56
Japan	3,052	10,900	.61	.79
Canada	8,249	12,600	2.22	2.12
France	6,341	12,780	1.91	2.25
West Germany	5,924	13,390	1.57	1.80
United States	11,200	14,200	2.10	2.20

1/ See Table 1

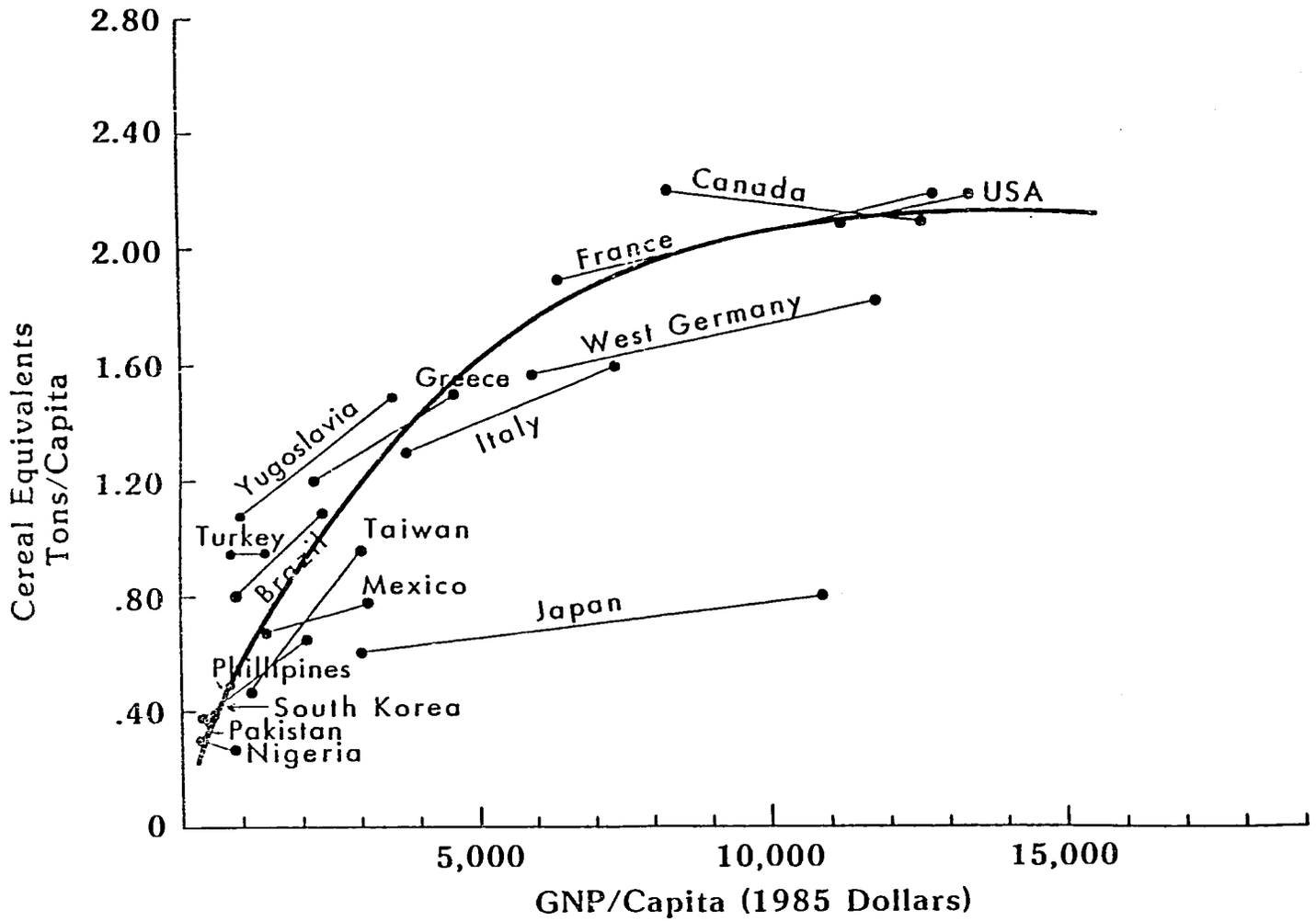
Source: Rask

Table 7: Prices to Producers as a Percentage of Prices Paid By Consumers in Selected Countries (1970-1980)

Rice	Corn	Sorghum
	- - - - - - - Percent - - - - - - -	
Malawi 55	Tanzania 38	Tanzania 38
Tanzania 57	Kenya 57	Nigeria 60
Nigeria 57	Malawi 48	Sudan 61
Bangladesh 79	Nigeria 55	India 80
India 82	Philippines 72	
Indonesia 84	Colombia 70	
Taiwan 66	Costa Rica 60	
The Philippines 87		
Colombia 70		
Costa Rica 60		
Brazil 63		
Africa 52		
Asia 79		
Latin America 64		

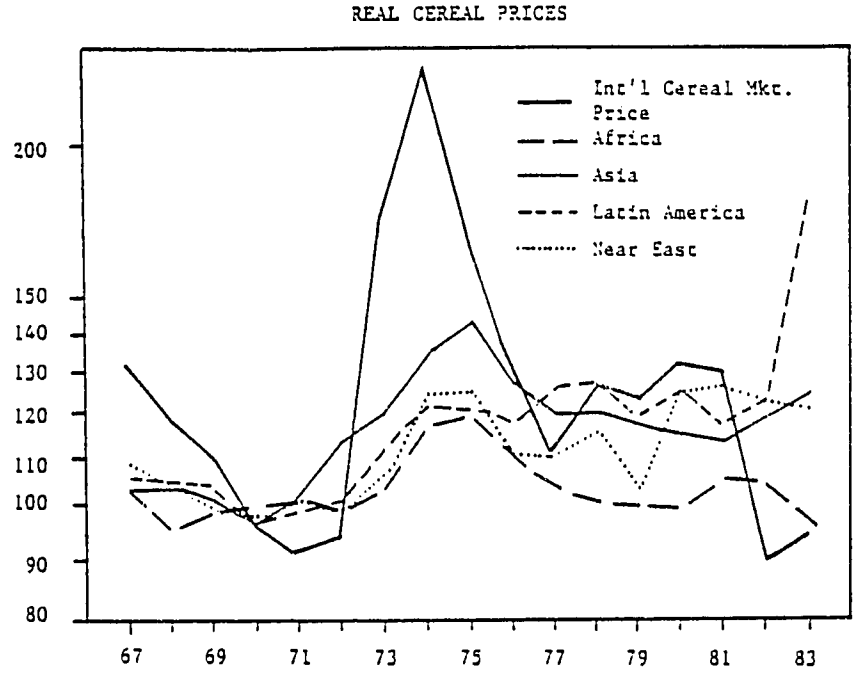
Source: FAO Conference on Food and Agriculture, August 1985, and other marketing studies for Taiwan, Brazil, Colombia and Costa Rica

Figure 1: Food Consumption and Income 1966-82



Source: Rask

Figure 2: Real Farm Prices of Cereals and Retail Food Prices in Africa, Asia, Latin America and Near East, 1967-83



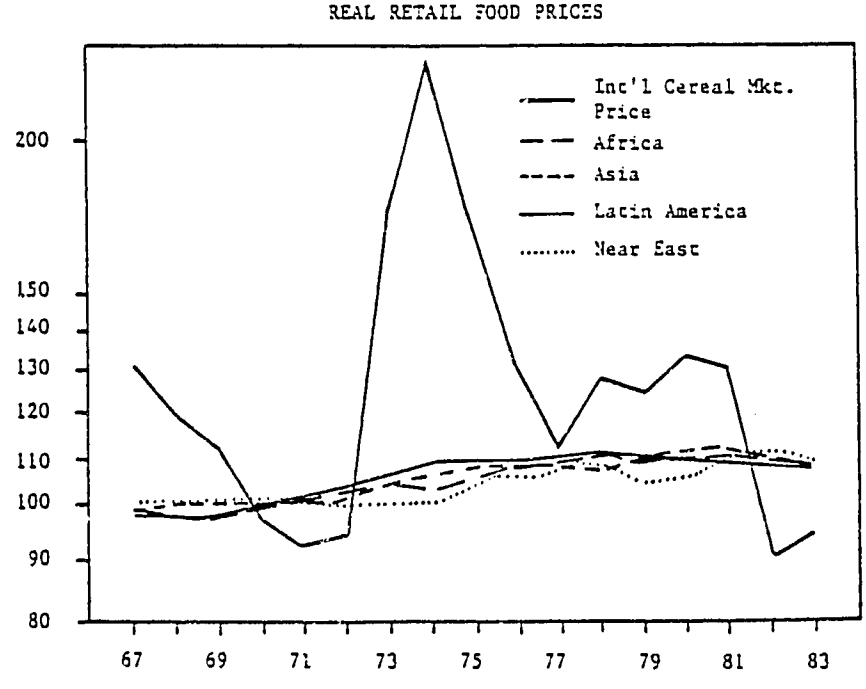
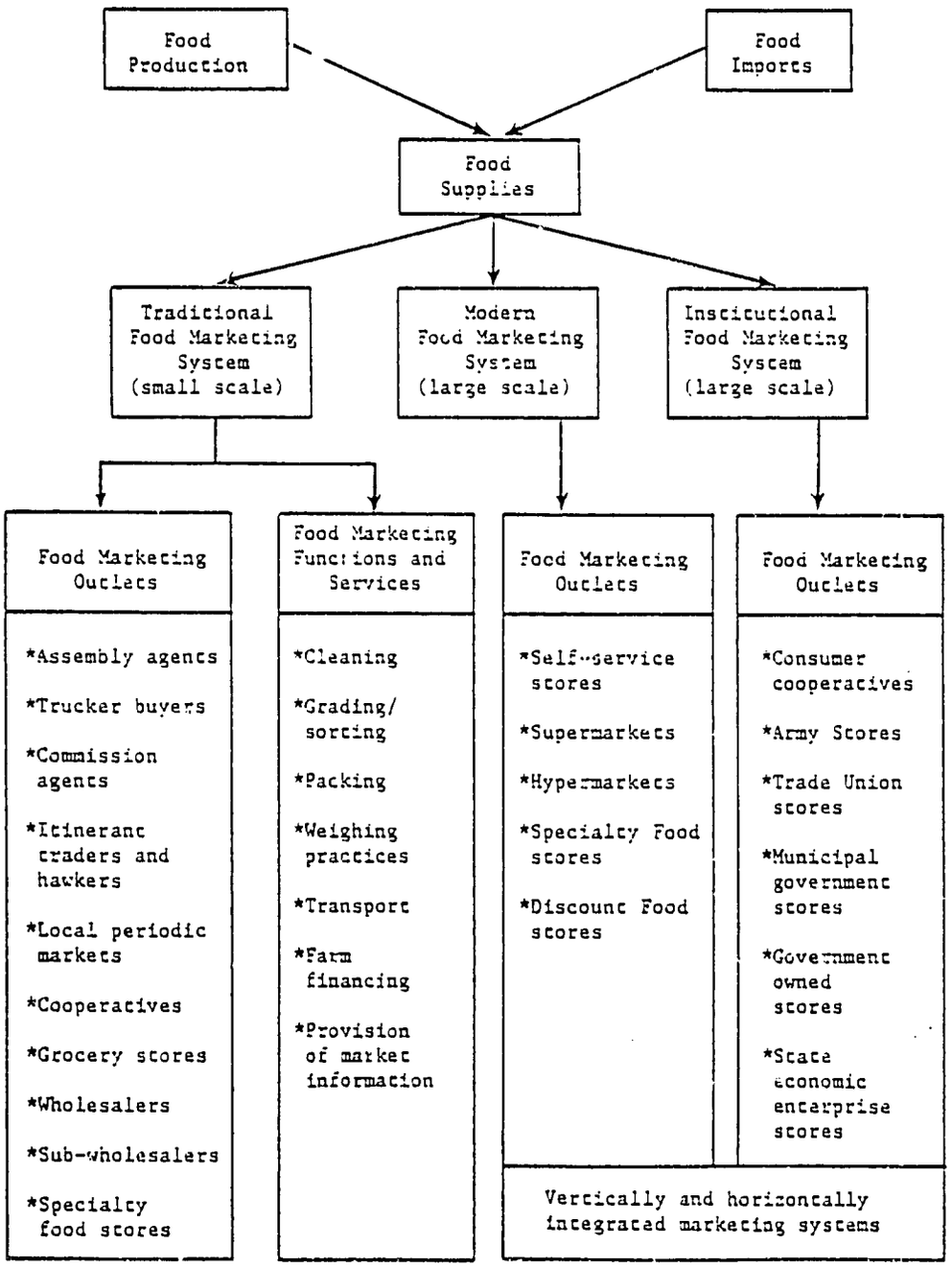
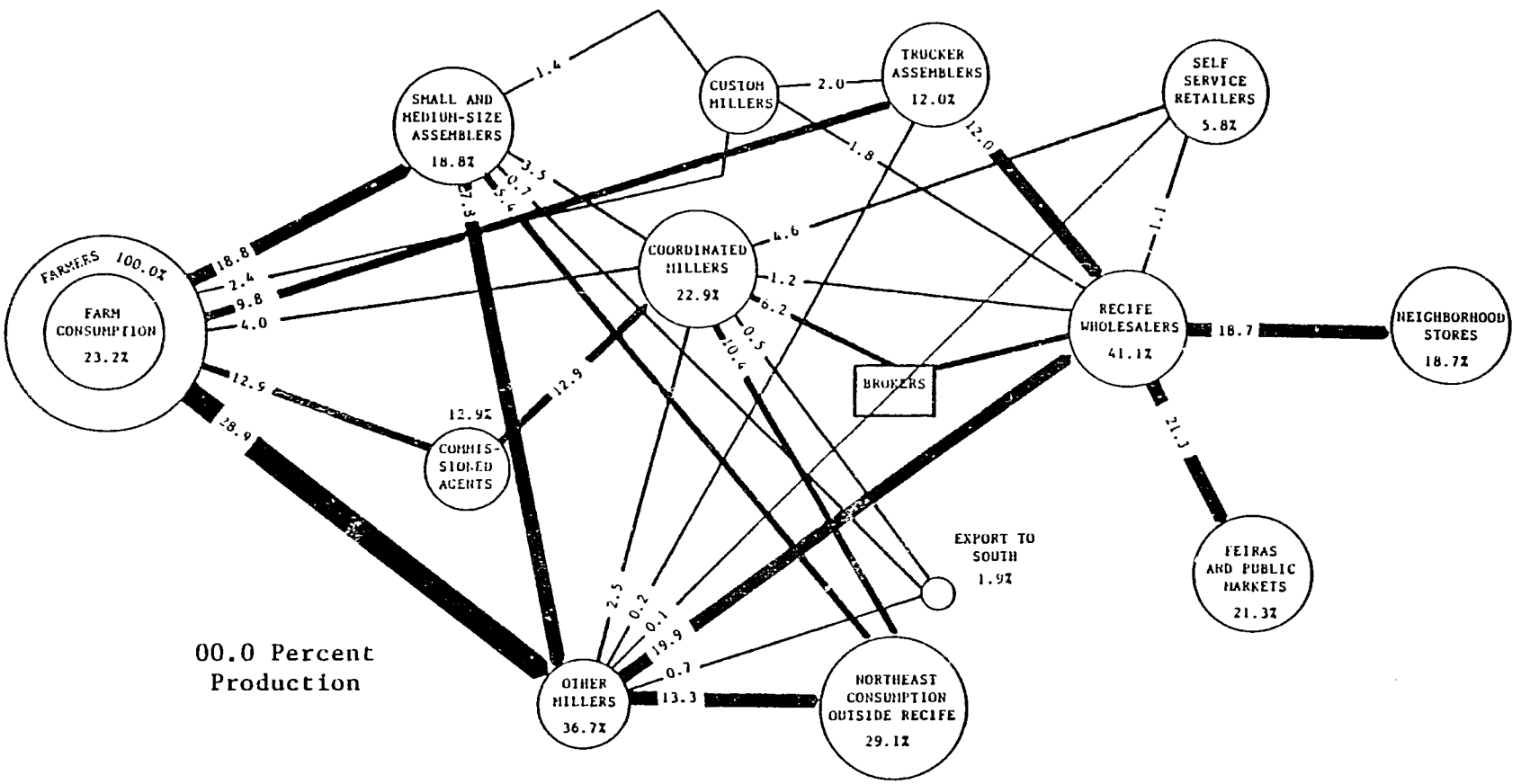


Figure 3: World Food Marketing Systems



Source: Kaynak

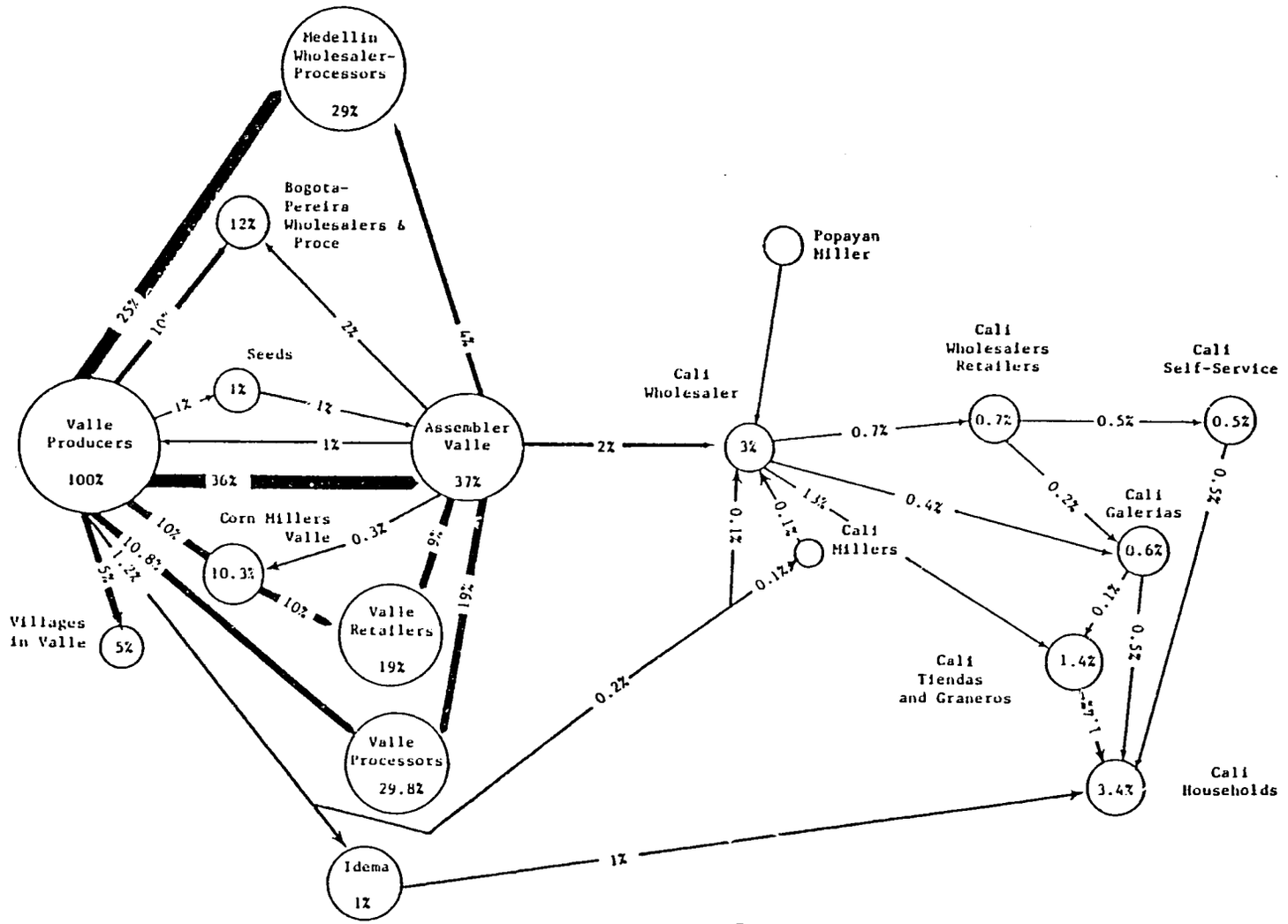
Figure 4: Rice Marketing Channel in Northeast, Brazil, 1967



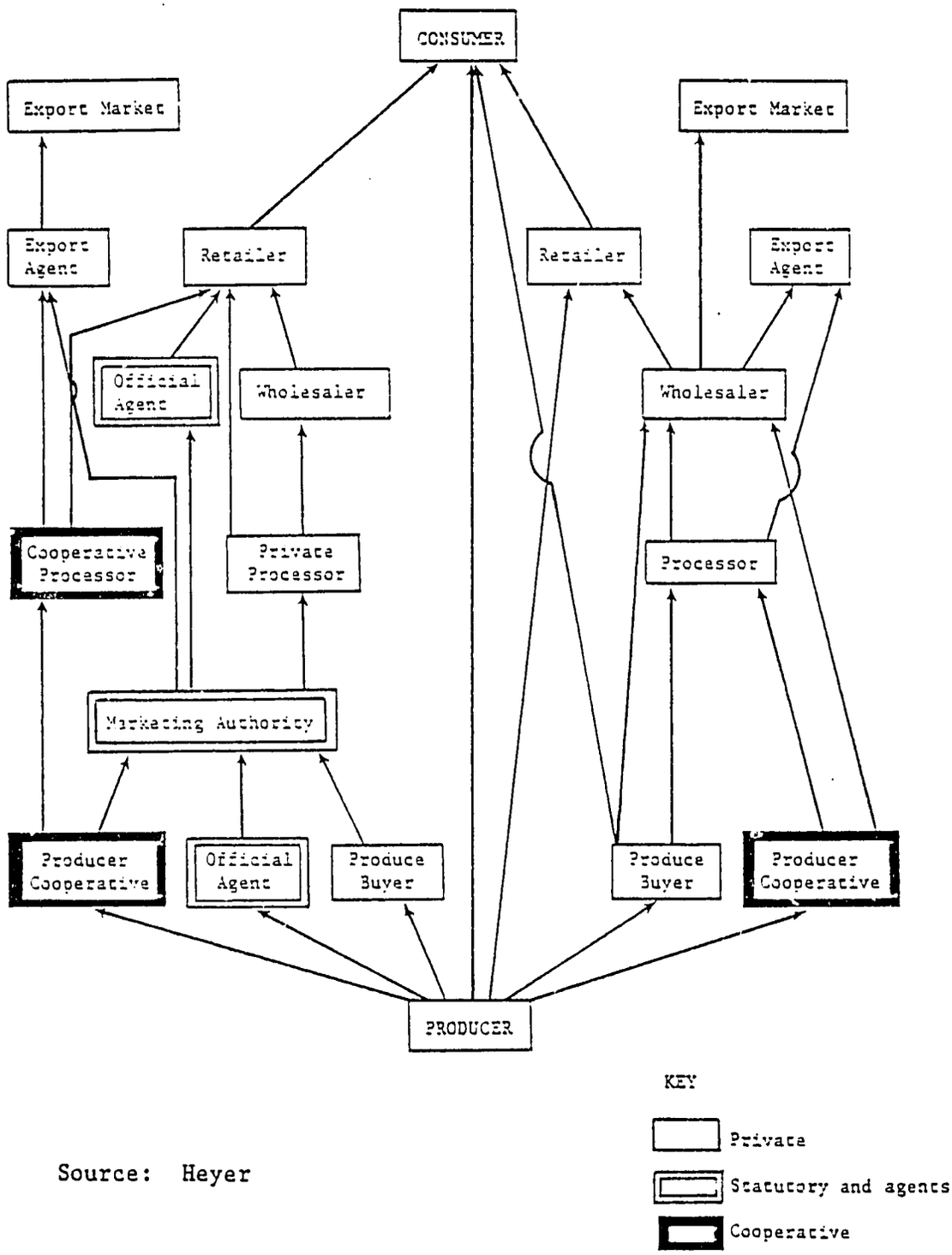
00.0 Percent Production

Source: Slater et. al.

Figure 5: Corn Marketing Channel in Cauca Valley, Colombia, 1968



Source: Riley et. al.



Source: Heyer

Figure 6: Marketing Chains in Kenya

References

Centro Internacional de Mejoramiento de Maiz y Trigo. "World Maize Facts and Trends, Report One: An Analysis of Changes in Production, Consumption, Trade and Prices over the Last Two Decades." Mexico 6, D.F. Mexico. December, 1981.

Food and Agriculture Organization of the United Nations. "Agricultural Price Policy Conference Proceedings." Rome, Italy. November, 1985.

Harrison, Kelly M., D. Henley, H. Riley, and J. Shaffer. Improving Food Marketing Systems in Developing Countries: Experiences from Latin America. Latin American Studies Center, Michigan State University, East Lansing, Michigan. 1974.

Heyer, Judith. "The Marketing System," Chapter 10 in Agricultural Development in Kenya. Judith Heyer, J.K. Maitha and W.M. Senga (edts.). Nairobi, Kenya. Oxford University Press. 1976.

Holtzman, John S. "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food Systems Research in Developing Countries." Working Paper No. 30, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan. 1986.

Kaynak, Erdener (Editor). World Food Marketing Systems. London: Butterworths. 1986.

Larson, Donald W. "The Problems and Effects of Price Controls on Honduran Agriculture." ESO 962. Department of Agricultural Economics and Rural Sociology, The Ohio State University, Columbus, Ohio. April, 1982.

Larson, Donald W. and Robert C. Vogel. "The Mis-Perception of Price and Credit Policy in Developing Country Agriculture: The Case of Costa Rica." ESO 917. Department of Agricultural Economics and Rural Sociology, The Ohio State University, Columbus, Ohio. March, 1982.

Lele, Uma J. Food Grain Marketing in India: Private Performance and Public Policy. Ithaca, New York. Cornell University Press. 1971.

Panagides, Stakis S., Donald W. Larson, and Dirceu M. Pessoa. "Northeast Brazil Agricultural Marketing Project: Success But Confined Impact." Unpublished project impact evaluation report. AID/Washington. 1985.

Rask, Norman. "Economic Development and the Dynamics of Food Needs." Department of Agricultural Economics and rural Sociology, The Ohio State University. Paper presented at the Global Development Conference, University of Maryland. September 12-13, 1986.

Riley, Harold M. et al. Market Coordination and Economic Development in the Cauca Valey Area of Colombia. Research Report Number 5. Latin American Studies Center, Michigan State University, East Lansing, Michigan. April, 1970.

Slater, Charles, et al. Market Processes in the Recife Area of Northeast Brazil. Research Report Number 2. Latin American Studies Center, Michigan State University, East Lansing, Michigan. June, 1969.

Southworth, V. Roy, William O. Jones and Scott R. Pearson. "Food Crop Marketing in Atebubu District, Ghana." Food Research Institute Studies. Vol. XVII, No. 2, 1979. pp. 157-195.

Wisner, Robert E. "World Food Trade and U.S. Agriculture, 1960-1985." The World Food Institute, Iowa State University, Ames, Iowa. October, 1986.

A COMPARATIVE ANALYSIS OF FRUIT AND VEGETABLE MARKETING IN DEVELOPING COUNTRIES

by

R. W. SCHERMERHORN

The Postharvest Institute for Perishables

College of Agriculture, University of Idaho

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TABLE OF CONTENTS

CHAPTER I

Introduction..... 1

CHAPTER II

THE ROLE OF MARKETING IN AGRICULTURAL DEVELOPMENT..... 2

A. Optimal Conditions for Agricultural Development..... 2

B. The Marketing System..... 3

C. Contributions of the Marketing System..... 3

D. Conditions Required for Effective Marketing..... 4

CHAPTER III

THE EVOLUTIONARY PROCESS OF FRUIT & VEGETABLE SYSTEMS..... 10

A. The Need for Change..... 10

B. Change and Problems Associated with Change..... 11

CHAPTER IV

APPROACHES TO REDUCING PROBLEMS ARISING FROM CHANGING MARKET SYSTEMS..... 18

A. Jamaica..... 18

B. Sri Lanka..... 23

CHAPTER V

CONCLUSIONS..... 34

A. Critical Factors Affecting Marketing System Intervention..... 34

B. Priority Market Interventions..... 37

C. Critical Needs for Research..... 39

D. Comments on "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food Systems Research in Developing Countries"..... 40

A COMPARATIVE ANALYSIS OF FRUIT AND VEGETABLE MARKETING IN DEVELOPING COUNTRIES

CHAPTER I

INTRODUCTION

This report has been prepared by the Postharvest Institute for Perishables, University of Idaho under a subcontract agreement with Sigma One Corporation, Inc.

The objective of the report is to provide information designed to help the Bureau of Science and Technology of the Agency for International Development (AID/S&T) develop a program of research and technical assistance activities in the area of fruit and vegetable marketing to promote agricultural development in low-income developing countries.

The approach chosen for the preparation of this report is to first discuss the role of marketing in the development of a fruit and vegetable industry in developing countries. This section of the report presents the: (1) optimal required conditions which must exist if a higher level of development is to be achieved; (2) reasons for ensuring that the effective and efficient performance of the functions of marketing is critical for supporting a development program; (3) potential contributions that an effective marketing system can make to the development process; and (4) conditions which must be ensured if an effective and efficient marketing system is to be developed to support the development process. In short, this section of the report sets the stage for an analysis of fruit and vegetable systems in low-income developing countries relating to the achievement of desired end results to enhance the overall development process.

The second section of this report presents a discussion of the evolutionary process of fruit and vegetable systems in low-income developing countries. The discussion in this section is presented in two parts: (1) a discussion of the factors, forces or events that cause the need for change in marketing systems for fruits and vegetables; and (2) a delineation of the type of changes which take place and the problems which typically occur as the various factors and/or forces interact and dictate the need for change in fruit and vegetable marketing systems.

The third section of this report reviews recent experiences and the current situation in the organization and performance of the fruit and vegetable marketing system in Sri Lanka and Jamaica. Comparisons will be made of the development of the two marketing systems including identification of the advantages and disadvantages associated with the various marketing innovations initiated in each country.

The final section of this report presents the conclusions relating to: (1) the critical factors affecting improved performance of fruit and vegetable marketing systems in developing countries; (2) recommendations for priority market interventions required in the development of efficient and effective marketing systems; and (3) areas of research and technical assistance that should be initiated that will lead to the provision of more effective assistance in the future development and evolution of fruit and vegetable marketing systems in developing countries. Finally, comments and recommendations are presented on the "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food Systems Research in Developing Countries."

CHAPTER II

THE ROLE OF MARKETING IN AGRICULTURAL DEVELOPMENT

Optimal Conditions for Agricultural Development

Agricultural development projects in developing countries have been traditionally designed to achieve the goal of increased production, hopefully achieved at decreased per unit costs. The results expected from the achievement of this goal included increased availability of food, hopefully at less cost to consumers, increased farm incomes and generally increased economic activity in the country. Unfortunately, little attention has been given to determination of which commodities should be produced in terms of consumer needs and desires (attention is placed on which commodities are best suited to soil types, rainfall, growing conditions, etc.) and to how products are to be provided to consumers at the time, at the place, in the form and at a price the consumer is willing and/or able to pay. Neglect of consideration of these factors has adversely affected many agricultural development projects.

In order to achieve any desired level of agricultural development related to fruits and vegetables, three conditions must exist:

1. The fruits and vegetables produced must be marketable, i.e., acceptable to and desired by end consumers and supplied to consumers at a price they are willing to pay.

2. The fruits and vegetables produced must be marketable at a price which exceeds the cost of production over the long run.

3. There must be an infrastructure in place to move fruits and vegetables efficiently and effectively from the place of production to consumers in such a way that they reach them at the time, at the place, and in the form desired.

It is obvious when one accepts the above three conditions that the marketing of and the market for the production of fruits and vegetables become the critical elements of successful agricultural development.

In many third world countries, marketing of fruits and vegetables has generally been considered to be the function of disposing of surplus production. The typical agricultural development process initiated increased production and then expected a market to exist for this production; if it did not, the marketing system was regarded as a constraint to the development process. This traditional view of marketing is classified as the <u>production oriented approach to marketing.</u> This approach is not appropriate if proposed agricultural development programs in third world countries are to have any chance of success. What is needed, and in fact is critical to the success of agricultural development programs, is a <u>market-oriented approach to production.</u>

The market oriented approach to production simply means that production capabilities, resources and facilities must be organized and planned to produce what the end consumer desires. This requires a response from agricultural producers to what consumers demand--rather than an attitude of merely attempting to sell what they produce.

The Marketing System

Consumers, whether they are domestic or international, purchase products that give them satisfaction. The specific product purchased depends upon the satisfaction derived relative to competing uses for his/her limited income. Thus, it is imperative that the production/marketing system for fruits and vegetables supply a product which provides satisfaction at a price the consumer is willing to pay to receive this satisfaction.

To accomplish this task, the production/marketing system must provide a product which satisfies three types of satisfaction, or as economists call it--utility.

1. Place Utility which moves the product from where is is produced to where the consumer wants it. This involves various marketing functions including assembly or collection of fruits and vegetables from farms, transporting to wholesalers and distributing to consumers.

2. Time Utility which provides the product at the time the consumer wants it. This involves various marketing functions including storage, warehousing and the processing of fruits and vegetables into a form that preserves the product until demanded at a later time.

3. Form Utility which changes the form of a product to make it more useful to the consumer, i.e., wheat into flour. This involves the marketing functions of processing and standardization.

There are a number of additional functions that facilitiate the effective operation of the fruit and vegetable marketing system including buying, selling, financing, risk bearing, market intelligence and market research. A marketing system that effectively and efficiently performs all of the marketing functions is a system that will enhance the probability of success of any agricultural development initiative.

Contributions of the Marketing System

An effective and efficient fruit and vegetable marketing system is one that can contribute to overall agricultural development in a number of ways:

1. It can reduce transaction and exchange costs between producers and consumers, thus reducing the cost of fruits and vegetables to consumers and/or increasing the incomes of the producers.

2. It can reduce risks by providing adequate market information flows among the various participants of the system, thus making all participants more knowledgeable of supply and demand conditions, product movements, prices, etc.

3. It can provide the organizational framework necessary to coordinate production and consumption, thereby reducing the likelihood of periodic gluts and shortages by rationing the supply of fruits and vegetables to consumers in response to their expressed needs and desires.

4. It can make available to consumers new products and/or improved products

that can enhance the nutritional status of their diets.

5. It can provide ways and means to bring subsistence farmers into the exchange economy by providing mechanisms for collective action and/or introduce technology adaptable to marketing on a small scale.

6. It can reduce consumer costs and/or make additional quantities of fruits and vegetables available to consumers by initiating institutions, facilities, and technology designed to reduce postharvest losses in the marketing channels.

7. It can, as development occurs and the marketing system expands, provide opportunities for increased employment and income within the rural and urban sectors of the economy.

8. It can, through appropriately designed research efforts, provide participants in the system and policy makers with the necessary information to facilitate needed adjustments on a timely basis in order to prevent problems that might disrupt the orderly flow of fruits and vegetables from producer to consumer.

Conditions Required for Effective Marketing

In order to facilitate the above potential contributions, an efficient and effective fruit and vegetable marketing system must consist of: (1) effective support services; (2) an adequate and efficient market infrastructure; and (3) an adequate and effective policy framework for the regulation and incentive programs required by the system.

Support Services.

Support services include various institutions, activities and programs conducted by the public and/or private sector that are designed to create a climate conducive to efficient and effective operation of a marketing system for the production of fruits and vegetables. The specific support services included in the discussions of this report are; research, extension, market intelligence and information, market regulation, and financing. A brief discussion of the role of each of these support services is presented below:

Research. Adequate marketing and adaptive production research is a necessary condition, and in fact, a critical prerequisite to an effective and efficient fruit and vegetable marketing system. Research generates knowledge, and knowledge is imperative to the decision making process. Decisions, based on a sound foundation of research, become rationally oriented decisions based upon more complete knowledge regarding the potential impact from alternative courses of action. Without research, decisions tend to be based on intuition and very little evidence of possible outcomes.

Various types of marketing research are required depending upon the potential user of the research, i.e., policy-makers, farmers, and market intermediaries.

Policy makers need research to support the development of sound marketing policies, adequate support services and efficient fruit and vegetable marketing programs. Research must include short and long range projections of

potential social, economic and perhaps environmental impacts from alternative marketing and production policy initiatives on price levels, potential supply and demand responses, profit levels at various levels of the production and marketing system, employment levels, etc.

Farmers need marketing research to assist in decisions regarding what to produce, how to produce, when to produce, and how, when and where to market their production of fruits and vegetables. The types of research required include cost of production, potential demand for alternative crops, potential supply available, estimated price projections, types of markets available including costs and returns that can be expected from each market, and available alternative methods of marketing fruits and vegetables and their cost.

Market Intermediaries need market research to guide their decisions regarding buying, selling, transporting, storing, and packaging the fruits and vegetables that they handle. The types of research required include costs of various marketing functions and the benefits derived from performing them, quality and quantity demands of consumers including any seasonality of demands, supply potential and locations of supply and analysis of existing and alternative technologies available for use in the marketing of fruits and vegetables.

In addition to research designed to evaluate the structure, performance and conduct of the fruit and vegetable marketing system, postharvest loss reduction research is a critical element to the efficient and effective marketing of fruits and vegetables. The nature of fruits and vegetables (perishability) subjects them to potential loss during harvest and throughout the marketing process. Further, conditions of transport, availability of packaging materials, adequacy of storage facilties, and limited knowledge of product handling technology in many developing countries further subject fruits and vegetables to potential loss. Research is essential to limit these losses which, in turn, will reduce costs of marketing and increase the quantity and/or quality of fruits and vegetables to consumers.

Finally, production research (e.g., plant breeding, variety development, etc.) must be market oriented. That is, varieties must be developed with characteristics desired by the consumer. Although this is required for fruits and vegetables entering any market, it is particularly critical for entering the export market because consumer tastes and preferences many times are very different in a foreign market from the domestic market.

Extension. Extension, by definition, is the activity which extends (disseminates) research results to potential users. In addition, extension is an educational activity designed to inform potential research users of the how, why, when and where of research application to enhance their operation. Further, extension has the responsibility of relaying the research needs of their clientele to researchers and to assist clientele in solving existing or potential operational or functional problems relating to the utilization of this research.

Traditionally, extension personnel and programs have been primarily production oriented, i.e., personnel are trained in production oriented areas, and programs are designed to provide assistance to farmers for increasing

production and perhaps to increase the efficiency of production. This is especially true in developing countries in their attempt to increase food availability to their people. As countries progress in development, the marketing of fruits and vegetables, and particularly the need to match production to consumer demands, becomes a critical ingredient to further development. The problem at this point becomes one of either reorienting existing extension activities to marketing programs or initiating a new component of the extension organization, i.e., marketing extension.

Effective marketing extension programs must include the provision of information to the various participants in the fruit and vegetable marketing system (farmers, market intermediaries and consumers) in the following areas:

1. Marketing principles, functions, institutions and structure including application, use, costs, benefits, efficiency, effectiveness and alternatives;

2. Marketing methods, channels, pricing, outlook and other technical information that will assist participants in the marketing system to implement most effectively the exchange and distribution of fruits and vegetables from the farm to the ultimate consumer; and

3. Availability and use of harvesting and postharvest technology including grades and standards to ensure consumers receive the quality products they desire and to minimize postharvest losses during the marketing process.

Market Intelligence and Information. Market intelligence and information plays an important role in improving the efficiency of the market by informing all producers, market intermediaries and consumers of the situation regarding price and supply. The economic concept of an efficient market is one in which buyer and seller have perfect knowledge of the conditions attached to each transaction. In underdeveloped societies - whose transactions take place directly between producer and consumer within the same geographic area - something approaching this condition can be achieved. As society evolves into one where producer and end user are far apart and linked through a complex system of primary buyers, transporters, wholesalers and retailers, and where the producer can choose to use various channels to satisfy the ultimate consumer, information systems must be provided so that no single operator can take advantage of the other.

In parallel with the market operators' need for information is that of policy makers who attempt to allocate national resources to the maximum benefit of the citizens, and that of administrators who execute the policy.

The market intelligence system to satisfy all these needs has to be designed to satisfy the needs of the users in terms of relevance and timeliness. For the producer, consumer and the intermediate wholesalers and retailers, immediacy is vital. For the policy makers and administrators speed is less important than accurate data and sound analysis and interpretation which highlight the implications of the changes in market conditions.

Market Regulation. In support of marketing efficiency is the need for a degree of regulation so that the buyers understand what they are buying, not only in terms of the commodity, but also its weight and quality.

The standardization of weights and measures and the verification of weighing equipment is standard practice in many countries. A system of grades and standards for fruits and vegetables is often much less well developed for products which are principally supplied to the domestic market. The need for accurate grade standards which ensure that the buyer can bid with confidence on description, becomes important as distances between seller and buyer increase domestically, or internationally if an export trade develops. The most important purposes served by grades and standards may be summed up as:

a) providing a common language between producers, buyers and consumers.

b) providing precise standards which are indispensable in settling disputes between buyer and seller.

c) standardized grades form the basis for market surveys and prices utilized and published by market news services and for meaningful price analysis.

Financing. Although credit schemes aimed at increasing production of fruits and vegetables are a common phenomena of agricultural development programs, finance aimed at marketing is less common and in many cases, nonexistent. As a fruit and vegetable marketing system develops, financing may be needed during the performance of any of the marketing functions, e.g., grading, packaging, transport, storage, processing, etc. Financing may be needed by a private trader, or it may be needed to assist a group of farmers to form an association to undertake one or more of the marketing functions.

Infrastructure.

Infrastructure refers to the physical attributes of a marketing system that influence the flow and interrelationships within the system. It includes transportation facilities and marketing institutions and premises that influence the performance of all marketing functions. Changes in infrastructure can often significantly improve marketing performance if properly planned and implemented.

Institutions. The marketing channels for fruits and vegetables in most countries are usually very complex in offering a variety of routes for producers to supply the end-user. When a society grows from a degree of specialization of function within one community where the producer and the consumer were in direct contact, to one where a large number of dispersed producers are supplying the needs of a large number of consumers at some distance away, a marketing system must be developed. In some cases the consumers are in large conurbations and in others are almost as dispersed as the producers but unable to produce the commodities themselves. Thus, they require the assembly of produce from the production area and the redistribution to consumption points. This requires the assistance of traders at various levels, which include farm-level collectors who save the farmer the task of transporting produce to market himself, wholesalers who assemble quantitites large enough to satisfy large urban populations and redistribute these to the retail trade.

The trading community fulfilling the tasks of transfer, assembly and redistribution also relieves the farmer to some degree by assuming the functions of grading, storage, risk bearing, seeking a market and financing of

the marketing operation. Thus, the farmer is free to concentrate on the techniques of production. The trade also acts as the primary channel for communicating customers wishes to the farmer.

Physical Infrastructure. Clearly, for the marketing system to operate efficiently, the physical facilities have to be appropriate to the commodities, the climate, the distances involved, the farm types, and marketing methods.

Marketing Premises should provide buyers and sellers at all levels of the fruit and vegetable marketing system, beyond the farm-gate, an adequate area for the display and selection of goods, and a storage/grading area in which goods can be prepared. The premises should be hygienic with adequate water supplies, washing and toilet facilities, garbage removal arrangements and pest control measures. The site should allow free traffic flow both for incoming goods as well as onward distribution of goods. Particularly important is the need to provide only those services considered to be essential and to design these facilities at minimum cost. Otherwise, charges for the use of these facilities may be greater than the benefits perceived by the users and the facilities will be underutilized.

Transport is a critical function in the marketing of fruits and vegetables. Refrigerated transport often is advocated, but is frequently too expensive to be justified. The high capital outlay and maintenance costs and the fact that the type of goods available for back-haul do not always require refrigeration will tend to raise costs beyond justification by benefits received.

Road construction and maintenance, while beyond the control of the operators in the marketing system, can play a considerable role in the cost to society of the products which are transported over them. This is particularly so for perishable fruits and vegetables, which can be damaged in-transit over rough roads, or can experience quality deterioration during transit over long distances. Further, vehicles traveling rough roads can receive considerable costly wear and tear which will increase the transportation costs.

Exports depend upon good sea and air facilties. Sea transport is normally confined to lower value, less perishable items (potatoes, yams) or large scale export of fruits or vegetables held in refrigerated or controlled atmosphere conditions. This type of trade has developed world wide and port facilities are available in developed countries for containerized handling, customs clearance, etc. However, developing countries may or may not have containerized handling facilities.

Air freight is used for lower volume, high value, highly perishable fruits and vegetables. Many countries have fruits and vegetables which require rapid transit but lack suitable holding areas and handling facilities at the airport. Investment in these facilties must preceed any serious exporting program, otherwise a vital link is missing.

Marketing Policy.

Policy may be defined as direct government actions which provide guidelines toward the achievement of predetermined national goals. National goals

related to agriculture usually include raising farm incomes and rural family standards of living and protecting consumers against high food costs. In connection with these aims, other goals may be established which directly affect the direction agriculture might take. These goals might include: increase foreign exchange (which will direct agriculture toward the production of exportable crops); or, import substitution designed to conserve foreign exchange (which will direct agriculture toward producing crops that will replace imported crops); or, achievement of self-sufficiency in the production of certain crops (which will direct agriculture toward increased production of these crops, many times in a situation where world prices are well below domestic cost of production).

It is very obvious that, depending upon the national goals established, a wide array of policies may have to be initiated to adequately guide the nation toward achievement of its goals. Invariably, established policies could lead, and generally do, to conflicts and often produce undesired effects elsewhere in the overall economy. This is particularly true when policies are established on an ad hoc basis and implemented with little or no assessment of their impacts on the specific sector involved or elsewhere in the economy. Quite often this situation arises when: (1) a policy is initiated in an emergency situation in an attempt to solve an immediate problem; (2) adequate data are not available to conduct a thorough analysis of potential impacts, particularly the economic, social, and perhaps environmental impacts, and (3) there is a multiplicity of ill-coordinated policy-making bodies. These situations exist in many countries, but perhaps are most evident in developing ones.

Successful policies are those introduced in a coordinated and timely manner after full consideration of the potential impact on the immediate problem and on the other related sectors of the economy, based upon an accurate data base and analysis. Thus, a critical prerequisite to the establishment of "workable" policies is a sound data base for use in the analysis of potential impacts and likely effects. Even if these conditions are met, however, there is no assurance that any given policy will be 100 percent successful. This is particularly so in today's society where international events can have significant effect on domestic actions. Thus, adequate policy measures will be those which are monitored, evaluated and, if the situation warrants, revised periodically.

CHAPTER III

THE EVOLUTIONARY PROCESS OF FRUIT AND VEGETABLE SYSTEMS

The Need for Change

There are numerous reasons of the need for change in fruit and vegetable marketing systems, most of which relate to the achievement of the conditions required for agricultural development in general and for effectiveness and efficiency within the marketing system itself. These conditions were discussed in the previous section of this report. In summary, the primary needs for change in fruit and vegetable marketing systems are:

1. The most important factors affecting future demands for marketing services, (i.e., the need for change) are population growth and location, and the level and distribution of income within the developing country. In most developing countries economic opportunity in rural areas sooner or later become limited and a shift toward urbanization occurs, i.e., rural residents move to urban areas in anticipation of employment opportunities. This is particularly so as arable land is expensive and in short supply. Then, agrarian societies develop and shift toward urbanization. As this shift occurs, the traditional marketing of fruits and vegetables, and the transactions taking place directly between producers and consumers within the same geographic area, changes to where the producer and consumer are far apart necessitating a need for further transport, improved techniques of reducing postharvest losses due to longer transit time, and a need to facilitate producer/consumer transfer of product in an indirect manner.

   Normal population growth in a country, and the fact that urban families are less likely to produce food for their own consumption as they did when they were rural residents, requires the movement of additional quantities of fruits and vegetables through the marketing system. This requires growth adjustments in the marketing system.

   As incomes increase in a developing country residents tend to demand more services related to the food products they consume, for example, cleaner, higher quality, easier to prepare products, They also tend to demand a broader line of products, particularly vegetables and fruit. These demands place additional pressures on the traditional marketing system for changes to accomodate these new demands. On the other hand, income increases in some developing countries have either not occurred or have not reached the point where the demand changes have taken place. Thus, the pressure has not affected the traditional system.

   In come cases, fruit and vegetable marketing systems evolve over time to accomodate the types of conditions which develop from the changes in population growth, location, income levels and distribution. However, this change is usually very slow if left to develop without assistance in some form. And, usually, as the marketing system changes, many inefficiences develop due to the "learn by doing" method of change and political ramifications. Thus, a second need for change arises.

2. As the demand for increased quantities of fruits and vegetables and for

increased services associated with marketing of fruits and vegetables evolves in a developing country, it is soon recognized that logistical systems and institutional arrangements are inadequate to cope with the situation. In many cases producers are not provided with incentives through the pricing system to increase their production and particularly to improve the quality of the products they produce. The road system, transportation links, etc. are found to be inadequate to speedily handle increased quantities of perishables from producers to the distant urban markets. Facilities for handling, grading and packaging are inadequate for assuring that quality fruits and vegetables reach the consumer. Storage and processing facilities are insufficient to permit desired price stabilization, and market information flows are inadequate to prevent gluts and surpluses and the resulting violent price variations. A means for providing for the credit needs of the market intermediaries is usually non-existent to inadequate which greatly restricts the ability of these intermediaries to accomodate change.

Accompaning the inadequacies which evolve in the marketing system is the fact that, in most cases, the ability of the participants in the marketing system to eliminate these aberrations is very limited. Further, because most governmental supported research and extension programs have traditionally been oriented toward production, the expertise is not available to provide technical assistance and training to the participants of the system for the purpose of facilitating improved effectiveness and efficiency of the system.

3. In most developing countries, the government sooner or later enters into programs designed to achieve economic development to facilitate improved standards of living for its population. These programs generally are structured to increase employment and income, increase and/or stabilize the food supply, improve the nutritional status of the population, and increase purchasing power for goods not produced domestically. Most of these programs are designed to increase domestic agricultural production and regulate imports and exports. Unfortunately, changes needed in the marketing system to accomodate the results of increased agricultural production have, generally not been considered in the original design of the development program. In cases where the need for a marketing system, or a change in the existing marketing system has been recognized, it was generally assumed that a clear dichotomy existed between marketing and production and that the marketing system required by the production system could be developed independently. Further, in most cases, it was not fully realized that the design of the marketing system depended upon numerous factors, including historical, political and social factors, the stage of production development, and, in particular, the level of expertise available in the government and/or private sector.

Change and Problems Associated with Change

Change in fruit and vegetable marketing systems, in the absence of some form of intervention, proceeds at a very slow pace. Interventions to speed up the process of change can be initiated by either the private or public sector. However, in most developing countries, incentives, particularly pricing incentives, are insufficient to motivate the private sector to initiate significant changes. Thus, the public sector usually must be called upon to

stimulate the process of change.

Actions of the public sector designed to bring about change in the fruit and vegetable system can be: 1) direct intervention such as the use of marketing boards, buying stations, retail outlets, etc. or 2) indirect interventions such as provision of support services, improving the infrastructure, initiation of various market regulations and marketing policies designed to ensure orderly marketing. Direct intervention by the public sector has in general had little success in bringing about an efficient and effective marketing system. Indirect intervention through such actions as: providing market information; financing capital needs; improving infrastructure; initiating and enforcing grades and standards; providing research and extension programs; providing market development assistance, particularly for export; providing tax incentives; controlling imports and exports; etc. have had varying degrees of success.

The following are given as examples of the types of changes required and the problems that arise with the change.

Provision of Market Information.

As a marketing system evolves a critical element of that system is the provision of market information to the participants of the system. A number of problems surface as market information systems develop:

1. Often the information collected does not adequately reflect quality differences and supply conditions--only price is reported. Prices alone are next to useless without other important data and at the least can greatly mislead the users of this information.

2. Data many times is collected without use of appropriate sampling methodology which results in inaccurate data - inaccurate information can be worse than no information.

3. Many times significant resources are devoted to developing elaborate information collection systems with no provision for disseminating this information to producers and market intermediaries. An informal system is generally set up to disseminate the information among government agencies so that the information can be utilized in policy making but no attempt is made to disseminate to users in the marketing system down to the grass roots level. Under these circumstances, orderly marketing as affected by the participants of the system, is not assisted by the development of a market information system.

4. Generally, there is a lack of understanding of the difference between market information and market intelligence. Market information is the result of the collection of data regarding supply, prices at various levels of the marketing system, quality available, etc., while market intelligence involves the analysis of this data and forming conclusions about what the data means. Many times data is collected and no analysis is made while other times the methods of analysis are more sophisticated than can be justified by the data. In either case, the information presented to the decision makers has limited use. A critical component of a total market intelligence program is to ensure that the decision maker,

first receives useful information, and second has the ability to synthesize the information so that it provides useful input to the decision making process.

5. Often, a distinction is not made between market information for short run decisions (when, where and how to sell) and long run decisions (what to plant). Both types of information are required to facilitate orderly marketing--but in most countries, the primary, and in many cases the only, emphasis is placed on short run decision information, i.e., market movements, prices, etc. This is generally due to the recognition of the high degree of perishability of fruits and vegetables and the need to make timely decisions on marketing. However, the glut and shortage problems can only be prevented with adequate information before the production decisions are made.

Quality Assurance.

Grade standardization is a communication device which becomes useful as a market economy develops. It is important to standardize fruits and vegetables concerning quality, size and unit of weight in order to realize exact transactions between buyers and sellers. The usefulness of standardization depends not only on the degree of commercialization of the market place, but also on the willingness of market participants, from the producer through the consumer, to use it. This willingness cannot be taken for granted--which it has in many countries.

Rejection of grading by market participants may indicate that: 1) development has not proceeded far enough to make standardization useful (an informal grading system usually exists under the most primitive marketing system and generally works fairly well); 2) the usefulness of grades and standards is not understood, i.e., farmers, market intermediaries and consumers must be made aware of the benefits and costs of ensuring quality fruits and vegetables; or 3) some influential market participants feel that standardization is a threat to their market power.

In short, policy markers must have the objectives of the proposed grading programs clearly in mind and they need to understand how various market participants will perceive it as a help or hinderance to their market position.

Postharvest Loss Reduction.

The scope of improving the marketing of fruits and vegetables, especially by reducing postharvest losses, is extremly broad. There are limits, however, to the introduction of new technology by the extension of local know-how, level of organizational development, by the cost of introduction and implementation in relation to scale of enterprise and consumer ability to pay for the use of the technology, and sometimes by considerations of a social nature.

For example, there are many examples of the introduction of advanced, labor-saving technology designed to reduce postharvest losses of fruits and vegetables that are justified in project papers from a macro standpoint, but are simply too expensive for private enterprises to justify in an economic sense. Further, many examples exist where the "top of the line" technology

was implemented where less expensive, relatively simple technology would suffice and would be costed at a level private enterprise could justify. In these cases, the more elaborate technology is implemented as a "show-case" for the government or donor agency but, in fact, usually ends up as a "white elephant."

Fruit and Vegetable Processing.

In many countries, processing of fruits and vegetables is proposed as a method of eliminating seasonal gluts and/or as a means of providing products with export potential. The processing venture has been both successful and unsuccessful. The successful ventures have been a result of the opportunity to provide year round availability of certain highly seasonal fruits and vegetables or to provide a speciality type product for export. However, a major problem in these cases has been the difficulty of obtaining reliable supplies of desired quality of fruits and vegetables at reasonable prices. Farmers attempt to sell on the fresh market (which is usually higher in price) and whats left over is available to the processor. If contractual agreements are attempted to ensure a reliable supply, historical conditions in many countries result in a negative reaction from producers toward contracting, and in other countries a contract really does not mean anything. Further, processors have had difficulties in getting farmers to plant varieties, generally new to the farmer, that are desirable for processing.

In other countries, processing fruits and vegetables has been proposed as a means of reducing loss due to the perishability factor, and of making use of off-size, off-shape, overripe fruit. Further, processing will create employment opportunities for idle farm labor, particularly in the off-production season. Seldom can a processing operation succeed when it must rely on product that is in surplus, or available due to non-acceptability in the fresh market. There are also examples of processing facilities initiated for reasons stated above, but in a country that either has a seasonality of production that provides a product in fresh form almost year-round or where competing products are available through the year. This is particularly true in tropic regions where different fruits are in harvest throughout the year and are substituted in consumer diets.

Collective Marketing.

In most developing countries, the production of fruits and vegetables is widely scattered geographically and nearly all phases of production and distribution is carried on by small scale farms or firms operating with relatively low levels of technology. A frequently proposed solution to the problems resulting from these conditions is to organize a local producer association to improve the assembly market function, stimulate efficient production methods, and provide the means of putting together larger volume shipments of uniform quality and properly packaged fruits and vegetables for movement to the market place.

Varing degrees of success have been experienced with these producer associations. Some have been very successful and some complete failures. The failures have resulted from a number of factors: 1) producers had no knowledge of marketing beyond the farm gate and thus were not prepared to enter the system and provide the functions required to adequately market the

product; 2) producers were unable to reorient their traditional operating procedures such that they would fully participate as a member of the association, particularly in obligating their produce to the association; and 3) the association was at odds with the traditional marketing system in that it had to compete with an established system of traders that were related to producers or were in many cases family members of producers and thus producers would not switch to the association.

Government Policies, Regulations and Incentives.

Government policy formulation is an extremely complex process and must be undertaken with thorough analysis of reliable data taking into consideration all potential impacts if it is to be effective in achieving the goals it was formulated to achieve. Typically, a wide array of policies, regulations, incentives, subsidies, tax levies, etc. are utilized to enhance the development of marketing systems for fruits and vegetables.

There is a strong tendency for conflicts to occur between policies which often produce undesirable effects. Further, the effectiveness of various government actions are limited because: 1) marketing firms may not be aware of how to take advantage of them; and 2) these interventions are many times inappropriately implemented, for example, poor timing, lack of consideration that the specific actions need to be changed due to changing situations; and 3) failure to involve the private sector (the sector impacted by the intervention) in the planning, development and implementation of the action.

In addition, it is not uncommon for a multitude of government agencies to be involved with setting interventions, usually each agency setting these interventions without consultation with any other agency. The result is actions at cross purposes with each other and a high degree of uncertainty in the private sector.

Government policies, regulations, incentives, etc. are many times strongly interrelated in inhibiting efficient marketing systems for fruits and vegetables in developing countries (much evidence indicates that this is true in developed countries as well). Government policies spawn interventions that are many times disincentives to participants of the marketing system. Examples include export taxes, government import/export monopolies on key commodities, government marketing boards competing with the private sector, and regulations that tend to discourage investment and expansion of the marketing system by the private sector.

Examples of policies that stifle the development of marketing systems include:

1. Grenada placed an 18 percent export tax on nutmeg and cocoa, the major foreign exchange earners for the country. The tax tended to price Grenada out of the international nutmeg market and returned minimal returns to growers. Because of this disincentive, growers refused sometimes to harvest their crops and did not properly maintain the trees which in turn reduced yields. A repeal of the tax by the government was a strong incentive for producers to harvest their crop and properly maintain them for maximum yields.

2. In the Caribbean, marketing boards have been a prominent part of the

marketing system in a number of countries. Many of these boards have become involved in regulating exports or imports of key commodities. Some have even set up retail outlets for the sale of locally produced fruits and vegetables which are purchased at their buying stations. These marketing boards are set up to purportedly offer key food items to consumers at fair prices and to purchase farm production at fair prices to producers. What in fact happens is that marketing boards are strong disincentives for local people to become involved in the marketing system. These boards may buy at exhorbitant prices (to appease producers) and sell at lower than cost (to appease the buyers). Although politically, there may be advantages in such interventions, economically, it reduces competition and provides strong disincentives to become involved in the system by local entrepreneurs.

3. The Philippine government developed a slightly different version of marketing boards, but experienced the same results as experienced in the Caribbean, i.e., providing disincentives to participation and investment by the private sector in the marketing system for fruits and vegetables. Through the National Food Authority Food Terminal, the government, through enacted policies, set up a plan to compete with the private sector in importing, exporting, processing and retailing of food products. The government monopolized imports and exports of key products to and from the Philippines in order to partially support other inefficient competive components with the private sector.

   The result was increasing antagonism between the government and the private sector instead of encouragement and incentives that should have been directed by the government to the private sector. The total cost of the exercise was not known because of government manipulation of cost figures but considering the economic disarray in the Philippines, it must have been high.

To facilitate the adoption of new and improved marketing methods, participants of the marketing system must be made aware of both private and social gains that can result from this adoption. In addition to public actions to facilitate improved market relations, reduce risk and stimulate innovations, actions may be needed to assist the private sector to adopt technology which results primarily in social gains. These actions take the form of various incentives which although initiated with good intentions, sometimes act as disincentives:

1. Every developing country has from time to time enacted various regulations designed to promote more orderly marketing, while other regulations may have been enacted for political reasons rather than economic reasons. For example, some regulations are used by corrupt forces to extract money from the private sector while others were instigated many years ago and have outlived their usefulness. Regulation on exports of various commodities might have been a necessary tool to alleviate temporary food shortages, but, in many instances, these regulations tend to remain in force resulting in disincentives to traders in completing trade transactions. Perhaps one of the most promising incentives to the private sector would be to review regulations in force and eliminate the unnecessary regulations to free up the private sector to carry on its marketing functions in a competitive situation.

2. Subsidies are many times provided by governments to encourage the production of crops singled out by the government as critical to either achievement of self-sufficiency (this is usually for basic food crops, particularly cereals) or for export to generate foreign exchange or for import substitution to conserve foreign exchange. Many times, the economics of these crops would dictate a reduction of production of the subsidized crops--this is particularly so where traditional crops are subsidized because they have been grown for years and producers have grown to rely on these crops, but they are no longer profitable enterprises. The subsidization of these crops has tended to reduce funds available for other needed areas of agricultural production and marketing and has tended to keep land out of production of crops, particularly fruits and vegetables, that have a comparative advantage for producers. Governments typically donot evaluate the subsidy system with a view toward answering the question of would the country be better off to import a specific commodity rather than subsidize its domestic production.

3. Perhaps the most promising action that governments of developing countries can initiate would be the inclusion of the private sector in the planning, development and initiation of food policies. For one reason or another, the private sector is normally left out of the economic planning process, particularly the process involving agricultural production and marketing. This occurs in spite of the fact that the private sector produces, harvests, transports, stores, processes and sells the majority of the agricultural commodities in most developing countries.

It is essential at this point, to relate an additional constraint to most government interventions designed to improve fruit and vegetable marketing systems. World wide, the local market place in remote areas is the core of the community and the surrounding region and is a reflection of local economic behavior and linkage. The patterns of social obligations and rights and patterns of behavior linking the agricultural producer/seller with the transporter/trader must be understood if market interventions are to be given any chance of success.

Further, the stable food psychology is pervasive among subsistence farmers, and farmers are unlikely to take the risk of switching much of their land to a new crop without first providing for the stable foods for the family. Farmers are aware of the vagueness in policy of government and past experience counsels caution. Changing institutions to meet developing needs in an agricultural society will occur successfully when an integrated approach to the rural population and their problems is formulated and implemented at the rural level. Development involves people, their modes of behavior and newly emerging senses of identity. These factors must be thoroughly considered in the pre-project situation analysis process. In many cases they are not considered, or if they are, they are ignored in the project design. This has resulted in limited success and in some cases failure of the development project.

CHAPTER IV

APPROACHES TO REDUCING PROBLEMS ARISING FROM CHANGING MARKET SYSTEMS

This section of the report gives a brief overview of the characteristics, organization, performance and problems of the fruit and vegetable production/marketing systems of two countries--Jamaica and Sri Lanka. It also presents the various marketing interventions and the reasons for success or failure of these interventions, that have and are being attempted to create more efficient marketing of fruits and vegetables.

JAMAICA

Small Farmer Production.

Over 80 percent of farm units in Jamaica fall into the under 5 acre size classification (about one-third under 1 acre and 50 percent in the 1-4.9 acre size group). These small farmers produce most of the nation's domestic food crops including fruits and vegetables. They also produce a significant portion of Jamaica's export crops--it is estimated that small farmers produce about one-third of all export production including coffee, cocoa, pimento, ginger, bananas and citrus.

Small farmers are found scattered all over the island, but tend to be concentrated in the hilly regions. They tend to practice mixed cropping along with a wide variety of crops under different conditions of culture and methods. The small farmer does his farming using marginal hillside lands for the most part, using simple hand tools, and has little or no assistance in advanced agricultural technology.

The average small farmer in Jamaica has a shortage of working capital. He has only limited exposure to and makes little use of marketing information in deciding which crops to plant. He applies low rates of fertilizer application, generally does not apply chemical weed and insect controls and has difficulty obtaining labor to assist in farming operations, particularly at harvest. In a majority of cases, small farmers must independently finance seeds, fertilizers, pesticides, hand tools, labor and their subsistence between crops because credit programs, as in most developing countries, have not successfully been implemented down to the small farmer level. Many small farmers cultivate several plots which are some distance apart, making it difficult to transport inputs and to sell and transport the fruits and vegetables produced.

The above characteristics of small farmers in Jamaica are generally typical of small farmers in most developing countries. There are, however, some characteristics which typify small farmers in Jamaica that are generally different from most other developing countries. A large portion of small farmers in Jamaica can be considered commercially oriented farmers from the standpoint that they plan to produce, on a small scale, products for commercial sale. That is, they are not subsistence farmers who sell commercially that which they do not consume. However, the Jamaican farmer is characterized as cautious about abandoning traditional agrticultural practices when he has been and may again be confronted with poor weather conditions, erratic prices and insufficient credit and inputs.

incomes of Jamaican small farmers are relatively high, averaging around U.S. $1,000, compared to incomes of small farmers in most developing countries. This situation creates a different small farmer environment--economic, social, cultural and psychological--which is not present in traditional developing countries. The small farmer is very alert to the political situation around him and is highly aware of the government's concern for small farmers and is not adverse to expressing concerns and dissatisfaction with government programs.

In summary, the small farmer production situation in Jamaica gives rise to certain constraints to increased production and income. The major constraints are:

1. Small and scattered land holdings resulting in inefficient management of the production of fruits and vegetables.

2. Most fruit and vegetable production occurs on hillsides resulting in land erosion which limits the productivity of the land.

3. Because of scattered locations and locations of sizable distance from the major road network, transporting of production inputs to the plot and of produce from the plot to market is difficult, time consuming and results in high postharvest losses.

4. Limited availability of affordable labor, particularly for harvest.

5. Shortage of working and investment capital which limits ability to optimally utilize production inputs and adoption of new technology.

6. Limited and costly production inputs such as fertilizer, seeds, pesticides, and tools, etc.

7. Limited access to market information to guide decisions regarding what to plant and when to market.

8. Volatile prices for produce resulting from substantial seasonal gluts and shortages due to, primarily, a lack of planned production and to a lesser degree for fruits and vegetables, a lack of adequate farm storage.

Small Farmer Marketing.

The agricultural marketing of products produced by the small farm sector in Jamaica is separated into two well-defined areas. One is oriented towards export crops such as coffee, cocoa, pimento, citrus and bananas. This sector is reasonably organized, and is managed by Commodity Boards in all aspects. The other is primarily domestic food-oriented, operated mainly in the private sector with support from the Ministry of Agriculture.

Marketing to most small farmers in Jamaica encompasses only exchange of ownership at the farm gate. Farmers plant those crops that brought the highest price at their last harvest. They harvest only those small quantities of produce that can be readily carried away by individual traders, commonly called "higglers." These are either farm wives who market the produce of the family farm and purchase directly from other small farmers in small lots, or

other women who act as small retailers, wholesalers and transporters. The estimated 20,000 higglers in Jamaica are the backbone of the small farmer marketing system. It is estimated that they are responsible for the distribution of about 80 percent of the domestic fruit and vegetable production. Family ties, offering of credit to finance the production process and provision of household supplies on the return trip (backhaul) and part time employment are critical elements that point to the continuation of the higgler marketing system in Jamaica.

Farm gate price is established between the farmer and the higgler. Usually a price is offered by the higgler and then either accepted by the farmer and the sale occurs, or rejected by the farmer and no sale is made. In many cases, the no-sale results in the product being left unharvested and thus never enters distribution channels. Often the higgler harvests the fruits or vegetables as part of the exchange function. This allows the higgler to select the produce she wants (grading) and also relieves the farmer from involvement in, or hiring labor, to harvest the crops. The quantity purchased by the higgler is limited to the amount of product she can carry out of the hills either on her head or in some cases with the use of a donkey. Produce is transported to the roadside to be placed on public transport for movement to the single terminal wholesale market in Kingston, only, in many cases, to be trans-shipped back across the island to be distributed to customers located there. This results in inefficient distribution and relatively high postharvest losses from additional handlings and transport.

Although accounting for a relatively small portion of the total amount of fruits and vegetables marketed in Jamaica, an additional type of market intermediary has evolved in recent years. This market intermediary is called a "super higgler" who is in fact a professional full-time wholesaler. The super higgler owns one or more trucks, purchases directly at the farm gate, at parish or district markets or at the wholesale market in Kingston. They sometimes retail these products at curbside, but more generally sell to hotels, restaurants, green grocers and institutions on a contract or job lot basis. These super higglers, as well as exporters themselves, secure produce for the export market. However, the export of fruits and vegetables, except for citrus and bananas (which are handled by Commodity Boards) as well as mangoes and yams, is minimal.

It should be mentioned here that in 1963 the Agricultural Marketing Corporation (AMC) was established by the Government of Jamaica to bring order and efficiency to the marketing system. The AMC acted as a market intermediary undertaking both retail and wholesale functions. Products were purchased from farmers through over 200 buying stations and assembled, stored, graded and packaged at eight regional branches. Central warehousing and wholesaling operations were headquartered in Kingston. AMC's major function was that of price stabilization, buying farm products at guaranteed buying prices. It also had objectives of restraining consumer prices which it attempted through the operation of AMC green groceries, basic retail shops and mobile routes.

AMC was not successful and was totally discontinued in 1983. It was not able to compete with or undermine the traditional higgler system. It probably never handled more than 5 percent of the agricultural products and generally these were the products left behind by the higglers. All types of problems

plagued AMC including insufficient operating capital, excessive waste, pilferage, poor management, poor sites, conflicting objectives, etc. In the recent years before 1983, annual losses amounted to millions of dollars.

In summary, the small farm marketing situation in Jamaica can be described, in terms of constraints as:

1. Small volume marketing as higglers are limited to the quantity they can handle.

2. Consumer demands are only partially reflected back to the farm level.

3. Grading is informal as official graders are not in use (some grades have been developed but are for voluntary use and have not been accepted by the traders.)

4. Postharvest losses are high.

5. Transport is difficult between farms and markets thus restricting access to markets, increasing costs and increasing postharvest losses.

6. Public markets are inadequate and inconvenient since most are old, lack space, are unsanitary and lack storage space.

7. Only one wholesale market limits trading and facilitates considerable trans-shipment of produce and hence, increases cost.

Government Policy.

The government of Jamaica has set out basic policies for the development of the small farm sector with the following objectives:

1. The small farm sector should provide as much food and raw material as is feasible to meet the needs for an adequate food and nutritional level of the population, agri-industrial needs and the requirements for export.

2. The production of the small farm sector should be so structured as to reduce reliance on imports, with the objective of self-sufficiency where the small farm can produce best.

3. All agricultural lands will be protected from misuse and speculation so that lands are used to their fullest potential, resulting in optimum economic and social benefit.

4. The creation of employment opportunities in rural areas will be given high priority to arrest the rural to urban population movement.

In relation to the marketing of agricultural products, the Government of Jamaica in its National Agricultural and Food Marketing Policy and Strategy sets forth the objective:

"To foster the development of an agricultrual and food marketing system in Jamaica capable of efficiently distributing required factor inputs to producers, capable of stimulating an expansion of production of the type,

121

volume and quality of commodities demanded, and capable of distributing the products of agriculture from the producers to the final consumers in a manner that will achieve the greatest economic and social benefit."

Market Intervention.

The major market intervention attempted by the Government of Jamaica is comprised of a number of components. As a stated policy, these components were to be initiated in such a manner that the existing marketing system (the higgler system) was not to be replaced. Unfortunately, the existing system and the reasons for the existence of the system were not understood and evenutally it was recognized that many of the interventions actually would, in fact, replace the existing system.

The basic strategy of the market intervention recognized the need for:

1. An institution to be a catalyst to bring about change and assist in upgrading the marketing system,

2. Adequate facilities to permit the assembly, concentration and distribution of fruits and vegetables,

3. Producer organizations to give farmers a vehicle for performing more of the marketing functions, and

4. Upgrading of the Kingston wholesale/retail distribution network.

Four market interventions were specifically designed as part of a major Agricultural Marketing Development Project initiated by the Government of Jamaica and USAID.

1. The establishment of a Marketing and Credit Division within the Ministry of Agriculture to undertake marketing development, marketing extension, marketing research, market news and information and quality assurance activities. This Division was established and personnel trained to carry out the various functions of the Division. Although not totally effective, due primarily to low government salaries, lack of operating capital and low levels of motivation, the existence of the Division has brought marketing into the decision-making process of the Government. It has initiated a relatively good market news collection function and is improving the dissemination process. The marketing extension program has been effective in bringing buyers and sellers together and in providing a minimal level of marketing education to producers. The marketing research group concentrated efforts on conducting feasibility studies for assembly and grading stations but little else. Market development work was never initiated. Grades were developed for most fruits and vegetables but since quality grading for domestic production was voluntary and since there appeared to be a relatively well established informal grading system, these grades were never enacted.

2. The construction of 25 assembly and grading stations located throughout the country in major fruit and vegetable production areas. The stations were to be fully equipped and were to be operated by producer groups organized into Producer Marketing Associations (PMA's). A number of

problems soon surfaced including:

a. Producers did not understand this type of marketing nor how their ownership of an Assembly and Grading station would improve their situation.

b. The level of technology proposed for the stations was of "cadillac" quality when "model T" was all that was required and because of this the stations would never payoff.

c. Not all producer groups wanted an assembly and grading station since in their minds these would directly compete with the higgler system which employed many of their wives.

Eventually, the number of proposed assembly and grading stations were reduced by more than one-half due to lack of interest and lack of government funds for construction.[1]

3. The construction of four subterminal wholesale distribution markets located throughout the island in order to facilitate more orderly marketing and greatly reduce trans-shipment of fruits and vegetables. Eventual investigation of potential volume flows revealed that only one of these subterminals might be feasible.

SRI LANKA

A number of circumstances have developed in Sri Lanka over the recent past that have affected the marketing system for fruits and vegetables. Among the more important of these circumstances are:

1. Government policies since 1977 have, to a large extent, removed trade restrictions and allowed the private sector an opportunity to play an increased role in marketing agricultural products both domestically and internationally. Economic policies of the Sri Lankan Government since 1977 have been characterized by a series of initiatives designed to liberalize international trade policies providing greater freedom to import and export many agricultural commodities. Beginning in 1977, state sector trade monopolies for the import and export of most food products were eliminated and the licensing of foreign trade was confined to a minimum. Internal policies have been directed towards the encouragement of investment by the private sector in many areas of economic activity.

1 It should be pointed out that the economic climate in Jamaica changed considerably following the initiation of this project. Of particular importance was the almost complete loss of the Bauxite industry which provided the major source of export earnings. Thus, financial obligations of the Government of Jamaica to this marketing project could not be met and consequently progress of the project was slowed almost to a standstill. This might have been a blessing in disguise which saved the government considerable sums of money.

This has been especially so for agricultural development and in the increased production of agricultural crops, particularly rice.

2. The importance of agriculture, the heavy investments in the preceding decade and declining government revenues from exports from this sector prompted the government in 1984, to define a National Agriculture, Food and Nutrition Strategy (NAFNS). The objectives enunciated by the government were:

   a) Achievement of self-sufficiency in basic foods - rice, milk, sugar, fish and pulses.

   b) Expansion of export capacity to increase the contribution of agriculture to the balance of payments.

   c) Enhancement of incomes and creation of new employment opportunities in the rural sector.

   d) Improvement of the nutritional status of the people.

In general, these circumstances have led government attempts to maximize the production of the basic food items to achieve self-sufficiency. Basically, efforts were made to optimize the production of subsidiary field crops (soyabeans, potatoes, chillies, onions, maize, cowpeas, cassava, green gram, groundnut, finger millet, and sesame) and vegetables that have export or import substitution potential.

Major effort was placed on increasing rice production. Policies were initiated which did not tax rice directly, allowed prices to rise to world market levels, subsidized inputs, and provided substantial research and extension assistance to rice production. In addition, new lands were brought into production through various development schemes, particularly the Mahaweli Project.

The Mahaweli Project has the potential for irrigation of about 250,000 hectares of new land and to bring supplemental irrigation to about 65,000 hectares of existing land. This project has been devoted primarily to paddy production and increasing hydroelectric capacity. Considerable resources have been devoted to this project over the past four or five years (over 50 percent of total public capital expenditure was accounted for by Mahaweli related capital expenditures each year during the 1982-84 period). The result of these expenditures have brought Sri Lanka very near to self-sufficiency in rice. However, a decline in public investment occurred in many areas such that development of other types of agriculture, namely subsidiary food crops (SFC's) and vegetables was severely slowed. In fact, public expenditures were reduced in such areas as rural roads (badly needed to enhance marketing) and operational expenses for research and extension departments (critically needed to improve yields and marketing of SFC's and vegetables).

Now that self-sufficiency is near in the production of rice, and considering that the rice produced in Sri Lanka has no prospect for export, lands being brought into production must be diversified. Vegetables, along with the SFC's, have been identified as crops suitable and desirable for this diversification effort. The problem is that since almost all resources have

been devoted to rice production, little research is available for improving yields of vegetables, and marketing assistance is non-existent. This, then, is the background situation regarding the current situation with regard to the vegetable production/marketing system in Sri Lanka.

Small Farmer Production.

About four million acres are under cultivation in Sri Lanka. About one-half of this average is devoted to estate crops (tea, rubber and coconut), 45 percent to paddy production and the remainder to the production of other crops including fruits and vegetables. Fruits, with the exception of banana, pineapple and passion fruit which are exported, are primarily produced as backyard or home garden ventures with commercial production almost non-existent. Vegetables are currently produced on between 100,000 and 150,000 acres with about 70 percent of this acreage in landholdings of less than one hectare. Consequently, a majority of the fruit and vegetable production occurs on landholdings of a size which limits family income and employment in rural areas.

Production of most vegetables is seasonal, being determined by the bi-modal rainfall. The Maha rainy season runs from November to January when the entire country has rain carried by the North-East mansoon, and by the Yala season from May to September which brings rains to the South-West quarter of the Island. Dependence on rain is being modified by increasing investment in irrigation schemes, particularly the Mahaweli Project, which allows diversification of production and double cropping. This seasonality of production and the irrigation schemes results in almost a year round production potential for vegetables.

However, due to the lack of research and technical advice capabilities that could enhance yields, vegetable production currently is limited. Further, because of low yields, higher returns to alternative crops and the practice of producing paddy as a priority crop for subsistence, vegetable production is sporatic and considered a secondary crop in production schemes of the small farmers.

In addition, the current situation relating to small farmer production of vegetables gives rise to the following constraints to increased production:

1. Small farmers are located across the island, many of which are in relatively isolated areas, considerable distance from improved roads making the securing of inputs and marketing of their vegetables costly and time consuming.

2. Since most vegetable producers have very small acreage and because of isolation, the access to traders is extremely limited. In some cases, traders do not visit the plot and there is therefore, no buyer.

3. The vegetable farmer has few sources of information for improving cultural practices, or methods of handling and harvesting vegetables, or for how to market their produce.

4. The availability of inputs to the production process is very limited. Seed for vegetable crops, when available, is of poor quality.

5. The production credit situation is very poor. Banks advance credit reluctantly and usually only when government policy forces them because default rates are extremely high. Farmers actually prefer private sources of credit (neighbors, friends, family and market traders) because (a) private sources are more convenient, (b) procedures for obtaining bank loans are difficult and time consuming, and (c) there is fear of legal consequences from the bank in the event of crop failure.

6. Prices are volatile as a result of gluts and surpluses, lack of market access, and various government import policies which have frequently had the effect of significantly lowering farm prices. In fact, cost of production budgets for many vegetables indicate a negative return to the farmer.

Small Farmer Marketing.

There are a number of different marketing channels and methods through which a vegetable producer in Sri Lanka can sell his produce. Further, not all farmers, or for that matter, not all market intermediaries, choose to use only one channel or method. The result is a very complex marketing system. Figure 1 is a diagram which attempts to show this complex system.

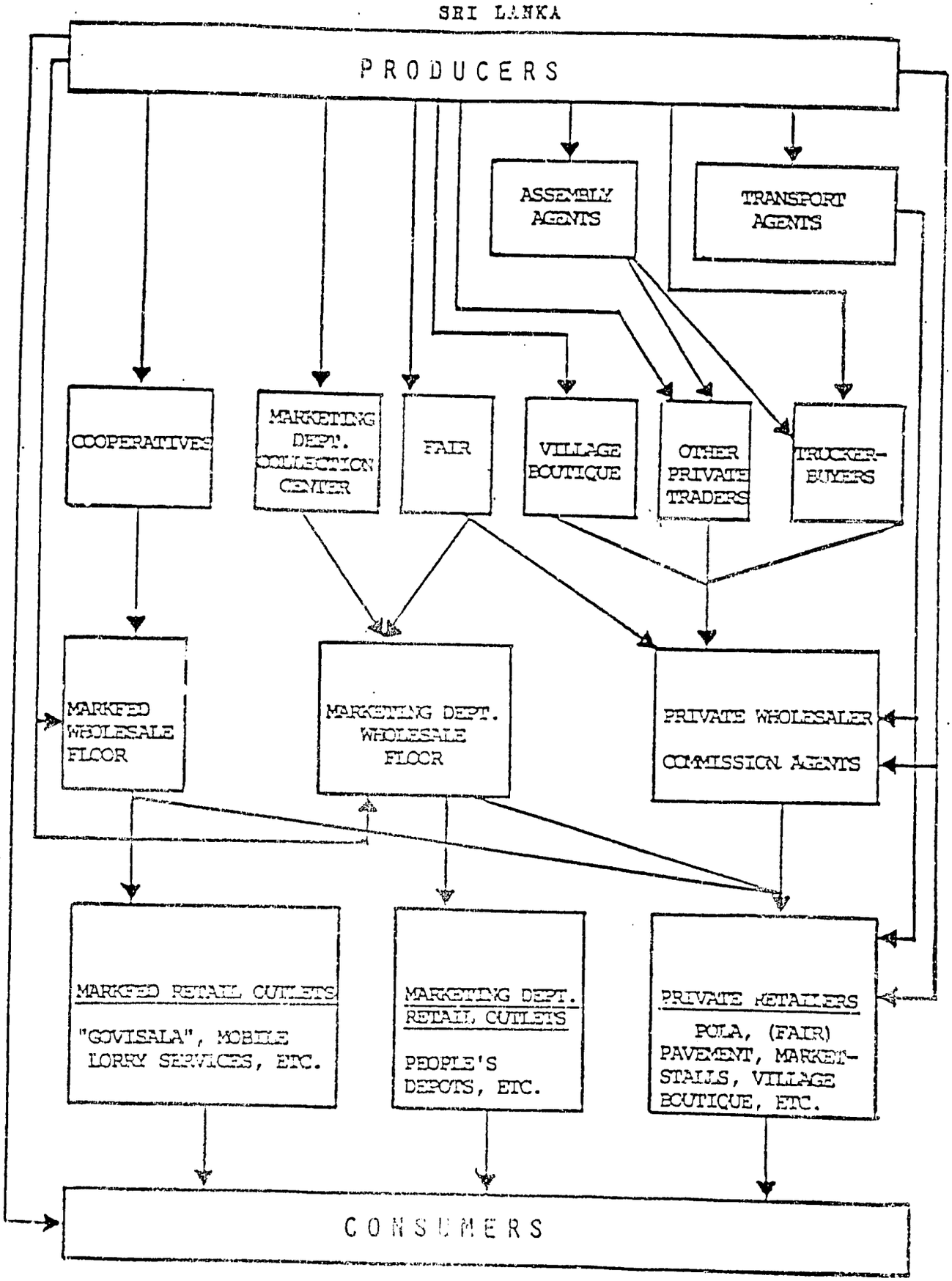
In its simplist form, producers either sell to a trader (assembly agents, trucker buyers, wholesaler), village market, (fair, boutique, market stalls) or to a government agency (Marketing Department, or Markfed). From this point forward, sales may be made to other traders, wholesalers, retailers, consumers, or government agencies. The following is a brief discussion of the various entities involved in the vegetable marketing system.

Traders. Traders may be (1) independent buyers who go to farms to purchase vegetables, or they may purchase from village boutiques or fairs for resale to wholesalers and in some cases retailers; (2) assembly agents or trucker buyers who are essentially under contract with wholesalers located in the central wholesale market in Colombo to purchase vegetables and deliver them to the wholesaler. The agent is told the price to offer and pays the farmer on the return trip; or (3) wholesalers in the local area who purchase from the farmer and sells to retailers at local village markets.

As in most developing countries (but perhaps more so in Sri Lanka) the trader is viewed as an unscrupulous exploiter of both the farmer and the consumer. The complaint that many farmers are visited by only one trader and, therefore the farmer is at the mercy of the trader is not a result of collusion amongst traders, but rather a result of insufficient surpluses at the farm level to attract a queue of traders wishing to deal direct with the farmer. Nevertheless, the importance of the private trader as a useful and essential market participant serving the small farmers produce disposal needs, and in many cases the timely supply of cash and credit for input supplies is not recognized by the Sri Lankan government or donor agencies. Rather, examples are given of traders offering lower prices at the farm gate than offered in the village or at a nearby government agency. Obviously a lower price would be offered since the farmer is willing to accept a lower price and not have to spend the time and expense to transport the product to the market, or take the risk of product damage during transit.

FIGURE 1

FLOW DIAGRAM OF THE VEGETABLE MARKETING SYSTEM
SRI LANKA



Source: Factors Influencing Vegetable Prices: A Study of the Vegetable Economy in Sri Lanka, Research Study No. 35, ARTI, February, 1980.

The result of the negative attitude toward traders is that this very useful and important resource (the trader) has generally been ignored in development planning efforts in Sri Lanka.

Wholesalers. In Sri Lanka, the hub of the marketing system for vegetables is the Pettah market located in Colombo. In addition to housing wholesalers for rice and subsidiary food crops, this central wholesale market houses some 800 commission agents/wholesalers specializing in vegetables plus about 200 who both wholesale and retail. The trading atmosphere at Pettah appears to be very competitive in that all wholesalers have free access to the same end users and the number of wholesalers is large enough to eliminate the formation of cartels.

Most transactions at the wholesale level take place on a commission basis, i.e., vegetables are sent to the market by farmers or local traders who pay transport and handling charges, then the wholesaler sells the product on commission.

In the provincial towns, wholesalers operate to supply their immediate area direct from the production area rather than via the central wholesale market in Colombo. This reduces marketing costs and inter-regional disparities in prices.

Government Agencies. Two separate government agencies are directly involved in the marketing of vegetables.

Markfed (the Sri Lanka Cooperative Marketing Federation Ltd.) buys vegetables through its own collection agent network which consists of almost 300 multipurpose cooperative societies with 1500 branches. Markfed currently buys about 1 percent of the vegetable production and this percentage has been declining over the past few years. It has six retail stores in Colombo and one in Kandy through which it sells the vegetables. The vegetables are very poor quality and ill-presented in these stores. In reality, as a trading entity in vegetables, Markfed's role appears to have little justification.

Marketing Department operates about 200 retail outlets, 17 purchasing centers and 3 wholesale booths. This agency claims to handle about 8-10 percent of the Colombo vegetable trade, but outside Colombo an insignificant amount. It does have contracts to supply institutions such as hospitals. At the present time, the government treasury has stated that it will no longer cover all department costs which has placed the Marketing Department in jeopardy since only about 65 percent of staff costs are covered by the operation.

Overall, it is estimated that the combined share of the national vegetable trade held by Markfed and the Marketing Department is about 2 percent. It appears that neither entity is economically justified in the vegetable industry.

An overview of the vegetable marketing system in Sri Lanka reveals the following major problems which tend to reduce, and in some cases inhibit, the efficiency and effectiveness of the overall marketing system:

1. The majority of farms other than estates, are of less than one hectare in extent and of this area the major part is devoted to rice, thus vegetable production is practiced on a very small scale. Small volumes from a large number of widely dispersed individuals makes market rationalization extremely difficult.

2. Research and extension staff and programs are almost wholly devoted to production increase, and this principally for rice. There is no forum for redirecting resources, human and financial, into a market oriented program which considers diversification of cropping either at national policy or execution level. Such initiatives as have been taken to introduce market orientation have been taken at project level rather than national level, thus accentuating the very fragmented agricultural policy and support structure of Sri Lanka.

3. Financial institutions worldwide are reluctant to fund the small farmer. In agricultural marketing in Sri Lanka this reluctance is fueled by a lack of guidance on the benefit which can accrue to the farmer or trader from improved marketing practices. Cash flow problems force short-run sales, which can further exacerbate a depressed market.

4. The technologies of vegetable harvesting, handling, packaging and transport are currently receiving no research attention. High wastage figures are reported, the cost effective avoidance of which would reduce marketing margins.

5. There is no evidence of recognition in the Department of Agriculture that assistance to the private trade would in fact benefit the farmer. The extension service, being at farm level, should be aware of the problems which the farmer faces in marketing his goods and should be helping to make all channels freely open to him. The Marketing Division of the Mahaweli Economic Agency has recognized this and has forty-three marketing extension officers identifying trading opportunities and helping traders and farmers to interact. The Department of Agriculture, on the other hand, confines itself to encouraging cooperatives and other state organizations and does not even circulate farm-gate prices to traders. In the Department of Agriculture there is no evidence of any appreciation of the service which the private trade renders the farmer. The private trader markets the overwhelming proportion of vegetable production. Hence, if a serious attempt is to be made to create a more efficient and effective marketing system, it is obvious that the Department of Agriculture should concentrate its efforts on improving the performance of the private trader sector.

6. Inadequate and inconvenient market premises add to costs and increase health risks. The Colombo Pettah Market is probably at a point where its social costs outweigh the benefits.

7. Agro-industries are a potential means of developing orderly marketing. This growth is hampered by such factors as a restrictive land policy which inhibits economies of scale, a lack of technology development research, and high import duties on certain input items.

8. Policy formulation is founded on data whose basis is weak and whose

variation from different agencies are frequently irreconcilable. The analysis of the data is often inadequate. The number of bodies formulating policy on this basis results in contradictory signals to the farmer and the trade.

9. Grading schemes for vegetables have received virtually no support from the ministries concerned with agriculture. Standards have been developed and promulgated for some products for export. For selected products, standard grades could be introduced for use in domestic marketing with the aim of improving efficiency.

10. Given the decrease in the volume of trade done by the various public institutions, i.e., Marketing Department and Markfed, per unit costs are rising steeply. Several government institution retail outlets can be seen located side-by-side, all offering an overlapping limited range of products. There can be no justification for continued public funding of all these agencies as trading entities--apart from as an employment creation scheme.

11. In general, expertise in marketing, particularly in the Ministry of Agricultural Development and Research, is non-existent. Therefore, the ability to initiate corrective marketing research and extension programs is very limited and not adequate to facilitate support service for the development of effective and efficient marketing of vegetables.

Government Policy.

Agricultural development policy formulation and implementation in Sri Lanka can be described as being generally on an ad-hoc basis, crop oriented and with individual policies unrelated to each other. This situation, however, is not uncommon in other countries, developing and developed. There are a number of reasons why this situation exists in Sri Lanka: (1) lack of adequate information and/or analysis of available information to allow evaluation of the potential impact from alternative courses of action; and (2) lack of recognition of the interrelationships that exist between different policies, some of which may, on the surface, appear to be independent of each other. This is particularly true in the case of national economic policies such as currency devaluation effects on agriculture, or policies designed to restrict imports of non-agricultural commodities and their impact on potential exports of agricultural products.

Sir Lanka has numerous examples of conflicting policies which have resulted in additional problems. For example, the policy of limiting landholding size in the Mahaweli Program to one hectare places extreme difficulty on attempting to achieve an efficient marketing system for vegetables produced on these holdings. This is particularly so because emphasis has been placed upon the use of the land primarily for rice production with the remaining space for alternate crops. The result is that very small quantities of vegetables are produced on each individual landholding creating a situation where the marketable surplus is insufficient to attract competing traders. Thus, the farmer must either sell to a lone trader at a price low enough to cover the traders increased cost of collecting because of small volume, or incur the cost of taking his small volume to the weekly pola or to a government buying agency, which is often further away than the local "pola" and accepts graded

produce only.

Policies in Sri Lanka formulated and implemented to assist producers in marketing their products have centered on price policy and government intervention as a trader in the marketing system at the farm level to maintain prices at or above specified levels to the farmer, and at the retail level to maintain low price levels to the consumer. The objectives of these actions are to increase farm incomes and the standard of living in rural communities and to protect consumers against high price levels. To complement this program, imports of designated commodities (onions, potatoes, etc.) have been regulated from time to time, restricted to maintain or increase farm level prices, or allowed to be imported to keep consumer prices from increasing excessively as a result of production shortfalls.

The major price policy implemented in Sri Lanka is a "Floor Price Scheme" which does not include vegetables. However, price supports for alternative crops will have an effect upon the decision to produce vegetables, i.e., if the support price for commodities included in the scheme is relatively high in comparison to anticipated prices for vegetables, the farmer will plant the commodity under the scheme since the support price is announced in advance of the sowing season.

The intervention of the government as a trader in the system includes vegetables as a commodity handled. Only about 2 percent of the vegetable production is marketed through government facilities and in general these vegetables are in very poor condition--indicating that the government receives vegetables turned down by the private trader system.

There are a number of other schemes that directly or indirectly affect orderly marketing of fruits and vegetables, such as planting subsidies (currently in use to promote increased fruit production), fertilizer subsidies, agricultural credit schemes, etc. A serious problem exists, however, in that these various schemes are not always implemented in a fully coordinated plan designed to increase the production of those crops which will return the highest returns to the use of resources available to the farmer for production purposes. Further, essentially no consideration is given to available markets, consumer demands, etc., but rather, it is assumed that government will purchase what is produced.

In short, government policies are uncoordinated, many times developed by different Ministries, and they are designed to increase production with no consideration given to where the production will be marketed or to ensuring that an infrastructure is in place to market these products.

Market Intervention.

Interventions in the marketing of fruits and vegetables in Sri Lanka have essentially been limited to direct trading by the government. This reflects government policy prior to 1977, i.e., the State assumes the responsibility of performing the function. Little recognition is given to the fact that the private sector perhaps could adequately perform the function of marketing if provided some support by the government.

Recently, however, it has been recognized that the private sector has

essentially taken over the function of marketing fruits and vegetables despite efforts of the government to be a state trader. Further, new demands have been placed on the marketing sector to provide a means to dispose of potential increases in the production of fruits and vegetables resulting from large amounts of new lands coming into production of agricultural commodities and government concern that this land be sown to other crops than rice, preferably vegetables and subsidiary frood crops.

Thus, government's concern now centers on the role it can play to assist in further developing the private sector with the objective of improving, and in some cases, developing a marketing system for fruits and vegetables.

As a result of these concerns, a recent study of the situation resulted in the following proposed interventions:

1. Initiate and staff a research program in agricultural marketing and postharvest technology. This program should have the following characteristics:

   a) Include elements of both basic and applied research, but with major emphasis on applied research incorporating results of basic research already conducted from other Asian countries, i.e., conduct basically adaptive research.

   b) Marketing research should be designed to provide information to three major groups of clientele: 1) national policy makers - to assist them in making more informed decisions regarding choice between policy alternatives. At present, little if any information is developed regarding the impact of various policy alternatives on the fruit and vegetable production/marketing system, or for that matter, any other segment of the agricultural industry in Sri Lanka; 2) market intermediaries - to assist them in developing a more efficient and effective marketing system for fruits and vegetables; and 3) farmers - to assist them in making more market-oriented production decisions and to make more informed decisions regarding alternative methods of marketing their produce.

   c) Provision must be made to assure that research results are adequately disseminated to potential users and that needs for research be made known to the research unit.

   d) Organizationally, the private sector must be incorporated into the planning process for research programs. At present, the private sector is neither involved with the agricultural research planning process, nor does it receive research results. Research is currently conducted by the government (Rice Processing Research and Development Centre, Paddy Marketing Board, the Agriarian Research and Training Institute, etc.) and esentially is disseminated to other governmental agencies only.

   e) Provision must be made for either placing all research efforts under one administrative body or for coordinating the research activities of the 15 separate research institutes and departments functioning under 7 ministries and the Office of the President. The result of

the current structure is, in some cases, duplication of effort, and in other cases, significant voids exist. At present, marketing research is not conducted by any agency and postharvest research is conducted for only basic crops, primarily rice. Further, market oriented production research is non-existant. These problems must be corrected and it appears that they can be corrected only under conditions that provide directed leadership.

2. Initiate an extension program in agricultural marketing and postharvest technology. This program should have the following characteristics:

   a) The extension orientation must be to not only disseminate information, but also to assist potential users of the information to adopt this information in the form of actual incorporation into their operating situation. This will require personnel training in marketing and postharvest technology. It is not proposed, however, to initiate a new division of government, staffed with additional personnel. Rather, existing, selected personnel should be utilized by providing training and backup assistance by formally trained specialists (which would be new personnel since none presently exist).

   b) Educational efforts must be oriented to two distinct groups: farmers in the area of the when, where and how to market fruits and vegetables as well as how to make production decisions that will result in a marketable product; and market intermediaries in such areas as the use of market information, determining costs and benefits of alternative methods of marketing and handling, packaging, transporting, etc. of produce, and in areas of evaluating supply and demand conditions in terms of optimizing returns from performing their functions of marketing.

   c) A critical component of initiating a program of assisting farmers and market intermediaries is to convince leadership of the need for such a program. Therefore, efforts need to be made to educate administrative personnel as to the importance of marketing fruits and vegetables in an efficient and effective manner in order to assist production oriented development programs to have a chance of success.

3. Significantly improve the market/production information collection and dissemination process. This proposed intervention would have the following characteristics:

   a) Collection, analysis and dissemination of production statistics must be centralized and procedures initiated to provide more reliable information. At present, production information (acreage, production, yields, etc.) and market information (prices, product movements, etc.) is collected by and provided by a variety of governmental agencies. In most cases, primarily due to collection methods and procedures, the information released varies tremendously from agency to agency. As a result, policy development agencies, farmers and market intermediaries are forced to make decisions based upon totally unreliable information and decisions made by one policy agency is many times in direct conflict with decisions made by another simply because the data bases upon which the decisions were

made is very much different.

b) Efforts must be made to disseminate production/market information to the potential users of this information--particularly in a form usable by the end-user. At present, information is only published in English (primarily because most information is only disseminated to other governmental agencies) whereas farmers and most market intermediaries do not understand English. To be effective, this information must be provided in the native language and ways must be determined to provide this information directly to farmers and market intermediaries.

CHAPTER V

CONCLUSIONS

Critical Factors Affecting Marketing System Interventions

Certain critical factors affect the evolution or transformation of fruit and vegetable marketing systems in developing third world countries. These factors take on differing levels of importance from country to country due to tradition, social conditions, resource availability, attitudes, perceived role of the public vs the private sector, etc., as well as the specific commodities handled. It is possible, however, to draw generalized conclusions regarding these factors and the situations in which these factors are dealt with in relation to their effect on the design of market interventions and the potential for the success of these interventions in improving marketing systems.

1. Analysis of Existing System. In many cases, the initial analysis of the existing marketing system, its performance, its conduct and its problems, particularly economic, social and technological aspects, is not conducted at a depth which reveals the many interacting elements which, in fact, drive the existing system. Thus, the recommended market interventions may not be adequate and at times may be totally inappropriate. This situation can be corrected, however, if there is adequate flexibility to alter the proposed courses of action during the progress of the project. Unfortunately, many development projects are not flexible and, in fact, performance of the project is measured only on the basis of achieving the stated objectives and carrying out the specifically defined activities.

2. Transfer of Technology. It is not always appropriate to attempt to place technology from a developed country into a marketing system of a developing country. Generally the technology is far to expensive to expect repayment at price levels received in developing countries. In most cases, the types of output from this technology (packaging, grading, etc.) may not be demanded by consumers nor will they be able to pay for these activities and services. Further, high unemployment and relatively low wage rates in most developing countries require a thorough evaluation in relation to displacement by expensive imported capital.

3. Existing Marketing System. In all cases, the existing marketing system must be considered in the design of development programs and every effort must be made to incorporate it into the proposed system. Otherwise, chances of success will be very low. Traditional ways of doing things are difficult to change and will take time. A new system simply cannot replace an existing program until everyone involved is firmly convinced that the new system is "better" and will directly benefit them.

4. Marketing Margins. The identification of "high" marketing margins for fruits and vegetables must not necessarily be considered as a condemnation of the marketing system. Considerable postharvest loss potential due to high perishability, plus additional costs incurred for improved packaging, transport, etc. to reduce postharvest loss, tend to result in higher margins than other less perishable agricultural products. Poor roads, lack of adequate transport vehicles, potential equipment failures, time

consuming transport distances, etc. result in costs that are inherent to developing countries and will increase marketing margins.

5. Quality Assurance. In most developing countries, the informal grading of fruits and vegetables appears to be adequate for the domestic market. However, if consideration is being given to entering the export market, a more formal standardized quality assurance program is required. It is extremely important to structure into the grading system the quality characteristics of the countries to which the produce will be exported. Usually, preferred quality in the exporting country is different than in the country to which exports will be sent. Producers have been producing for domestic requirement and will very likely have to change cultural practices to provide the produce desired for export. Thus, considerable effort must be made to reflect export quality standards to producers and to provide assistance and perhaps incentives to producers to achieve production of the quality desired.

6. Processing. Processing of fruits and vegetables is often proposed as an intervention designed to reduce gluts and provide a market for additional production. Many of these ventures have failed due to such factors as inability of processors to obtain adequate reliable supplies of raw products; inadequate market analysis for products produced; and inadequate consideration of seasonality of production of fruits and vegetables, particularly in tropical areas where these items are generally available in fresh form on a year-round basis.

7. Export. Many export programs have been unsuccessful for fruits and vegetables because of the problems resulting from attempts to secure the production for exports from small farmers, widely dispersed throughout the country. Assembly, quality control and reliability of supply are factors difficult to control in most developing countries. It appears that, if export of fruits and vegetables is to be developed, the production process must be centralized and at a scale that will allow efficient production, assembly, grading and transport. This is contrary to the objective of most developing countries to achieve its production goals through small farmers and, thus is not politically acceptable in some countries. The "mother farm" concept has been proposed as an alternative to large scale production enterprises. This may be a viable alternative, if the mother farm implements a program to teach appropriate technology to small farmers and if both the small farmers and the mother farm live up to their obligations.

8. Public Marketing Agencies. In general, the performance of public marketing agencies, i.e. marketing boards and other types of government marketing entities, has been poor, particularly in handling products for the domestic market. Government agencies in developing countries are generally inadequate to deal effectively with fruit and vegetable marketing because of the complexity involved and dynamic nature of the marketing requirements. Government agencies have been hampered by extremely high overhead costs, lack of marketing expertise, and particularly a lack of incentive to achieve efficiency especially when losses are covered by the treasury. Thus, replacing private traders with governmental agencies does not appear to be a viable intervention in most cases. At the very least, any country considering this type of

intervention should investigate experiences of other countries, and consider these experiences in their final decision.

9. Postharvest Losses. Considerable postharvest losses are incurred during the marketing of fruits and vegetables, particularly in developing countries. Reduction of these losses will result in an increase in available food supplies which, from a humanitarian standpoint, is desirable. Thus, in many countries the conclusion is that these losses must be reduced. However, experience has shown that, even though technology reduces loss, whether or not it is adopted by the private sector depends upon whether or not the economic benefits from the reduction in loss are greater than the cost of using the technology. In order to evaluate the cost/benefit ratio, an identification of the magnitude of the loss and the specific cause of the loss must be made. This is seldom, if ever, done before the loss technology is introduced. For those cases where the benefits do not exceed the costs, unless the public sector is willing to subsidize the adoption of technology for purposes of increasing food supplies, adoption by the private sector has not materialized even though, in many cases, considerable funds have been spent to make the technology available.

10. Production/Marketing Systems. In most developing countries major emphasis is placed upon allocation of resources to assist in the improvement of the agricultural production sector with little, if any, resources devoted to the improvement of the agricultural marketing sector. In fact, in most developing countries, it is assumed that a clear dichotomy exists between these two sectors. In these cases, development of an effective marketing system has either been impossible or has taken an extremely long period of time and resulted in considerable frustration during the development process. It is critical to the success of development efforts directed toward marketing systems, and in fact, toward the development of production systems, that the production and marketing of any agricultural product be considered as one system. This system must be developed as a joint, fully coordinated production/marketing system in all aspects.

11. Coordination of Government Policies. In most developing countries, there is a multiplicity of government agencies involved in the development and implementation of policies which directly and indirectly affect agricultural production and marketing. It is commonly the situation that there is little, if any coordination of policy development activities of these agencies and there is little evidence that there are any overall national objectives toward which policies are directed. This situation results in numerous conflicts, uncertainties and confusion. Successful policies are those that are introduced in a coordinated and timely manner after full consideration of the potential impact on the immediate problem and on the other sectors of the economy. This is best achieved by centering policy decision making authority in one entity. This however is not always possible, so the second best approach is to implement a coordinating committee comprised of the individuals with decision-making responsibility and authority.

12. Formation of Farmer Associations. In most developing countries the need exists to bring together the production of fruits and vegetables from a relatively large number of small producers widely scattered around the countryside. Further, there is a need to assemble these products into a

volume large enough for efficient transport to market and to properly grade and package the produce such that uniformity, postharvest loss reduction, and quality control is achieved. Due to the emphasis in many of these developing countries to improve the situation of the small farmer, it is often recommended that farmer associations be formed to perform the various marketing functions required. Any profits received from the performance of these functions would be returned to the farmer members of the association, thus enhancing their economic situation. When the decision is made to form farmer associations, considerable effort is usually expended to educate members and potential members in areas such as: cooperative principles, board of director duties and responsibilities, board/manager relations, principles of management, etc. Generally, little if any education is provided to farmer members concerning the marketing venture in which they are becoming involved. These members normally know very little about the marketing process beyond the farm gate. If members are to fully support their association they must be made aware of the importance of all of the functions that must be performed by the members individually and collectively, and by the association so that their produce is efficiently and effectively moved from the farm to the consumer. Commitment by members is critical to the success of any collective action taken by the association -- knowledge of the why, what, where and when of this collective marketing activity is a prerequisite to this commitment.

Priority Market Interventions

In general, market interventions designed to assist in the development of efficient and effective marketing systems for fruits and vegetables have been most successful when directed at the provision of support services. Two of the commonly suggested support services, provision of market information and intelligence, and the provision of credit are basic to and a prerequisite for successful progress toward improvement in market performance in the fruit and vegetable industry of developing countries. It is, thus, critical to implement these support services as the first step in the development of market interventions. There is considerable evidence that if this is not a first step, other market interventions will be very difficult to successfully implement.

1. Provision of Market Information and Intelligence.

The provision of market information and intelligence to the participants of the fruit and vegetable production/marketing system and to the makers of policies which affect this system is an absolutely critical prerequisite to any attempt to impact the performance of the system. Policies designed to assist in the development of an efficient and effective production/marketing system must be based upon adequate, accurate and timely information with sound analysis and interpretation. Effective decisions on the part of the participants of the production/marketing system (producers, market intermediaries and consumers) must also be based upon sound analysis of adequate, accurate and timely information.

Such a system of market information and intelligence must have the following characteristics:

a. The information must be collected, assembled and analyzed such that the resulting intelligence meets the needs of the end-user. This requires input from the users in the design of the system.

b. The information collected must be inclusive of the various factors that affect the market situation. These factors would include, in addition to prices at all levels of the production/marketing system, price variations due to quality differences, available and projected supplies, market location, services provided, etc. This requires a determination of the important factors affecting price and then a planned, organized procedure for securing this information.

c. Data collection must produce accurate and reliable information. This requires identification of appropriate sources of data and the use of appropriate sampling methodology to ensure representative data are secured.

d. Analysis and interpretation of the market information collected must either be provided to the users of the information, or the users must have the ability to analyze the data themselves. This requires either the establishment of an entity to perform the analysis function or the implementation of a program to provide analysis training to potential users of the information.

e. The information and/or intelligence generated must be disseminated to the end-users in a timely manner and in a form that can be understood by the user. This requires the determination of the most appropriate channels of communication as well as determination of the most appropriate format, style, content, language, etc. so that the information disseminated is useful.

2. Provision of Marketing Credit.

As the need for improvement in the performance of a fruit and vegetable marketing system becomes evident it should also be evident that to facilitate needed improvements will require access to adequate credit to finance them. Traditionally, however, credit schemes have been made available for production oriented ventures but seldom to marketing activities. A major reason for the lack of credit schemes for marketing involves the negative perception of the market intermediary and a lack of understanding of the role of marketing in general. Often, it is difficult to evaluate the likely returns from investment in a new technology designed to, for example, reduce postharvest loss during the marketing process. On the other hand, it is relatively easy to evaluate the potential returns from the investment in fertilizer to increase yields. Thus, banking institutions have generally been reluctant to offer credit to marketing ventures, particularly those undertaken by private traders.

Furthermore, since it is difficult to evaluate the benefits from the adoption of new marketing methods and technology, potential users (private traders) are reluctant to secure credit and incur a debt that involves uncertainty in ability to repay.

The solution to this situation involves:

a. Evaluation of the cost/benefit situation in regard to the implementation of marketing methods and technology.

b. Education of market intermediaries and financial institutions of not only the cost/benefit situation, but also the overall role and functions of the marketing system in the overall agricultural development process including potential impacts from improvements in marketing on the society of the nation.

Critical Needs for Research

Although there are numerous areas which have need for research, this report will limit its comments to two of the top priority areas of need:

1. Numerous studies of agricultural marketing have been conducted in developing countries. In total, significant contributions have been made in describing how markets and marketing systems work, in delineating problems which affect the efficiency of the system, and in identifying potential interventions designed to improve markets and marketing systems. Studies have also been made of the effect of social relationships on the organization and conduct of marketing systems. Somehow, however, sociology oriented research has not, generally, been integrated with market oriented research. As a consequence, market interventions initiated upon the recommendations from agricultural marketing studies have not in many cases achieved or resulted in the expected change in the system. The reason usually can be traced to the lack of consideration of social relationships, social attitudes and social habits and traditions as they affect the way participants of the marketing system react to change.

   There is a definite need to initiate research designed to evaluate the interrelationships between the economic, marketing and social factors which influence the performance and conduct of fruit and vegetable production/marketing systems in developing countries. This research should result in recommendations as to how proposed interventions can incorporate marketing, economic and social factors such that actual results from the intervention approximate expected results.

2. A second area of research need involves an investigation of the role, and the problems associated with this role, of various types of incentives to bring about change in marketing systems. In some cases, direct market interventions, such as assembly and grading stations, have been initiated through the use of non-price incentives, i.e., it was felt that current price levels would not suffice to enable the initiator of the intervention to recapture the investment in, and/or the operational costs of the intervention and thus subsidies, grants, etc, were utilized as a means of introducing the intervention into the system. Over the long run it was found that the service provided by the intervention could not be justified in terms of consumers willingness and/or ability to pay for this service. Thus, continued subsidy was required or the intervention was terminated.

There is a need to determine those factors which affect the potential success of market interventions and how these factors are influenced by different forms of incentives, specifically in terms of their effect on the potential success of the intervention in improving the effectiveness of the marketing system.

Comments on "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food Systems Research in Developing Countries"

There is no question that a more structured procedure needs to be developed to guide short term research efforts designed to gain insight to the organization, operation and performance of food systems and to identify system constraints and opportunities. In the past, many of these short term research efforts have failed to identify all factors, and in some cases the major factors, that affect the current performance of the system. As a consequence, many projects, activities and actions developed and implemented (based on the conclusions reached by the short term research effort) have had limited success in improving the efficiency and effectiveness of the marketing system. Yet, increasing cost of conducting studies has placed severe limitations on the ability to conduct long term studies which allow time for adequate identification processes. Thus, it is most desirable to design a procedure which will result in a high probability that all major factors affecting the performance of the marketing system as well as the major constraints and opportunities of the system will be identified in as short a time period as possible. The following are recommendations regarding the proposed "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food Systems Research in Developing Countries" by John Holtzman:

1. First and foremost, rapid reconnaissance techniques as proposed in the paper <u>must</u>, as the paper points out, be used "as a tool for learning more about commodity marketing or other aspects of the food system through observation and analysis, for identifying system constraints and opportunities, and for identifying promising applied research." Further, "it should not serve as a basis for generating definitive policy prescriptions." Secondly, again as pointed out in the paper, "recommended interventions emerging from rapid assessments, particularly improved technologies, marketing institutions, and management methods, should be tested as pilot projects and regarded as experiments." If these points are accepted and adhered to, the use of rapid reconnaissance techniques will result in a significant contribution to the process of improving agricultural marketing systems.

2. Restricting the focus of the rapid reconnaissance to one or two related commodities in a subsystem context, or to a specific segment of a market, or to a specific function performed in the marketing system, and/or to a specific geographical region, is essential to this approach. Conducting rapid reconnaissance of an entire food system, such as the fruit and vegetable production/marketing system simply will not work. However, a word of caution must be said regarding the degree of restriction. In almost all cases where market interventions are introduced into an industry or a subsystem of an industry, there will likely be some form of impact on some other industry or some other subsystem of the industry. For example, if the fruit and vegetable export industry is selected for

rapid reconnaissance, the exclusion of the evaluation of the impact of products culled from the export market entering the domestic market could have disasterous effects. Or, the introduction of technology into the fruit and vegetable marketing system which drastically reduces postharvest losses in vegetables and results in an increased quantity of vegetables in the market, could result in lower prices, which in turn could result in a reduction of acreage planted and a reduction in the demand for fertilizer and other factor inputs--It is important to assess the impact of reduced demand for fertilizer and other inputs on the factor input production/distribution system. Thus, it is not always possible or, in fact, advisable to restrict the market study to a single subsystem without the ability to expand the study to include analysis of other impacted subsystems. This is particularly critical when policy makers are to be influenced by the findings of the study.

3. The most significant shortcoming of the paper "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food Systems Research in Developing Countries" is limitation of the key areas of investigation in Rapid Reconnaissance (table 2). This table covers very well normally accepted areas of investigation that an economist would cover. It does not however, cover other factors which impact the performance of the marketing system, particularly sociological factors. Also not covered by the items in the table are factors inherent in the production system, i.e., cultural practices, rotations, irrigation, etc. that can have significant impact on the ability to successfully initiate certain market interventions and/or develop orderly marketing. In addition, there is no mention of evaluating postharvest losses in the marketing system--one of the major causes of wide marketing margins particularly in perishable commodities. These areas need to be added to the listing of key areas of investigation which will result in considerable strengthening of the technique.

4. The paper does a very good job in describing the mechanics of conducting the reconnaissance and should suffice for assisting members of reconnaissance teams to initiate and carry out a meaningful study.

5. The Postharvest Institute at the University of Idaho, in cooperation with several other international organizations, has designed a methodology to utilize mid-level developing country agricultural agents to begin the process of identifying postharvest losses in fruits and vegetables. Without having it in mind in the early design stages, it now appears that there are complementary aspects between the Rapid Reconnaissance and Postharvest Loss Assessment methodologies. The complementary aspects are:

   a. Both methodologies are designed to focus on regional marketing problems within a few related commodities per study; and

   b. The postharvest loss assessment methodology requires a preliminary overview of the organization and conduct of the marketing system before the data collection process for the actual assessment begins. It appears that this methodology, now in draft form, complements the Rapid Reconnaissance methodology since it primarily consists of field questions designed to identify the various factors affecting the performance of the production/marketing system.

150

The Postharvest Loss Assessment is designed to be conducted primarily by in-country personnel. As proposed, higher level in-country technical specialists will supervise the regional studies on particular commodities but mid-level agricultural agents will be responsible for the collection of data. As orginally designed, this methodology would focus on identifying areas where postharvest losses occur. However, after completing the initial draft, the manual "Identification of Causes and Solutions for Postharvest Losses," appeared to offer an additional benefit in identifying aberrations that affect the performance and conduct of the overall marketing system within which the postharvest loss assessment is being made. The Postharvest Loss Assessment Methodology has not been field tested as yet. Plans are being formulated to conduct field tests in 1987.

It is proposed that an effort be made to determine if the two methodologies can be integrated in such a way as to better assist in solving developing country market and postharvest loss problems.

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FERTILIZER MARKETING SYSTEMS AND POLICIES IN DEVELOPING COUNTRIES

by

MOHINDER S. MUDAHAR

and

EDWIN C. KAPUSTA

International Fertilizer Development Center (IFDC)

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TABLE OF CONTENTS

Chapter		Page
1	Introduction	1
	Role of Fertilizer	1
	Fertilizer Use in Developing Countries	1
	Attributes of Fertilizer Market	2
	Trends in Fertilizer Marketing	2
	Fertilizer Marketing Problem	3
	Objectives of the Study	4
2	Role of Fertilizer Marketing	6
	Development of Fertilizer Marketing Systems	6
	Fertilizer Marketing Functions and Strategies	7
3	Comparative Fertilizer Marketing Systems and Policies	18
	Role of Agriculture and Fertilizer	18
	National Fertilizer Sector Dynamics	19
	Fertilizer Marketing Organization	21
	Marketing Infrastructure and Cost	22
	Fertilizer Price Policy	24
	Fertilizer Subsidy Policy	26
4	Fertilizer Marketing System and Policy in Bangladesh	36
	Evolution of the Fertilizer Marketing System	36
	Fertilizer Marketing Organization and Channels	38
	Fertilizer Marketing Costs	41
	Operational Efficiency of Marketing System	43
	New Marketing System	48
5	Improving the Efficiency of Fertilizer Marketing Systems	61
	Fertilizer Marketing Operations and Costs	62
	Fertilizer Marketing Organization and Policy	67
	Research and Technical Assistance Strategies	71
	References	
	Appendix	

CHAPTER 1

INTRODUCTION

Role of Fertilizer

Economic development of agriculture-dependent low income countries depends on the sustained growth in agricultural productivity. This, in turn, depends in large measure on the expanded application of advanced crop production technologies involving the increased and more efficient use of agricultural inputs, including fertilizers, improved seed varieties, pest control, modern farm implements, and water. The vital role of fertilizer in raising crop output and land productivity is universally recognized. The crucial role of fertilizer is apparent from the high priorities accorded fertilizer supply and demand enhancement policies in national plans of developing countries striving to achieve food self-sufficiency.

In order to expand fertilizer use and use efficiency, fertilizer must be made available to farmers in the most suitable forms and types, at the needed times and places, in adequate amounts, and at prices which will provide incentives to farmers to use it. Also farmers must be made aware of the role of fertilizer and provided with fertilizer-related technical information needed to increase crop yields and maximize economic benefits from its use. The effective performance of these fertilizer marketing functions is essential to promoting agricultural growth through expanded and efficient use of fertilizers in developing countries.

Fertilizer Use in Developing Countries

Fertilizer use in the foodcrop sector in most developing countries began around the 1950s. As reported in Table 1.1, fertilizer consumption in developing countries was about 1.8 million mt in 1953/54, which was about 10% of the world fertilizer consumption. However, fertilizer consumption in developing countries increased to 42.9 million mt (24-fold increase over a 30-year period) in 1983/84, which was about 35% of the world fertilizer consumption. Expanded fertilizer use led to an increase in agricultural production. However, it also created many problems related to fertilizer supply management and fertilizer

marketing. Fertilizer use (both per hectare and aggregate), however, is still rather low in most developing countries.

Attributes of Fertilizer Market

Fertilizer is an intermediate product and its demand is a derived demand. The level and growth in fertilizer demand depends upon the size and growth in the agricultural sector. Fertilizer is a bulky product and thus creates high demand for transportation facilities, especially during the peak demand periods. Since fertilizer use is seasonal, it also requires large storage facilities. There are generally large numbers of small consumers dispersed all over the country, leading to high marketing costs especially in countries with small fertilizer market. There is very little product differentiation since fertilizers are fairly standardized products. Government intervention is rather widespread in the fertilizer sector--production, trade, marketing, use, and pricing--in most developing countries.

Trends in Fertilizer Marketing

The following are the broad global trends in fertilizer marketing:

1. Gradual shift in favor of high analysis fertilizers, resulting in lower marketing costs per unit of nutrients.
2. Gradual shift in favor of multinutrient (compounds or bulk-blended) fertilizer products.
3. Transport of fertilizer in bulk, resulting in lower transport and handling costs but relatively higher losses as compared to bagged fertilizer.
4. Increasing use of liquid fertilizers, especially in developed countries.
5. Recognition of micronutrient and sulfur deficiencies and supply of these nutrients along with primary nutrients (N, P, and K).
6. Greater emphasis on multichannel fertilizer marketing systems as opposed to single channel systems.
7. Greater involvement of the private sector in fertilizer marketing in addition to (or in lieu of) cooperatives and government agencies.

These gradual changes are due to many factors, including developments in fertilizer technology, an increase in the size and complexity of fertilizer market, an increase in demand for fertilizer-related technical advice, and government policy.

Fertilizer Marketing Problem

Despite significant progress made in strengthening fertilizer marketing systems in many developing countries, particularly in Asia and Latin America, marketing related constraints to expanded fertilizer use persist to varying degrees in most developing countries. The most important of these relate to: restricted availability of fertilizers, low level of farmer knowledge on fertilizer use, unfavorable fertilizer/crop price relationships, and limited fertilizer credit availability. In many countries there is also a lack of government commitment and/or capability to plan and implement coordinated fertilizer supply, marketing, and use policies and the absence of an economic environment conducive to fostering the expanded use of fertilizer.

Fertilizer is a vital input for agriculture and food production. Most developing countries produce and/or import fertilizer to meet their requirements. Fertilizer plants are often located near the raw material supply sources. Fertilizer is used by large numbers of farmers, small and large, who are dispersed all over the country and are often far from the fertilizer plants or ports.

Fertilizer is not only a strategic input, it is also a rather bulky product. It requires an efficient fertilizer transportation system to move fertilizer from the plant or port to farmers' doorstep. Since fertilier use is seasonal (generally bimodal) it also requires large storage capacity. Fertilizer, of course, is of little value unless it is used by the farmers. In this context, fertilizer marketing provides an important link between fertilizer production and/or imports and fertilizer use. Fertilizer distribution (transportation, storage, and handling) is an essential component of fertilizer marketing.

Fertilizer marketing systems are relatively inefficient in most developing countries. As a result, the economic costs associated with inefficient fertilizer marketing are high either in the form of high financial costs and/or in the form of lost potential agricultural production due to lack of fertilizer, untimely fertilizer deliveries or wrong fertilizers. In order to

maintain incentive prices at the farm-level, governments often intervene and provide financial assistance in the form of fertilizer subsidies to compensate for high procurement and marketing costs. Fertilizer subsidies related to marketing can be reduced or even eliminated by making the fertilizer marketing system more competitive, efficient and cost-effective.

Objectives of the Study

Broadly, the purpose of this paper is to provide an overview of fertilizer marketing systems and policies in developing countries. More specifically, the objectives of the study are: (a) to discuss role of fertilizer marketing; (b) to provide an overview for comparative fertilizer marketing systems and policies in few selected countries; (c) to describe the evolution of fertilizer marketing system and policy in Bangaldesh; and (d) to identify measures in order to improve the efficiency of fertilizer marketing systems in developing countries.

In addition to a broad comparative perspective, many of the issues related to fertilizer marketing systems and policies are described in the context of Bangladesh. This is primarily due to recent significant changes in fertilizer marketing in Bangladesh. Bangladesh has experimented with the implementation of major policy reforms in the area of fertilizer marketing, including privatization of retail trade, fertilizer price deregulation, and reduction in fertilizer subsidies. The lessons learned from Bangladesh experience in fertilizer marketing will be of great interest and relevance for other developing countries.

The comparative analysis of fertilizer marketing systems and policies in few selected countries (including Bangladesh) provides the basis for recommendations for improving the efficiency of fertilizer marketing system in developing countries in Asia, Africa, and Latin America.

Table 1.1. Evolution of Fertilizer ($N+P_2O_5+K_2O$) Consumption in the World[a]

Year	Fertilizer Consumption in Developed Countries	Developing Countries	World
	(million mt)		
1953/54	17.2	1.8	19.0
1963/64	32.1	5.5	37.5
1973/74	65.1	18.5	83.6
1983/84	81.2	42.9	124.0

a. Derived from data reported in FAO (1985).

CHAPTER 2

ROLE OF FERTILIZER MARKETING

The purpose of this chapter is twofold: (1) to examine the factors affecting the development of fertilizer marketing systems and (2) to provide an overview of fertilizer marketing functions and strategies in developing countries.

Development of Fertilizer Marketing Systems

The organizational structure and operations of fertilizer marketing systems differ markedly across various developing countries. This is partly due to differences in socioeconomic conditions, stage of fertilizer use development and most importantly national government policy. In most developing countries, the development of the fertilizer sector and its marketing component has occurred or is taking place in an environment characterized by the following.

1. Relatively low but growing levels of fertilizer use which portend increased expenditures on fertilizer in the years ahead.
2. A geographically dispersed fertilizer market composed of a large number of small farmers generally lacking the level of knowledge, skills, and equipment to use fertilizer efficiently and requiring both technical and financial assistance.
3. The absence of an adequate fertilizer-related agronomic data base necessitating the costly expansion of fertilizer use reasearch facilities, programs, and staffs.
4. Inadequate national agricultural extension programs requiring additional funding to expand facilities, programs, equipment, and staff.
5. Lack of adequate domestic fertilizer supply capability due to lack of raw materials and/or lack of production capacity necessitating construction of costly manufacturing facilities, improving plant operations, and/or increasing imports each of which entails the major expenditure of scarce foreign exchange.

6. Inadequate fertilizer transport, storage and handling, and communications infrastructure requiring important capital outlays for providing needed infrastructure and equipment.
7. Lack of complimentary farm inputs such as fertilizer-responsive seeds, pest control agents, and modern implements.
8. Lack of sufficient numbers of adequately qualified management and technical support personnel to organize and operate the supply, marketing, and use research facets of the fertilizer sector.

The developing countries facing these problems require large-scale investments in creating fertilizer supply capability and marketing infrastructure, not to mention expanded fertilizer research and extension services. The national importance of expanding fertilizer use coupled with the high costs associated with organizing and implementing needed fertilizer sector programs has led to widespread government involvement in virtually all aspects of fertilizer sector development and operation. As a consequence government actions rather than market forces most often dictate the ownership, organization, and operation of fertilizer supply and marketing systems in developing countries.

In addition to government agencies, private, and cooperative organizations also participate in various fertilizer sector activities in most developing countries. However, governments usually engage in and/or exercise control over fertilizer research, extension, production, importation, marketing, quality, prices, and trade. Private and cooperative organizations participate primarily in supply and marketing activities. On the whole fertilizer marketing systems in developing countries differ markedly in terms of public and private sector participation, organizational forms, and operational functions, depending on the nature and degree of government intervention.

Fertilizer Marketing Functions and Strategies

Despite wide variation in their organization and operation, fertilizer marketing systems in developing countries have, or should have, a common purpose--that of determining and serving farmers' fertilizer needs in a timely and cost-effective manner. The achievement of this goal requires the successful performance of the following activities which collectively constitute the marketing function: product selection, demand estimation, procurement, distribution, sales, market development, pricing, and supply of credit.

The performance of a national marketing system will be determined by how well each of these activities is executed by the public and private organizations which are charged with their implementation and how effectively the activities of these individual organizations are organized and integrated into the nation's overall marketing scheme. The fragmentation of responsibilities for different marketing activities between different ministries (e.g., agriculture, industry, finance, or planning) or departments within the same ministry, often encumbered with jurisdictional rivalries, may add to problems in coordination and timely execution of the interdependent marketing activities to the detriment of the overall national marketing effort.

Delays in or inaccurate assessment of demand by the agency responsible for that activity, and/or delays in making foreign exchange available for procurement of imports, could delay ordering by the importing agency and result in late arrival of needed fertilizers and shortages at the farm level. Delays in ordering and tardy arrival of fertilizer are not uncommon occurrences in some developing countries. In an attempt to ameliorate these problems, some governments have established central government bodies to plan, coordinate, and monitor all fertilizer sector activities. Examples of such government-sponsored agencies include the National Fertilizer Secretariat in Sri Lanka, the Fertilizer and Pesticide Authority in the Philippines, and the Fertilizer Industry Coordination Committee in India.

As noted earlier, fertilizer marketing strategies and systems are country-specific in nature and usually involve the interaction of several public- and private-sector agencies. This makes it difficult to generalize as to the organization and operation of the individual marketing activities across a broad spectrum of developing countries. However, some general observations may be helpful in identifying areas for improving the operations and efficiency of fertilizer marketing functions, and hence, fertilizer marketing systems.

Fertilizer Product Selection

It is of paramount importance to provide farmers with the products most suitable for specific soil and cropping situations in order to improve fertilizer use efficiency and raise farmer income. While marketing organizations are responsible for making the most suitable products available to farmers, the national agricultural research institutes bear the main burden for determining the suitability of different fertilizer products and determining fertilizer

needs of crops under specific agroclimatic conditions. Significant progress has been made in building national and regional agricultural research facilities and programs in many parts of the developing world; however, from the perspective of improving fertilizer use efficiency and profitability, there is a need for expanding the agronomic data base in most developing countries, particularly in respect to localized site-specific cropping situations. This is essential for formulation of more useful fertilizer use recommendations. Marketing organizations rarely possess the financial resources or technical skills to conduct basic fertilizer use research but should maintain close contacts with national research organizations to benefit from their findings.

Estimation of Fertilizer Demand

An accurate and timely estimation of demand is crucial in meeting farmers' requirements for fertilizer--what, when, and where--while avoiding excessive and costly inventory accumulations. Long-term national fertilizer demand projections used in long range supply planning are often made by planning agencies with inputs from the Ministry of Agriculture, extension service, and public and private marketing organizations. Projecting long-term demand generally involves factors related to the economics of fertilizer use, cropped acreage, irrigation, credit availability, and crop production technology. The time series data on these variables needed for demand projection are usually not readily available. The need for improvements in the data base and projection techniques is evident from experiences of many countries, including Thailand, Venezuela, and Bangladesh.

National level short-term and annual sales forecasts may be prepared by various government bodies, with inputs from other concerned organizations, and/or by individual marketing organizations. More realistic annual sales forecasts (by month, by product, by region, and by sales outlet) are best prepared from information gathered by local sales personnel familiar with local farm conditions. However, due to difficulties encountered in Nigeria, Cameroon, and Ghana in obtaining timely and accurate information on fertilizer receipts, sales, and inventories, there appears to be wide scope for improving the sales forecasting process and monitoring system in these and other developing countries.

The establishment of marketing research facilities and improvement of the management information system would improve sales forecasting and demand estimation in several developing countries where sales forecasting appears to be carried out more or less in an ad hoc fashion.

Fertilizer Procurement

Public fertilizer marketing organizations usually purchase as much of their anticipated needs as possible from local fertilizer plants and obtain the remainder of their requirements from external sources via direct purchases, donor grants, and/or bilateral trade agreements. Local production capability is often erratic and unreliable necessitating close monitoring of supplies from these sources. The need to improve product procurement and transport procedures and schedules is often indicated.

Fertilizer procurement from external sources requires long lead time (4-6 months). The purchase and delivery of fertilizers from overseas sources requires detailed advance planning in terms of quantities to be purchased, suppliers, ocean transport, port handling, and inland transport. Past experiences in Bangladesh, Ghana, and Nepal point to the need for significant improvements in import planning and procurement systems. Purchasing department personnel could benefit from additional training in all aspects of international market operation and procurement techniques, including product sources, price trends, ocean freight costs, port loading and unloading facilities, in-country storage facilities, and inland transport.

For donor-supplied fertilizers, there is a need for close coordination between donors and the host country to determine fertilizer needs and to develop orderly supply schedules in order to assure timely arrival and avoid port congestion. Countertrade or barter arrangements offer a means of conserving foreign exchange but involve close coordination between the fertilizer procurement agency and other branches of government. Countertrade arrangements are important in India, Indonesia, and several other developing countries.

Many developing countries import bagged fertilizer. This may be appropriate when import quantities are low. However, as imports rise, significant savings in overall cost and foreign exchange may be possible by importing fertilizer in bulk and bagging it at the port of entry as practiced in Bangladesh, India, and several other countries.

Fertilizer Distribution

Timely fertilizer availability at the farm level is the key requisite for expanding fertilizer use. Supply shortages can and do lead to higher farm-level prices which deter usage. Accurate assessment of demand, timely procurement, and the ability to physically distribute fertilizers to use areas are important factors affecting fertilizer availability at the farm level.

Physical distribution is the most costly component of the fertilizer marketing process in developing countries. According to FAO reports, distribution costs (transport, storage, handling, and losses) represent from 30% to 50% of the total fertilizer marketing costs in several Asian and African countries. Of these the cost of transport is usually by far the most important. Improvements in the efficiency of the transport, handling, and storage functions throughout the entire distribution chain, from supply point to local sales outlet, offer excellent opportunities for reducing farm-level delivered costs and should receive primary consideration in fertilizer marketing improvement projects. In many developing countries, meaningful information on marketing costs of publicly operated systems is often unavailable. In such instances a first order of business should be to assemble distribution cost data to serve as a basis for prioritizing distribution improvement program activities.

The design of a cost-effective physical distribution system usually involves determining the number, locations, and capacities of warehouses (plant and transit) and local-level sales outlets based on present and projected area demand, off-take rates, and restocking schedules. Furthermore, fertilizer distribution systems must be monitored on a regular basis and changes must be made as needed to keep pace with changing demand patterns. Least-cost movement (transport) plans should be developed based on the availability and costs of road, rail, and water transport. Reasonable movement contracts must be negotiated with reliable transport firms, bearing in mind that transport costs may be minimized by scheduling regular shipments from supply points to intermediate warehouses and sales outlets.

Fertilizer distribution costs may be reduced by making greater use of direct shipments from production plants or import warehouses to district wholesalers and local retailers. Bypassing shipments to intermediate warehouses can cut transport costs since longer mileage freight rates are generally lower than rates for a number of shorter hauls of an equal distance. The fewer number of loading and unloading operations lessen the possibility of bag breakage and product losses.

The evidence from some developing countries indicates that public-sector fertilizer warehouse operations can be improved through better warehouse management practices, particularly with respect to product-stacking procedures, proper segregation of products and first-in first-out stock movement plans. In most instances housekeeping practices could also be improved. Warehouse

operating personnel should be trained in product properties and handling techniques to avoid excessive warehousing losses. There is often a need to develop or strengthen stock-control systems to continuously monitor inventory levels and replenishment schedules. More effective cost accounting systems are often required to monitor and control costs of all facets of distribution system operation.

Fertilizer Sales Channels

With few exceptions, fertilizer marketing systems in most developing countries involve the participation of a number of public, private, and cooperative sales channels. In some countries (Bangladesh and Nigeria) the marketing process has been relegated to publicly operated agricultural inputs marketing agencies. These agencies may sell directly to farmers through their own retail outlets or act as primary wholesalers selling to private or cooperative wholesalers or retailers who store and sell fertilizers to farmers.

In other countries (India and Venezuela), public and private companies and/or cooperatives market products (which they produce or puchase from other domestic or import sources) through their own outlets or through other public, private, or cooperative wholesale or retail dealers. In any event in most developing countries, fertilizers reach the farmer through a network of wholesalers and retailers. The marketing management skills of these wholesalers and retailers can be a decisive factor in promoting fertilizer use. In some countries fertilizers are also sold to farmers through extension services, regional agricultural development programs, commodity marketing boards, or agricultural credit banks.

Regardless of sectoral affiliation, the fertilizer retailer can be an important force in influencing farmers to expand fertilizer use and use it more efficiently. By virtue of his close association with farmers in his area and his knowledge of local farming conditions the dealer is in a unique position to advise farmers on the types and quantities of fertilizer to use and how to apply them to achieve best results. In most developing countries private fertilizer dealers are local shopkeepers who handle a variety of agricultural inputs and general household merchandise and are not particularly adept in fertilizer marketing. In order to better serve farmers' needs and stimulate fertilizer sales, dealers generally require training in the agroeconomic aspects of fertilizer use, market development, and sales techniques. Dealer training in business

management, including accounting, stock control, and credit procedures, should assist the dealer in operating his fertilizer business more profitably and motivate him to promote fertilizer sales more aggressively.

Although high priority has been assigned to the development of agricultural cooperatives in many developing countries, they generally play a far less important role in fertilizer marketing than private dealers. India and South Korea are among the notable exceptions. In Indonesia the government is increasing cooperative activities in fertilizer marketing. Cooperatives, and other public sector dealers, require training similar to that prescribed for private sector dealers. Additional incentives, in the way of salary adjustments, improved working conditions, and job performance recognition would be helpful in overcoming the complacency and lack of motivation, cost consciousness, and innovation usually ascribed to public sector fertilizer marketing organizations.

Fertilizer wholesalers have been established by public, private, and cooperative enterprises in many developing countries. Fertilizer wholesalers purchase, store, and sell fertilizers and may provide credit to the retailers which they serve. Wholesalers may also engage in promotional activities and provide technical assistance and training to retailers to support their overall marketing efforts. Wholesalers could in many cases benefit from the same type of training as that suggested above for retailers.

The multi-sales channel approach to fertilizer marketing is generally beneficial for all developing countries. The competition which it fosters should increase fertilizer availability at competitive prices and give farmers a greater choice of product sources and services. While competition is to be encouraged, great care must be exercised in developing national fertilizer marketing policies which treat all participants in the marketing system equitably in respect to marketing areas, pricing flexibility, and government regulation.

Fertilizer Market Development

Market development, including sales promotion and farmer technical assistance, is a necessary activity in expanding fertilizer use and use efficiency. The main issues are the types of technical assistance programs and promotional services which are required to motivate farmers to buy and use more fertilizer and how these services might be provided in the most cost-effective manner under given country conditions. Technical advisory and promotion services

which include farm demonstrations, farmers' meetings, field days, soil testing, and farmer communications programs are provided by government research and extension services, universities, and fertilizer marketing organizations.

The nature of the market development activity which may be required depends on the stage of fertilizer use development in a particular developing country. In those countries, including many in Africa and some in Asia and Latin America where fertilizer use is still in the relatively early stages of development, market development programs should, and generally do, focus mainly on educating farmers on the benefits of fertilizer use through programs involving personal contacts with farmers. Fertilizer demonstrations, farmers' meetings, and field days are used to demonstrate the effectiveness and profitability of fertilizer use at this stage. Agricultural research and extension organizations assume a leadership role in providing these programs with the fertilizer industry offering secondary support. In many developing countries, the national extension services are lacking in funds and technical personnel and are too thinly spread to reach and effectively service the mass of small farmers requiring technical assistance.

As farmers' knowledge of fertilizer use increases and consumption rises, the role of fertilizer marketing agencies in market development becomes increasingly more active, but the involvement of the agricultural research and extension service agencies remains essential. At the stage of expanding fertilizer use, which is common to most Asian and Latin American countries, mass media advertising and other communication forms become extremely important to reach large numbers of farmers and to provide more advanced technical information. At this stage properly trained fertilizer retailers, given technical and promotional support by fertilizer manufacturers and wholesalers, can be very effective in encouraging expanded fertilizer use through enhanced promotional schemes and farmer-advisory services. The potential contribution of fertilizer dealers in promoting fertilizer use is recognized in many developing countries--such as Venezuela, Bangladesh, Brazil, and India--where dealer development and training programs have been incorporated into fertilizer market development strategies.

Although much progress has been made on many fronts in recent years, the promotional activities and farmer assistance programs in many countries fail to reach the large numbers of small farms requiring these services. Deficiencies in national extension services and the lack of trained marketing company sales personnel, wholesales, and retailers continue to impede the implementation of

more effective market development programs. Many fertilizer marketing organizations, mainly those in the public sector, lack the organizational structure, personnel, and facilities to carry out needed dealer development programs.

Fertilizer Pricing

Fertilizer price is a principal determinant of fertilizer use. Farmers will not use fertilizer in the absence of sufficiently favorable fertilizer/crop price ratios and value/cost ratios. In many developing countries, these price ratios would be too low to induce farmers to use fertilizer were it not for government fertilizer subsidies. The fertilizer/crop ratio may be altered by adjusting either the fertilizer or crop price, or both. In an effort to keep consumer food prices low, most developing countries have elected to adjust fertilizer prices by subsidizing fertilizer production and/or marketing activities. As a consequence, government intervention in determining fertilizer prices is the norm in most developing countries. Furthermore, in many countries, governments exercise direct or indirect control of retail prices of fertilizer.

Governments regulate fertilizer prices for several reasons: to ensure stable and uniform countrywide prices, to guard against excessive margins by fertilizer marketers, or to protect the operations of high-cost local producers. The degree of price control can range from the establishment of fixed retail prices to the setting of prices and margins at successive stages of fertilizer marketing. As observed in Bangladesh and elsewhere, the price control is generally ineffective when demand exceeds supply. In those countries where prices are subject to government control, prices and margins should be set at levels which will provide incentives to manufacturers and marketers to engage in market development activities and make capital investments.

Setting of national uniform prices, and in effect equalizing transport costs, is a central issue of fertilizer pricing policy in many countries. It becomes more important in efforts to reduce subsidies and encourage increased private-sector participation in fertilizer marketing. Seasonal pricing and volume discounts are other important issues in pricing policy. The establishment of seasonal prices should enhance fertilizer availability at the farm level by stimulating off-season movement from supply points to sales outlets and by reducing the burden on the transport system during the heavy demand planting season. Volume discounts would promote the development of wholesalers and lower transport costs by allowing larger unit shipments.

Price factors are important at every stage of fertilizer use development in developing countries. In the early introductory stages, a large and direct price subsidy is usually necessary to induce farmers to use fertilizers. As fertilizer use increases, price subsidies can rise substantially to a point that they become excessively burdensome to the government and remedial action in the form of subsidy reduction becomes necessary. Improvements in the marketing system can lead to cost reductions which may in part offset the effect of subsidy reduction. When fertilizer use is fully developed, subsidies can reach unsustainable levels. However, economic factors affecting fertilizer use, i.e., fertilizer/crop price relationships, assume even greater importance in setting fertilizer prices.

Fertilizer Credit

Credit availability is an important element in expanding fertilizer use. Both crop production credit and fertilizer distribution credit are generally needed. The importance of production credit is evident from FAO reports which indicate that between 30% and 60% of the fertilizer distributed by government agencies and cooperatives in many Asian countries involves credit. However, in most developing countries, farmers have only limited access to short- and medium-term production loans through agricultural and commercial banks, cooperatives, growers' associations, and other loan programs. Delinquencies in payment and nonrepayment of loans and high delivery and recovery costs are major problems to lending institutions.

From the farmer's perspective, loan application processes are overly cumbersome and time consuming and collateral requirements may be difficult to meet. The role of fertilizer marketing organizations in agricultural production credit is generally limited to increasing farmer awareness of availability of credit from various sources, providing assistance in developing credit needs, and assisting farmers in applying for loans at lending institutions. Fertilizer wholesalers and retailers may at times provide production loans to credit-worthy farmers, particularly if these dealers have access to institutional credit. If denied access to credit from public and commercial lending institutions and retailers, farmers often turn to friends or money lenders who may charge exhorbitant interest rates. The high cost of borrowed money can reduce farmers' profitability of fertilizer use and dampen his desire to use it.

Lack of access of public and private fertilizer marketing organizations to institutional credit to finance stocks and investments in marketing system

infrastructures is another important constraint to the increased and timely availability of fertilizer to farmers. Fertilizer wholesalers and retailers generally require financial assistance to purchase and carry inventory to ensure timely availability of fertilizer. In many countries the 1-3 month delayed payment terms extended wholesalers and retailers by fertilizer suppliers are helpful but do not cover the seller's credit needs.

In order to encourage expanded fertilizer use additional production and distribution credit should be made more readily available to farmers and fertilizer dealers through lending institutions at reasonable interest rates. In regard to production credit, loan application procedures should be streamlined and collateral needs liberalized. Distribution loans, normally secured by dealers' stocks, should be made more readily available to increased numbers of wholesalers and retailers.

CHAPTER 3

COMPARATIVE FERTILIZER MARKETING SYSTEMS AND POLICIES

The comparative fertilizer marketing systems and policies are briefly discussed for seven developing countries. These are Bangladesh, India, Indonesia, and Pakistan from Asia; Cameroon from Africa; and Brazil and Mexico from Latin America. According to FAO, all these countries are classified as developing market economies. This chapter draws extensively from a study by Mudahar and Schultz (1986).

Role of Agriculture and Fertilizer

Population Dynamics

The average population growth has been above 2.0%/year in all the developing countries; and close to 3.0%/year in the case of Cameroon, Mexico, and Pakistan (Table 3.1). The majority of the population is still rural, with population density over 1,500 persons/1,000 ha of cropped land in all the developing countries; and over 7,000 persons/1,000 ha of cropped land in the case of Bangladesh and Indonesia. Food production, a basic necessity, must keep pace with population growth since most of these countries have a precarious balance of payment situation and may not be able to import food commercially.

Contribution of Agriculture

As GNP/capita increases, the relative contribution of agriculture declines. In the Asian and African countries, the agricultural sector accounts for over 50% of the labor force and over 25% of gross domestic product (GDP) (Table 3.1). Clearly, economic development in these countries is closely linked with agricultural production performance. One must not undermine the importance and implications of agricultural development for equity, employment, and participatory economic growth since a large share of population and labor force is still in the agricultural sector.

Role of Fertilizer

Fertilizer is a vital input for agricultural production, both food and export crops. The available empirical evidence indicates that approximately one-fifth to one-third of incremental agricultural production can be attributed to fertilizer use. Given the relative scarcity of cropped land or very high cost of development of new lands, agricultural growth strategies must focus on multiple cropping and yield growth strategies. These strategies will not succeed in the absence of fertilizer use by farmers. One must realize, however, that fertilizer use and its productivity depends upon many associated technical factors and economic policies. In any case, the right type fertilizer must be made available to farmers at the right time, right place, and at the right price. Fertilizer marketing plays a vital role in all of these activities.

National Fertilizer Sector Dynamics

Fertilizer Consumption

All of the countries in this survey are still passing through early (but at different levels) stages of fertilizer use development. The aggregate fertilizer consumption has been growing at about 10%/year or higher (Table 3.2). It will be relatively more difficult to maintain these high consumption growth rates in the future due to (a) fertilizer consumption in the base periods is much higher now than in the past (in most developing countries fertilizer use in general agriculture began in the 1950s) and (b) fertilizer use has become rather common. Future growth in fertilizer use will come from an increase in fertilizer rates and its use on crops and in regions where it is not currently used.

Fertilizer Security

After the fertilizer crisis and skyrocketing fertilizer prices in the international market in the 1970s, many developing countries expanded domestic fertilizer capacity based on indigenous and/or imported fertilizer intermediates and raw materials. Since the fertilizer raw materials are not evenly distributed, all the countries may not be able to become self-sufficient in meeting their fertilizer needs. Many modern fertilizer plants (primarily nitrogen) were built

or are under construction and several of the study countries have improved fertilizer self-sufficiency index (Table 3.2). Indigenous fertilizer production does provide fertilizer security and may stabilize domestic fertilizer prices. However, in many cases these objectives have been or are being achieved at high economic costs and large fertilizer subsidies which are often difficult to justify purely on economic grounds.

Fertilizer Imbalance

The appropriateness of balance in applied fertilizer nutrients must be viewed in the context of soils, crops, farming systems, and crop technology. The available evidence indicates that there is an overemphasis on nitrogen in most developing countries, often at the cost of other primary, secondary, and micronutrients (Table 3.2). Most of these nutrients are not only less expensive but also are less energy intensive as compared to nitrogen. Lack of proper balance in applied nutrients reduces fertilizer productivity and profitability.

Fertilizer Use by Farms

In Asian countries, a major share of fertilizer is used on food crops. Both small and large farmers grow food crops. The relative share in aggregate fertilizer consumption by small farmers is generally about the same as their share in cropped land. On the other hand, in African and Latin American countries, a large share of fertilizer is used on cash and export crops grown primarily by large farmers, plantations, and estates. Even in these countries, however, the relative share in fertilizer use by small farmers and on food crops is gradually increasing, partly in response to policy reforms, improvements in crop technology for food crops and stated national goals of food self-sufficiency.

Fertilizer Use by Products

The popular nutrient supply sources include urea for nitrogen, triple superphosphate (TSP), and diammonium phosphate (DAP) for phosphates, and potassium chloride (KCl) for potassium (Table 3.3). Ammonium sulfate (AS), as a source of nitrogen, is used primarily in those countries where it is produced as a by-product. Single superphosphate (SSP), as a source of phosphates, is used in those countries which have indigenous phosphate rock. The following trends are apparent in nutrient supply sources over time.

1. The high analysis fertilizers are gradually replacing low analysis fertilizers, such as urea for AS and TSP for SSP. The high analysis fertilizers do save transportation, storage, and handling costs per unit of nutrient supplied. However, they are also responsible for widespread sulfur deficiencies in tropical agriculture since sulfur supplied by AS or SSP is not included in urea or TSP.
2. As fertilizer use goes up and the fertilizer sector develops, straight solid fertilizers are replaced by multinutrient compounds, solid blends, or solutions. The use of fertilizers in the form of compounds reduces distribution costs, improves nutrient balance and fertilizer productivity.
3. As fertilizer consumption increases, more and more fertilizer moves in bulk and is either sold in bulk or bagged closer to the point of consumption. This approach does save distribution costs but runs a higher risk of adulteration and physical loss.

Fertilizer Marketing Organization

Government involvement in the fertilizer sector in developing countries is quite common and it is usually rationalized as follows: (a) fertilizer is an essential commodity required for the production of food; thus, government control is mandated to achieve the most equitable distribution of fertilizer and widespread benefit to the country; (b) fertilizer production facilities are capital intensive and thus unattractive for private-sector development; and (c) fertilizer distribution requires a major investment in infrastructure and related facilities that usually is beyond the capabilities of nongovernment entities. In some developing countries cooperatives play an important role in the supply and distribution of fertilizers. Cooperatives, with the exception of some producer cooperatives, are usually owned and/or subsidized by the government, and they usually focus on specific fertilizer-related activities. The following common marketing features prevail among the study countries:

1. The primary distribution system (from the factory gate or port to primary distribution points in the major marketing regions) is dominated by the government.
2. Shipment of fertilizer in bags predominates although bulk movement to bagging and/or mixing plants is used in special circumstances.

3. Government-owned, government-assisted, or private-sector cooperatives play a major role in wholesaling and retailing fertilizer.
4. Producer cooperatives, parastatals, and other large consumers of fertilizer often operate with relative independence from the overall fertilizer supply system, which is usually designed to serve the smallholder.
5. Private fertilizer dealers (especially retailers) are very important in providing the final links in the distribution chain between the primary or secondary distribution points and the farmer.
6. Promotion of fertilizer through dealer training, farm-level demonstrations, and education is recognized as an essential element to bring about increased fertilizer consumption and crop production.
7. There is often lack of effective coordination and communication among different ministries.
8. There is also a lack of adequate training in fertilizer use research and farm-level demonstration activities.
9. The farm-level delivery of bulk fertilizers and the use of fluid fertilizers are almost nonexistent.
10. Governments play important roles, directly or indirectly, in influencing the organization and operation of fertilizer marketing.

Marketing Infrastructure and Cost

Most of the technical and operational innovations being used or under study are designed to ensure delivery of fertilizer to the farm level in the correct quantity and at the correct time. Because of the inflexible nature of most fertilizer processes, and the seasonality of demand for fertilizer, the most common method used to obtain this goal usually involves large in-country storage of fertilizer. Storage is provided (1) at the production unit or near the port, (2) at primary distribution points located throughout the market area, (3) in warehouses located at secondary distribution points, and (4) in warehouses operated by cooperatives, parastatals, wholesalers, and retailers. In many cases the in-country fertilizer inventory amounts to the annual consumption, and is rarely below about 50% of annual consumption. In some cases (for example, Bangladesh and India), seasonal price discounts designed to encourage off-season purchases and farm-level storage have been quite successful.

Because of the high cost of building storage facilities and the financing of large fertilizer inventories, most of the primary or regional storage facilities (including fertilizer inventories) are operated by the following government-subsidized organizations: (1) manufacturers or marketing organizations (for example, FERTIMEX in Mexico and PUSRI in Indonesia), (2) agricultural supply organizations (for example, BADC in Bangladesh), or (3) government-owned warehouse organizations (for example, central and state warehouse corporations in India). In the extreme case (Mexico), title to the fertilizer is maintained by the government (FERTIMEX) until the fertilizer is actually paid for by the farmer.

Another distinctive feature common to the systems in all the study countries is that the fertilizer marketing cost is relatively high, ranging from about US $20/mt to as much as about US $230/mt, with about US $40-$75/mt being typical (Table 3.4). In many cases the true cost to the country is difficult to determine because of the financial structure of the various marketing and distribution organizations, different accounting procedures, subsidies, and special concessions. In any event transportation and inventory finance charges are the two major cost components of all the physical distribution systems. The following are among the most common methods used by most of the countries studied to minimize or decrease the cost of transportation and storage without jeopardizing timely delivery of fertilizer to the farmer:

1. Improved demand forecasting of farm-level fertilizer needs.
2. Optimization of transport and storage facilities based on improved demand forecasting.
3. Use of block trains to obtain favorable costs, more efficient handling, and optimum use of limited rolling stock.
4. Bulk shipments to regional bulk-blending or bagging stations to minimize freight and handling costs and to speed up discharge rates and thereby optimize the use of available facilities.
5. Use of coastal and inland water transport, especially on long-distance routes.
6. Expansion of the role of private-sector wholesalers and retailers to ease government-owned warehousing requirements and inventory costs.
7. Price discounts to encourage farmers to purchase fertilizer during the off-season and thus relieve congestion of transport and storage facilities.

Fertilizer Price Policy

The average farm level fertilizer prices for the study countries are reported in Table 3.5. It is striking to find large variations in farm-level prices for a given fertilizer from one country to another. For example, urea price varies from a low of US $83 in Cameroon to a high of US $252 in Brazil. Similar differences are evident in other fertilizers as well. Major points which emerge from the comparative analysis of national fertilizer price policy are the following:

1. Both ex-factory and retail (except Bangladesh) fertilizer prices are fixed by the government and are generally designed to achieve predetermined goals of production efficiency in the fertilizer industry, and price parity with agricultural commodities at the farm-level (Table 3.6).
2. The available evidence indicates that regulated official fertilizer prices at the retail level may not always be equal to the actual prices paid by farmers. The actual prices are generally higher when there is fertilizer scarcity and lower when there is a glut. Adequate national fertilizer supply does not always assure lack of localized scarcities at the crucial times. In this context, fertilizer supply management and efficient marketing become very important to assure reasonable fertilizer prices at the farm-level. Bangladesh deregulated retail-level fertilizer prices all over the country in 1983. The deregulation policy does not appear to have had any adverse impact on fertilizer prices or availability which can be traced directly to deregulation.
3. With the exception of Bangladesh, the retail fertilizer prices are held uniform across the country through equated freight and/or transport subsidy. Such a policy is easy to administer and does not discriminate against the farmers in remote areas. However, farmers close to the supply source pay relatively higher price due to equalized high transportation charges, in case there is no transportation subsidy.
4. In the case of Indonesia and Cameroon, retail fertilizer prices were the same for different fertilizers, irrespective of their nutrient content and cost. Such a policy cannot be justified on economic or efficiency grounds.

5. It is rather common to hold retail fertilizer prices constant (in nominal terms) over extended periods of time. Some of the examples are India, Indonesia, and Cameroon. As a result, real fertilizer prices decline over time. In recent years, many countries have raised fertilizer prices in discrete jumps. It is much more practical and realistic to raise retail fertilizer prices gradually, once or twice a year, rather than in big jumps once in several years.
6. Several countries, including India and Pakistan, have recently raised retail fertilizer prices in order to reduce the burden of fertilizer subsidy. The increase in fertilizer prices does reduce fertilizer consumption, at least in the shortrun, unless it is associated with positive nonprice policies, including high yielding crop varieties, irrigation, credit, and adequate fertilizer supply at the right time and place.
7. Cameroon has been following a dual fertilizer price policy, i.e., subsidized prices for coffee and food crops and nonsubsidized prices for all other crops. There is evidence of leakage and black market for subsidized fertilizer. Furthermore, such a price policy is difficult to administer. If, in fact, there is a need to provide incentives to coffee farmers, it may be more appropriate to manipulate crop prices as compared with dual-price policy for fertilizer.
8. The retail fertilizer prices in Brazil are very high as compared with derived border prices for imported fertilizers. These high prices are partly due to trade barriers to protect its high cost domestic fertilizer industry. Brazil established a large-scale fertilizer industry to achieve fertilizer security as the overriding national goal. However, this policy has been responsible for high cost fertilizer industry, high retail prices, a drop in fertilizer consumption, and agricultural production.
9. Farmers in most countries are not paying the economic prices of fertilizer. During 1985, as reported in Table 3.5, fertilizer prices paid by farmers in Indonesia; Mexico, and Turkey were even lower than the f.o.b. prices of fertilizers. In India, for example, the retail price of urea paid by farmers in 1985 was US $177/mt. On the other hand, the average delivered cost of imported urea up to the retail point would have been US $227/mt (US $135 f.o.b. price, US $50 sea freight and insurance and US $42 for port handling, equated freight, and marketing margins) with transport subsidy,

and US $265/mt without transport subsidy. Clearly, there was a large component of price subsidy, and hence scope to reduce the fertilizer subsidy by raising urea prices. In fact, fertilizer prices were raised (reverted back to 1981 levels) in India effective February 1, 1986. However, the fertilizer prices should be raised in such a way as to maintain a parity with crop prices in order to provide incentives to farmers. The f.o.b. urea (or other fertilizers) prices in the latter half of 1985 and in early 1986 were lower than the 1985 average prices, indicating that the prevailing current fertilizer prices paid by farmers may be close to economic prices.

Fertilizer Subsidy Policy

With the exception of Brazil, fertilizer subsidies (direct and indirect) are given in all the other countries. However, the fertilizer subsidy cost is becoming a serious burden and most countries are now making serious efforts to reduce fertilizer subsidies, but only gradually (Table 3.7). The following conclusions emerge from the comparative analysis of several countries with respect to their experience with fertilizer subsidies.

1. The reasons for high fertilizer subsidies are many and vary from one country to another. Broadly, high fertilizer subsidies are due to (a) high production costs for indigenous fertilizers, (b) high procurement costs for imported fertilizers, (c) high marketing costs, primarily transportation, and (d) the desire to have low fertilizer prices at the retail level. In India, for example, 47% of increase in fertilizer subsidy from 1980/81 to 1983/84 was due to an increase in cost of main inputs in fertilizer production. India has already taken several steps to reduce fertilizer subsidy. This includes (a) an increase in retail fertilizer prices, (b) an elimination of custom duties on all imported equipment for the fertilizer sector, and (c) an elimination of excise duty on electricity. There is need to rationalize the retention price scheme in order to further reduce fertilizer subsidy.
2. After the energy and fertilizer crisis of the 1970s, many developing countries pursued a policy of import-substitution, with the objective of stabilizing prices and to reduce dependency on the international market. They have been partly successful in reducing the share of imported

fertilizers but at a large economic cost. Brazil and India are good examples. Most of the new plants in India have very high cost of production as compared with the international prices. Since the fertilizer prices are too high for farmers, respective governments (not Brazil) are subsidizing the fertilizer production. For example, in India during 1983/84, 86% of the subsidy was for indigenously produced fertilizers and the remaining 14% was for imported fertilizers. Within the indigenous fertilizer sector, 79% of the subsidy was for the retention price scheme (price subsidy) and 21% for freight subsidy scheme (freight subsidy). Concerted efforts must be made to reduce fertilizer subsidy through (a) improved operational efficiency and management of fertilizer plants, (b) reduced energy consumption, (c) reduced capital and operational costs of fertilizer production, and (d) rationalization of input pricing for the fertilizer industry.

3. Most of the subsidy goes for fertilizers containing the primary plant nutrients (N, P, and K), although there may be evidence of other nutrient deficiencies. For example, in the case of Indonesia during 1981/82, 90% of the fertilizer subsidy was for urea and TSP only. If subsidies must be given, blanket fertilizer subsidies must be replaced by component subsidies with clearly identified goals (security, economic or technical), time phasing, cost limits, and efficiency norms.
4. In most countries, fertilizer subsidy schemes are not efficiently administered and implemented. For example, Brazil terminated its fertilizer subsidy policy after 2 years (1975 and 1976) because of poor implementation.
5. Relatively little is known about the cost of different subsidy components and their cost effectiveness. In the absence of such crucial information, it is difficult to design rational and efficient fertilizer subsidy schemes. For example, during 1984, 42% of total fertilizer subsidy cost of US $365 million in Mexico was indirect subsidy in the form of low ammonia prices. Most other countries subsidize natural gas prices to ammonia/urea plants.
6. A large share of fertilizer subsidies merely compensates for high production, procurement, and marketing costs which are partly due to operational inefficiencies and partly due to uneconomic national policies. As a result, farmers are not the only beneficiaries of fertilizer subsidies; others include producers, importers, distributors, and consumers of agricultural commodities. Most developing countries are reluctant to raise crop prices

because of consumer pressure, especially in the urban areas. These same governments also argue that input, including fertilizer, subsidy schemes are less inflationary, less expensive, and easy to administer. However, some of these subsidy schemes have little economic justification.

Table 3.1. Key Economic Indicators for Selected Developing Countries During 1983

Country	Population (million)	Population Growth[a] (%)	Population Density: Total Area (Persons/'000 ha)	Population Density: Cropped Land[b] (Persons/'000 ha)	Rural Population (%)	GNP/ Capita (US $)	Contribution of Agriculture: Labor Force[c] (%)	Contribution of Agriculture: GDP (%)	Food Index[d]	Cropped Land Under Irrigation (%)
Bangladesh	96	2.4	6,667	10,507	83	130	74	47	101	20
India	733	2.3	2,230	4,354	76	260	71	36	108	23
Indonesia	156	2.3	819	7,681	76	560	58	26	121	27
Pakistan	90	3.0	1,119	4,392	71	390	57	27	105	72
Cameroon	10	3.1	17	1,437	61	820	83	24	84	e
Brazil	130	2.3	153	1,740	29	1,880	30	12	113	3
Mexico	75	2.9	380	3,178	31	2,240	36	8	106	22

a. From 1973 to 1983.
b. Persons/'000 ha of cropped land.
c. Refers to 1981.
d. Refers to 1981-83 average index of food production/capita; base index is 100 for 1974-76.
e. Less than 1%.

Table 3.2. National Fertilizer Sector Status in Selected Developing Countries During 1983/84

Country	Consumption	Production	Imports	Exports	Use[a]	Self-Sufficiency Index[b]	$N:P_2O_5:K_2O$ Balance	Annual Growth in Consumption A[c]	B[d]	C[e]
	('000 mt of nutrients)				(kg/ha)	(%)		(%)		
Bangladesh	545	416	195	28	60	76	8.9:4.2:1.0	13.1	10.0	6.3
India	6,608	4,546	1,355	0	39	69	7.4:2.1:1.0	12.1	10.5	7.3
Indonesia	1,495	1,445	367	162	74	97	9.7:3.1:1.0	16.5	18.8	17.5
Pakistan	1,201	1,106	282	159	59	92	32.1:9.1:1.0	16.4	10.6	6.2
Cameroon	33	0	33	0	5	0	0.8:0.3:1.0	8.7	11.5	3.0
Brazil	2,157	1,455	832	129	29	67	0.8:1.2:1.0	14.6	9.0	-11.4
Mexico	1,445	1,303	233	91	61	90	18.8:7.1:1.0	9.6	6.8	12.9

a. Kg/ha of arable land and permanent crops.
b. Domestic production as percent of total consumption, in terms of nutrients from finished fertilizers only. Does not account for stocks.
c. Compound growth rate from 1965/66 to 1982/83; which are 3-year averages, centered on the years shown. For example, 1965/66 is an average of 1964/65, 1965/66, and 1966/67; and 1982/83 is an average of 1981/82, 1982/83, and 1983/84.
d. Compound growth rate from 1976/77 to 1982/83; which are 3-year averages, centered on the years shown.
e. Compound growth rate from 1979/80 to 1982/83; which are 3-year averages, centered on the years shown.

Table 3.3. Contribution of Different Fertilizer Products to Nutrient Consumption in Selected Developing Countries During 1983/84

Country	Nitrogen[a]				Phosphate[a]				Potassium[a]			
	Urea	AS	Other Straights	Compounds	SSP	TSP	Other Straights	Compounds[b]	KCl	KS[c]	Other Straights	Compounds
	(%)				(%)				(%)			
Bangladesh	95	-[d]	-	5	-	74	-	26	100	-	-	-
India	82	2	2	14	17	1	1	81	59	1	-	40
Indonesia	92	7	-	1	-	95	4	1	95	1	-	4
Pakistan	74	2	8	16	7	-	-	93	-	63	-	37
Cameroon	17	32	-	50	-	2	9	89	43	-	-	57
Brazil	44	20	16	20	26	19	11	44	82	2	-	16
Mexico	39	25	21	15	15	40	3	42	21	25	-	54

a. Percent contribution to total N, P_2O_5, or K_2O consumption.
b. The share of ammonium phosphates, primarily DAP, in compound phosphate fertilizers was 26% in Bangladesh, 59% in India, 59% in Pakistan, 10% in Cameroon, 35% in Brazil, and 35% in Mexico.
c. Potassium sulfate (K_2SO_4).
d. Negligible or none.

Table 3.4. Estimated Fertilizer Marketing Costs in Selected Developing Countries

Country	Storage[a]	Transportation	Margins or Commissions	Interest on Inventories[b]	Other Costs	Total[c]
	($/mt)					
Bangladesh	22	13	6-10	18	-	59-63
India	6	2[d]-5[e] (rail) 3[d]-8[e] (road)	11-22	9	-	31-50
Indonesia	8-15	8-32	11-15	5-6	2-4[f]	34-72
Pakistan	3	-	-	6	-	18-53[g] 65-74[h]
Cameroon	110[i]	21[j]-58[k] (rail) 21[j]-117[k] (road)	-	19	-	75-230[l]
Brazil	10	2-5[j]	-	14	-	-[m]
Mexico	4	20	-	7	-	40[n]

a. Based on reported inventories assuming $1/mt in and $1/mt out (handling plus $3/mt-month.
b. Based on reported inventories valued at $200/mt and 12% annual interest. If storage capacity only was given, quantity assumed was equivalent to 50% of storage capacity.
c. Other costs are generally not available. Therefore, total is not necessarily sum of cost components listed.
d. Journey of 1-25 km.
e. Journey of 276-300 km.
f. Advertising, promotion, and education.
g. Domestically produced fertilizer.
h. Imported fertilizer.
i. Storage plus all handling including ship unloading, port charges, and losses of product.
j. Assumes 250 km journey.
k. Assumes 900 km journey.
l. Depends on source of estimate.
m. Sufficient data not available to determine or estimate total cost.
n. Reported total not including interest on inventory and other finance costs.

Table 3.5. Average Farm-Level Fertilizer Product Prices in Selected Developing Countries During 1985

Country	Average Farm-Level Prices				
	Urea	AS	DAP	TSP	KCl
	($/mt)				
Bangladesh	183	-[a]	-	179	146
India	177	123	268	192	96
Indonesia	91	91	-	91	91
Pakistan	152	75	-	-	-
Cameroon	83	83	-	-	-
Brazil	252	200	427	314	227
Mexico	85	33	-	99	90
International (f.o.b.)[b]	135	81	184	136	99

a. Not available.

b. 1985 annual average international spot prices, f.o.b. Western Europe for bagged urea; U.S. Gulf for AS, DAP, and TSP in bulk; and Vancouver for KCl in bulk. $15.00/mt was added for bagging and bags when price was quoted in bulk. The current international fertilizer prices are lower than indicated since they have been declining in the last year or so.

Table 3.6. An Overview of Fertilizer Pricing and Subsidy Policies in Selected Developing Countries During 1985

Country	Price Regulation		Retail Price Uniformity	Fertilizer Subsidy	
	Ex-Factory	Retail		Producer	Farmer
Bangladesh	Yes	No	No	Yes	Yes
India	Yes	Yes	Yes	Yes	Yes
Indonesia	Yes	Yes	Yes	Yes	Yes
Pakistan	Yes	Yes	Yes	Yes	Yes
Cameroon	a	Yes[b]	Yes[b]	a	Yes[b]
Brazil	Yes	Yes	No	No	No
Mexico	Yes	Yes	Yes	Yes	Yes

a. Cameroon has no production facilities in operation.
b. For subsidized fertilizers only; Cameroon follows dual pricing policy at the retail level.

Table 3.7. Estimated Cost of Fertilizer Subsidy in Selected Developing Countries

Country	Year	Subsidy Cost	
		Local Currency	US $
Bangladesh	1983/84	TK 1,426 million	56.3 million
	1984/85[a]	TK 900 million	33.0 million
India	1983/84	Rs 10.48 billion	919.3 million
	1984/85[b]	Rs 19.32 billion	1,545.6 million
Indonesia	1981/82	Rs 243,805 billion	369.4 million
Pakistan	1982/83[c]	Rs 1,840 million	129.6 million
	1983/84[c]	Rs 1,137 million	72.0 million
Cameroon	1984/85[d]	FCFA 6,109 million	13.6 million
	1984/85[e]	FCFA 9,840 million	21.9 million
Mexico	1984[f]	-[g]	365.0 million

a. Estimated.
b. Budgeted.
c. Net.
d. USAID estimate.
e. IFDC estimate.
f. Direct and indirect.
g. Not available.

CHAPTER 4

FERTILIZER MARKETING SYSTEM AND POLICY IN BANGLADESH

The purpose of this chapter is to analyze the fertilizer marketing system and fertilizer marketing policy in Bangladesh.[1] Specifically, the objectives are: (1) to discuss the evolution of the fertilizer marketing system and policy, (2) to describe the existing fertilizer marketing organization and channels, (3) to analyze fertilizer marketing costs and margins, (4) to evaluate the operational efficiency of the fertilizer marketing system, and (5) to describe specific measures taken to improve the efficiency of fertilizer marketing system in Bangladesh.[2]

Evolution of the Fertilizer Marketing System

Fertilizer was introduced in Bangladesh around 1951. The market for fertilizer has expanded from a mere 3,000 mt of product in 1951/52 to about 74,000 mt of product in 1962/63 to almost 1.2 million mt of product in 1985/86. The historical dynamics of fertilizer consumption, as measured by sales, in Bangladesh is reported in Figure 4.1. The fertilizer marketing system in Bangladesh is by no means a "static" system. In recent years, the marketing system has experienced several major changes under the impetus of USAID's Fertilizer Distribution Project which was initiated in 1978. The marketing system appears to be adjusting well to these changes.[3]

1. This chapter is based on Mudahar (1984) and Kapusta (1985).
2. The analysis of fertilizer marketing system and policy in Bangladesh is based on both primary and secondary data. The relevant BADC and non-BADC sources of secondary data include BADC (1981), BADC (1984), Hoque (1982), Food and Fertilizer Planning and Monitoring Secretariat (1983), and Bangladesh Ministry of Agriculture and USAID (1982). The primary data used in the analysis were collected through the BADC/IFDC monthly farmer fertilizer price surveys.
3. Further details on different aspects of the fertilizer marketing system in Bangladesh are available in several IFDC publications, including Chuang, Hill, and Barnett (1978); Hill and Benton (1979); Hill and Benton (1980); Clayton (1981); IFDC (1982); Moots (1982); and Mudahar (1983, 1984).

Phase I

The Bangladesh Agricultural Development Corporation (BADC) has been responsible for marketing fertilizer since 1962/63. The predecessor of BADC was the East Pakistan Agricultural Development Corporation (EPADC), which was established in 1961; the name was changed to BADC in 1971. BADC is a corporation which is wholly owned by the government. Along with fertilizer, BADC is responsible for distributing seeds and irrigation equipment and services. The suggested organization of its Supply Wing (reflecting changes to facilitate the implementation of the new marketing system described later), which is responsible for fertilizer marketing, is shown in Figure 4.2. Total BADC employment approximates 21,000, with about 2,800 involved in fertilizer-related activities. The key regulatory features of the marketing system in Phase I, the so-called Old Marketing System (OMS), were the following:

1. BADC, an "absolute public monopoly" was responsible for procuring and distributing fertilizer up to the level of Thana Sales Center (TSC), beyond which private dealers and cooperatives sold to farmers.[4]
2. The private dealers, limited to 15 in every union, were appointed by BADC, and each dealer was assigned to a fixed marketing territory.
3. The fertilizer retail price at which a dealer could sell to a farmer was fixed and uniform throughout the country.
4. The dealer's commission was fixed by BADC at a level which was low and perceived by dealers as providing limited economic incentive.

Phase II

The fertilizer marketing system in Phase II, the so-called New Marketing System (NMS), was first introduced in Chittagong Division on December 1, 1978; it was expanded to Dhaka and Khulna Divisions on January 1, 1980, and later expanded to the whole country (except Chittagong Hill Tracts) on July 1, 1980. The primary features of NMS included the following:

1. BADC was still "absolute public monopoly" for fertilizer procurement but its role in fertilizer distribution was reduced to servicing Primary Distribution Points (PDPs) and viable TSCs only.

4. The name of thana administrative unit was changed to Upazila in 1985--see footnote 5. For ease of discussion the older thana designation is used in this paper.

2. Any number of private dealers could sell fertilizer by merely registering with BADC without any restrictions on their number or market territory (except within the 5-mile border zone).
3. The retail price at which a dealer could sell fertilizer to a farmer was still fixed and uniform throughout the country.
4. The economic incentives to private dealers were expanded (but were still regulated) through an increase in dealer's commission, price flexibility at wholesaler level, quantity discounts and credit facilities.

Phase III

The NMS was further modified by deregulating retail fertilizer prices. The price deregulation was first introduced in the Chittagong Division on April 1, 1982, and later expanded to the whole country (except Chittagong Hill Tracts) on April 1, 1983. The concept of price deregulation in this context is rather limited. The PDP and TSC prices are still regulated by BADC and are fixed at the same level across all PDPs or TSCs for a particular fertilizer. However, the dealers are free to sell fertilizer to farmers at any price.

Fertilizer Marketing Organization and Channels

Marketing Organization

The fertilizer marketing system in Bangladesh is organized somewhat like a "pyramid." BADC, an absolute public monopoly, is responsible for procuring fertilizer from domestic fertilizer plants (except ammonium sulfate) and through imports (commercial or grants) at the national level. BADC is also responsible for distributing nationally procured fertilizer up to PDPs and TSCs through various transit and intermediate warehouses. As shown in Figure 4.3, a large number of private dealers and cooperatives sell fertilizer to farmers, directly as well as through their subdealers. The private fertilizer dealers at the retail level compete with each other and with cooperatives involved in fertilizer sales.

Spatial Dimensions

According to Bangladesh Bureau of Statistics (1982) and Bangladesh Times (1983), as of 1983, Bangladesh was divided into 4 administrative divisions,

21 districts, 65 subdivisions, 477 thanas, and 4,420 unions (Figure 4.4).[5] There are about 65,000 villages in Bangladesh and each union consists of approximately 15 villages. Furthermore, the total number of households in Bangladesh is about 13.47 million, and 6.256 million of these are directly involved in farming--58% as owners, 41% as owner-cum-tenants, and the remaining less than 1% as pure tenants. The large number of small farmers, who are widely and remotely distributed across the countryside, provide a challenge and an opportunity to make the right kind of fertilizer available in adequate quantities to all farmers at the right time and at reasonable prices.[6]

Fertilizer Allocation

National targets for fertilizer sales are set for the long term (as part of 5-year plans) and short term (as annual targets which are derived from long-term targets). The national annual target is then split into district-level monthly/seasonal targets. BADC then allocates fertilizer to each district according to these targets. The fertilizer allocation is, however, adjusted from time to time in view of changes in fertilizer demand and supply at the district and national levels. Such a strategy ensures equitable distribution of fertilizer to different districts but also implies a maximum limit on the amount of fertilizer a dealer can purchase and sell. There are also regulations that impose a limit on the amount of fertilizer a dealer can purchase from a PDP or TSC, especially in periods of scarcity.

5. In 1984, the administrative structure was altered as follows:

Old	Geographical Coverage	New
Union	6-12 Villages	Union
Thana (Police Station)	6-13 Unions	Upazila
Subdivision	3-12 Thanas	-
District (Zila)	1-6 Subdivisions/12-30 Upazilas	Zila (District)
Division	3-7 Districts	-

6. According to Sidhu, Baanante, and Ahsan (1982), the percentage share of sample farmers using fertilizer was 68%, 62%, and 61% in Boro, Aus, and Aman seasons, respectively, during 1979/80. However, the percentage share of farmers actually using fertilizer increases with an increase in farm size. For example, during Aman 1980 season, the percentage share of sample farmers using fertilizer was 54%, 57%, 67%, and 72%, respectively, for farm size categories of less than 1.0 acre, between 1.0-2.5 acres, between 2.5-5.0 acres, and greater than 5.0 acres. On the other hand, fertilizer use per acre appears to have an inverse relationship with farm size.

Marketing Channels

The fertilizer marketing channels in Bangladesh, as outlined in Figure 4.3, can be broadly divided into three categories: (1) government, (2) private, and (3) cooperatives. The role of government in retailing fertilizer is limited to those identified remote areas not served by others and in border areas where private dealers and cooperatives are not allowed to sell fertilizer. The private fertilizer dealers operate at both wholesale and retail levels. Dealers purchase fertilizer from BADC PDPs and TSCs and sell fertilizer through their own outlets as well as through their subdealers. The cooperatives are also involved in fertilizer marketing. Thana Central Cooperative Associations (TCCA), now Upazila Central Cooperative Associations, purchase fertilizer from BADC and then distribute it through local Krishi Samabaya Samity (KSS) outlets. In the OMS, the cooperatives were given preferential treatment over the private dealers and accounted for about 25% share of the market. However, in the NMS most of these economic incentives have been withdrawn from cooperatives and their market share dropped significantly to less than 10%.

Dealer Profile

Precise information on the number of dealers (both wholesale and retail) in Bangladesh is rather sketchy. In 1978/79 under the OMS there were about 35,400 registered dealers of which about 18,800 were actively engaged in selling fertilizer; there were no private wholesalers. With the relaxation of dealer registration requirements and operation of rules under the NMS the number of active dealers rose to about 24,000 then dropped off to a current level of 23,000, including about 5,000 small-scale wholesalers. The increase in number of registered fertilizer dealers may be partly misleading since under the NMS the same dealer can be registered at more than one PDP. About 87% of registered dealers in NMS were also OMS dealers.

The size of many retail fertilizer dealerships, as indicated by the amount of retail fertilizer sales, appears to be so small that it is not economically viable for an individual to deal exlusively in fertilizer. According to Hill and Benton (1980), 70% of active dealers are part time, and the average annual sale per dealer has increased from approximately 25 mt in 1975/76 to 34 mt in 1977/78. Based on sales of about 1.2 million mt in 1985/86, the average retail dealer sold about 52 mt.

Fertilizer Marketing Costs

The actual fertilizer distribution costs in most developing countries are generally very high. Bangladesh is no exception. Furthermore, because of government regulations in the marketing system, hidden subsidies, and operational inefficiencies, the estimated marketing costs do not always reflect the actual costs of fertilizer marketing.

Magnitude of Marketing Costs

The magnitude of fertilizer (marketing) incidental costs, as determined by the accounting system used by BADC, is based on cost estimates for moving fertilizer from port or factory to the farmer. The incidental costs are fixed at the same level for all the fertilizer materials, irrespective of the origin or destination of fertilizer, and whether the fertilizer is imported or domestically produced. The estimated incidental costs in the NMS have decreased from TK 722/mt in 1978/79 to TK 511/mt in 1984/85 as shown in Table 4.1. These average incidental costs are added to average c. & f. or f.o.r. prices in order to obtain average delivered cost for fertilizer at the retail level. The derived average fertilizer costs indirectly form the basis for establishing retail fertilizer price and determining fertilizer subsidy.

The magnitude of incidental costs is fixed at the same level for all the fertilizers, whereas the average fertilizer costs vary by fertilizer and their source of supply. As a result, the relative share of incidental costs in average fertilizer costs varies from one fertilizer to another.

Components of Marketing Costs

The magnitude of various components of incidental (marketing) costs, along with their relative share, is reported in Table 4.1 for 1978/79 and 1984/85. During 1978/79 (transitional year between OMS and NMS), the average incidental costs for fertilizer marketing and distribution in Bangladesh were estimated to be TK 722/mt. For 1984/85, under NMS, these costs had dropped to about TK 511/mt. These costs are obtained by dividing total fertilizer marketing and distribution costs, as estimated by BADC, by total tonnage of fertilizer sold during the year in question.

The relative contribution of 11 individual cost components has been estimated and reported in the table. During 1978/79, three components accounted

for approximately 84% of total incidental costs. This includes 43.8% for movement and handling, 21.7% for commission, and 18.3% for inventory loss. Staff pay and allowances accounted for 5.5% of total costs. In 1984/85, movement and handling costs remained the largest contributor to marketing costs, accounting for about 64.4% of total costs. Overhead and staff pay and allowances were other important cost elements making up about 14.7% and 9.4% of total marketing costs, respectively. At this stage, it is important to point out that the incidental costs and their cost components are based on BADC's bookkeeping system and hence do not reflect the actual fertilizer marketing and distribution costs.

As has been estimated by Hill and Benton (1980), the relative share of individual cost components at the district level has changed with the establishment of NMS. During 1978/79 the share of commission paid increased from 39% to 58%; the share of transport and handling cost declined from 15% to 3%; and the share of inventory interest declined from 30% to 26%. Comparable data for later years was not immediately available. These shifts reflect the general philosophy underlying the NMS, i.e., increase economic incentives to dealers and lower distribution costs through an improvement in operational efficiency in fertilizer marketing.

Dealer's Commission in the OMS

The commission paid to fertilizer dealers in the OMS was fixed by BADC. Broadly, the criteria used to fix dealers' commissions were: (1) the greater the distance of the dealer from BADC sale point, the greater the commission; and (2) the commission was higher in the border zone than in the interior. Cooperatives were given a wholesaler discount which permitted them to sell to private and local cooperative dealers. The evolution of commission for private fertilizer dealers in OMS is reported in Table 4.2. On the average, the commission increased from TK 44.28/mt in 1973/74 to TK 138.74/mt during 1977/78. From the BADC sale point to his store, the dealer pays all the costs from the commission.

Dealer's Commission in the NMS

As reported in Table 4.3, the process of establishing a commission for fertilizer dealers was simplified in the NMS. The commission at TSC was approximately 60% of that paid at PDP. This was partly because, on the average, the

distance of the dealer from TSC was less than the corresponding distance from PDP. However, the commission is the same for all those buying from TSC or PDP, irrespective of their distance or mode of transportation. Quantity discounts are available for purchases from PDP but not from TSC. The dealer pays all the transportation and handling costs after fertilizer purchase from his commission. Since December 7, 1981, there has been no increase in the PDP or TSC commission for the fertilizer dealer. BADC stopped fixing dealer commissions after retail fertilizer prices were deregulated.

Relative Share of Dealer's Commission

In Bangladesh, dealer's commission is equivalent to dealer discount from official retail fertilizer prices. The commission is already accounted for in estimating incidental costs. Fertilizer commission is uniform for all the fertilizers, irrespective of their PDP, TSC, or retail prices. As reported in Table 4.4, the fertilizer commission during 1983 at PDP was approximately 7%-9% and at TSC was 4%-5% of the official retail price. Even though the commission was uniform for all the fertilizers, the percentage of commission was high for low-priced fertilizers and vice versa. At the PDP level, dealer commission was even higher for those who were eligible for a quantity discount, which was TK 30/mt to TK 40/mt, depending upon the quantity purchased.

Operational Efficiency of Marketing System

Government intervention and distortions in the fertilizer market make it difficult to determine the operational efficiency of the marketing system. Despite serious constraints with respect to infrastructure and resources, the marketing system in Bangladesh is performing rather well in providing fertilizer to farmers on time and in adequate quantities. There is, however, substantial scope for reducing fertilizer marketing costs and improving the operational efficiency of the marketing system.

Fertilizer Market Equilibrium

First, fertilizer demand is seasonal, whereas fertilizer production is a continuous process. However, fertilizer imports create discontinuity in fertilizer supply, especially at low levels of fertilizer production.

Second, fertilizer demand is diffused all over the country, whereas fertilizer supply is localized depending upon the number and location of fertilizer plants and ports.

Third, there is a need to make a clear distinction between (1) fertilizer available at the national level with BADC and BCIC; (2) fertilizer available with BADC, including transit godowns, warehouses at the port, and ships at port or in high seas; (3) fertilizer available with BADC for immediate distribution; and (4) fertilizer available with fertilizer dealers.

These factors have important implications for fertilizer market equilibrium, storage needs, size of inventory and fertilizer transportation. Proper planning of fertilizer supply to meet seasonal fertilizer requirements is necessary and large capital investments are required to build storage facilities at strategic points as well as adequate transportation facilities.

According to FAO statistics on fertilizer consumption and production, the worldwide fertilizer market is approximately in equilibrium when supply exceeds demand by 3% to 7%, depending upon the fertilizer and international market conditions. This allows for fertilizer losses and fertilizer in the pipeline. However, at the national level supply should generally exceed demand by more than 7%. This is especially important for developing countries like Bangladesh in order to account for the following factors:

1. Fertilizer losses.
2. Safety stock.
3. Stock with speculating dealers.
4. Fertilizer in pipeline.
5. Shutdown of fertilizer plants.
6. Late arrival of imported fertilizer.
7. Fertilizer movement across borders.

These factors reduce effective fertilizer supply, i.e., reduce fertilizer availability in local markets for purchase by farmers, especially in the peak fertilizer demand months. However, the relative importance of these factors as well as the optimum size of fertilizer stocks may vary from one country to another. Lack of an effective market communication and infrastructure, which is prevalent in most developing countries, further reinforces the need for efficient supply management, proper planning, and floating stocks.

Buffer Stock Policy

In the OMS, BADC buffer-stock policy in Bangladesh implied sales-to-inventory ratio of 2.4 at the national level (5 month stock or 42% of target sales) and 4.0 at the district level (3 month stock or 25% of target sales). According to Moots (1982), in the NMS efforts are being made to maintain sales-to-inventory ratios of 3.1 at the national level and 3.0, 4.4, 2.9, and 2.3 in Dhaka, Chittagong, Rajshahi, and Khulna divisions, respectively. These buffer stocks, which appear rather large and expensive to maintain, are expected to ensure adequate fertilizer availability in Bangladesh. Seasonality in fertilizer consumption creates an additional economic burden on the fertilizer marketing system in the form of a need for large fertilizer stocks.

Fertilizer Transportation

According to Moots (1982) and BADC sources, fertilizer transportation modes included the following:

Transport Mode	Up To District	Within District
	(%)	
Rail	37	<5
Water	21	30-35
Road	42	60-65
Total	100	100

Many different modes of transport, except rail, were used to carry fertilizer from PDP or TSC to dealer stores. Finally, as reported in Table 4.5, 67%-82% of the farmers carried their fertilizer from dealer stores to the farms themselves.

BADC has limited control of fertilizer movement since it is transported by other government agencies and by the private sector. As a result, sometimes it takes several weeks for fertilizer to arrive at dealer stores. Fertilizer transport is cheapest by water and most expensive by road. Proper planning and adequate allocation of boats and railcars for transporting fertilizer would not only expedite fertilizer movements but would also lower transportation costs.

Fertilizer Storage

According to BADC (1984) the total fertilizer storage capacity available to BADC as of May 1, 1984, was as follows:

Type	Transit	PDP	TSC	Total
	('000 mt)			
Own	36.5	264.1	18.5	319.1
Rented	7.9	92.7	20.0	120.6
Total	44.4	356.8	38.5	439.7

The PDP storage capacity will increase substantially when the construction of all the proposed warehouses is complete. This is expected to remove one of the primary constraints on timely fertilizer availability to dealers.

Loose Fertilizer Sales

As reported in Table 4.6, approximately 80% of urea, 90% of TSP, and 100% of MOP sales are in loose form, and the rest in bags. As a result, there is a possibility for adulteration, underweighing, and deterioration of fertilizer. There is, albeit limited, evidence that these problems do exist in Bangladesh. However, not enough is known about violations in fertilizer quality control. One way to reduce such problems is to use small-size bags. This will increase bagging cost, but the standardization of quality and the convenience of carrying smaller bags as head load may compensate for the added cost.

Source of Information

One of the functions of an efficient marketing system is to provide technical and market information to farmers. As reported in Table 4.7, approximately 80% of the farmers receive no information about fertilizer. About 10% of the farmers receive information from the dealers. Clearly, it is possible to improve the information base and its transfer so that farmers are in a better position to make decisions with respect to purchase and use of fertilizer. Dealers are one logical source of such information and, if properly trained, can support the extension service in developing and disseminating information related to efficient and economical fertilizer use.

Market Development

Under the OMS, the lack of effective sales promotion and farmer technical assistance programs seriously limited the expanded use of fertilizer. Promotion of fertilizer use rested mainly with the Ministry of Agriculture's extension service, which was and is underfunded, understaffed, and generally

unable to serve the needs of Bangladesh's 12 million small farmers. At that time BADC's role in market development was also limited by lack of staff and funding support. BADC local level staff members responsible for working with fertilizer dealers and farmers lacked the technical skills, informational material, time, and means of transport to cover their assigned areas. The fertilizer dealer's potentially crucial role in promoting fertilizer use was likewise restricted by his limited knowledge of the agronomic aspects of fertilizer use and his lack of skills and resources in organizing and conducting fertilizer promotion and farmer assistance programs.

Cognizant of the dealer and farmer knowledge-related constraints to fertilizer use expansion, the NMS made fertilizer dealers the focal point of BADC's market development program. Accordingly, a dealer development and training unit was established within the BADC organization with the express purpose of building dealer's fertilizer use knowledge and developing his sales promotion skills and farmer assistance capabilities through an organized continuing nationwide dealer training effort. Training in various facets of business management is also offered to dealers as part of this program.

A cadre of BADC dealer training officers has been trained and to date about 17,000 dealers have participated in training programs conducted in each of the country's 21 districts. A large volume of training and sales promotion literature has been prepared and distributed to dealers and farmers. A third party evaluation of BADC's dealer development and training program confirmed the soundness of the approach and the successful implementation of the program. Its continuation was recommended. The BADC dealer training effort has proved to be a cost-effective way of transferring fertilizer use and crop production technology to farmers.

Human Resource Development

In Bangladesh, as in most developing countries, improvement in the operational efficiency of the marketing system can be affected by strengthening the management and operating skills of personnel involved in the conduct of the various marketing functions.

To overcome these personnel-related deficiencies training was made an integral component of the NMS implementation process. Over 200 individuals, mostly of senior- and middle-management rank, were provided training opportunities in in-country and overseas training programs and marketing study tours

arranged by IFDC and other organizations. Topics covered a broad range of marketing-related activities including marketing management, procurement, data collection and analysis, physical distribution and handling, market development, dealer systems, bulk handling, use of microcomputers, and economics of fertilizer use. In several instances, these training activities were supported by short-term consultancies designed to aid BADC personnel in improving specific marketing activities.

New Marketing System

The overall objective of the NMS is to improve the operational efficiency of fertilizer marketing. This is being accomplished through (1) an improvement in economic efficiency in fertilizer marketing from supply source to farmer and (2) an increased availability of quality fertilizers to all classes of farmers in the country at competitive prices. The principal reforms under NMS include (1) expanded role of the private sector, (2) fertilizer price deregulation, (3) creation of additional fertilizer storage facilities, (4) streamlining fertilizer procurement through imports, (5) improving fertilizer marketing and distribution systems, and (6) dealer development and training. The underlying purpose for these reforms is to reduce marketing constraints, reduce fertilizer delivery costs, increase fertilizer availability in all areas and to all farmers, and increase opportunities for greater competition at all levels.

The more important improvements made in fertilizer marketing under the NMS are summarized in Table 4.8 which identifies and indicates the remedial actions taken to ameliorate the main marketing-related impediments to expanded fertilizer use. IFDC has been engaged in providing technical assistance to BADC on these and other facets of fertilizer marketing system improvement under the USAID-funded Fertilizer Distribution Improvement Project I (FDI-I).

USAID is in the early stages of implementing Fertilizer Distribution Improvement Project II (FDI-II) which will expand private-sector involvement in fertilizer marketing and distribution through the development of larger-scale private wholesalers operating on a national scale. To support the organization and facilitate the operation of these large-scale wholesalers, FDI-II will make funds available for (1) providing credit to wholesalers and retailers for the purchase and maintenance of inventories, (2) technical assistance in expanding

dealer development and training programs, and (3) infrastructure improvements to overcome constraints to the physical distribution of fertilizers. If required, funds from the dealer credit program may be used to purchase imported fertilizers. IFDC will be providing technical assistance to BADC under FDI-II also.

Table 4.1. Estimated Average Incidental Costs for Marketing and Distributing Fertilizer in Bangladesh During 1978/79[a] and 1984/85

Cost Element	Incidental Costs, TK/mt			
	OMS (1978/79)		NMS (1984/85)	
	Cost	% of Total	Cost	% of Total
Movement/handling	316	43.8	329	64.4
Dealers' commission	157	21.7	-[b]	0.0
Stock losses	132	18.3	11	2.2
Overhead	17	2.4	75	14.7
Staff pay and allowances	40	5.5	48	9.4
Physical verification/bagging and dunnage	3	0.4	1	0.2
Warehouse rent	21	2.9	2	0.4
Establishment costs/repair	10	1.4	12	2.3
Publicity and training	1	0.1	1	0.2
Interest on working capital	20	2.8	16	3.1
Marine insurance	5	0.7	16	3.1
TOTAL	722	100.0	511	100.0

a. Private communication, R. D. Benton, June 1985.

b. Dealer commission was not included in incidental costs when retail fertilizer prices were deregulated. This partly explains a drop in incidental costs during 1984/85.

Table 4.2. Evolution of Commission for Fertilizer Dealers in the OMS in Bangladesh[a]

Year	Effective From	Commission Tier (miles)	Commission TK/md	Commission TK/Long Ton	Commission Average TK/Long Ton[b]
1973/74	June 1, 1973	0-2	1.15	31.30	45.00
		2-4	1.41	38.40	
		4-6	1.65	44.90	
		6-9	2.00	54.40	
		>9	2.52	68.60	
1974/75	March 27, 1974	0-3	1.75	47.60	60.00
		3-6	2.00	54.40	
		6-9	2.25	61.20	
		>9	2.52	68.60	
1975/76[c]	January 7, 1975	0-3	3.50	95.30	119.00
		3-6	4.00	108.90	
		6-9	4.50	122.50	
		>9	5.00	136.10	
1976/77[d]		-[e]	-	-	119.00
1977/78[f]	January 1, 1978	0-6	4.00	108.90	141.00
		>6	6.00	163.30	

a. This table is based on information obtained from several BADC and non-BADC sources.
b. According to Benton (1979) from 1973/74 to 1977/78 the average reported commission was 44, 60, 116, 119, and 101 TK/long ton sold as compared to average estimated commission of 58, 70, 130, 130, 135 TK/long ton sold for the corresponding years.
c. Excluding Chittagong Hill Tracts where the commission was slightly higher, effective January 6, 1976.
d. Same as for 1975/76.
e. Information not available.
f. The cooperative sector was favored over private sector through higher commission.

Table 4.3. Evolution of Commission for Fertilizer Dealers in the NMS in Bangladesh[a]

Year	Effective From	Commission at PDP TK/Long Ton	Commission at PDP TK/mt	Commission at TSC TK/Long Ton	Commission at TSC TK/mt
1978/79	December 1, 1978	230.00		136.10	
1979/80	December 1, 1979	230.00		136.10	
1980/81	November 2, 1980	230.00	226.45	136.10	134.01
1981/82	December 7, 1981	280.00	275.68	163.33	160.80
1982/83	August 3, 1982[b]	-	275.00	-	160.00
1983/84	As of April 1983[b]	-	275.00	-	160.00

a. This table is based on information obtained from several BADC and non-BADC sources. Dealer pays all the freight and handling cost after fertilizer purchase.
b. In addition to commission, quantity discounts were given at PDP at TK 30/mt for lifting ≧15 mt, and TK 40/mt for lifting ≧25 mt.

Table 4.4. Fertilizer Dealer Discount (Commission) From Official Retail Fertilizer Price in Bangladesh During April 1983

Fertilizer	Official Retail Price[c] (TK/mt)	PDP Price Discount[a] TK/mt[d]	PDP Price Discount[a] % of Retail Price	TSC Price Discount[b] TK/mt[d]	TSC Price Discount[b] % of Retail Price
Urea	3,970	275	6.9	160	4.0
GTSP	3,750	275	7.3	160	4.3
PTSP	2,950	275	9.3	160	5.4
DAP	3,970	275	6.9	160	4.0
MOP	2,950	275	9.3	160	5.4

a. In addition, quantity discount was allowed at TK 30/mt if the quantity lifted at a time was at least 15 mt; and at TK 40/mt if the quantity lifted was at least 25 mt. Minimum quantity which a dealer must lift was 3.0 mt, except in Barisal, Faridpur, Patuakhali, and Khulna districts where the minimum requirement was 1.0 mt.
b. No such quantity discounts were allowed. Minimum quantity which a dealer must lift was 0.75 mt.
c. Effective July 1, 1982.
d. Effective December 7, 1981.

Table 4.3. Percentage of Farmers Using Different Modes of Fertilizer Transportation in Bangladesh

Mode of Transportation	Month/Year							
	1981	1982						
	December	January	February	March	April	May	June	July
	(%)							
Cart/tomtom	5.1	7.9	8.8	6.3	9.1	9.3	9.9	7.4
Head/kuli/laborer	81.6	75.5	72.7	78.1	73.8	68.5	68.2	66.9
Rickshaw	6.6	11.0	12.0	8.2	9.0	7.8	7.0	8.2
Boat/launch	4.4	2.6	3.2	2.6	2.5	5.8	6.0	12.3
Bus/motore	1.5	0.8	0.1	1.4	3.3	5.2	7.9	4.5
Bicycle	0.8	2.2	3.2	3.4	2.3	3.4	1.0	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of farmers surveyed	473	607	697	697	569	463	302	269

206

Table 4.6. Distribution of Loose or Bagged Fertilizer Sales in Bangladesh

Month/Year	Urea			TSPG			MOP		
	Bagged	Loose	Total	Bagged	Loose	Total	Bagged	Loose	Total
	(%)								
1981									
December	13.0	87.0	100.0	5.4	94.6	100.0	1.1	98.9	100.0
1982									
January	20.9	79.1	100.0	6.4	93.6	100.0	2.2	97.8	100.0
February	34.4	65.6	100.0	13.0	87.0	100.0	2.7	97.3	100.0
March	25.6	74.4	100.0	6.7	93.3	100.0	2.0	98.0	100.0
April	20.4	79.6	100.0	7.7	92.3	100.0	-[a]	100.0	100.0
May	20.2	79.8	100.0	6.8	93.2	100.0	-	100.0	100.0
June	21.4	78.6	100.0	2.9	97.1	100.0	-	100.0	100.0
July	22.7	77.3	100.0	12.5	87.5	100.0	-	100.0	100.0
August	22.7	77.3	100.0	17.2	82.8	100.0	-	100.0	100.0
September	25.1	74.9	100.0	5.9	94.1	100.0	-	100.0	100.0
October	30.8	69.2	100.0	11.8	88.2	100.0	-	100.0	100.0
November	12.3	87.7	100.0	6.5	93.5	100.0	-	100.0	100.0
December	15.2	84.8	100.0	21.6	78.4	100.0	1.4	98.6	100.0
1983									
January	18.0	82.0	100.0	16.4	83.6	100.0	3.1	96.9	100.0
February	22.2	77.8	100.0	10.5	89.5	100.0	-	100.0	100.0
March	28.7	71.3	100.0	2.3	97.7	100.0	-	100.0	100.0
April	22.7	77.3	100.0	12.4	87.6	100.0	-	100.0	100.0
May	19.5	80.5	100.0	6.6	93.4	100.0	-	100.0	100.0
June	18.7	81.3	100.0	7.2	92.8	100.0	-	100.0	100.0
July	20.8	79.2	100.0	16.8	83.2	100.0	2.1	97.9	100.0

a. None of the quantity was bought in bags.

Table 4.7. Sources of Fertilizer Information to Farmers in Bangladesh

Source of Fertilizer Information	Month/Year																			
	1981	1982												1983						
	Dec.	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July
	(%)																			
Information not available	72.3	74.2	81.9	83.2	63.7	62.1	74.8	76.2	77.4	82.1	85.5	82.9	82.9	81.9	86.3	88.8	83.5	85.9	87.1	88.8
TAO[a]	18.8	19.9	16.7	13.1	13.5	15.1	12.0	7.0	3.6	2.8	2.1	2.8	4.3	7.6	5.4	2.9	3.3	3.8	3.1	1.4
Dealer	4.1	5.7	1.4	3.7	22.4	21.3	11.2	14.0	15.4	11.6	11.8	14.0	12.2	10.5	7.9	7.9	10.6	8.0	8.8	7.9
Radio/newspaper	0.2	0.2	-[b]	-	0.2	-	0.9	1.4	1.8	-	0.3	-	-	-	-	-	-	-	-	-
Neighbor	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	0.8	0.6	0.8	1.4
Ideal farmer	4.0	-	-	-	-	1.5	1.1	1.4	1.8	3.5	0.3	0.3	0.6	-	0.4	-	1.8	1.7	1.2	0.5
School teacher	0.4	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of farmers surveyed	469	612	697	696	570	465	349	358	279	319	339	392	351	437	467	518	491	477	510	429

a. Or other extension agency in the agricultural department.
b. No information was available.

Table 4.8. Principal Fertilizer Marketing Constraints and Remedial Actions Taken Under MMS in Bangladesh

Fertilizer Marketing Constraint	Remedial Actions	Status
Demand estimation	* Trained personnel * Improved forecasting techniques * Upgraded data base	Continuing process
Supply availability	* Trained personnel * Improved procurement procedures for domestic and import purchases * Improved lifting procedures at local plants	Implemented, continuing assessment
Procurement costs	* Reduced cost of imports by expanding imports in bulk form with in-country bagging	Implemented
Storage infrastructure and costs	* Reduced number of intermediate warehouses * Formulated national warehousing plan * Constructed needed warehouses	Implemented, under continuing review
Transport infrastructure and costs	* Identified costs by mode * Negotiated new movement contracts * Developed/implemented least-cost transport system	Implemented, under continued review
Warehouse management/loss prevention	* Prepared warehouse management manual * Trained personnel * Instituted improved storage/handling procedures	Implemented in part, under review
Inventory control	* Developed central inventory control and accounting system * Trained personnel * Instituted inventory control system	Implemented, studying computerization of system
Marketing costs and points	* Estimated cost and cost components * Consolidated BADC dealer sales points from 400 TSCs to 100 PDPs	Implemented, continued monitoring
Management information system	* Established monthly BADC fertilizer newsletter to monitor supply and sales performance * Instituted fertilizer monitoring system: monthly survey of farm-level prices, credit, and information sources	Implemented, continuing
Fertilizer market information	* Commissioned IFDC/BARC to conduct comprehensive multi-year farm level surveys of agricultural production, fertilizer use, and equity	Completed
Market research/planning	* Developed prototype for annual marketing plan	Limited implementation
Sales promotion	* Organized BADC dealer development and training unit * Instituted countrywide dealer training programs * Organized fertilizer demonstrations and farmers' meeting * Prepared/distributed sales promotion literature and sales aids	Implemented, continuing
Dealer incentives	* Eliminated cumbersome licensing requirements * Eliminated market territory restrictions * Deregulated retail price of fertilizer * Eliminated preferential treatment of cooperatives	Completed, under continued review
Dealer credit	* Developed in-kind dealer credit program requiring bank guarantees * Proposed establishing BADC credit unit	Limited use by dealers, program under review
Agronomic database	* Organized/conducted fertilizer use efficiency experiments to improve fertilizer recommendations	Completed, under review for reactivation
Fertilizer policy development	* Organized IFDC/Bangladesh counterpart study of policy options for development of fertilizer sector * Evaluated fertilizer price deregulation	Completed
Personnel development	* Arranged for participation of BADC management/marketing personnel in variety of training programs and study tours	Continuing

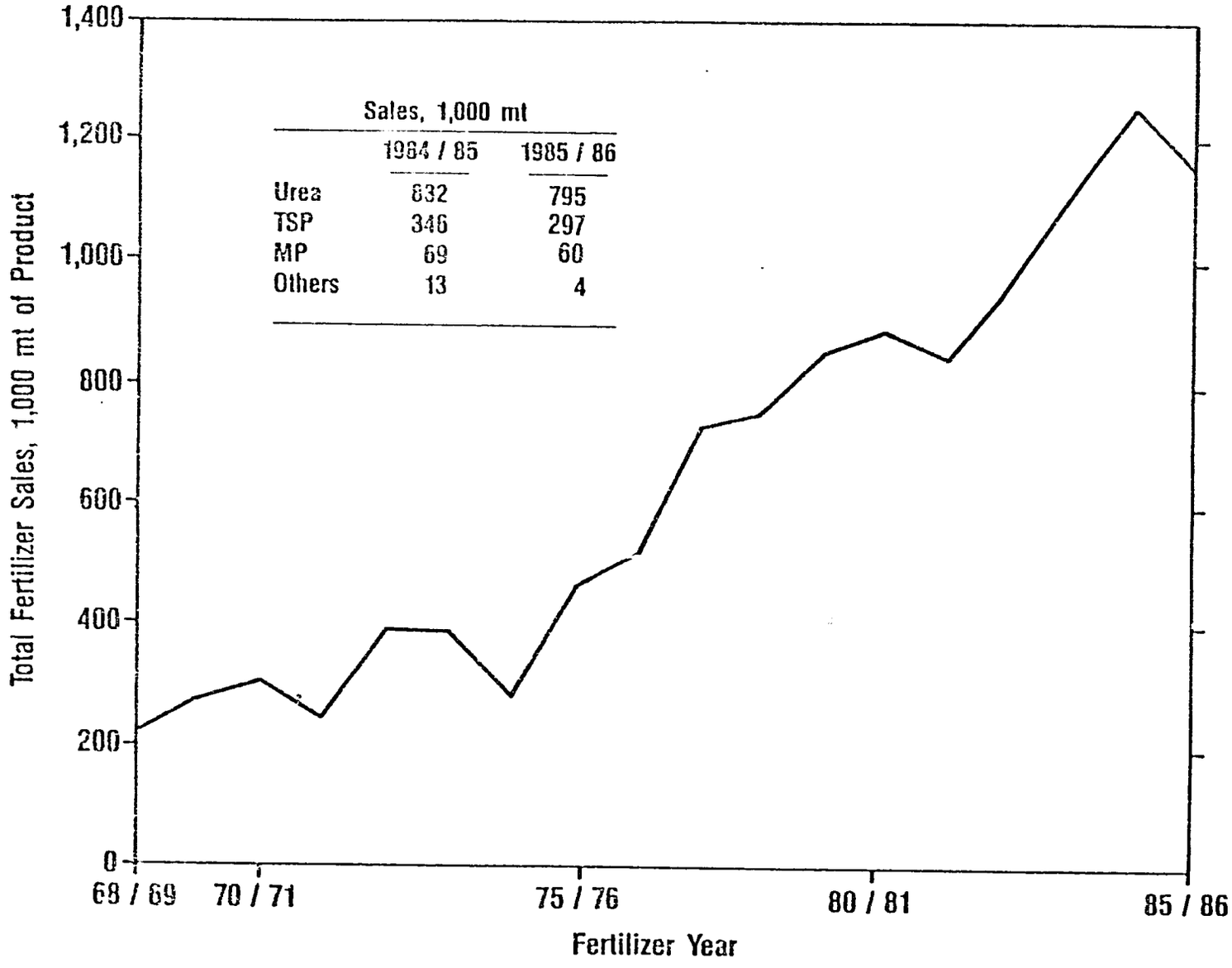

Figure 4.1. Evolution of Fertilizer Sales in Bangladesh.

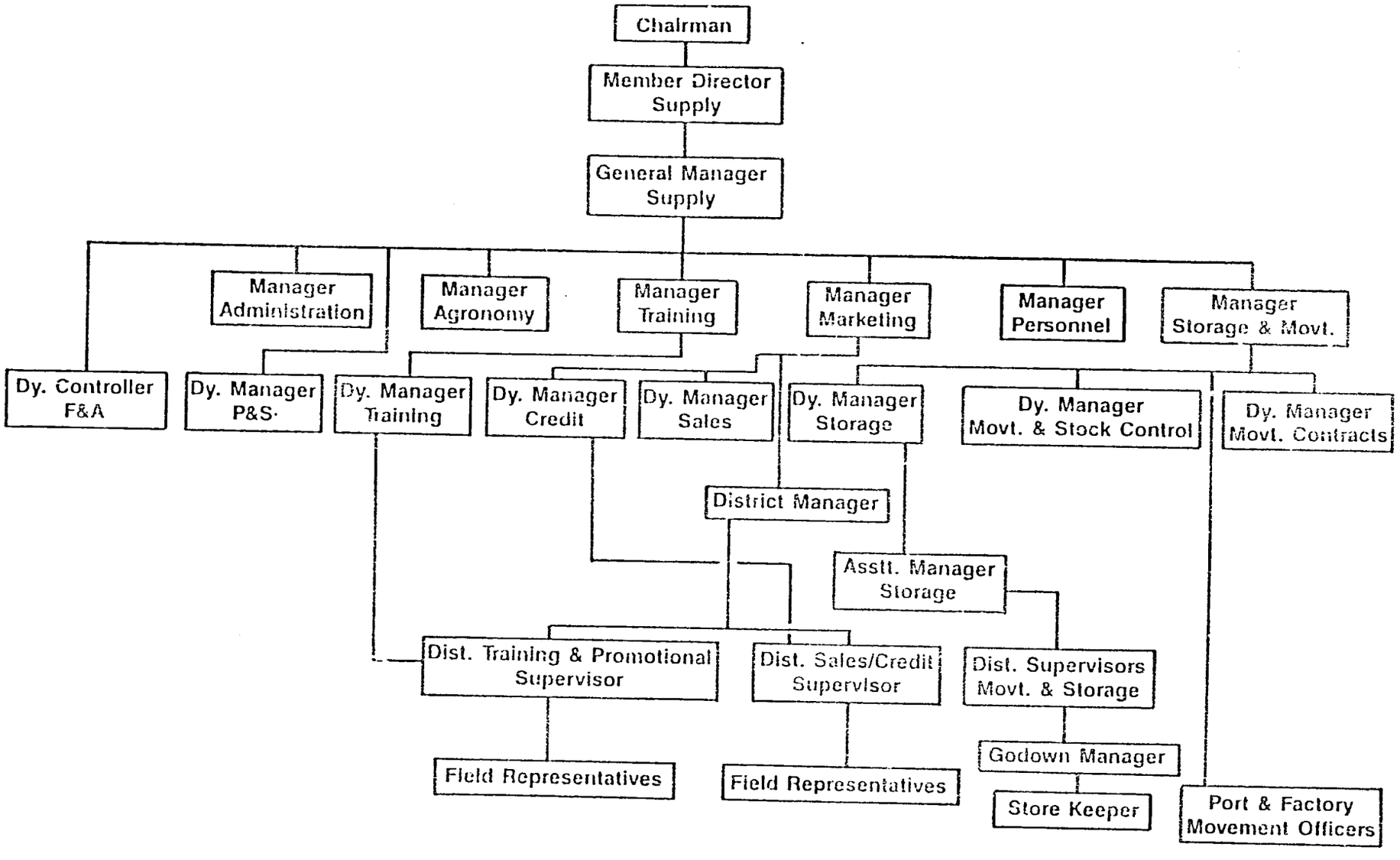

Figure 4.2. Proposed Organization BADC Supply Wing.

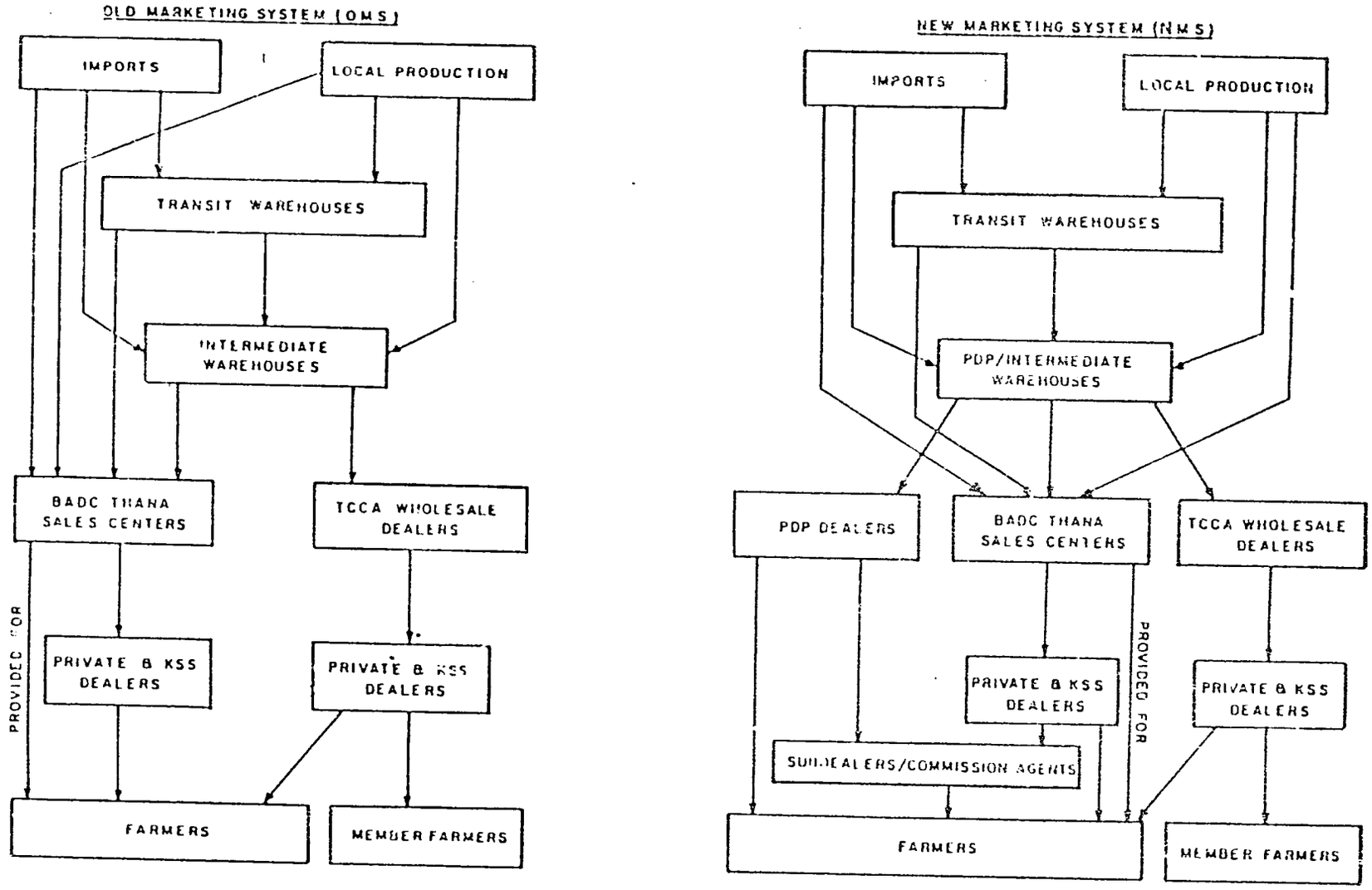

Figure 4.3. The Old and New BADC Fertilizer Marketing Systems in Bangladesh.

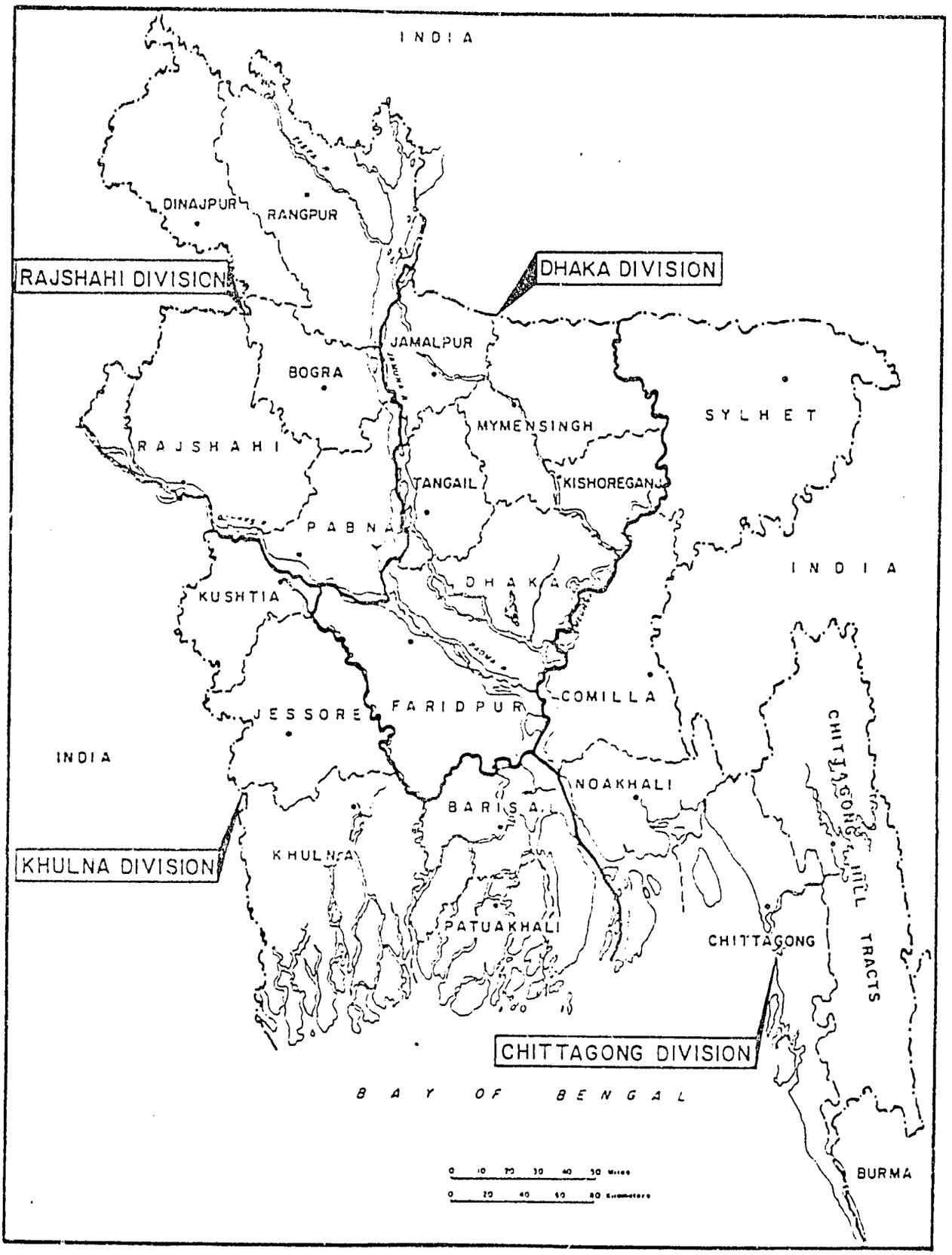

Figure 4.4. BADC Marketing Divisions in Bangladesh.

CHAPTER 5

IMPROVING THE EFFICIENCY OF FERTILIZER MARKETING SYSTEMS

The efficiency of a fertilizer marketing system can be measured by the level of performance and cost effectiveness in making the right fertilizer available to farmers when and where it is needed and in generating an increased demand for fertilizer by providing the promotional and educational services required to maximize farmers' profits from its use. As noted in the preceding chapters, the country-specific nature of fertilizer marketing systems makes it difficult to offer a single prescription which will apply to improving fertilizer marketing systems in all developing countries passing through different stages of fertilizer use development. To make meaningful system improvement recommendations for a given country it will require an assessment of the supply- and demand-related constraints which serve as impediments to the cost-effective operation of the fertilizer marketing system in that country. Strategies and programs for ameliorating these constraints can then be developed.

It may not be possible to offer a set of uniform suggestions for improving the efficiency of fertilizer marketing systems in all, or even most, developing countries by drawing on information as to how marketing systems are organized and operated in a number of these countries. However, it is possible to delineate those marketing-related constraints which generally interfere with the effective performance of fertilizer marketing systems, to assign relative orders of importance to specific problems, and to suggest possible remedial actions. This chapter attempts to identify and offer approaches for overcoming some of the more pressing operational and government policy constraints to fertilizer marketing system based on the experiences of developing countries.[1]

1. See Appendix I for listing of selected IFDC fertilizer marketing-related studies.

Fertilizer Marketing Operations and Costs

The effectiveness of a fertilizer marketing system is dependent on several factors: (1) stimulation of farmer demand for fertilizer, (2) timely and accurate assessment of projected demand for fertilizer, (3) provision of cost-effective fertilizer supply to meet projected demand, (4) development of cost-effective delivery systems to make fertilizers available at the right time and place, and very importantly, (5) the establishment of government policies and programs which are conducive to ensuring profitability of fertilizer use by farmers. The efficiency of the fertilizer marketing system will rest on how effectively these functions and policies are designed, implemented and integrated into a coordinated national marketing effort.

Stimulation of Fertilizer Demand

Government policy and fertilizer promotion programs should focus on improving the profitability of fertilizer use and on motivating and assisting farmers in making more efficient and profitable use of fertilizer. In most developing countries there is a need to organize and/or strengthen programs to generate, evaluate, codify, and disseminate crop response and fertilizer use information that is more responsive to farmer needs. The national agricultural research institutions, national extension service, and public and private sector marketing organizations have roles to play in stimulating demand for fertilizer. The types of programs which are needed and contributions of those organizations will depend largely on the stage of fertilizer use development in a given country.

The lack of an adequate agronomic database is often a major impediment to the expanded and more efficient use of fertilizer. Site-specific crop response data are needed to provide a basis for formulating fertilizer recommendations better attuned to localized soil characteristics, crop production conditions, and management practices. The generation of such data usually requires establishing and/or strengthening national coordinated soil fertility and fertilizer use programs involving appropriate government agricultural research institutes. Also, expanded experiment station and farm-level research programs are often required to determine nutrient needs and crop response functions for major crops under actual field conditions. These actions are especially important in the introductory stages of fertilizer use. To support increasing fertilizer usage, there is a need for refining economic optimum levels of fertilizer use

based on crop responsive tests, practical farm management conditions, realistic cost/benefit relationships, and realistic farmer risk and socioeconomic conditions.

Technology transfer is a central issue in developing farmer knowledge on efficient and profitable use of fertilizer as a means of stimulating demand. The national extension service provides the crucial link between fertilizer research and farmer use, particularly by the masses of small-scale farmers, at all stages of fertilizer use development. In most, if not all, developing countries there is an urgent need to expand and/or strengthen national extension service programs in terms of organization, facilities, and staff capabilities. As fertilizer usage increases, fertilizer marketing organizations, both public and private, can and should assume more prominent roles in promoting fertilizer use through enhanced market development programs. Fertilizer dealers, wholesalers, and retailers are uniquely positioned to influence farmers in their fertilizer use practices, but often lack the technical and sales promotion skills to reach and advise farmers on the proper and more profitable use of fertilizer. The institution of fertilizer dealer development and training programs are strongly encouraged to prepare dealers for assuming greater responsibilities in promoting expanded fertilizer use.

Fertilizer Demand Projections

Accurate and timely fertilizer demand and annual sales forecasts are essential in ensuring timely availability at the farm level and to avoid excessive and costly inventory accumulations. Long-term (about 5-year) demand projections are required by government agencies and the private sector to develop long-term supply strategies, involving expansion of local production capabilities and/or procurement planning.

The reliability of annual sales forecasts is affected by the nature of the forecasting process and the training and experience of those involved in their preparations. The most reliable forecasts are generally those built from information provided by sales personnel familiar with past usage patterns and conditions affecting future use in local market areas. In many developing countries, public and private marketing organizations lack the information base and organizational apparatus to plan, organize, and implement such a sales forecasting system and to perform the needed sales monitoring function. Sales forecasting and monitoring can be improved by organizing and institutionalizing a formal market research and planning activity in the fertilizer marketing system.

The preparation of long-term demand projections generally involves forecasting the future behavior of a number of economic variables and their effect on fertilizer demand. In many countries, the required historical use data are unavailable and forecasters lack the technical expertise and equipment needed to employ necessary analytical methods. Programs are needed to establish the fertilizer database, to provide necessary equipment, and to train personnel in the application of forecasting techniques.

Fertilizer Supply

From a national perspective, fertilizer supply improvement programs should be directed at increasing local production capability (provided the country has comparative economic advantage), lowering the cost of domestic production, and improving fertilizer import programs. From the fertilizer marketing organization's viewpoint, the focus should be on developing timely, reliable, and cost-efficient supplies of fertilizer products needed to meet sales forecasts and safety stock requirements. Basically this involves proper planning of supply needs, determining the most cost-effective sources of supply (domestic and/or import), and organizing and instituting efficient procurement programs and procedures.

Supply planning begins with the preparation of realistic sales forecasts. Suggestions for improving this process were covered in the preceding section. A properly organized market research and planning function will also provide needed information on indigenous and external supply sources, product prices, and transport and handling costs to serve as a basis for determining appropriate suppliers of individual fertilizers needed at various sales locations. The supply planning function also determines quantities to be made available through bilateral trade agreements, those to be supplied by donor organizations, and those which must be purchased from commercial sources.

In many countries the organization and management of the procurement function should be strengthened and supported by training of supply and purchasing managers and staff in regard to product types and properties, sources, prices, transport and handling techniques and costs, delivery lead times, shipping and receiving facilities. The need to train import procurement personnel in all aspects of international market operation is of particular importance; emphasis should be placed on preparing and evaluating international tenders, awarding supply contracts, and monitoring performance. Timely placement of

import orders is important because of the long lead times required to process such purchases and to arrange for availability of foreign exchange.

Fertilizer Delivery Systems

An efficient fertilizer delivery system is the key to making fertilizer available to farmers when and where it is needed. The physical distribution function is the predominant component of most government-controlled fertilizer marketing systems. It is also the costliest. Accordingly, improvements in the cost-effectiveness of activities involved in physical distribution should rank high in technical assistance programs for improving fertilizer marketing.

A national fertilizer distribution plan should be formulated to determine the number, locations, and capabilities of intermediate and local sales outlets required to accommodate present and projected sales volume, taking into account seasonal sales patterns and restocking schedules. New warehousing capacity may have to be built to supplement existing capacity. The performance and adequacy of the distribution system should be monitored and adjusted to conform to changes in demand.

Programs should be devised to determine transport and handling costs for each mode or combination of modes of transport available for delivering fertilizer to intermediate and local sales outlets. Based on this information, a least-cost transport system should be developed and implemented. Transport and handling costs should be monitored on a regular basis and changes made as necessary to ensure lowest delivery costs throughout the warehousing network.

To reduce storage and handling losses fertilizer warehouses should be regularly inspected to ascertain their suitability for fertilizer storage. A warehouse maintenance program stressing preventive maintenance should be developed. Standardized warehousing management practices should be devised and instituted and management and staff training programs conducted to improve operational efficiency and to reduce product losses and costs.

The stock control and accounting system should be strengthened, or one should be introduced if none exists, and personnel trained in its application as part of a general effort to improve the distribution information system to ensure adequacy of supplies throughout the distribution system.

Profitability of Fertilizer Use

Farmers in the developing world and elsewhere use fertilizer for the economic gains which they hope to derive from its use. Increased profitability is the overriding issue in expanding fertilizer use. The level of farmer profit depends on many factors, the main being crop prices, fertilizer prices, crop response to fertilizer, and costs associated with the use of fertilizer. Other factors which influence fertilizer use and profitability include farmer knowledge, risk, tenancy, credit, irrigation, and, very importantly, fertilizer availability. The degree of assurance of a market and satisfactory market prices for his output are also important considerations in the farmer's decision to use fertilizer.

Actions for relaxing the use information and farmer knowledge constraints to market development were touched on earlier, as were those factors related to improving availability and reducing farm-level costs through the development of more cost-effective distribution systems. Most of the other issues related to increasing the farmer's profitability of fertilizer use such as pricing policy, subsidies, and credit availability, generally fall within the purview of national fertilizer policy development and are discussed in the succeeding section.

The following observations are made in respect to pricing policies and practices as they impinge on the operation of the marketing system. Seasonal discounts can have a positive effect on improving availability and lowering distribution costs by encouraging off-season movement and reducing the burden on the transport system during the peak demand months. Volume discounts can lead to lower warehouse handling and transport costs by permitting larger unit shipment. They are also an important factor in furthering the development of wholesalers.

Fixed marketing margins should be reviewed regularly to ensure that they are high enough to provide sufficient incentive for wholesalers and retailers to conduct needed sales promotion and farmer services programs. Most fertilizer dealers are in need of credit to finance stocks and to invest in storage facilities and transport equipment. Access of fertilizer marketing organizations to institutional credit for these purposes is essential as a means of lowering operating costs and promoting improved availability.

Fertilizer Marketing Organization and Policy

Minimum Government Intervention

Government intervention in the fertilizer marketing systems in most developing countries, especially in Africa, is widespread. It varies from complete ownership, operation, and control to partial controls only. In the initial stages of fertilizer introduction and fertilizer use development government can play a positive role. As the fertilizer use increases and market expands government should serve as a regulator and limit its activities to providing incentives and services needed to improve the efficiency of fertilizer marketing systems. Governments should not be in the business of actually selling fertilizer which can be performed relatively more efficiently by the cooperatives and/or the private sector. Many countries, e.g., Bangladesh, are in the process of privatizing the fertilizer marketing system with favorable economic implications.

Competition in the Fertilizer Market

The goal of minimum government intervention is not to replace public monopoly with private monopoly in fertilizer marketing. Rather there is a need to increase competition at both wholesale and retail levels. This can be accomplished through increasing the number of marketing channels as well as the sales points. There should be no restrictions on entry or exit for fertilizer distributors, wholesalers, and retailers. Government regulations and regular monitoring of the marketing system should discourage collusion, hoarding, and price-fixing in order to protect the interests of the farming community, and the interest of the nation in general.

The role of government in retail trade needs to be reduced and limited to monitoring and regulating fertilizer availability, price, and quality. A multichannel approach to fertilizer marketing should be encouraged to increase competition. Private fertilizer dealers should be allowed not only to sell fertilizer but also to provide necessary services and transfer technical knowledge to farmers. The cooperative sector should be encouraged to participate in fertilizer marketing but not at the cost of the private sector.

The optimum mix of government and private participation is largely determined by the state of affairs in the particular country and by the degree of maturity of the agricultural sector as a whole, specifically the fertilizer

and transport sectors. In many cases the systems in use are quite dynamic and are constantly undergoing an evolutionary process. Therefore, at any given point in time, a system that works well in Bangladesh, for example, may not be appropriate for Cameroon or Brazil. For this reason, the transfer of fertilizer marketing and distribution concepts, methods, and technology should be undertaken with considerable care and caution and only after a thorough study of the short- and long-term site-specific conditions.

Marketing System Coordination

Lack of coordination among different marketing organizations, between fertilizer marketing organizations and the government agencies, among different ministries of the government is a serious constraint for efficient operation of fertilizer marketing system. This leads to delay in decisionmaking, conflict of interest, overlaps in responsibility, and lack of knowledge about market development and government policy. Effective coordination across different concerned agencies can improve the operational efficiency of the fertilizer marketing system and reduce fertilizer marketing costs.

Fertilizer Dealer--A Crucial Link

Irrespective of the nature and organization of fertilizer marketing system, the fertilizer retailer serves as an important link between the marketing system and the farmer. The fertilizer retailers should provide appropriate services to the farmer, including technical advice related to efficient fertilizer use. Of course, fertilizer retailers would not and cannot replace the agricultural extension service. Rather both should work in close collaboration with each other. The fertilizer retailer should be more than a stockist. However, the fertilizer retailer would not be in a position to provide needed services to the farmer unless he is fully trained and provided with appropriate incentives.

Fertilizer Quality Control

Most developing countries either do not have a fertilizer quality control law or it is not adequately enforced. There is evidence of fertilizer adulteration and underweighment but its occurrence varies from one country to another. There is a need for appropriate fertilizer quality control law and its adequate enforcement, irrespective of the nature and organization of fertilizer marketing system. Farmers generally perceive that the private sector, since it is interested mainly in profit motive, will do anything to make money, especially when

there is a scarcity of fertilizer. Fertilizer quality control law can remove some of these apprehensions about the private sector and protect the interests of the farmers.

Agronomic Fertilizer Research

Appropriate fertilizer research is an extremely important component of fertilizer sector development. This research should lead to development of crop- and soil-specific recommendations related to selected fertilizer types, fertilizer rates, and fertilizer management under varied agro-climatic conditions. Due to relatively small fertilizer market and potential spillover effects, the private fertilizer sector is not interested in making large investment in agronomic fertilizer research. As a result, government must take the lead and allocate needed resources to carry out both basic and applied fertilizer research designed to generate needed information for efficient operation of the fertilizer marketing system.

Fertilizer Information System

Appropriate information is essential to design and operate effective fertilizer marketing systems and fertilizer policies. Yet most developing countries do not have the very basic data needed to address these questions. Lack of appropriate information can result in policies which are ineffective or counterproductive in achieving the desired policy goals. The appropriate set of data must be reliable, complete, consistent, and timely. The policy information generated from sound economic analysis performed on poor quality data can be very deceptive and misleading. As a result, there is a need to establish a national fertilizer information system which should collect, analyze, and publish all the needed information on the fertilizer sector, including international fertilizer market trends. Such a system would also provide necessary data for fertilizer marketing research and planning. The developments in computer technology and easy availability of personal computers has greatly facilitated the organization and management of fertilizer information systems.

Monitoring and Evaluation Systems

The national fertilizer monitoring and evaluation system should be linked with the national fertilizer information system. This system should be designed to monitor fertilizer price, availability, and quality at the national

level, and evaluate various government programs and policies with respect to their performance and implications. Fertilizer monitoring and evaluation systems would diminish the alleged fear that the private sector might take undue advantage of farmers. It would provide "early warning signals" to the policymakers of any impending fertilizer crisis so that an appropriate and timely corrective action might be taken.

Provision of Fertilizer Credit

Fertilizer credit has been recognized as one of the important constraints to expanded fertilizer use by farmers (production credit) and to expanded participation in fertilizer marketing by the private sector (distribution credit). There is thus a need to expand fertilizer credit availability and increase access of small farmers and dealers to this credit. Fertilizer credit must be made available at commercial rate of interest but with less bureaucratic red tape. The underlying logic for such a credit policy is to facilitate expansion in fertilizer use and trade rather than to provide subsidies to the rich and well-to-do. The historical experience with subsidized credit schemes has not been very good. There have been credit defaults and poor repayment records. The fertilizer credit system needs to be linked with the proper monitoring system.

Fertilizer Price Policy

Appropriate fertilizer price policy is crucial for fertilizer sector development at all levels, including fertilizer production, procurement, marketing, and use. Producers must be given incentives to invest in fertilizer plants and operate them efficiently. Fertilizer dealers must be allowed reasonable margins to cover their costs and provide services to the farmers. The fertilizer price paid by farmers must be closely linked with crop prices received by them, and value/cost ratios of fertilizer use for different crops. A farmer will not use fertilizer unless it is profitable for him to use it. However, dual price schemes should be terminated.

Fertilizer Subsidy Policy

Every effort must be made to reduce fertilizer subsidies. However, there is a need for a more systematic approach to first quantify the cost of different subsidy components, determine their effectiveness, and establish

priorities. For example, subsidizing a particular fertilizer or nutrient may improve fertilizer use balance and hence fertilizer productivity. Subsidizing transportation in remote areas may keep prices low and encourage farmers in those areas to make use of it. Fertilizer subsidy schemes need to be administered more efficiently. Subsidizing high cost or inefficient fertilizer production, procurement, and marketing systems should not be confused with fertilizer subsidies to the farmer.

Needed Policy Research

There is a need for more in-depth analysis for one or two countries with broad experience in different aspects of the fertilizer sector and should focus on developing a model approach to fertilizer marketing, pricing, and subsidies. The study should be analytical, policy oriented, and result in specific policy recommendations for those countries which are still in the early stages of fertilizer sector development. Since the fertilizer sector provides a vital link between the agricultural and industrial sectors, the study should be comprehensive to enable an understanding of the various linkages and analyze the implications of different macroeconomic policies on the fertilizer sector.

Research and Technical Assistance Strategies

In the preceding chapters, the importance of the fertilizer sector in the economic development of low income countries has been analyzed. The role of marketing in fertilizer sector development was described and individual components of the fertilizer marketing system were examined. The importance of organizing and operating the fertilizer marketing system into an integrated and coordinated national marketing effort was stressed. Salient features of the fertilizer marketing systems in seven developing countries were compared. Detailed information was presented on the evolution of the fertilizer marketing system in Bangladesh. The varied and pervasive role of government in fertilizer marketing in most developing countries was highlighted. Based on this information principal constraints to fertilizer marketing improvements have been identified and alternative approaches for overcoming them have been presented. This section briefly summarizes selected policy issues and suggests research and technical assistance strategies for consideration of various national and international organizations.

National Fertilizer Policy

Issue

The need for clearly defined and coordinated national fertilizer supply, marketing, and use policies linked to and supportive of national agricultural development objectives and programs. Identification and prioritization of specific research and technical assistance programs for the development of fertilizer marketing systems in designated target countries.

Strategies

1. Employ rapid reconnaissance study format to select target countries for in-depth policy studies and to provide an overview of the fertilizer sector, especially fertilizer marketing system and policies, in a particular selected country.
2. Organize and conduct national level, comprehensive study to identify and assess fertilizer policy, supply, marketing, and use-related constraints to fertilizer sector development consistent with national agricultural development policies and programs. Develop recommendations for national policies and action programs for amelioration of key impediments to fertilizer sector development, emphasizing marketing system improvements.

Fertilizer Use

Issue

Lack of knowledge on the part of farmers, dealers, and policymakers on proper fertilizer management practices and potential economic benefits associated with fertilizer use. Deficiencies in agronomic research capabilities and agronomic database. Weakness in communicating information and providing technical assistance to farmers.

Strategies

1. Determine agronomic and economic research capabilities of agricultural research institutes. Provide technical assistance in establishing or upgrading facilities and programs. Establish training programs to strengthen staff capabilities.

2. Evaluate existing agronomic database. Provide technical assistance in developing research programs to generate information responsive to farmer needs.
3. Assess organization and performance of national extension service. Determine farmer technical assistance needs and information sources. Provide technical assistance and training to strengthen extension system and programs to improve services to farmers.
4. Employ fertilizer dealers to supplement technical assistance efforts of extension service. Provide technical assistance in formulating and implementing fertilizer dealer development and training programs to enable dealers to provide farmers with appropriate fertilizer use information. Train dealers in fertilizer market development and business management.
5. Organize fertilizer policy workshops, identify relevant fertilizer policy issues, conduct sound fertilizer policy studies, and communicate the potential economic consequences of various decisions to policymakers.

Fertilizer Supply

Issue

Lack of cost-efficient, timely, and adequate supplies of proper fertilizers at locations conveniently accessible to farmers.

Strategies

1. Provide technical assistance in developing historical database and suitable methods for making short and longer term demand projections by product, by location and by season.
2. Make technical assistance available, as needed, for improving fertilizer procurement planning, purchasing, and monitoring.
3. Provide assistance in developing cost-effective fertilizer warehousing network and least-cost transport and handling system by taking into account existing and anticipated market demand and currently available and improved road, rail, and water transport capabilities.
4. Develop and implement technical assistance programs for improving warehouse management, stock control, and cost accounting systems. Develop and implement personnel training programs as needed.

Prices and Subsidies

Issue

Lack of needed economic incentives for fertilizer use by farmers and provision of these incentives at minimum cost to the government.

Strategies

1. Design and conduct farm-level survey of fertilizer use and agricultural production. Determine price and value/cost relationships and the economics of fertilizer use by farm size groups and for major crops.
2. Carry out research to assess the cost and effectiveness of existing subsidy programs and subsidy components. Determine priorities for reducing subsidy based on opportunities for lowering farm-level cost through more efficient fertilizer production, procurement, and marketing system operation, improved subsidy program administration, and increased fertilizer productivity. Provide technical assistance, as needed, to implement subsidy reduction schemes which do not create a substantial economic burden on the treasury and do not unduly impair farmer incentives to use fertilizer.
3. Study current pricing policy and practices to determine level of dealer costs and margins. Provide assistance in developing government pricing policies and strategies which assure adequate incentives for dealers to engage in market development activities.

Fertilizer Finance

Issue

Amelioration of dealer distribution and farmer production credit constraints to expanded fertilizer use.

Strategies

1. Determine credit needs, sources, and costs of dealer distribution and farmer production credit. Provide technical assistance in developing credit delivery schemes which provide convenient access to institutional credit at reasonable interest rates.
2. Provide assistance in developing programs to inform farmers on the nature and availability of credit, to assist farmers in determining

credit needs, filing loan applications, and monitoring loan repayments to minimize defaults.

Fertilizer Information System

Issue

The need for reliable, timely, and consistent fertilizer market information to enable government policymakers and fertilizer-sector administrators to make better decisions in long-range planning and day-to-day operation of the fertilizer sector.

Strategies

1. Provide technical assistance in developing, systematically maintaining, and reporting information on volume and value of local fertilizer production, imports, sales, and inventories by product, by location, by month. Publish and disseminate pertinent information in the form of monthly and annual fertilizer situation reports.
2. Provide assistance in developing a national fertilizer monitoring and evaluation system designed to systematically gather, codify, and evaluate changes in farm-level fertilizer and crop prices, availability, and quality.
3. Conduct studies which evaluate the potential economic consequences of alternative policy options and develop guidelines for formulating appropriate fertilizer policies and generating needed information.

Fertilizer Quality Control

Issue

To assure that farmers receive fertilizer products with prescribed quality.

Strategies

1. Conduct investigation of farm-level fertilizer sales practices in respect to possible product adulteration and weight discrepancies.
2. Provide technical assistance in developing consumer protection-oriented fertilizer control laws, establishing fertilizer sampling and testing organization and facilities, and preparing necessary legislation and enforcement agencies.

Program Implementation

Issue

The need to develop approaches for facilitating the implementation of fertilizer sector development programs.

Strategies

1. Conduct in-depth fertilizer sector study, alluded to earlier, to identify and assess problem areas and to recommend specific action programs for overcoming impediments to fertilizer sector development.
2. Obtain government commitment to affect recommended changes and to provide, to the degree possible, technical and financial support.
3. Determine and arrange for necessary incentives and engage experienced multi-national (or local) fertilizer organization to work with the government and interested donor agencies in developing and implementing agreed upon fertilizer market improvement programs.

To summarize, fertilizer marketing research and technical assistance activities need to be directed at (1) fertilizer policy studies and policy reforms, (2) accurate fertilizer demand forecasting, (3) creation of needed fertilizer infrastructure which requires large capital investments, (4) fertilizer finance for farmers and dealers, (5) education and training of farmers, dealers and policymakers, and (6) development of fertilizer information systems.

REFERENCES

BADC. 1981. Annual Report, 1980/81, BADC, Dhaka, Bangladesh.

BADC. 1984. "Monthly Fertilizer Newsletter," BADC, Dhaka, Bangladesh.

Bangladesh Bureau of Statistics. 1982. Agricultural Yearbook of Bangladesh, 1982, Ministry of Finance and Planning, Government of Bangladesh, Dhaka, December.

Bangladesh Ministry of Agriculture and USAID. 1982. Joint Bangladesh and U.S. Government Evaluation of the Fertilizer Distribution Improvement Project, Dhaka, Bangladesh.

Bangladesh Times, Daily Newspaper, April 15, 1983, Dhaka, Bangladesh (original source of information was Bangladesh Bureau of Statistics).

Benton, R. D. 1979. "A Review of BADC Fertilizer Marketing and Distribution Costs (Incidental Costs)," BADC/IFDC, Dhaka, Bangladesh, November 27.

Chuang, Y. H., J. M. Hill, and B. H. Barnett. 1978. The Bangladesh Fertilizer Sector, Technical Bulletin IFDC-T-11, International Fertilizer Development Center, Muscle Shoals, Alabama 35662.

Clayton, W. E. 1981. Review of the Fertilizer Distribution and Handling System in Bangladesh, International Fertilizer Development Center, Muscle Shoals, Alabama 35662.

Food and Agriculture Organization of the United Nations (FAO). 1985. Fertilizer Yearbook, 1984 (and various earlier issues), Rome, Italy.

Food and Fertilizer Planning and Monitoring Secretariat. 1983. "Statistics Relating to Fertilizer, Irrigation, Seeds, Pesticides, and Climates,' Planning Commission, Government of Bangladesh, Dhaka, Bangladesh.

Hill, J. M., and R. D. Benton. 1979. "First Evaluation of the New Marketing System in the Chittagong Division," USAID/BADC/IFDC, Dhaka, Bangladesh, February 28.

Hill, J. M., and R. D. Benton. 1980. Second Evaluation of the Bangladesh New Marketing System, International Fertilizer Development Center, Muscle Shoals, Alabama 35662.

Hoque, A.K.N. 1982. "Statistics Relating to Major Development Schemes of BADC," Implementation Division, BADC, Dhaka, Bangladesh.

IFDC. 1982. Bangladesh Policy Options for the Development of the Fertilizer Sector, International Fertilizer Development Center, Muscle Shoals, Alabama 35662.

Kapusta, E. C. 1985. "Role of Marketing in Developing Fertilizer Use: Experiences in Bangladesh," IFDC, Muscle Shoals, Alabama 35662.

230

Moots, K. L. 1982. Third Evaluation of the Bangladesh New Marketing System, International Fertilizer Development Center, Muscle Shoals, Alabama 35662.

Mudahar, M. S. 1983. Monitoring Fertilizer Price, Availability, and Quality in Developing Countries: The Case of Bangladesh, IFDC, Muscle Shoals, Alabama 35662.

Mudahar, M. S. 1984. Fertilizer Price Deregulation and Public Policy: The Case of Bangladesh, IFDC, Muscle Shoals, Alabama 35662.

Mudahar, M. S., and J. Schultz. 1986. Fertilizer Marketing and Distribution Systems: A Comparative Study in Ten Selected Countries, a study completed for the World Bank, IFDC, Muscle Shoals, Alabama 35662.

Sidhu, S. S., C. A. Baanante, and E. Ahsan. 1982. Agricultural Production, Fertilizer Use, and Equity Considerations: Results and Analysis of Farm Survey Data, 1979/80, Bangladesh, International Fertilizer Development Center, Muscle Shoals, Alabama 35662.

APPENDIX I

SELECTED FERTILIZER MARKETING-RELATED STUDIES BY IFDC[1]

1. West Africa Fertilizer Study (Volumes I-VII)
   - Volume I Regional Overview, 1977
   - Volume II Senegal, 1977
   - Volume III Mali, 1976
   - Volume IV Upper Volta, 1977
   - Volume V Niger, 1978
   - Volume VI Chad, 1977
   - Volume VII Mauritania, 1978
2. Economic and Technical Aspects of Fertilizer Production and Use in West Africa, 1977.
3. Bolivia Fertilizer Situation and Recommendations, 1979.
4. Mexico: The Fertilizer Industry, 1979.
5. Thailand Strategy for Fertilizer Development--A Prefeasibility Study, 1980.
6. Nigeria: Fertilizer Marketing Study, 1981.
7. Economic Evaluation of Fertilizer Supply Strategies for the ASEAN Region: Linear Programming Approach, 1981.
8. Venezuela: Fertilizer Supply Strategy 1981-90, Volumes I-IV, 1981.
9. Preliminary Appraisal of the Zimbabwe Fertilizer Sector, 1981.
10. A Fertilizer Strategy for Nepal, 1982.
11. Evaluation of Proposals for Development of the Fertilizer Distribution System in Indonesia, 1983.
12. Venezuela Fertilizer Marketing and Distribution Study, 1983.
13. Nigeria: A Commercial Frtilizer Marketing System for Nigeria, 1985.
14. Nigeria: Fertilizer Transportation and Storage Optimization Study, 1985.
15. Cameroon Fertilizer Sector Study, 1986.
16. Ghana: Fertilizer Privatization Study, 1986.

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1. All the fertilizer marketing-related studies for Bangladesh are listed as part of the references.

RECENT EVOLUTION OF URBAN WHOLESALE/RETAIL FOOD DISTRIBUTION SYSTEMS IN THE THIRD WORLD

by

KELLY HARRISON ASSSOCIATES, INC.

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Table of Contents

PREFACE 1

THE URBAN WHOLESALE-RETAIL FOOD DISTRIBUTION SYSTEMS IN BROADER CONTEXT 3

A. The Agricultural Commodity Market System Defined 3

B. Economic Development Context 4

FORCES OF CHANGE 6

A. Paradigm of Evolution of Food Marketing System 6

B. Predictive Variables 8

C. Associated Attributes 12

TRANSFORMATION OF THE WHOLESALE-RETAIL MARKETING SYSTEM 14

A. Evolution vs Intervention 14

B. Appropriate Evolutionary Pattern 15

C. Signs of Disequilibria 20

INTERVENTIONS IN THE EVOLUTION OF THE MARKETING SYSTEM 23

A. Litany of Market Reform Measures 23

B. Criteria for Viability 25

LESSONS FROM THE RECORD OF INTERVENTIONS 27

A. Successful Examples from Latin American Experience 27

B. Examples to Avoid 30

C. Guidelines for Redesigning Market Interventions 33

REORIENTATION OF FOOD MARKETING RESEARCH AND PLANNING ACTIVITIES 35

A. Critical Issues for Additional Research 35

B. Opportunities for USAID in Light of the Evolutionary Process 36

C. Rapid Reconnaissance Methodology for Marketing Diagnostics 37

TABLES

Table 1: Paradigm of Urban Market Evolution 7

Table 2: Urbanization 9

Table 3: Per Capita Income 11

FOOTNOTES 40

PREFACE

Nowhere in the literature of agricultural marketing does there exist a synthesis of the features of the wholesale-retail food distribution system as they evolve in developing economies. The recognition of this lacuna prompted the initiation of this paper. Having plunged into some of the relevant literature and having reviewed the last twenty years of endeavor in this sphere of enquiry has only heightened the author's awareness of the need for a complete text on the topic. This presentation is intended to serve as a basis of discussion for the kind of research which should be initiated now.

The exercise of having to put the observed features of the wholesale/retail system into an evolutionary perspective has increased the author's recognition of how important this basic understanding is to improving the interventions of marketing practitioners. At the same time this study has reinforced the impression that the most relevant literature on the topic remains the work which was written more than a decade ago and which focuses solely on the countries of Latin America. The Latin American Market Planning program at Michigan State University, and the related research projects undertaken by COBAL in Brazil and FIDEC in Mexico stand out as some of the few sources of relevant documentation today.

Most of the work on food marketing in Africa has focused heavily on rural or producer oriented issues. This includes the work done by William O. Jones, Carol Smith and William Skinner at Stanford University as well as the more recent work at Michigan State University.

The FAO, the IDB, and the IBRD have undertaken numerous public wholesale and retail market construction and reform projects which has generated a useful body of marketing literature. Few of these projects however have attempted to be master marketing plans for systemic change. One of the few examples of such a plan outside of Latin America which comes to mind is the case of Korea. Further documentation of that recent major undertaking will be welcomed. In general however, it is high time for a reconsideration of market planning as a discipline to respond to the woes of development in the Third World today.

The objective of this report is to help AID S&T/RD to develop a program of research and technical assistance activities in the area of urban wholesale/retail food distribution systems in less developed countries. It is to

provide the basis for critical discussion of key issues related to the evolution of the marketing system and appropriate interventions to facilitate the development of that system. If this paper provides the necessary spark to ignite interest in the outstanding issues of wholesale-retail market interventions, it will have been a success.

THE URBAN WHOLESALE-RETAIL FOOD DISTRIBUTION SYSTEM IN BROADER CONTEXT

To understand the functioning of the urban wholesale and retail food marketing system in Third World cities it is imperative that the system be seen in the context of the broader agricultural commodity marketing system of which it is a part.

A. The Agricultural Commodity Market System Defined

The market system for agricultural commodities consists of the series of transactions and associated activities and facilities which are responsible for moving agricultural products from the producer to the consumer. The range of possible transactions which may be required from farmgate to the consumer can be categorized according to conventional functional steps depicted graphically below.

PRODUCTION
+
ASSEMBLY
+
PROCESSING
+
WHOLESALING
+
RETAILING
+
CONSUMPTION

"+" = TRANSPORTATION and STORAGE

Not all of the steps may be observable as discrete transactions in a given commodity system. The same functions may be performed without a high degree of specialization. In the simplest instance the producer performs all of these functions and sells directly to the consumer. The string of activities and facilities through which products must pass from producer to consumer varies to suit the particular product, place and complexity of the demand structure. The absence of discrete institutions identifiable as "assemblers", "wholesalers" or as "retailers" can be the case either for simple economies or in sophisticated vertically integrated marketing systems in which the differentiation is entirely internal.

It is important to understand the terms used to describe the distinct levels of exchange irrespective of the degree of differentiation of those functions. The following basic definitions will be useful throughout the discussion:

ASSEMBLY: Collection and accumulation of the commodity into units of the most economical quantities, entailing collection, sorting, grading, and storage. While transportation is in fact a separate function, assemblers often perform this activity as well.

PROCESSING: Any activity which adds value to the commodity through some physical transformation of the product. This includes simple activities such as slaughtering, cooling, cooking, drying or packaging.

WHOLESALING: Selling to intermediary merchants, but who do not sell principally to consumers. The intermediaries may be retailers, industrial or institutional users, or to other wholesalers.

RETAILING: Selling to final consumers.

B. Economic Development Context

Economic development is essentially the process which results in increased resource productivity. This is achieved through increased specialization and the development of new technologies and institutions which permit greater returns to labor and capital through increased efficiency. The evolution of the urban food distribution system is best understood in this context.

In the early stages of development the most efficient marketing processes are simple and direct. Production and demand are relatively homogeneous with little regional specialization. Few opportunities exist to coordinate production with more profitable market opportunities.

As specialization proceeds, clusters of population form small urban areas where off-farm service or producer enterprises, government and administrative services, and financial and legal institutions concentrate. The demand of the urban population for agricultural products in turn creates a need for more highly specialized marketing services. The products required are both for direct consumption and as inputs for an increased number of processing enterprises.

The other important new tendency in the structure of demand as development proceeds is the creation of export industries which in the initial stages are often handled through parallel specialized

marketing channels. Those exports tend to be unprocessed raw materials, produced in response to the demands of foreign entities, which can be further processed for a profit in the importing country. As the national economy evolves toward higher incomes, increased urbanization, and improved marketing infrastructure, those products may play a larger role in the local economy and value added processing may emerge for both local consumption and for export. The implication is that the domestic marketing system is improved as the export marketing system becomes more efficient in a global market economy.

Varying levels of productivity in the urban clusters result in varying levels of income and therefore differing demands for agricultural commodities. As the process of specialization continues, and as labor productivity and demand for food increases, the market system must become more complex as well. The most notable shift in demand is away from starchy roots and direct consumption of grains to increased consumption of meat and indirect consumption of grains. Marketing channels must then evolve to respond to different streams of varying volumes, types and qualities of food products.

The two most dramatic changes in the behavior of urban dwellers as compared with their rural origins are the increased demands for convenience and for variety.

The trend towards a more varied array of food products has several causes. The population which concentrates in urban areas is itself from varied regional backgrounds with demands for products which are not familiar to all of those areas which serve the urban demand for agricultural products. Furthermore there are changes in the demand for products as the population acquires a taste for foods with which they were previously unfamiliar. Hence, the marketing system is expected to provide a wider assortment of products as development proceeds.

The trend towards demand for greater convenience is the result of the higher value of the consumer's time and of the greater distance which urban consumers generally must travel on a regular basis to maintain supplies of food items. This latter characteristic is especially pronounced in those cultures where there is a strong demand for various perishable commodities. The premium which is placed on the consumer's time in purchasing foodstuffs is mitigated to some extent by delegation of buying duties to members of the household or household employees who have a relatively lower cost associated with their time. Even so, over time the marketing system must respond to the desire for increased retail stores to appear in urban residential areas and for mobile vendors or street fairs to replace the consumer's daily trip to some central market plaza.

FORCES OF CHANGE

The progression towards increasing productivity passes through a different path in each economy, often faltering and falling backwards. The host of problems associated with the development process are all too well known. Moreover the measures taken by governments to alleviate these afflictions often generate new and sometimes more pernicious problems. The purpose of this paper is:

1) To track and explain the generalized evolutionary course of events in the development of food marketing systems;

2) To analyze the interventions governments and development institutions have undertaken to assist that process; and

3) To direct additional research into marketing issues and design which will advance the development of the urban food distribution system.

As planners seek to foment development in their own societies or in less developed economies they attempt to assist, they typically seize upon efforts to increase efficiency in production technologies. These same planners tend to give little or no emphasis to labor productivity in the commercial sector. Attitudes towards the commercial sector frequently are shaped by the misperception that merchants are parasitic elements rather than productive elements whose enhanced efficiency would benefit consumers and producers.

A. Paradigm of Evolution of Food Marketing System

Table 1 is a graphic depiction of the evolutionary process of the marketing system. The table traces the chief characteristics associated with the process of change from the rural economies which spawn the incipient urban marketing system to the most advanced marketing systems found anywhere. Those characteristics are divided into two categories. The first five are the predictive variables which may be properly considered as the "Forces of Change". There are however a number of important secondary characteristics which are associated with the progression but which evolve in response to the more fundamental predictive variables.

These two types of characteristics exhibit a complex interaction which makes determining causality difficult at times. Changes in the production system and in the marketing system are highly interactive. Producers become more market-oriented as the urban markets develop, but it is difficult to say that the change in the production system was the cause of the evolution of the marketing system. Rather the production system, product mix, and

TABLE 1:

Paradigm of Urban Market Evolution

CATEGORY	PRE-URBAN	STAGE I	STAGE II	STAGE III
I. URBANIZATION & REGIONAL SPECIALIZATION	PREDOMINANTLY RURAL WITH LITTLE REGIONAL DIFFERENT'N	DISCRETE URBAN CLUSTERS WITH INCIPIENT REGIONAL SPECIALIZATION	SUBSTANTIAL URBAN HUBS SURROUNDED BY DISTINCT AREAS ASSOCIATED WITH DIFFERENT TYPES OF AGRI & INDUST PRODUCTION	PREDOMINANTLY URBAN POPULATION, PRONOUNCED REGIONALAL DELINEATION OF PROD'N CORRESPONDING TO COMPARATIVE ADVANTAGE
II. INCOME LEVEL	LOW INCOME	LOW & LOWER-MIDDLE INCOME	LOWER-MIDDLE & UPPER-MIDDLE	UPPER-MIDDLE, HIGH & INDUSTRIAL MARKET ECONOMIES
III. TRANSPORT & OTHER INFRASTRUCTURE	PATHS & CRUDE ROADS	MARKET ROADS & LIMITED URBAN INFRASTRUCTURE	CENTRALIZED WHOLESALE FACILITIES, GOOD REGIONAL & EXTENSIVE NATIONAL TRANSPORTATION	TRANSPORTATION INTEGRATED WITH INTERNATIONAL NETWORK
IV. COMMUNICATION INFRASTRUCTURE	LIMITED OUTSIDE LOCAL AREA	REGIONAL COMMUNICATION LIMITED, TELECOMM'N PRINCIPALLY IN CENTRALIZED FACILITIES ONLY	EXTENSIVE NATIONAL COMMUNICATION NETWORK INCLUDING TELECOMM'N	COMMUNICATION INTEGRATED WITH INTERNATIONAL NETWORK
V. GOVERNMENT INVOLVEMENT	SPORADIC GOVERNMENT INVOLVEMENT	REGULAR INVOLVEMENT WITH AT LEAST LIMITED EFFECT ON MOST ALL PRODUCTION & MERCHANDISING	COMMODITY POLICIES, SOME MARKETING BOARDS, EXTENSIVE INVESTMENT IN URBAN FACILITIES	SYSTEM OF TAXES/SUBSIDIES EFFECTING MOST COMMODITIES, GOVERNMENT OPERATION OF SOME FACILITIES BUT EXTENSIVE PRIVATIZATION
VI. PREDOMINANT TRADER INSTITUTION	HOUSEHOLD MEMBERS ONLY	RURAL PRODUCER-TRADERS & URBAN BUYERS	PROFESSIONAL MERCHANTS	MERCHANTS & SOME VERTICALLY INTEGRATED PROCUREMENT
VII. PRODUCTION SYSTEM	SELF SUFFICIENCY	MARKET SURPLUS PRODUCTION	MARKET ORIENTED PRODUCTION	GLOBAL MARKET ORIENTATION
VIII. PRODUCT MIX	PREDOMINANTLY GRAIN & STARCHY ROOT CROPS	SEASONAL FLUCTUATIONS STILL GREAT, GROWING IMPORTANCE OF HIGHER VALUE PRODUCTS	EXTENSIVE VARIETY, SOME IMPORT SUBST'N INCREASED PERCENTAGE LIVESTOCK & HORT. PRODUCTS, CONVENIENCE FACTOR GROWING	FULL GAMUT, HIGH PROPORTION PERISHABLES, MEAT, FISH, EGGS & DAIRY PROD. CONVENIENCE CONSIDERABLE IMPORTANCE
IX. FINANCIAL INSTITUTIONAL SUPPORT	LOCAL ONLY	LIMITED NON-LOCAL MONEY LENDING	DEPENDABLE FORMAL CREDIT	RELIANCE ON NATIONAL & INTERNATIONAL FINANCIAL INSTITUTIONS
X. MARKET COORDINATION	AUTONOMOUS	SPOT MARKET & IMPERFECT DEMAND ANTICIPATION	SOME FORWARD MARKETING	DYNAMIC EFFICIENCY RESPONDING TO GLOBAL MARKET INFORMATION
XI. SPATIAL ORGANIZATION OF MARKETS	DIFFUSE POINTS OF EXCHANGE	PERIODIC MARKETS	FIXED CENTRAL EXCHANGES	MULTIPLICITY OF CENTRAL PLACES & TARGETTED DIRECT BUYERS

246

predominant type of trader are characteristics which evolve in response to the more fundamental processes of urbanization, specialization, income growth and support of government institutions and infrastructure.

This schematic depiction is obviously an idealization of the processes which take place. The paths of no two marketing systems are identical. The fundamental distinction between the patterns traced by different developing economies is the differing rhythm of progression between the stages. Observing how the evolution of one category may lag behind the progression expected from the idealized paradigm can be useful for planners in diagnosing problem areas and designing interventions. The usefulness of this paradigm at present is as a first attempt at building a realistic yardstick which fellow marketing specialists can refine as a standard diagnostic tool.

B. Predictive Variables

The following paragraphs characterize each of the rubrics used in the paradigm of market evolution depicted schematically in Table 1.

1. Urbanization and Regional Specialization

The best objective measure available to us for measuring urbanization is the World Bank Table showing urban population as a percent of total population for each country in the world. Table 2 reproduces that data for a wide spectrum of countries around the world. As a practical rule of thumb Stage I countries have up to one third of their population in towns and cities. Stage II has a level of urbanization between one and two thirds, while Stage III has more than two thirds of the population living in urban areas. The reader should be careful to note that the ranking in Table 2 is based on income levels rather than level of urbanization. However, there is a high correlation between income levels and degree of urbanization.

The concept of regional specialization follows our earlier discussion of the broader development process. As urban demand becomes more variegated, rural areas respond by developing according to their relative comparative advantages. This is a phenomenon which can be observed and measured. There is however no handy objective index of regional specialization. The level of urbanization will serve here as a surrogate for that index until more in depth work can be done.

TABLE 2:

Urbanization

	Urban population: As percentage of total population		Urban population: Average annual growth rate (percent)		Percentages of urban population: In largest city		Percentages of urban population: In cities of more than 500 000 persons		Number of cities with more than 500 000 persons	
	1965[1]	1983	1965–73	1973–83	1960	1980	1960	1980	1960	1980
Low-income economies	17 w	22 w	4.4 w	4.5 w	10 w	15 w	31 w	45 w	55 f	146 f
China and India	18 w	22 w			7 w	5 w	33 w	59 w	49 f	114 f
Other low-income	13 w	21 w	5.2 w	5.0 w	25 w	28 w	19 w	40 w	6 f	32 f
Sub-Saharan Africa	11 w	20 w	6.2 w	6.0 w	33 w	41 w	2 w	35 w	1 f	13 f
1 Ethiopia	8	15	7.4	6.0	20	37	0	37	.	.
2 Bangladesh	5	17	6.6	7.8	20	30	20	51	.	.
3 Mali	13	19	5.4	4.4	32	24	0	0	0	.
4 Nepal	4	7	4.3	6.2	41	27	0	0	0	.
5 Zaire	19	38	5.9	5.9	14	28	14	38	1	.
6 Burkina	9	11	6.5	4.6		41	0	0	0	.
7 Burma	21	29	4.0	3.9	23	23	23	23	1	.
8 Malawi	5	11	8.2	7.3		19	0	0	0	.
9 Uganda	6	7	9.3	0.3	38	52	0	52	0	.
10 Burundi	2	2	1.4	3.2			0	0	0	.
11 Niger	7	14	7.0	7.0		31	0	0	0	.
12 Tanzania	6	14	8.1	8.6	34	50	0	50	0	.
13 Somalia	20	33	6.4	5.5		34	0	0	0	.
14 India	19	24	4.0	4.2	7	6	26	29	11	41
15 Rwanda	3	5	6.0	6.6		0	0	0	0	.
16 Central African Rep	27	44	4.4	4.6	40	36	0	0	0	.
17 Togo	11	22	6.4	6.6		60	0	.	0	.
18 Benin	11	16	4.5	4.7		63	0	63	0	.
19 China	16	21			6	6	42	45	28	43
20 Guinea	12	26	5.0	6.3	37	40	0	40	0	.
21 Haiti	18	27	3.6	4.2	42	56	0	56	0	.
22 Ghana	26	38	4.5	5.3	25	35	0	48	0	.
23 Madagascar	12	20	5.3	5.5	44	36	0	36	0	.
24 Sierra Leone	15	23	5.0	3.3	37	47	0	0	0	0
25 Sri Lanka	20	26	3.4	2.9	26	16	0	16	0	.
26 Kenya	9	17	7.3	8.0	40	57	0	57	0	.
27 Pakistan	24	29	4.3	4.3	20	21	33	51	2	.
28 Sudan	13	20	6.3	5.5	30	31	0	31	0	.
29 Afghanistan	10	17	5.6	5.2	33	17	0	17	0	.
30 Bhutan	4	4	−2.1	4.6	0	0	0	0	0	0
31 Chad	9	20	6.2	6.6		39	0	0	0	0
32 Kampuchea, Dem	11		3.4							
33 Lao PDR	8	15	4.6	5.7	59	49	0	0	0	0
34 Mozambique	5	17	8.2	10.2	75	83	0	83	0	1
35 Viet Nam	16	20	5.5	2.4	32	21	32	50	1	1
Middle-income	36 w	48 w	4.5 w	3.9 w	28 w	29 w	35 w	48 w	54 f	127 f
Oil exporters	30 w	41 w	4.4 w	4.4 w	27 w	30 w	32 w	48 w	15 f	42 f
Oil importers	41 w	54 w	4.5 w	3.8 w	28 w	28 w	36 w	48 w	39 f	85 f
Sub-Saharan Africa	16 w	27 w	6.4 w	5.9 w	21 w	26 w	14 w	51 w	2 f	15 f
Lower middle-income	29 w	36 w	5.1 w	4.1 w	27 w	32 w	29 w	47 w	22 f	57 f
36 Senegal	27	34	4.3	3.8	53	65	0	65	0	.
37 Lesotho	2	13	7.8	21.4			0	0	0	0
38 Liberia	23	38	5.3	6.1			0	0	0	0
39 Mauritania	7	25	16.0	4.6		29	0	0	0	0
40 Bolivia	25	43	5.9	3.3	47	44	0	44	0	.
41 Yemen PDR	30	37	3.4	3.5	51	43	0	0	0	0
42 Yemen Arab Rep	6	18	3.7	9.8		25	0	0	0	0
43 Indonesia	16	24	4.1	4.6	20	13	34	50	3	9
44 Zambia	24	47	7.6	6.5		35	0	35	0	1
45 Honduras	26	38	5.4	5.8	31	33	0	0	0	0
46 Egypt, Arab Rep	41	45	3.0	2.0	38	39	53	53	2	2
47 El Salvador	39	42	3.6	3.6	28	22	0	0	0	0
48 Ivory Coast	23	44	5.2	8.5	27	34	0	34	0	1
49 Zimbabwe	14	24	5.8	5.0	40	50	0	50	0	1
50 Morocco	32	43	4.0	4.2	16	26	16	50	1	4
51 Papua New Guinea	5	14	14.3	5.1		25	0	0	0	0
52 Philippines	32	39	4.0	3.8	27	30	27	34	1	2
53 Nigeria	15	22	4.7	5.1	13	17	22	58	2	9
54 Cameroon	16	29	7.3	6.4	26	21	0	21	0	1
55 Thailand	13	19	4.8	3.6	65	69	55	69	1	1
56 Nicaragua	43	55	4.4	5.2	41	47	0	47	0	1
57 Costa Rica	38	45	3.8	3.2	67	54	0	54	0	1
58 Peru	52	67	4.7	3.6	38	39	38	44	1	2
59 Guatemala	34	40	3.8	4.1	41	36	41	36	1	1
60 Congo, People's Rep	25	55	4.4	5.5	77	56	0	0	0	0
61 Turkey	31	45	4.9	3.7	18	24	32	42	3	4
62 Tunisia	40	54	4.1	3.7	40	30	40	30	1	1
63 Jamaica	38	52	4.3	2.7	77	66	0	66	0	1
64 Dominican Rep	35	54	5.6	4.7	50	54	0	54	0	1
65 Paraguay	36	41	3.2	3.3	44	44	0	44	0	1
66 Ecuador	37	46	3.9	3.9	31	29	0	51	0	2
67 Colombia	54	66	4.4	2.9	17	26	28	51	3	4
68 Angola	13	23	5.9	6.0	44	64	0	64	0	1
69 Cuba	58	70	2.8	1.9	32	38	38	32	1	1
70 Korea, Dem Rep	45	62	4.9	4.2	15	12	15	19	1	2
71 Lebanon	50	78	6.2	1.6	64	79	64	79	1	1
72 Mongolia	42	54	4.6	4.2	53	52	0	0	0	0
Upper middle-income	49 w	54 w	4.0 w	3.8 w	28 w	29 w	38 w	51 w	32 f	70 f
73 Jordan	47	72	4.7	4.8	31	27	0	37	0	1
74 Syrian Arab Rep	40	48	4.8	4.2	35	33	35	55	1	2
75 Malaysia	26	31	3.3	3.5	19	27	0	27	0	1
76 Chile	72	82	2.9	2.4	38	44	38	44	1	1
77 Brazil	51	71	4.5	4.1	14	15	35	52	5	14
78 Korea, Rep of	32	62	6.5	4.8	35	41	61	77	3	7
79 Argentina	78	84	2.1	2.1	46	45	54	60	3	5
80 Panama	44	50	4.1	3.0	61	66	0	66	0	1
81 Portugal	24	30	1.2	2.5	47	44	47	44	1	1
82 Mexico	55	69	4.8	4.1	28	32	36	48	3	7
83 Algeria	28	46	2.5	5.4	27	12	27	12	1	1
84 South Africa	47	55	2.6	3.0	16	13	44	53	4	7
85 Uruguay	81	85	0.8	1.6	56	52	56	52	1	1
86 Yugoslavia	31	45	3.1	2.3	11	10	11	23	1	3
87 Venezuela	72	85	4.8	4.3	26	29	26	44	1	4
88 Greece	49	64	2.5	2.6	51	57	51	70	1	2
89 Israel	81	90	3.8	2.7	46	35	46	35	1	1
90 Hong Kong	89	92	2.1	2.7	100	100	100	100	1	1
91 Singapore	100	100	1.8	1.3	100	100	100	100	1	1
92 Trinidad and Tobago	22	22	0.6	1.0			0	0	0	0
93 Iran, Islamic Rep	37	53	5.4	5.1	26	28	26	47	1	6
94 Iraq	50	69	5.7	5.3	35	55	35	70	1	3
High-income oil exporters	37 w	68 w	8.9 w	7.9 w	29 w	28 w	0 w	34 w	0 f	3 f
95 Oman	4	25	10.8	17.6						
96 Libya	29	61	8.9	8.1	57	64	0	64	0	1
97 Saudi Arabia	29	71	8.4	7.4	15	18	0	33	0	2
98 Kuwait	75	93	3.3	7.8	75	30	0	0	0	0
99 United Arab Emirates	56	79	16.7	11.2						
Industrial market economies	71 w	77 w	1.7 w	1.0 w	18 w	18 w	48 w	55 w	104 f	152 f
100 Spain	61	78	2.5	2.0	13	17	37	44	5	6
101 Ireland	49	56	2.0	2.2	51	48	51	48	1	1
102 Italy	62	71	1.4	1.1	13	17	46	52	7	9
103 New Zealand	79	83	1.9	0.8	25	30	0	30	0	1
104 Belgium	88	99	0.9	1.3	17	14	28	24	2	2
105 United Kingdom	87	91	0.7	0.3	24	20	61	55	15	17
106 Austria	51	56	0.8	0.6	51	29	51	29	1	1
107 Netherlands	79	92	0.8	−1.1	9	9	27	24	3	3
108 Japan	67	76	2.4	1.3	18	22	35	42	5	9
109 France	67	80	2.0	1.2	25	23	34	34	4	6
110 Finland	44	60	2.8	1.9	28	27	0	27	0	1
111 Germany, Fed Rep	79	86	1.2	0.3	20	19	46	45	11	11
112 Australia	83	86	2.0	1.5	28	24	62	68	4	5
113 Denmark	77	85	1.3	0.7	40	32	40	32	1	1
114 Canada	73	75	1.9	1.2	14	18	31	62	2	3
115 Sweden	73	85	1.6	0.7	15	15	15	35	1	3
116 Norway	37	55	3.4	2.4	50	32	50	32	1	1
117 United States	72	74	1.6	1.2	13	12	61	77	40	65
118 Switzerland	53	59	1.9	0.7	19	22	19	22	1	1
East European nonmarket economies	51 w	64 w	4.8 w	−2.2 w	9 w	7 w	23 w	32 w	36 f	55 f
119 Hungary	43	55	2.2	1.4	45	37	45	37	1	1
120 Romania	32	58	3.5	3.2	27	25	0	0	0	0
121 Bulgaria	46	67	3.2	2.1	23	18	23	18	1	1
122 Czechoslovakia	51	65	1.8	1.9	17	12	17	12	1	1
123 German Dem Rep	73	78	0.2	0.2	3	9	14	17	2	3

Source:

World Developme
Report, 1985,
IBRD)

2. Per Capita Income

Again the IBRD World Development Report provides readily available annual data which serve as an objective measure of income levels. The categories used by the World Bank correspond broadly to the different levels at which the observer expects to find various basic features of the system. Those categories are: Low Income; Lower-Middle Income; Upper-Middle Income; High (Petroleum Exporting Developing Economies); and Industrialized Market Economies. Referring to Table 3 the reader can see the World Bank data arrayed and divided. There is nothing intrinsically important about the absolute income levels, but the relative levels are convenient to show the correlation of predictive variables with the other attributes in the system.

	Population (millions) mid-1983	GNP (billions of dollars) 1983	GNP per capita (dollars) 1983	GNP per capita growth rate (percent) 1965-83	Life expectancy (years) 1965-73	Life expectancy (years) 1973-83	Infant mortality (per 1000) 1983
Low-income economies	2,335.4 t	31,603 t	250 w	2.7 w	1.4 w	5.4 w	59 w
China and India	1,752.3 t	12,849 t	290 w	3.2 w	2.2 w	3.7 w	52 w
Other low-income	583.0 t	18,754 t	200 w	0.7 w	4.6 w	13.8 w	51 w
Sub-Saharan Africa	245.2 t	15,451 t	220 w	-0.2 w	3.9 w	17.5 w	49 w
1 Ethiopia	40.9	1,222	120	0.5	1.5	4.4	43
2 Bangladesh	95.5	144	130	0.5	7.3	2.6	50
3 Mali	7.2	1,240	160	1.7	7.6	10.3	45
4 Nepal	15.7	141	160	0.1	5.8	4.1	46
5 Zaire	29.7	2,245	170	-1.3	18.7	44.2	51
6 Burkina	6.5	274	180	1.4	2.8	10.8	24
7 Burma	35.5	677	180	[illegible]	2.8	6.5	65
8 Malawi	5.6	178	210	2.2	1.5	2.8	44
9 Uganda	13.9	2,296	220	-4.3	5.6	42.7	49
10 Rwanda	4.5	58	240	2.1	2.2	12.4	47
11 Niger	6.1	1,257	240	-1.2	4.0	11.8	45
12 Tanzania	20.8	945	240	0.9	3.2	11.5	31
13 Somalia	5.1	535	250	-0.9	3.3	20.1	45
14 India	733.2	3,283	250	1.5	5.3	7.7	65
15 Rwanda	5.7	25	270	2.3	7.7	11.2	47
16 Central African Rep	2.5	623	250	0.1	3.0	14.4	48
17 Togo	2.8	57	290	1.1	3.1	9.3	49
18 Benin	3.8	113	300	1.0	3.6	10.6	48
19 China	1,019.1	9,561	300	4.4	-1.0	1.7	67
20 Guinea	5.5	246	300	1.1	3.0	4.0	37
21 Haiti	5.3	28	300	1.1	4.0	7.8	54
22 Guinea	12.8	2,29	310	-2.1	5.1	51.6	72
23 Madagascar	9.5	587	310	1.2	4.1	13.9	43
24 Sierra Leone	3.5	72	330	1.1	1.9	14.7	38
25 Sri Lanka	15.4	56	330	2.9	5.1	14.5	37
26 Kenya	18.9	583	340	2.3	2.3	10.8	57
27 Pakistan	99.7	804	290	2.5	4.8	11.1	50
28 Sudan	20.8	2,500	400	1.3	1.2	10.0	18
29 Afghanistan	17.2	648		0.5	3.8		26
30 Bhutan	1.2	47					43
31 Chad	4.8	1,204			2.5	1.3	43
32 Kampuchea, Dem		151					14
33 Lao PDR	3.7	237					45
34 Mozambique	13.1	502					54
35 Viet Nam	58.5	230					
Middle-income economies	1,165.2 t	40,525 t	1,310 w	3.4 w	5.2 w	9.3 w	51 w
Oil exporters	542.6 t	15,511 t	1,050 w	3.3 w	4.4 w	10.6 w	57 w
Oil importers	622.6 t	25,014 t	1,530 w	3.5 w	5.7 w	34.4 w	54 w
Sub-Saharan Africa	148.2 t	5,822 t	700 w	1.9 w	4.8 w	12.4 w	50 w
Lower middle-income	665.1 t	18,446 t	750 w	2.9 w	5.8 w	17.0 w	57 w
36 Senegal	5.2	196	440	-0.5	3.0	3.9	45
37 Lesotho	1.5	30	460	8.3	4.4	11.9	53
38 Liberia	2.1	111	490	0.8	1.5	7.2	19
39 Mauritania	1.6	1,031	470	3.3	3.9	7.8	45
40 Bolivia	5.0	1,097	510	3.6	2.5	15.2	51
41 Yemen, PDR	2.0	333	520				46
42 Yemen Arab Rep	7.8	195	550	5.7		12.9	44
43 Indonesia	155.7	1,919	560	4.0	53.0	18.0	54
44 Zambia	5.1	753	560	-1.3	5.2	10.3	51
45 Honduras	4.1	112	670	2.6	2.9	11.5	60
46 Egypt, Arab Rep	45.2	1,001	710	4.2	2.8	13.2	58
47 El Salvador	5.2	21	710	-0.2	1.5	11.7	64
48 Ivory Coast	9.5	2,22	710	1.0	4.1	11.9	52
49 Zimbabwe	7.3	2,31	720	1.5	3.0	3.7	56
50 Morocco	20.8	447	760	2.9	2.0	8.4	[illegible]
51 Papua New Guinea	3.2	462	760	0.9	6.6	5.3	[illegible]
52 Philippines	52.1	30,0	700	2.9	8.8	13.7	64
53 Nigeria	93.6	9,24	770	3.2	10.3	13.3	49
54 Cameroon	9.8	4,5	820	2.7	2.8	12.6	54
55 Thailand	49.2	514	820	4.3	5.5	8.7	63
56 Nicaragua	3.0	1,30	830	-1.8	3.4	15.5	[illegible]
57 Costa Rica	2.4	5,1	1,020	2.1	4.7	23.2	74
58 Peru	17.9	1,265	1,040	0.1	10.1	52.3	58
59 Guatemala	7.9	10,3	1,120	2.1	1.9	3.9	60
60 Congo, People's Rep	1.9	342	1,230	3.5	4.6	12.4	93
61 Turkey	47.3	1,41	1,240	3.0	10.5	42.0	51
62 Tunisia	6.9	164	1,290	5.0	3.4	9.4	62
63 Jamaica	2.3	11	1,300	-0.5	5.9	16.0	20
64 Dominican Rep	6.0	4,9	1,370	3.9	2.7	8.5	63
65 Paraguay	3.2	407	1,410	4.5	4.3	12.6	55
66 Ecuador	8.2	284	1,420	4.6	6.2	15.6	63
67 Colombia	27.5	1,139	1,430	3.2	10.5	24.0	54
68 Angola	8.2	1,247					43
69 Cuba	3.8	115					15
70 Korea, Dem Rep	19.7	121					55
71 Lebanon	2.8	10			2.5		55
72 Mongolia	1.9	1,565					55
Upper middle-income	500.1 t	22,079 t	2,050 w	2.9 w	5.3 w	14.0 w	55 w
73 Jordan	3.2	3,5	1,640	3.9		19.0	54
74 Syrian Arab Rep	9.6	15,5	1,760	4.9	3.1	12.7	67
75 Malaysia	14.9	33,0	1,860	4.5	1.2	5.5	57
76 Chile	11.7	7,57	1,870	-0.1	10.3	5.2	79
77 Brazil	121.7	8,512	1,880	5.0	21.2	[illegible]	[illegible]
78 Korea, Rep of	40.0	80	2,010	5.7	15.5	15.0	57
79 Argentina	29.6	2,757	2,070	3.5	24.1	47.8	70
80 Panama	2.0	7,7	2,170	2.9	2.4	[illegible]	31
81 Portugal	10.1	5,2	2,2[illegible]	3.7	4.9	20.1	71
82 Mexico	75.0	1,973	2,240	3.2	4.8	13.2	66
83 Algeria	20.8	2,382	2,250	3.5	3.8	12.8	57
84 South Africa	31.5	1,221	2,490	1.5	5.5	13.3	64
85 Uruguay	3.0	1,78	2,490	2.9	5.7	5.1.0	73
86 Yugoslavia	22.9	25,8	2,570	3.7	10.9	22.9	69
87 Venezuela	17.3	91,2	3,840	1.5	3.3	11.7	58
88 Greece	9.8	13,2	3,920	4.0	4.4	16.8	15
89 Israel	4.1	21	5,370	2.9	8.2	17.0	14
90 Hong Kong	5.3	1	6,090	6.2	5.4	7.9	16
91 Singapore	2.5	1	6,620	7.9	[illegible]	4.5	13
92 New Zealand, Kuwait	1.1	5	8,850	3.4	5.7	15.6	68
93 Iran, Islamic Rep	42.5	1,648			5.5		60
94 Iraq	14.7	435			3.2		59
High-income oil exporters	17.8 t	4,312 t	12,370 w	3.8 w	8.1 w	13.5 w	59 w
95 Oman	1.1	3,0	5,250	6.5	7.1	17.9	53
96 Libya	3.4	1,7	9,490	-2.9	9.4	11.6	58
97 Saudi Arabia	10.4	2,15	12,230	6.2	5.1	16.5	56
98 Kuwait	1.7	15	17,930	9.2	4.6	10.2	71
99 United Arab Emirates	1.2	24	22,873			12.7	71
Industrial market economies	725.9 t	9,035 t	11,060 w	2.5 w	5.2 w	9.0 w	15 w
100 Spain	38.2	5,5	4,270	3.0	7.0	15.7	15
101 Ireland	3.5	3,0	5,0[illegible]	3.3	8.5	14.5	13
102 Italy	56.8	3,01	5,490	2.9	5.1	17.4	16
103 New Zealand	3.2	25,9	7,7[illegible]	1.2	7.2	14.2	14
104 Belgium	9.9	31	9,150	3.1	4.4	5.4	13
105 United Kingdom	56.3	2,45	9,200	1.7	6.2	14.3	14
106 Austria	7.5	84	9,250	3.7	4.5	5.4	13
107 Netherlands	14.4	41	9,490	2.3	5.4	5.2	16
108 Japan	119.3	3,72	10,120	4.8	6.0	4.7	17
109 France	54.7	547	10,500	3.1	5.3	10.8	15
110 Finland	4.9	337	10,740	3.3	7.2	10.6	13
111 Germany, Fed Rep	61.4	2,49	11,430	2.9	3.7	4.3	15
112 Australia	15.4	7,687	11,490	1.7	5.7	10.5	16
113 Denmark	5.1	43	11,570	1.9	7.5	9.5	14
114 Canada	24.9	9,976	12,310	2.5	4.4	7.4	16
115 Sweden	8.3	150	12,470	1.9	5.3	10.3	16
116 Norway	4.1	324	14,020	3.3	8.3	9.7	17
117 United States	234.5	9,363	14,110	1.7	4.7	7.5	15
118 Switzerland	5.5	41	16,290	1.4	5.5	3.9	9
East European nonmarket economies	356.1 t	2,122 t					19 w
119 Hungary	10.7	33	2,150	5.4	2.5	7.1	19
120 Albania	2.8	2,9					71
121 Bulgaria	8.9	11,1					13
122 Czechoslovakia	15.4	12,0					10
123 German Dem Rep	16.7	10,8					11
124 Poland	36.6	31,3					11
125 Romania	22.8	23,8					

TABLE 3

Per Capita Income

3. Transport and Other Infrastructure

There is a basic relationship between the evolution of the transportation network and the development of trade. Other infrastructure has a supporting role which is usually associated with that infrastructure, especially electricity and water which become important in assembly, processing, and wholesale/retailing. There is no handy index of the extent of the transportation network available in the World Bank data cited above. Indices do exist and can be developed. Here the characterizations are based on relative terms of the extensiveness of networks.

4. Communication Infrastructure

The terms used to typify the development of the communication network are similar to those for transportation. The predictive relationship between communication networks and marketing networks is clear. Market information travels via communication systems to enable price formation to occur. Inefficiencies in communication lead to costly imperfections in that process.

5. Government and Institutional Development

The section devoted to government interventions details some of the ways in which the government can facilitate the development of the marketing system. The broader involvement of the government in the economy, through taxes, subsidies and other policies, affects all aspects of market interaction and development. We hasten to add that the government involvement could be a retardant to growth, but it is true that the level of penetration and institutional development is highly predictive of the extension of the marketing system.

C. Associated Attributes

1. Predominant Trader Institution

This characterization refers to the type of trading institution, whether individual or corporate, which typically conducts wholesale business in the system. This ranges from producer-traders to sophisticated trading organizations in which each individual has a specialized function such as procurement, inventory control, financial management, or logistics.

2. Production System

The production system is the most fundamental attribute associated with the predictive variables. In fact, one might argue that production specialization is one of the predictive attributes

because of its interaction with other predictive variables. Each categorization refers to the market orientation of the producer. It says nothing for the type of commodities which are grown.

3. Product Mix

Product mix refers to the predominant commodity types which are traded in the system. This is significant since each type has distinct assembly, storage, transportation, and merchandising requirements.

4. Financial Institutional Development

The credit arrangements associated with each stage of the development of the market system is significant since access to credit is an essential condition to expansion. The different stages are broadly depicted from money-lenders to international financial institutions.

5. Market Coordination

Market coordination is a topic which could and has been the basis for tracking the evolution of the overall system itself. Coordination here refers to the types of linkages between each of the steps in the commodity system from producer to consumer. These steps are expressed here especially in terms of the agreements between buyer and seller.

6. Spatial Organization of Markets

This too is a measure of market development which has been the subject of important works by economic geographers. The most general description of the spatial pattern is traced here.

TRANSFORMATION OF THE WHOLESALE-RETAIL MARKETING SYSTEM

A. Evolution vs. Intervention

If the evolution from simple rural economies to more complex, productive and predominantly urban economies were a smooth progression along the various points of the developmental continuum, the only desirable interventions into the marketing system would be those to stimulate the process so that it would advance more rapidly. Instead the reality of the Third World urban market systems in transition is fraught with imperfections.

Yet an attitude prevails amongst many development planners that the market system works adequately for the most part. The market system seems to be working in some abstract sense since markets always "adjust themselves" through the price mechanism to the conditions which separate producers from consumers. Government interventions are preponderantly on the side of agricultural production as if the market system were separable from the productive enterprise.

The underlying optimism which leads to the neglect of marketing reforms seems to derive in no small measure from the neo-classical microeconomic notion of "perfect competition". Too many planners assume away the problems of the marketing system. Their faith in the market forces leads them to underestimate how far the real market may diverge from some ideal of perfect competition. In so doing they imply that the economic realities do not diverge substantially from the theoretical assumptions upon which the theory rests. A review of the basic underlying assumptions of that theory rests are helpful:

Perfect Competition

1) There are a large number of buyers and sellers trading homogeneous commodities. No single buyer or seller can influence the price of a commodity through his own individual actions or by conspiring with others;

2) No restrictions are placed on supply or demand;

3) Mobility of goods or services prevails. No barriers exist to exit or entry into the market.

4) Complete knowledge and perfect information flows concerning the conditions of demand and supply.

A note on what appears to be a basic shortcoming of the way in which perfect competition is defined concerns technology and management. The neo-classical definition addresses complete knowledge and perfect information, but it does not specifically qualify that there should be perfect mobility of technological and management innovations. The neo-classical preoccupation is with price-formation. The specific inclusion of the mobility of "know-how" enhances our appreciation for a crucial element of perfect competition from which the realities of developing marketing systems diverge in significant degrees.

The realities of the urban wholesale and retail system in the Third World diverge sharply from these ideal conditions. It would be utopian to expect the system to be free of major imperfections in relationship to the textbook ideal. What planners can expect, however, is some pattern of the expected imperfections at various stages.

Throughout the following characterization of various ideal stages, the reader must keep in mind one fundamental point. There coexists at any given time more than one stage in a developing economy's market. This fragmentation is typical. While the majority of the population lives, for example, in a system of regional surplus marketing associated with periodic markets even in cities, a segment of the population in the capital lives in a marketing microcosm which imports essential features of the most advanced marketing technology. These discontinuities are typical of the experience of the majority of developing economies today. For example, while food wholesaling/retailing in Stage II economies is typically dominated by central wholesale markets and satellite retail plazas occupied with many small scale narrow product line merchants and complemented by neighborhood stores in residential areas, "parallel channels" begin to appear with corporate chain stores served by a vertically integrated warehouse and some forward contract supply arrangements.

B. <u>Appropriate Evolutionary Pattern</u>

1. Stage One: Regional Surplus Marketing

NB: As throughout this paper, masculine pronouns are used for convenience when referring to an indefinite person of either gender. Frequently, even predominantly in some countries, traders are in fact female.)

The "marketing firm" or institution characteristic of the typical initial stage of the urban wholesale-retail system is an individual entrepreneur. The merchant serves generally as a combined wholesaler-retailer who may well be involved in assembling the product as well. Usually the trader was previously more

directly involved in production. Such a trader has no special training, is commonly illiterate, and possesses only the most basic accounting skills. The trader provisions himself with products common to the regional market which are offered for sale in surplus. These products tend to be preponderantly starchy root crops and grains available as surplus production from largely traditional smallholders.

His marketing operation is financed primarily through family funds or on credit from local money-lenders. Little or no formal credit is available.

The urban area served may vary in size from tens of thousands to a substantial metropolitan area of one million inhabitants or more. Less than a third of the population of the country typically resides in towns or cities. Market roads connect periodic markets to population centers often with poor secondary roads for assemblers to reach the markets directly. Urban roads are sufficient but generally with a low level of maintenance. Telecommunications are available within urban areas but producer-market information is rarely transmitted between grower areas and the towns or cities. Most communication about overall trends is communicated informally.

Transactions are on a cash basis. Prices are determined through negotiation on the spot market with only a limited ability on the part of rural producers and traders to anticipate demand trends. While some retail sales are available in larger towns at any time, the system remains oriented toward periodic markets.

Even in those cities large enough to sustain constant trading and a clientele accustomed to the convenience, the supply of commodities and heaviest sales tend to be concentrated in two or three days each week. Convenience stores and private markets begin to develop as a complement to the principal marketing stream which remains in public market places. Mobile markets (sales from trucks) and spontaneous markets begin to crop up in response to new opportunities for a more diffuse urban marketing network.

Government involvement is already pervasive in the early stages of the evolution of the urban wholesale-retail marketing system. Public markets are overseen usually by municipal authorities. Official wholesale markets are frequently operated by national authorities in the capital city. Government controlled marketing boards are common, especially for key commodities or wherever food security issues are prominent. Subsidies and taxes effect a considerable number of commodities typically.

Thus the predominant wholesaler is in fact an individual wholesaler-retailer in this Stage I system. Specialization is beginning to evolve in the form of traders specialized in certain commodities. The predominant marketing area is still an open air market with some buildings and street trading available for some items continuously. They are provisioned either directly as they transport their lots with them in the countryside or purchase from rural assemblers and fellow vendors to create a greater assortment. Inventory management is simply to bring only as much as can be sold in a given selling period, usually one to three days a week. Even vendors of more storable commodities tend to maintain an inventory corresponding to the expected volume of a given weekly period.

Handling of loads is labor-intensive, though most products are transported to market by truck, bus, boat, or in some instances by individuals travelling by rail. Beasts of burden are only common for those travelling relatively shorter distances, though they are common in those areas. Handling in the market areas is principally manual, assisted by push cart or simple conveyances.

2. Stage Two: National Surplus Marketing

As the urban market for rural products develops, some producers begin to respond by tailoring their production to meet the changing composition and volume of the new demand. Traders play a vital role in making producers aware of the new opportunities. The emergence of professional traders usually coincides with the changing system of production. The most advanced producers and marketers become aware of import substitution opportunities which they can capture. New perishable commodities often are grown in the areas immediately surrounding urban hubs. Livestock production may remain in the traditional producer areas, particularly for large stock, but the marketing channels tend to concentrate in urban areas. Fish, poultry, egg, and dairy production begin to take on more significance as well, although the starchy tubers and grains remain the staple fare of the majority of the population. More dependable formal credit sources become available to merchants in this point of the development of the marketing system. Traders are thus able to carry larger inventory and trade over longer distances.

Substantial urban population hubs develop. Typically between one and two thirds of the population live in towns and cities. The principal flows of commodities now pass through centralized wholesale facilities close to transportation hubs. An extensive national transportation network serves these hubs.

Improved regional roadways facilitate the assembly of rural products to feed into the national grid. Simultaneously the communication network expands increasing the flow of market information passing directly between producers and marketers.

More direct communication results in a higher degree of coordination. Rather than rely generally on spot market prices and to be subject too their volatility, merchants and producers begin to share the risk through the introduction of forward contracts. Whether formalized into a contract or not, established trading partners evolve. The more homogeneous and widely produced is the commodity, the greater the tendency toward forward contracting. Simple agreement evolve for other commodities, such as perishables, which tend not to be sold by contract. Along with the central wholesale facilities come regular trading in markets which operate with a much less pronounced periodic pattern.

Government authorities operate a growing range and complexity of marketing facilities. These include central wholesale, storage, cooling and many transportation facilities. The Government initiates publicly run marketing boards, subsidized urban outlets and other policy inspired marketing institutions.

Stage II is thus typified by a much greater differentiation in functions between wholesaler and retailer. Broadline wholesaling is beginning to emerge, wholesalers specializing in providing a convenient and economical assortment of products in order to reduce transaction costs associated with retailers buying from large numbers of narrow line wholesalers. Inventory management becomes much more crucial as inventory is carried over longer periods even if the wholesaler sales outlet is still predominantly a market with a distinct periodicity. The emergence of more services to retailers and institutional buyers occurs, with credit, transport and related advantages offered to maintain a more stable buyer-seller relationship. This relationship may become more formalized to include forward contracting. Financial management and bookkeeping of various accounts is more rigorously pursued. Merchandising techniques also become more sophisticated as the intermediaries begin to target their markets more and more accurately.

3. <u>Stage Three</u>: Global Surplus Marketing

The most advanced stage of development of the urban food distribution system found in developing economies is comparable to the predominant system found in more advanced economies. The differences are a question of degrees rather than nature of the system. The most sophisticated marketing

systems found in post-industrial economies today achieved the basic characteristics after 1950 and now refine their human and technological resources.

The individual merchant is no longer the dominant institution managing the urban wholesale-retail system. Commercial marketing organizations with specialized functions oversee the movement of the greatest volume of products while individual merchants serve smaller or more specialized niches in the system. Families continue to operate at the retail level and at the wholesale level for specialized product lines.

The production base which supplies the market is no longer confined to regional or national boundaries. As price conditions change around the world the marketing mechanism is able to import items to respond to the structure of demand. All types of food products are available. Urban demand for high value perishable horticultural and livestock products increases disproportionately as income levels rise. Demand for products with a higher convenience or service component follow the same pattern. Merchant groups have access to national and international lines of credit. Financial management requires a greater proportion of the firm's overall management time.

Less than a third of the total population resides in rural areas. Transportation necessary for both internal marketing and international import and export is integrated. The network is extensive. The communication network is similarly complete. Most market information is transferred by telephone or telex.

Vertical integration from the farm to the consumer becomes more common within private farming/marketing firms. Independent growers also contract or develop strong agreements for specific markets at specified times. Market information is globalized such that firms can source their products at long distance to respond to cycles or irregularities of supply. Various private wholesale facilities operate, some in centralized government or cooperative exchanges. Producers can channel their product through a variety of exchanges in various locales.

There is widespread prevalence of vertically integrated chain store arrangements. The earliest appearance of this coordination arrangement between wholesaling and retailing is the individual company which owns retail stores, the wholesale warehouse and procurement operations supplying those stores. Typically as competition from that more profitable arrangement puts pressure on other retailers and wholesalers there is a tendency for traditional broad line wholesalers to organize

voluntary chain store systems among their customers to emulate the corporate chains in management style and procurement arrangements. Finally, individual retailers may feel the competitive pinch from both corporate chains and voluntary chains and organize their own cooperative chains.

Direct and indirect Government involvement in commodities is pervasive, but direct Government control of marketing facilities is less important than in earlier stages of development.

Those individuals and institutions which emerge to operate in this stage of the evolution of the urban food distribution system perceive themselves and are perceived by others as part of a distinct profession. Differentiation is no longer simply between wholesale and retail functions, but further specialization within functional subcategories. Procurement is one such function, buyers comparing alternative sources on a global basis, no longer limited to local production. Suppliers may thus change with changing price conditions and product differentiation, but buyer-supplier agreements tend to be quite stable, adjusting to the competitive environment to maintain that stability. Inventory management entails accurate accounting of levels of supply and fluctuations to coordinate buying to maintain stock. Handling and storage facilities tend to become more capital intensive in this stage as the value of the time of the employees increases.

The typical sales outlet tends to be one which offers increased convenience and variety to the public. This can take on many forms, including supermarkets, open air shops, convenience stores, or retail warehouse outlets to cut overhead expenses to obtain a competitive edge.

Advertising takes on much greater significance in that sort of environment, making full use of a wide range of communications media.

C. Signs of Disequilibria

The idealized stages of market evolution are useful for comparing what is observed in a particular food distribution system with the paradigm. Divergences from the expected pattern are not necessarily significant however, since marketing systems are constantly in transition. When these divergences coincide with signs of stress in the system, then they can prove helpful in analyzing how the system may be awry.

Analysts need to identify the symptoms of disequilibria which are likely to prove significant. Observers of the market system then need to recognize these telltale signs. Impressions may be gathered through rapid reconnaissance of a market system. The development of this and other methodologies will serve those who have become sensitive to the concept of market evolution and coordination.

Here are some of the most commonly observed failures of the urban wholesale/retail systems to evolve harmoniously:

* Producers who wish to market their products yet find irregular opportunities to do so and encounter difficulties reaching those urban consumers with unmet demand for their products.

* Credit is infrequently available to merchants through advantageous formal channels. Traders either forego opportunities which would increase their revenue and the overall efficiency of distribution, or they are obliged to pay excessive rates of interest which further impede their rate of growth.

* Shortages and gluts occur frequently.

* Vendors find they cannot communicate with other vendors and customers with ease.

* Congestion and physical barriers separate vendors, transporters, and customers.

* Marketing channels are complicated. Many transactions must be made for the product to pass from assembly to retail.

* Administration of markets and government marketing boards is ineffective in many cities throughout the Third World.

  Market places are often situated in ways and places where they should not be, resulting in abandoned or under-utilized facilities. Simultaneously retail outlets abound in areas for which they were not provided.

* Consumers encounter major impediments to shopping efficiently. Transportation and transport infrastructure constitute major obstacles.

* Alternative transportation, packaging, handling or other management practices can be identified which would clearly increase profitability of implementing firms.

* Alternative institutional or policy provisions can be identified which will clearly improve the economic performance of the entire system in terms of efficiency, equity and progressiveness.

INTERVENTIONS IN THE EVOLUTION OF THE MARKETING SYSTEM

A. Litany of Market Reform Measures

For all the dearth of marketing projects relative to production projects in the Third World, there exists a fairly substantial menu from which planners have chosen over the past few decades. The types of projects noted here are categorized by their "hardware" and "software components". They are further classified here according to which segment of the food distribution system in which they intervene.

MARKET INFORMATION

Hardware: The "hardware" component of market information projects is generally limited to the purchase of computers and database management systems.

Software: Market information services establish market data collection systems and train personnel to analyze, report and disseminate that information.

ASSEMBLY

Hardware: Grading stations, storage warehouses and assembly centers (centros de acopio in Latin America) are the usual physical facilities. The assembly centers may include initial processing functions or may go so far as to package product for direct export.

Software: Marketing boards, whether governmentally operated or autonomous, are often introduced at the assembly level. Cooperatives or Farmer Associations may be promoted.

The implementation of grades, standards and classification systems can be introduced.

Storage management and post-harvest handling programs are instituted in association with storage facilities.

PROCESSING

Hardware: Processing facilities covering a wide technological and product gamut may be introduced, including the most simple cleaning, cutting, or cooling processes or more mechanized preparation and packaging equipment.

Software: Technical assistance corresponds to all the different types of processing.

TRANSPORTATION

Hardware: Market roads, urban infrastructure, vehicles are the most common capital investments in transportation.

Software: Transport brokerages may be introduced. Logistical support is also associated with marketing boards once they are set up.

WHOLESALING

Hardware: Public warehousing is a possible intervention. The most usual are public markets, set up either entirely as wholesale facilities or as wholesale/retail markets with particular features important to the wholesalers.

Software: Warehousing receipts are a legal innovation associated with warehousing operations. Some market administration and management training programs complement any public market constructions.

Auctions are a particular sort of wholesale innovation which occasionally is introduced.

Various programs are used to promote vertical integration of wholesale functions among commercial marketing chains: Corporate (or mixed capital) Chains; Voluntary Chains; Cooperative Chains; or Consumer Cooperatives.

RETAILING

Hardware: The most usual facilities are those already mentioned in conjunction with wholesale/retail markets. These include a great array of physical structures and plazas.

Software: While these programs are much too rare, there exist training programs for all aspects of the retailing trade from procurement and inventory control to bookkeeping and financial management. Retail merchandising and layout training is still more rare.

B. Criteria for Viability

Judging whether a particular market reform is an apt intervention must first of all be determined through basic profitability analysis. While the notion seems simple-minded, the appalling lack of profitability analysis of many market projects in the Third World reminds us that this basic principle cannot be repeated too often. What little profitability analysis is performed is generally limited to physical infrastructure projects. Rarely is a social or private profitability appraisal considered for human resource development projects of which there is such a dearth in the first place. The desire to upgrade appearances and to create the outward impression of modernity greatly influences reformers of urban food distribution systems.

Profitability analysis refers in the first instance to a simple appraisal as to whether a particular investment will generate a profit. These projections are most straightforward in the case of physical facilities. Will the facility be used? Will it generate enough revenue to pay for the operating and fixed costs? Is the investment more lucrative than making no intervention at all? Would a less elaborate facility be more profitable? A simple sensitivity analysis should also be performed to consider how dependent the anticipated profitability is on certain basic assumptions. If conservative assumptions about occupancy levels and throughput do not still show an acceptable profit margin, then the risk of failure is probably too high.

A simple yet highly revealing question to raise in the case of these same physical facility appraisals is "If the proposed service appears profitable, why is it that no individual entrepreneur or group of investors has come forward to realize those profits?" The question is not rhetorical. There are legitimate answers to the question which are compatible with going ahead to implement the project under consideration. It may be that the technology is unfamiliar to prospective investors. It may be that the capital required surpasses the means of local investors. If these situations have arisen, then planners should seriously consider promoting the innovation for private investment from other segments of the economy or outside investors. Shifting the responsibility to the private sector in cases where private profitability is asserted by project analysts not only shifts the burden of investment costs but assures the interested management of the parties at risk.

It may be that the innovation is of a nature which requires that all firms in the channel adopt it simultaneously (e.g. improved packaging, grading, bulk handling of grains). If

planners consider that significant positive externalities exist, then they may have a legitimate case for public intervention. The justification of their proposed improvements may be that no single entrepreneur or firm is able to capture the economic rents from the venture. It may be, as in the case of improved market information, that there are public good aspects to the improvements. This is a case for social profitability analysis. This is precisely the procedure used by international financial institutions before committing to assist a marketing project. They insist that a social cost benefit analysis be undertaken. The principal stream of benefits which flow from a given market intervention may well be lower consumer prices and other reductions in marketing costs. Under such circumstances, a social profitability analysis is indeed in order. Even within the scope of large public projects however, any subcomponents which can be subjected to screening from the perspective of private profitability should evaluated on their clear business merit.

LESSONS FROM THE RECORD OF INTERVENTIONS

The dearth of case studies on the experience of wholesale/retail market interventions around the world has obliged the author to draw upon Latin American experiences, both from direct personal participation and from the literature largely published by Michigan State University. While it is lamentable to be obliged to have such a Latinocentric view of marketing interventions, the recognition of this shortcoming should serve to emphasize the importance of the recommendation to develop case study materials which can assist AID and other development institutions in approaching problems worldwide.

Both one of the best examples, CORABASTOS, and one of the worst examples, Calvario ("Calipuerto"), come from the well documented experience of Colombia. The ongoing experience of the West Kingston Market Development project offers an often intriguing positive response to the problems faced by most large urban areas of the Third World. An ongoing effort in Peru provides an exemplary case of an unfortunate approach to be avoided.

Despite the geographic limitations of the examples documented, the essential lessons are abundantly clear as to what is to be adopted and what should be eliminated from market planning. Some of the "golden rules" from the good and the bad experiences are distilled in a concluding section. Some of the underlying myths and biases which tend to haunt the conceptualization of marketing problems in the Third World are highlighted here as well.

A. Successful Examples from Latin American Experience

1. CORABASTOS

During the 1970's the residents of Bogota became acutely aware of the pressures that population growth were exerting on the food distribution system. The population had quadrupled in two decades. The marketing system was slow to catch up with the changes wrought by demography and income growth and redistribution. The response of the market designers and planners was a the most complete system-wide market diagnosis, planning, and implementation program which may have been attempted anywhere to date. While the program suffered in later years from losses due to overextending itself in areas outside of its original scope and purpose, the market innovations were and are categorized as some of the most successful on record. The system will continue to benefit from further reform to increase efficiency and participation in the distribution system, but the basis for continued success remains in place.1/

The principal features of the CORABASTOS scheme were a central wholesale market facility, a market information system, a training program for assemblers, wholesalers and retailers, an applied research and extension program on packaging and handling of perishables, development of a grain exchange providing for both spot and futures trading and a voluntary chain of neighborhood stores for distribution.

The key elements to the CORABASTOS approach which are responsible for its success may be summarized as follows:

1) The institutional impetus for the program came from a group which had a cooperative rather than an adversarial approach to the principal participants in the old marketing system.

2) Community workers laid the groundwork to successful implementation of the project by working with the concerned public on anticipating the reforms.

3) The location of the wholesale facilities was consistent with the spatial orientation of established trading patterns.

4) The management of the CORATIENDAS retail outlets were guided by individual entrepreneurs whose decisions were based on rational first hand response to demand rather than on a centrally planned masterplan.

5) Planners took a highly pragmatic approach to all the designing process led by well-established principals of commercial facilities.

6) Training of marketing and merchandising personnel was instituted in conjunction with the realization of physical facilities.

2. West Kingston Market Development Project

Severe chronic unemployment for the past decade and more have caused the deterioration of the area of Kingston which remains the principal public market for Kingston and the terminal wholesale/retail hub for all of Jamaica. The ranks of "higglers" (Jamaican vendors) have become bloated by the underemployed population attempting to eke out an existence thus disrupting the functioning of both the wholesale and retail patterns of trade.

The response of the Urban Development Corporation (UDC) of Jamaica was to design an integrated urban development program which addressed the problem of urban roads and related infrastructure, community development and housing, as well as the overhaul of the entire wholesale/retail market complex (Coronation Market and its immediate satellites.) The innovation which most distinguishes the West Kingston market project from other efforts to renew an urban wholesale/retail3public facility is the concept of a Third World shopping center.

The shopping center concept is one developed by retailers in advanced marketing systems, principally designed to market consumer durables and only secondarily for food distribution. The concept has been adapted to the West Kingston context to layout the food and non-food vending operations to maximize their complementarity. The beauty of the approach is that it accommodates an economy in transition between the original surplus supply marketing and the demand oriented marketing systems.

At present they have received funding from the IDB to implement the project, after considerable reconsideration of the original marketing interventions. The success of the project is judged by the sound planning process which resulted in the approval of the loan. Clearly the case study of the implementation is yet to be written as construction is just beginning.

The considerable merit of the project consists of the following elements:

1) The problem of the urban markets was correctly perceived as an inextricable part of an overall urban planning problem which could never be resolved piecemeal.

2) The planners formed an interdisciplinary team which had to reach a consensus between the pragmatic concerns of design, construction, urban sociology, agricultural marketing, and economic and commercial feasibility.

3) The physical facilities were technologically appropriate based on the requirements for low-cost, durability under intense use, flexibility and compatibility with the style of higglering practiced in Jamaica.

4) The traders were brought into the planning process from an early stage through higgler and transporter associations to assure their understanding and agreement. The designers

modified their schemes in response to specific practical feedback and observation. 2/

B. Examples to Avoid

1. CAVASA Wholesale Market of Cali

The situation which led up to the construction of the CAVASA wholesale market outside of Cali, Colombia was a series of events familiar to urban areas throughout the Third World. As in the case of West Kingston, the "Zona Negra" area around the old Calvario market became a terrible morass stricken with every form of urban blight. Crime, health hazards, intense congestion, decay of the infrastructure, all the familiar pattern as an area is relegated to the poorest most disenfranchised elements of the population. The motivation for market reform was mostly a cry for eradication of the public eyesore.

Before the Government proceeded with its ultimate "white elephant", as it has been characterized, various groups of market planners attempted to put forth plans to reform the old system in ways which might well have worked. The first of the lessons from this debacle refers as much to frustrated projects which will never be implemented as to those which are eventually implemented in unfortunate ways.

1) Understanding the overall political context and the implementing organization's relationship to it is crucial to successful planning.

2) An old, even greatly afflicted, central wholesale or public market should not be destroyed until the new alternative is in place. Rotating relocation schemes can be devised to reconstruct portions of facilities if the new facility is on the old site.

3) Satellite markets are insufficient to supplant the role performed by an old central system during interim periods before a new central system is in place.

4) Prematurely imposed separation of wholesale and retail functions should not be forced before the functional specialization has already developed.

5) A central market site cannot survive if it is too far from the center of commercial activities. If a location is not already a central place and if it is not easily accessible, no amount of

artificially induced services can make the new location a central place. 3/

6) The pressures for urban renewal tend to supersede sound market planning. The zeal to clean up areas such as the Zona Negra is misguided. Closing the market does little to redress the conditions which perpetuate such areas. Planners should furthermore recognize that part of that zeal arises from a basic prejudice against petty traders.

7) Failing to consult with the interested groups (vendors) can be a fatal error. Organized vendor groups can effectively undermine implementation, even when the authorities are willing to use force.

8) Planners must be careful to follow a market-led approach to the determination of necessary facilities. They must especially beware of prematurely capital-intensive approaches which adopt signs of modernity borrowed out of inappropriate (U.S. or European) contexts e.g. refrigerated slaughterhouse, loading and unloading equipment.

9) The use of force to get a market "working", other than in supportive enforcement of a generally accepted system, is a losing battle.

10) Forcibly diverting commercial traffic is self-defeating. The barriers will simply tend to divert the commercial activities into alternative market channels in ways which are not necessarily efficient for the overall food distribution system.

2. BROCOMBRA

During the late 1970's the Government of Peru concluded that the national marketing system, suffering from various inefficiencies, required a fundamental restructuring. They undertook a most ambitious integrated agricultural marketing scheme (BROCOMBRA) through massive financing from the government of Spain. The program was to create a vertically integrated system from rural packing and assembly centers, to central wholesaling facilities, and to "People's Supermarkets" (Mercados del Pueblo) to distribute food in urban areas. 4/

Several turnkey assembly and wholesale centers had been completed by 1985 and remained idle. As of this writing, the latest chapter of this case has yet to be written, however it is abundantly clear that BROCOMBRA was tragically flawed. Its existence could only be salvaged by some heavy handed measures to artificially perpetuate the project.

The lessons to learn in order to avoid similar disasters in other marketing systems are summarized below:

1) The Government assumed that the operation of the intermediate facilities (assembly and wholesale) would be undertaken, neither having demonstrated that they were profitable nor having identified specifically who the operators would be.

2) The marketing technology chosen for the project was dictated by the foreign financier and was entirely inappropriate to the type of marketing operation needed. In other words, the technology was borrowed out of context from a Spanish Stage III type of operation for application to a Peruvian predominantly Stage II situation.

3) The scale of operations was similarly inappropriate to the country, assuming much higher volume packing and much more extensive refrigerated space than was demanded.

4) No pilot stores nor assembly centers were ever launched before committing the massive program to implementation.

5) The overall planning process was characterized by insufficient communication with the public and the merchants.

A few comments on the widely held myths and biases about the agricultural marketing system and its participants serve to elucidate a general lesson to be learned about the evolution of the marketing system. Unless the planners fully understand the distortions which these myths and biases introduce to the food distribution system, the wholesale/retail sector will tend to drag behind the rest of the economy in its development and reinforce non-progressive attitudes towards commerce and trade in general. The perpetuation of these attitudes introduces inefficiencies in the overall agricultural economy which stifle growth and the distribution of income.

Several intertwined preconceptions about trade summarize the overall distortion:

1) Production Is More Important Than Marketing

2) Merchants Are Opportunistic, Parasitic Elements of Society

3) Traders Hoard and Exploit the Public and the Producers Through Speculation

Growers, consumers, and an unfortunate number of policy planners put production development before market development. They reason that production precedes marketing biologically and that it should economically. They suffer from failing to progress in their mentality from a simple society in which self-sufficiency is the primary goal, and where trading is only necessary in order to supplement their needs, to the demand oriented systems which evolve in later stages. Supply and demand only make economic sense in concert. Separating one from the other is a fundamental fallacy. At present the marketing system, and therefore the whole economy, suffers from this fallacy.

The same growers, consumers and planners tend to attribute little importance to the skills or costs involved in moving the product from the farmgate to the consumer. They minimize and often deride intermediaries as parasitic elements who add virtually nothing to the product which the farmer has nobly produced.

A related prejudice is that merchants take control of the channels of supply unfairly to manipulate the price to their advantage. The value their services offer in terms of credit, storage, handling and transportation are not examined critically. The implied assumption is that price formation is not competitive and that merchants tend to exert monopoly powers. Time and again empirical studies have shown that these notions are generally ill-founded. The resentment of those who receive the grower's product or who take the consumers cash seems to be too deeply rooted to subject it to reason.

C. Guidelines for Redesigning Market Interventions

The following points summarize some key guiding principles for avoiding the pitfalls of many previous market designs:

1) SIZE. The size of facilities must correspond to the realistic needs of traders in the particular region for which it is designed. Oversized halls, stalls and storage facilities are a recurrent problem throughout Third World projects.

2) COST. Architects frequently are too ambitious relative to the cost of facilities which can be realistically expected to be amortized.

3) STYLE. The marketing technology and layout must be adapted to the particular trading conditions of each place. Plans which have been drawn up for one country or region should be carefully reexamined before reproducing them in a new setting.

4) LOCATION. Original periodic and early stage permanent markets tend to arise in the optimal location, but frequently outgrow the location as urbanization occurs. Relocation should be carefully designed to separate the hub of transportation from the hub of commercial activity.

5) DECENTRALIZATION. Once an urban area becomes too large to serve the majority of the population adequately from one central location, satellite markets should be promoted. The vitality of the central wholesale-retail facility must still be assured, though encouraging the specialization of the wholesale function. Rules of thumb for what constitutes "too large" are either a population of a million or more, or a significant concentration of population more than one half hour from the central market using customary mode of transport.

6) TRADER ASSOCIATIONS. Traders should be involved in the planning process to the extent possible. Whether through formal trader associations or announced gatherings, wholesalers and retailers should, at a minimum, be apprised of major initiatives which will effect them. Their cooperation can be the determining factor in the success of the design and implementation of major reforms.

7) OPERATING FEES. Operating fees should at least cover the actual operating costs of any market facility. Often the fee structure becomes as antiquated as the physical structures they are to maintain. Realistic fees are moreover a positive force in the apportionment of space utilized by merchants.

REORIENTATION OF FOOD MARKETING RESEARCH AND PLANNING ACTIVITIES

A. Critical Issues for Additional Research

The outline of this paper could serve as the basis for the text which is yet to be written on the course of wholesale-retail development in the Third World. The issues which have been touched upon all deserve an in-depth treatment. The following points summarize some of the major research issues suggested by the preceding discussion.

1. Testing Hypotheses

Understanding where a particular economy's marketing system fits into the evolutionary scheme of things postulated here is more than an academic exercise. To see how different aspects of the system are lagging behind or how they are being pushed prematurely out of the context of an appropriate course of development is extremely important before daring to intervene in a marketing system.

The different stages and evolutionary pattern which have been put forth here should be regarded as hypotheses that require further testing. Marketing specialists need to gather empirical data to corroborate or refute the objective criteria set out here as causal variables and associated attributes of the evolution of given markets. What other objective criteria can be generated to serve as measures of the developmental status of food distribution system?

2. Repetoire of Innovations

What are the key innovations which have been developed in certain parts of the world which remain to be attempted elsewhere? Additional research and analysis is needed to compile a true repetoire of innovations. Where else have the feiras of Brazil or the "Mercados Sobre Ruedas" of Colombia and Mexico been attempted as innovative schemes to adapt to the need for greater flexibility of location and timing? Under what conditions have broad line wholesalers, voluntary, corporate and cooperative chain organizations been successful?

3. Profitability Analysis

What are the proper institutional vehicles for screening market interventions. Training of technicians in the development of business plans and profitability analysis is imperative if planning is to be professionalized. The skills of business analysts and economists trained to plan and execute substantial projects in the commercial sector are rarely tapped by the public

sector when it comes time to assess the advisability of a new project. Market planning has become the domain of any who would deign to consider themselves responsible. Decisions are made by political authorities with little objective inputs from those who have been trained to systematically evaluate projects.

Entrepreneurs who are capable of undertaking the sort of analysis required for proprietary projects are rarely called upon to assist in screening public projects, projects which often have a definite impact upon the commercial activity of those same entrepreneurs

Private profitability analysis is a necessary but insufficient condition for improving the professional evaluation of projects. The necessary complement is the kind of social cost benefit analysis which is indicated whenever significant externalities exist or economic rents which individual entrepreneurs cannot capture.

4. Promoting Progressiveness

What sorts of policy interventions are likely to create the kind of dynamic environment which is likely to generate marketing innovations? Merchants as a group tend to suffer from a low self-image which reinforces their unwillingness to venture into new and uncharted commercial practices. Low professional esteem is the basis for much of the traditionalism which acts as a brake to innovation. Yet individual merchants, in their bid to establish a competitive advantage over other traders of similar commodities, are the source of most of the important marketing innovations anywhere. Further exploration is warranted of the policy support which governments can lend to nurture progressiveness amongst merchants.

B. Opportunities for USAID in Light of the Evolutionary Process

If there were a single conclusion which the program designers of AID would retain from reviewing the evolution of the wholesale/retail food distribution system, that conclusion should be that human resource development is the neglected complement to improvements in physical facilities. The single greatest opportunity for AID to intervene in the evolutionary process is to recognize what human resource development means in the food distribution system.

The types of "software" components which can be selected to complement the construction of marketing hardware has been presented above (Section IV. "Litany of Market Reform Measures".) These are necessary projects which correspond to needs in different functional areas at different stages of the development process.

What is missing is a basic training program for traders and food distribution specialists.

Three different course levels should be developed for hands-on training in the basic skills of wholesale/retail marketing and market planning:

1) Procurement;

2) Inventory Management;

3) Layout and Merchandising;

4) Handling and Storage; and

5) Bookkeeping.

Because of the prevailing negative public attitudes toward middlemen in most developing countries, it is extremely difficult for the sector to attract the brighter and more progressive individuals into the business. A policy environment needs to be created which says that the private food marketing system is important and has the blessing of government and political leaders. The Corabastos program in Bogota was initially successful because of that type of governmental and political support. Unfortunately the leaders there were unable to resist the temptation in later years to use the program for political demagoguery. Nevertheless, AID and other donor institutions are in a position to provide marketing system support programs which will alter the treatment of food marketing through policy dialogue, education and training programs and other action programs. A worthy objective is to lift the stature of food system entrepreneurs at all levels.

It is also suggested that AID consider creating a clearinghouse for information on appropriate marketing institutional forms, management and technology for countries at different stages of food system evolution. The clearinghouse would systematically obtain and catalogue information on different types of institutional as well as technological and managerial arrangements used in developing country food systems. The emphasis might be on preparing case studies to illustrate under what conditions certain innovations appear to work well from the standpoint of improving marketing system performance.

C. Rapid Reconnaissance Methodology for Marketing Diagnostics

Clearly the rapid reconnaissance methodology described by Holtzman is an appropriate approach for use in early stages of diagnostic research of urban food distribution systems. It must be

recognized, however, that the paper does not and is probably not intended to provide the reader with everything he needs to carry out such diagnostic research. Missing is some set of expected norms against which to measure the urban system being diagnosed. This, of course, has always been the dilemma of marketing researchers. Section III of Holtzman's paper provides a useful review of the literature on the subject and highlights some of the general approaches developed by marketing researchers. But it doesn't really give the reader much in the way of specific guidance in developing those norms. The present paper is aimed specifically at that issue.

While the Holtzman urges the researcher to formulate hypotheses to guide his IRR efforts, there is too little illustration of how to do that. This, of course, is related to the point of the foregoing paragraph. It would be useful to have one or two case illustrations of how a researcher might go about developing IRR hypotheses and to indicate the types of research questions which might evolve for a study of urban distribution and another for a commodity subsystem.

On another closely related issue, Holtzman says that the objective of the IRR effort is to identify what Shaffer has dubbed "unexploited opportunities" for improving the performance of the marketing system. But he has not given the reader a clear illustration of what that means. The suggestions provided in the foregoing paragraphs go part way toward correcting that problem but to make closure it is suggested that the paper develop the concept of focusing on preparing "bankable" 5/ projects. After all, the ultimate objective of the effort is to provide a justification for the allocation of someone's scarce resources to activities that will improve the performance of the system.

One manifestation of improved performance will probably be increased profits to reward the risk taker. Hence, profitability analysis at the firm level is appropriate. Is there a reasonable chance that an individual entrepreneur can reap enhanced profits by undertaking certain activities identified by the diagnosis? If so, then it will be possible to get a "banker" to help finance the activity.

Another manifestation of improved performance is enhanced profitability for all or most participants in some part of the marketing system. The researcher should set his sights early on identifying and quantifying those collective benefits because the "banker" will want to be satisfied of their tangibility before committing his resources.

And finally, there are social benefits related to the kinds of marketing system performance objectives listed on page 16 of the

Holtzman paper, i.e. equity, progressiveness, environmental protection, employment, and nutritional issues. Quantification of those benefits is much more difficult and yet they are equally, if not more, important to society in the long run than efficiency gains. Nevertheless, the researcher must somehow help the "banker" to justify the allocation of his resources to activities that will achieve those objectives.

FOOTNOTES

1/ Alvaro Silva, Evaluation of Food Market Reform: CORABASTOS-Bogota, Phd Thesis, Michigan State University, 1976.

2/ Kelly Harrison Associates, West Kingston Development Project Market Consultancy, May, 1985.

3/ Ray Bromley, "From Calvary to White Elephant: A Colombian Case of Urban Renewal and Marketing Reform", Development and Change, Vol. 12, 1981, No. 1 pp. 77-119.

4/ Ministerio de Agricultura, "Proyecto Integrado de Comercialization de Productos Agrarios", Unpublished Documents.

5/ The term "bankable" means that some investor or "banker" who has available resources is given sufficient evidence regarding a given activity to justify his allocating those resources to said activity. The term "banker" in this context, therefore, is used to denote any individual or institution with resources which might be allocated to marketing system interventions.

RAPID RECONNAISSANCE GUIDELINES FOR AGRICULTURAL MARKETING AND FOOD SYSTEM RESEARCH

by

JOHN S. HOWTZMAN, VISITING ASSISTANT PROFESSOR
Department of Agricultural Economics
Michigan State University

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216

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277

RAPID RECONNAISSANCE GUIDELINES FOR AGRICULTURAL MARKETING AND FOOD SYSTEM RESEARCH IN DEVELOPING COUNTRIES

by

John S. Holtzman

epartment of Agricultural Economics
Michigan State University

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278

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279

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These guidelines for rapid reconnaissance have evolved out of my work on food systems and agricultural marketing with Michigan State University and USAID over the past eight years. As a doctoral candidate at Michigan State, I conducted studies of livestock and food systems in Cameroon and Somalia, using both rapid appraisal methods and longitudinal, cost-route formal surveys. Upon completing my studies at Michigan State, I became a technical advisor in agricultural marketing to USAID (1982-85). In this capacity I had numerous opportunities to use rapid appraisal techniques in doing feasibility studies, identifying and evaluating projects, and initiating programs of applied marketing research. I also reviewed many agricultural marketing studies carried out in developing countries. Many of these studies are conducted under limiting time and resource constraints, and their quality varies greatly. The findings of short term studies often seem to reflect the interests or preconceptions of the researchers. Moreover, biases associated with the timing of the rapid appraisal exercise, as well as the selection of places to visit and informants to be interviewed, are often evident.

This paper represents an attempt to improve the quality of marketing research conducted in developing countries under time and resource constraints. It is hoped that the paper will stimulate discussion of rapid appraisal methods among developing country analysts, researchers at universities, international agricultural research centers and other institutes, and technicians in donor agencies and consulting firms. While my experience in longer term programs of research has instilled an appreciation of the limits, potential misuses and biases of rapid assessments, I am convinced that rapid reconnaissance methods are useful for learning a lot of policy relevant information about marketing systems in a short period of time, and for identifying system problems, constraints and opportunities. Rapid appraisals are especially useful as an input into the design of longer term programs of marketing and food systems research, in the same way that exploratory surveys are invaluable in initiating programs of farming systems research.

This paper draws heavily on earlier work done at the Institute of Development Studies at Sussex University, on papers presented at conferences at Sussex on rapid appraisal in 1978 and 1979, on papers by farming systems researchers at CIYMMT and the University of Florida, on books on the systems approach to agribusiness management by Harvard Business School researchers, and on efforts of applied researchers in many fields, including agricultural economics, anthropology, geography, development

280

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TABLE OF CONTENTS

Chapter		Page
	ACKNOWLEDGEMENTS	iii
	LIST OF TABLES	v
	LIST OF FIGURES	ix
I.	INTRODUCTION	1
	1.1 Increasing Interest in Rapid Reconnaissance Techniques	1
	1.2 The Appropriate Uses and Context for Rapid Reconnaissance	2
	1.3 Organization of the Paper	3
II.	IMPORTANT CHARACTERISTICS OF RAPID RECONNAISSANCE IN A FOOD SYSTEM CONTEXT	5
	2.1 Rapid Reconnaissance Focus	5
	2.2 Geographic Scope	6
	2.3 Duration and Timing of Rapid Reconnaissance	6
	2.4 Composition of Rapid Reconnaissance Teams	7
III.	AN ANALYTICAL FRAMEWORK TO GUIDE FOOD SYSTEM APPLIED RESEARCH AND DEVELOPMENT ACTIVITIES	8
	3.1 Need for an Analytical Framework	8
	3.2 The Concept of a Food System and Strategies for Food System Development	8
	3.3 The Subsector Approach: Evolution and Principal Characteristics	11
IV.	KEY AREAS OF INVESTIGATION IN RAPID RECONNAISSANCE OF COMMODITY SUBSECTORS	18
V.	ANALYSIS OF PRICES AND MARKETING COSTS AND MARGINS	22
	5.1 Data Collection and the Quality of Price Data	22
	5.1.1 Who collects the data?	23
	5.1.2 What types of data are collected?	23
	5.1.3 Where are data collected?	23
	5.1.4 When are data collected?	23
	5.1.5 How are the data collected?	24
	5.1.6 How are the data analyzed?	24
	5.2 Recommended Types of Price Analysis	24
	5.3 Analysis of Price Data	29
	5.4 Analysis of Marketing Costs and Margins	30
VI.	KEY INDICATORS AND PROXY VARIABLES IN RAPID RECONNAISSANCE	31
	6.1 Degree of Commercialization of an Area or Region	31
	6.2 Vehicle Ownership and Availability	31

Chapter | Page

6.3 The Relationship Between Administered and Parallel Prices 32

VII. INSTITUTIONAL AND NON-MARKET FACTORS IN FOOD SYSTEMS 34

7.1 Transactions Costs and Market Improvement 34
7.2 Property Rights 35
7.3 Non-Economic Factors 36
7.3.1 Ideology 36
7.3.2 Religion 37
7.3.3 Cultural Endowments 39

VIII. PREPARING FOR RAPID RECONNAISSANCE FIELD WORK 41

8.1 Preparatory Visit and Planning 41
8.2 Selecting the Rapid Reconnaissance Team 41
8.3 Planning the Rapid Reconnaissance Field Work 42
8.4 Review of the Literature and Analysis of Secondary Data 44

IX. IMPLEMENTING RAPID RECONNAISSANCE SURVEYS 47

9.1 Elements of Rapid Reconnaissance Field Work 47
9.2 Where to Begin the Rapid Reconnaissance 48
9.3 Processes, Functions and Facilities to Observe During Rapid Reconnaissance 50
9.4 Selection of Key Informants 51
9.5 Informal Interviewing of Key Informants 55
9.5.1 Interviewing Techniques 55
9.5.2 Building in Consistency Checks 56
9.5.3 Repeat Interviews 57
9.6 Interviewing Village Headmen and Other Local Informants 57
9.7 Group Interviews 58
9.8 Informal Delphi Techniques 59
9.9 Recording Rapid Reconnaissance Findings 60
9.10 Speeding up Information Gathering in the Field 60
9.11 Periodic Meeting of Rapid Reconnaissance Teams and Exchange of Preliminary Findings 61

X. PRESENTING RAPID RECONNAISSANCE FINDINGS 63

10.1 Writing up the Results of the Rapid Reconnaissance Survey 63
10.2 Presenting the Principal Findings of the Rapid Reconnaissance 64
10.3 Follow-up to Rapid Reconnaissance 64

VI. LIMITATIONS OF RAPID APPRAISAL 66

11.1 Time-Boundedness and Bias 66
11.2 Limitations of the Subsector Framework 66

XII. CONCLUSION 69

BIBLIOGRAPHY 71

LIST OF TABLES

Table		Page
1.	Senegal Food System Matrix	10
2.	Key Areas of Investigation in Rapid Reconnaissance	20
3.	Price Analysis and Potential Problems	25
4.	Key Informants in Food System Research: Advantages and Disadvantages as Informants	53

284

LIST OF FIGURES

Figure		Page
1.	A Schematic Representation of the Structure, Conduct, Performance Paradigm as Applied to the Commodity Subsector Approach	13

I. INTRODUCTION

This paper develops rapid reconnaissance guidelines for conducting research on agricultural marketing components of food systems. The term rapid reconnaissance (RR) will be used interchangeably with the designations rapid appraisal, rapid assessment and rapid diagnostic assessment in this paper. A rapid reconnaissance survey is a broad and preliminary overview of the organization, operation and performance of a food system or components thereof, designed to identify system constraints and opportunities. It can especially be used as a tool for identifying system dynamics, linkages and overall problems, which can then be examined more intensely during follow-up programs of research.

1.1 Increasing Interest in Rapid Reconnaissance Techniques

Interest in rapid appraisal techniques has increased during the past decade for several reasons. First, long term programs of farming and food systems research have become increasingly, and in some cases prohibitively, costly. These studies absorb significant financial and management resources and effective techniques are needed to help keep costs down. There is also frustration with many data-intensive, long term studies that fail to generate usable research findings within a time frame suitable to policy-makers. Such studies may be useful over the long run in generating knowledge about agricultural production and marketing systems. Policy-makers must make decisions on the basis of limited yet best available information, however, and cannot wait interminably for research results. At the same time, entry, processing and analysis of longitudinal survey data are becoming far more rapid as the use of microcomputers in field research expands.

A second and perhaps most important reason is that many researchers who have carried out both short and long term studies have found that rapid reconnaissance techniques, when used judiciously, can yield valuable insights about subtle and dynamic factors in food systems. Researchers who have undertaken longitudinal surveys often find that the management requirements are so great that they have little time and few resources available for informal interviews and case studies. Many who have reserved time for these less formal data collection methods report that they are often a quicker and sometimes more effective means (as compared to data-intensive surveys) for

236

learning about the interrelationships and linkages in farming and marketing systems, understanding system constraints and opportunities, and identifying potentially viable interventions. Farming systems researchers have successfully used rapid reconnaissance techniques to identify farm-level constraints and guide allocation of applied research resources to help alleviate these constraints. Researchers such as Byerlee and Collinson report that accurate qualitative and quantitative information can be generated by informal surveys which serve as a baseline against which later comparisons can be made (Byerlee, et. al., 1980; Collinson, 1982).

Notable contributions in the development of rapid reconnaissance methodologies applied at the farm level are the work of the Institute of Development Studies of Sussex University in the U.K. (Chambers, 1980, 1981), papers by farming systems researchers such as Hildebrand (1979, 1981), Collinson (1981, 1982) and Byerlee (1980), and papers on rapid reconnaissance for development administration by Honadle (Honadle, 1979 and 1982). Entire issues of two journals (Agricultural Administration, 1981 and Institute for Development Studies Bulletin, 1981) were devoted to rapid reconnaissance. More recently, in October 1985, a conference on rapid appraisal was held at the University of Khon Kaen in Thailand.

1.2 The Appropriate Uses and Context for Rapid Reconnaissance

As will be discussed in this paper, RR has several potential uses in marketing and food system research. First, it can be used by governments or donor agencies in the identification and design of agricultural marketing projects. Second, RR methods can be used by private firms to evaluate the feasibility of making particular types of investment, such as a new storage or processing facility. Third, a rapid appraisal can generate knowledge about an agricultural commodity subsector needed for making a policy decision or for evaluating the effectiveness of a policy or set of policies. A fourth potential use of RR is in monitoring and evaluating the effect of an agricultural marketing project or policy. A fifth use for RR methods is as a descriptive and diagnostic tool in the design of a program of longer term agricultural marketing and food system research.

Despite these potentially varied uses, RR surveys are often inspired by policy initiatives, wherein host country governments and donor agencies require help in identifying possible projects or need for policy reform. In responding to such short term

planning needs, RR risks being a subjective exercise, resulting in strong advocacy of predetermined positions. In these cases rapid appraisals provide economic or technical justifications for project proposals that host country governments and donor agencies intend to implement. Researchers should strongly resist pressures from research sponsors to simply devise justifications for predetermined food system interventions.

At the same time, researchers do need to be responsive to their client groups. When the client is a government organization or a development assistance agency, researchers are expected to prescribe project proposals or policy reforms. Hence, the applied research will have an action orientation. In doing rapid reconnaissance this poses a dilemma. While research sponsors expect policy prescriptions, rapid reconnaissance techniques seem most useful as a tool for learning more about commodity marketing or other aspects of the food system through observation and analysis, for identifying system constraints and opportunities, and for identifying promising areas of further applied research. In most circumstances, it should not serve as a basis for generating definitive policy prescriptions, although policy-makers are free to use the RR prescriptions as they wish. Policy prescriptions will often be tentative and preliminary. In some cases rapid reconnaissance surveys may generate robust and conclusive enough findings so that policy-makers can choose with considerable confidence to implement particular policies or to discontinue policies with adverse consequences. Yet recommended interventions emerging from rapid assessments, particularly improved technologies, marketing institutions, and management methods, should be tested as pilot projects and regarded as experiments.

1.3 Organization of the Paper

The paper is organized into two major parts. The first part examines the substance of rapid reconnaissance in agricultural marketing research--its important characteristics (Chapter II), the analytical framework used in rapid reconnaissance of commodity marketing systems (Chapter III), key areas of investigation during rapid appraisals (Chapter IV), analysis of prices and marketing margins (Chapter V), proxy variables and key indicators (Chapter VI), and nonmarket or institutional economics, and noneconomic factors (Chapter VII). The second part of the paper discusses the process of rapid reconnaissance (Chapters VIII and IX), including sections on the preparation for RR field work (Chapter VIII) and implementation of RR surveys (Chapter IX). These include selection of the RR team, research planning, review of the literature and analysis of

secondary data, the elements of RR field work, selection of key informants, and information gathering techniques. Report preparation, presentation of RR findings, and followup to rapid reconnaissance surveys are discussed in a section on wrapping up rapid reconnaissance (Chapter X). Limitations of rapid appraisal methods are addressed in Chapter XI, and concluding remarks are made in Chapter XII.

II. IMPORTANT CHARACTERISTICS OF RAPID RECONNAISSANCE IN A FOOD SYSTEM CONTEXT

2.1 Rapid Reconnaissance Focus

Doing rapid reconnaissance of an entire food system is an unmanageable agenda. Yet keeping relevant system relationships and linkages as part of a narrowed-down focus is important. Classifying commodities into related groups, such as staple grains, legumes, vegetables, fruits and livestock products is a first step in narrowing down that agenda. The technical characteristics of related groups of commodities are often similar, which generally leads to similar organization and operation of commodity subsectors. RR teams may wish to focus on one commodity in each group, because it is representative, the most important in terms of volume or value, perceived to be the most problematic, or regarded as having potential to generate the most income and foreign exchange earnings or savings.

Many RR surveys will focus only on one commodity production-distribution subsystem and in any case no more than two or three related commodities, such as grains or ruminant livestock. In a relatively short period it is impossible to look at all agricultural commodities in a food system in any depth. Restricting the commodity focus allows researchers to interview several participants at each major stage of each subsector, as well as to observe marketing processes and activities, within the time constraints of RR.

Alternatively, researchers can focus on food distribution in one or more urban markets. The focus may also be on staple commodities which provide most of urban consumers' calories, particularly where expenditures on those staples claim a high proportion of household budgets or where urban consumers have difficulty meeting basic daily calorie requirements. In addition, analysts might focus on commodities for which the urban market is growing most rapidly.

As another alternative to a commodity focus, researchers can do rapid assessments of particular industries in the food system, such as grocery stores, vegetable canners and processors, grain millers, or agricultural equipment manufacturers and distributors. The need for such a delimited study might arise if particular functions in the food system are performed poorly and at high cost, or if poor performance of those functions constitutes a system bottleneck.

2.2 Geographic Scope

Rapid reconnaissance will often be limited in geographic scope to one region, or to a major urban market and the rural areas from which it draws its food (food shed). The geographic breadth of coverage will depend, in part, on resources available for the study. Area coverage can be expanded if several teams of applied researchers work concurrently in different regions.

Geographic coverage will also be guided by judgements as to the need for visiting additional producing areas and markets. Researchers will have to evaluate whether it is worth the extra cost to expand coverage. For example, does a producing area appear, on the basis of limited yet best available information, to be sufficiently different from other areas (in terms of crop mix, marketed surplus or numerous other criteria) to justify RR field work? In a survey of grain marketing in Burkina Faso conducted in 1984-85, the University of Michigan did RR field work in several surplus and deficit regions (Sherman, Dejou, et. al., 1986). In an assessment of secondary crops marketing in Indonesia, USAID, the Food Crops Directorate of the Ministry of Agriculture, and several local universities have carried out RR surveys in several surplus producing regions which are characterized by different agroecological conditions, cropping patterns, and marketing systems (Menegay, 1985). In some cases RR teams may wish to look at more than one major urban market and their respective food sheds for comparative purposes. Where food systems are driven by foreign demand, RR teams may decide to survey demand and marketing opportunities in key importing countries.

2.3 Duration and Timing of Rapid Reconnaissance

Rapid reconnaissance surveys are usually at least one month and less than three months in duration, depending on prior knowledge of the food system components and regions where the RR will be conducted. In countries where many commodity subsectors have been heavily researched, and where the objectives of the RR are quite delimited, a rapid appraisal could be conducted in a few weeks. On the other hand, if little is known about a region and subsector, and the objectives of the RR are somewhat diffuse, rapid reconnaissance has a more difficult time standing on its own, and becomes important as the first step in a longer term research program, requiring collection of a great deal of primary data.

291

Conducting RR during a period of less than three months precludes observation and data collection over an entire annual agricultural production and marketing cycle. Yet this may not be necessary, as RR uses longitudinal data from previous studies and secondary sources to document patterns of secular and seasonal change. Participation of researchers in rapid reconnaissance who have followed commodity subsystems over time will also improve understanding of trends and changes in the food system, as well as seasonal variations in agricultural production, marketing and consumption.

The timing of RR will depend upon the perceived need for observing particular marketing functions and processes. Farming systems researchers typically plan rapid reconnaissance surveys to coincide with the crop growing season, particularly during critical periods when crops are flowering, or during periods of peak household labor utilization (e.g., weeding periods in Africa). Timing in marketing and food system studies will depend in large part on what are initially perceived to be the key food system constraints and opportunities. If policy-makers are concerned most about storage practices and losses and alleged speculative practices, RR could be undertaken during periods of storage and sales from storage. If it is suspected that producers receive unremunerative prices for produce sold during the post-harvest period, the RR could be carried out at this point to observe transactions and terms and conditions of sales. RR surveys of particular industries in the food system that are judged to be bottlenecks or highly inefficient might be timed so that industry performance could be most easily observed.

2.4 Composition of Rapid Reconnaissance Teams

The composition of the RR team will vary according to preliminary identified food system problems and needs. Rapid reconnaissance can be conducted by one researcher, typically a social scientist, or by several researchers with similar disciplinary training. If the objectives of rapid reconnaissance are limited, multi-disciplinary teams are not usually necessary. The quality of most RR surveys will usually improve, however, if researchers with complementary disciplinary skills participate. These teams may include an agricultural economist or economist, an agribusiness management specialist, an economic anthropologist, a post-harvest technician, a transport economist, institutional analyst, or commodity specialist. It is important that an analyst with a general background in agricultural marketing (typically an agricultural economist) lead the team, and edit and complete the final RR report to provide an integrated picture.

III. AN ANALYTICAL FRAMEWORK TO GUIDE FOOD SYSTEM APPLIED RESEARCH AND DEVELOPMENT ACTIVITIES

3.1 Need for an Analytical Framework

In conducting applied research under time and resource constraints, it is helpful to work from an analytical or conceptual framework that is cast in a development strategy perspective. This enables researchers to distinguish between information and factors, programs and policies which are 1) likely to be relevant and important for helping to improve performance of the system, as opposed to 2) those which are interesting but nonessential or perhaps trivial. Without a framework of analysis on which to hang disparate observations and findings, the researcher risks missing the big picture and focusing on narrower problem areas, which may not be the most critical ones to improving system productivity and performance.

3.2 The Concept of a Food System and Strategies for Food System Development

The broad analytical framework underlying RR is the food systems approach, developed and elaborated by researchers at Michigan State University (see Harrison et. al., 1974; Shaffer, 1980; Riley and Staatz, 1981; Shaffer with Riley, Weber and Staatz, 1983). The food system incorporates the agriculture and livestock sectors, and industries within those sectors. The participants in the food system that produce, transform and distribute the full range of agricultural commodities include input producers, input suppliers, agricultural producers, domestic traders, importers and exporters, processors, retail firms, institutional buyers and consumers.

A food system has both horizontal and vertical dimensions. The horizontal dimension refers to firms within a particular industry, or to a particular stage of the food system where a similar set of functions are performed. Examples of this include the transportation industry, the tomato canning industry, agricultural equipment manufacturers, and retail stores. The vertical dimension refers to subsystems of single commodities or relatively homogeneous groups of commodities. This dimension is conceptualized as vertical because it cuts across stages of the system, where different functions, such as input distribution, production, assembly, storage, transport, processing and product distribution are performed. Initially labelled as a subsector (see Shaffer,

243

1973), but better described as a subsystem, a commodity subsystem incorporates productive transformation and value adding at each stage as inputs are supplied and a product moves from the farm to the consumer.

One tool for usefully thinking about the food system and its dimensions is a matrix of agricultural products and functions, as conceptualized by Shaffer. Agricultural products are arrayed vertically, corresponding to commodity subsystems. Food system functions, which are generally carried out by related groups of firms, or industries, are arrayed horizontally. Table 1 illustrates this matrix as applied to the food system in Senegal (Ndoye and Newman, 1984). In designing programs of applied food systems research, it is not possible to study each cell in the matrix, given funding and resource limitations. Subject to the approval of policy makers, researchers are forced to make choices about those parts of the system on which they intend to concentrate their efforts. These choices will be governed by numerous possible criteria, including political factors, the importance of commodities as staples or in generating/saving foreign exchange, regional considerations, or the degree to which particular functions or industries constitute system bottlenecks. Judgements as to the likely payoff from doing the research, as well as the feasibility of carrying out the research, will of course come into play.

Another way to think about food systems is to develop an input-output or food accounting matrix (see Hay, 1980). This approach emphasizes quantification of technical production and transformation coefficients at different stages of the system, as well as input and commodity flows between parts or cells of the system. While this matrix serves as a useful accounting tool, it requires voluminous data and it is essentially a static construct. It stresses quantification of interrelationships rather than describing and diagnosing system constraints, bottlenecks and opportunities, and striving to capture dynamic interactions and disequilibria. It is difficult for all the cells of such an accounting matrix to be filled with the data available in many developing countries.

The food systems framework as developed and applied by MSU researchers is a developmental approach (see Harrison et. al. and Shaffer et. al.). It seeks to identify promising opportunities for improving the productivity of food systems as well as to diagnose barriers to improved system performance. Developing strategies, programs and projects for both private and public sector participants is central to the approach. It also assumes that there are alternative ways to constitute or organize the system so as to

24

Table 1

SENEGAL FOOD SYSTEM MATRIX

Production/Distribution Functions	Commodity Subsystems												
	Millet	Sorghum	Maize	Rice	Wheat	Peanuts	Vegetables	Fruits	Cotton	Sugar	Livestock	Fishing	Wood
Input Distribution													
Extension													
Production													
Transformation													
Storage													
Transport													
Exchange, Transactions													
Financing													
Coordinating Functions													
Prices													
Information													
Grades and Standards													
Regulations													
Property Rights													
Exchange Arrangements													
Risk-Sharing Mechanisms													
Consumption													

Source: Ndoye, Ousseynou and Mark Newman, "Approches Methodologiques pour l'Etude de la Commercialisation des Produits Agricoles et Alimentaires au Senegal," Actes de l'Atelier de Kahone, 8-13 Mars 1984, Institut Senegalais de Recherches Agricoles, Bureau d'Analyses Macro-Economiques, Document de Travail 84-2, Dakar, December 1984.

245

improve productivity and performance. These alternatives will vary from country to country and political/economic setting to political/economic setting. It also recognizes the possibility of alternative outcomes of different sets of policies and programs, rather than promoting canned solutions or universally applicable blueprints, such as simply getting the government out of the food system, or "modernizing" of marketing institutions so they more closely ressemble those found in the US, Western Europe or Japan.

In contrast, the food system approach argues that the government is able to play, and in many cases must play, an important regulatory and facilitating role in food system development. The mix of public/private sector roles and activities will vary from country to country, depending upon historical and political factors, the stage of economic development, and the level of human capital development. An important part of a food system analyst's task is to examine the economic viability of alternative institutional arrangements, policies and technologies and their actual or probable effects on food system performance. Analysts then present the likely costs and benefits of these alternatives to policy-makers. Researchers are also encouraged to prescribe that set of policies or interventions that achieves government policy objectives at lowest cost and is most likely to foster growth and increased productivity. The extent to which linkages between different participants in the food system and among the agricultural, industrial and service sectors can be strengthened is also an important consideration.

In the interest of making agricultural marketing and food system research in developing countries manageable, the next section will describe the important features and emphases of subsector or subsystem studies. While not all agricultural marketing studies in developing countries will follow a subsector format, many of them will, and the subsector framework is a useful method of examining commodity marketing subsystems.

3.3 The Subsector Approach: Evolution and Principal Characteristics

Given the above strategy for promoting food system development, the approach to rapid reconnaissance presented in this paper is grounded in the commodity subsector (or subsystem) analytical framework. This approach has been best articulated by researchers of NC Project 117, partially funded by USDA, who have examined commodity subsectors in a comprehensive study of the U.S. food system (see Marion and NC Project 117, 1986), and by researchers at Michigan State University (see Harrison et al., 1974 and Shaffer,

296

Riley, Weber and Staatz, 1983). A schematic representation of this approach, developed by Bruce Marion, is shown in Figure 1 (Marion, 1976 and 1986).

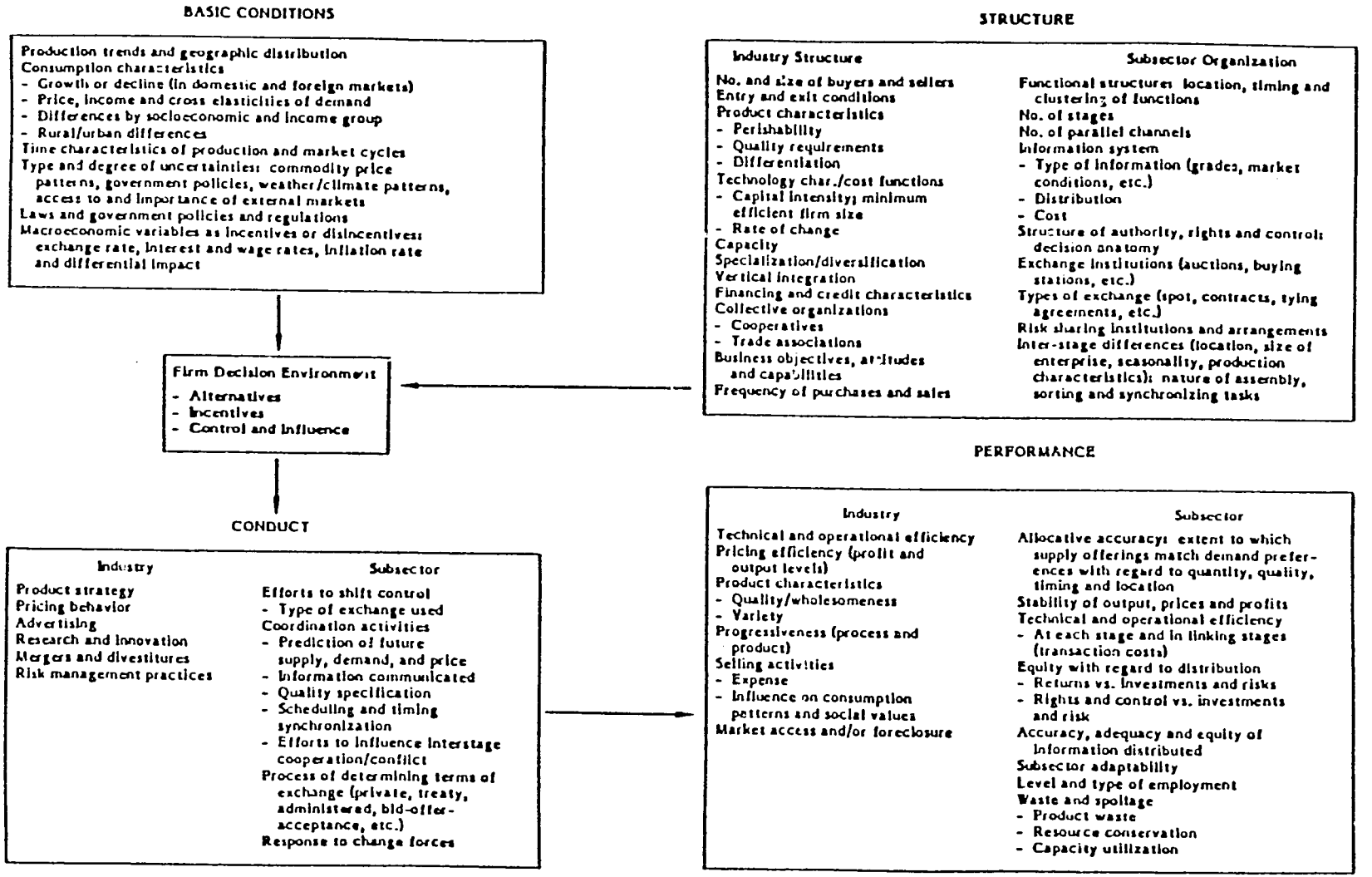
The subsector framework builds on the structure, conduct, performance framework, developed by industrial organization theorists such as Bain (1968) and Scherer (1980). Industrial organization scholars examine the structure (organization), conduct (operation) and performance of industries, defined as a group of firms which produce similar commodities, (e.g., the meat-packing industry, the automobile manufacturing industry, the micro-computer industry). The focus of industrial organization is on horizontal linkages among firms. It is essentially static, taking industry structure as a given and anticipating certain types of conduct and performance characteristics from alternative structures. The macroeconomic environment and institutional landscape (rules and regulations, distribution of resources) are generally assumed to be exogenous.

The subsector approach is similar to industrial organization theory in focusing on the performance consequences of alternative forms of industrial or economic organization. Yet it differs in several fundamental respects. First, a subsector is a vertically linked set of participants (firms or organizations) which produce a related output or group of outputs. Rather than adopting a conventional dichotomy of on-farm being "production" and beyond the farmgate being "marketing", the subsector approach emphasizes transformation, adding of value, and transactions at every stage in a subsector from input supply through production, marketing and consumption (Shaffer, 1973). In agriculture, subsectors are organized around particular commodities or commodity groups, such as grains, ruminant livestock, fruits, tuber crops, or any one of many individual commodities. Participants in agricultural commodity subsectors include input suppliers, farmers, first handlers, wholesale traders, retailers and consumers. Consumers are considered as subsector participants, because their demand for agricultural commodities in the aggregate influences production and marketing decisions of all other participants in the subsector.

A second fundamental difference of the subsector approach is that it closely examines underlying supply and demand conditions for commodities and likely trends and changes in commodity output and use. The subsector approach is demand oriented. Demand drives commodity subsectors or, alternatively, it pulls commodities through these subsectors. Shifts in demand induced by changes in relative prices, in purchasing power of consumers (per capita income), and in consumer tastes and preferences, affect

297

Figure 1. A Schematic Representation of the Structure, Conduct, Performance Paradigm as Applied to the Commodity Subsector Approach



Adapted from Bruce W. Marion and NC 117 Committee, The Organization and Performance of the U.S. Food System. D.C. Heath and Company, Lexington, Massachusetts, 1986.

in a significant way the set of incentives facing participants throughout the subsector to supply inputs, produce, transform, store and transport agricultural commodities, and to supply products to consumers or end users in forms, at times and at places that they desire. While changing demand is often an important dynamic force in transformation of commodity subsectors, shifts in supply can also be an engine for change. Increased productive capacity, at the farm level or at other stages of the subsector, can lead to reorganization of commodity subsectors and affect subsector performance in important ways. As an example, heavy investments by the government of Senegal in two large scale dams on the Senegal River will dramatically increase the land area under irrigated cultivation. The subsequent expansion in output will likely lead to significant changes in the organization and operation of the rice subsector in Senegal, inducing entry of traders and processors into the subsector, decreased flows of imported rice from Dakar to markets in Northern Senegal, and increased flows of locally produced rice to markets outside Northern Senegal (Morris, 1985). By emphasizing ongoing and potential changes in supply and demand, the subsector approach is dynamic in orientation and goes beyond the static efficiency analysis common to many neoclassical studies of marketing systems or industrial organization studies (Riley and Staatz, 1981).

A third important difference between the subsector approach and industrial organization studies is the emphasis in the former on the nature of coordinating institutional arrangements, such as contracts and vertical integration, and the role of selected firms, cooperatives, industry associations, and other active coordinating agents. Subsector studies examine vertical linkages between firms that contribute to the production, transformation and marketing of related commodities. In the agricultural sector the level of agricultural output is partially dependent on climatic factors, and aggregate output and agricultural commodity prices are uncertain from one year to the next. Producers, processors, traders and institutional buyers have an incentive to devise institutional arrangments for coordinating fluctuating supplies so they match demand without excessive price fluctuation. Coordinating mechanisms also facilitate specification of quality expectations and requirements.

Coordination of food systems is an active process (see Shaffer with Weber, Riley and Staatz, 1983). It will generally not be achieved in developing countries without active intervention of the government, coordinating private and public institutions, and private firms with ample resources and a system perspective. Effective economic coordination is not assured by benign public sector laissez-faire, unsupported and

191

unfacilitated "private sector initiatives," and simplistic prescriptions of "getting the prices rights." This is not to prescribe heavy-handed and direct state involvement in agricultural production, marketing, processing, storage and distribution of food. Rather, ensuring effective coordination results from clearly defining public and private roles in the food system, government provision of public good type facilitating services or functions, such as market information, communications, funding of production and marketing resesarch and extension, regulation which minimizes abuses and unfair play, and a policy environment which removes disincentives and fosters entrepreneurship and the undertaking of risk. Through such developmental efforts food systems can move from low levels of productivity, plagued by small scale operations unable to innovate and achieve scale economies, high costs and minimal specialization, to systems where increasing specialization and exchange and achievement of scale economies lower food production and marketing costs and improve the welfare of producers and consumers alike.

The subsector approach is most productive when it is used to describe salient elements of the subsector, diagnose key subsystem constraints to improved performance, and prescribe policies and projects to overcome these constraints. The subsector framework also emphasizes the search for opportunities to improve the performance of the system, as well as to take advantage of unexploited and underexploited opportunities to tap new markets, generate significantly higher levels of output, and improve food system efficiency. Improving food system performance is an incremental and iterative process. In evaluating performance the analyst should consider a set of diverse performance dimensions, which may not all be attainable in any given country context.

Food system performance is evaluated broadly in terms of the effectiveness of coordinating mechanisms, technical and operational efficiency of the system, system progressiveness, and equity of returns to system participants given the distribution of risks, costs and responsibilities. A more detailed list of performance attributes is provided below. These may or may not be of interest in a given situation. The list draws heavily on earlier work by marketing researchers such as Sosnick (1964), Marion (1976), French (1977), Helmberger, Campbell and Dobson (1981), and Shaffer (1980).

1. Market coordination effectiveness, or the matching of supply and demand at each level of the production/marketing system.

2. Technical efficiency, which translates into maximum output per unit of inputs (in a narrow economic engineering sense), and operational efficiency, which refers to minimal cost/price relations (in a broader economic sense).

3. Equity of returns to participants in the subsector, in light of the distribution of investments made, risks faced, costs assumed and responsibilities undertaken.

4. Progressiveness, or the ability of the subsector to adapt improved technical, management and institutional innovations which enhance productivity.

5. Minimal degradation of resources (soils, forests, water resources) in agricultural production and processing, i.e., minimization of external diseconomies.

6. Broad participation in food system activities, particularly in countries where employment opportunities are limited, and where unemployment or underemployment are an important social and economic problem.

7. Wholesome and nutritious diets for a broad range of urban and rural consumers, particularly those most likely to be nutritionally vulnerable.

It is important to note that these attributes may be conflicting, and that tradeoffs will often be involved in attempting to attain (or maximize/minimize) one set of attributes as opposed to another. Policy-makers' perceptions of the desirability and feasibility of emphasizing one objective or group of objectives will be important in assessing what constitutes good system performance. As an example, policy-makers might concentrate on achieving increased technical efficiency and system progressiveness, which might adversely affect equity and resource management.

One of the challenges of food system research is to develop better definitions of performance attributes and to relate these attributes to precise and unambiguous performance norms. By reference to these norms, performance in a particular system can be assessed. But caution needs to be exercised in defining performance norms. They may vary in different sociocultural, political and institutional settings, and in different agroecological environments, where resources and endowments differ. When expatriate researchers become heavily involved in food systems research, it is essential to involve local policy-makers and researchers in defining performance norms and measures.

201

While evaluating the performance of a particular commodity subsystem or the food system against a comprehensive set of performance attributes and norms is desirable, the overriding emphasis of RR marketing studies should be on identifying barriers to improved performance and unexploited or underexploited economic opportunities. The research challenge is to discover and focus on critical points of intervention which could not only alleviate known constraints but also lead to increased opportunities and system productivity.

306

IV. KEY AREAS OF INVESTIGATION IN RAPID RECONNAISSANCE OF COMMODITY SUBSECTORS

Table 2 lays out ten broad areas of investigation for rapid subsector appraisals, lists components of each area, and notes methods of inquiry for obtaining necessary information. RR teams will not attempt an exhaustive study of all of the areas outlined below. The purpose of RR is not to describe food systems in great depth or to diagnose in full detail all system problems. Critical system wide linkages to specific subsector components must be identified, however. In addition, the payoff from examining in depth any one research area may be marginal in some rapid reconnaissance studies. This may not always be the case, however. For example, agricultural policies may have significant disincentive effects, and researchers may wisely elect to devote most of their attention to the effects of such policies. As a second example, particular stages of the food system, such as wholesaling or retailing, may be perceived as especially problematic. Payoff from examining special problem areas or constraints may be judged sufficiently high ex ante to justify allocating most or all of the RR research resources to an in-depth analysis. Such a judgement will depend upon researchers' skill and experience, and preliminary identification of researchable problems and needs.

In addition to listing key areas of investigation, Table 2 briefly notes reasons for considering those key areas. Examining public sector intervention and performance in the food system (key area No. 8) is critically important in nearly all studies of food systems. On the other hand, focusing research resources on detailed analysis of the operation of firms and organizations in the marketing system (No. 6) will often be beyond the scope of a RR survey. Furthermore, while an exhaustive examination of the organization of a commodity subsector or marketing system will generally not be possible in RR, a broad understanding of food system organization is usually essential to evaluating performance. Initial judgement, based on preliminary knowledge of a subsector, will be required to assess the importance of gathering information in any one of the key areas. This will depend on what are perceived to be the most likely barriers to improved performance. In addition, researchers will often find that certain areas of investigation are well-researched, while others are underresearched or not at all researched. This may be because researchers have judged ex ante that the likely payoff from examining the latter was not worth investing research resources. It may also reflect biases and preconceptions of previous researchers.

303

In carrying out most RR surveys, researchers are generally recommended to focus on estimating orders of magnitude rather than focusing on obtaining precise estimates of marketing variables. The cost of obtaining precise estimates is generally high in doing survey research in developing countries. In carrying out rapid appraisals under time and resource constraints, the benefits of increasing precision will likely not be justified by the high opportunity costs of gaining such precision. Researchers who undertake rapid reconnaissance need to ask themselves continually whether it is worth the time and effort to gather particular types of data.

Table 2

KEY AREAS OF INVESTIGATION IN RAPID RECONNAISSANCE

AREAS OF INVESTIGATION	COMPONENTS	METHOD OF INQUIRY	REASONS FOR INVESTIGATING
1. Commodity Characteristics	a) Different grades, end uses. b) Degree of bulkiness, perishability. c) Physical handling requirements. d) Degree/type of processing.	1) Review commodity manuals, studies. 2) Observation of handling and processing. 3) Develop commodity calendars showing periods of production and transformation.	a) Commodity characteristics can influence operation of subsystem, which functions are performed, how they are performed, and relative cost at which performed. b) Nature of production process influences timing and magnitude of producer sales and marketed flows.
2. Consumption Patterns	a) Seasonal and secular trends in domestic and export markets. b) Disaggregated consumption patterns by socioeconomic and ethnic group. c) Future market prospects.	1) Review consumption studies, food balance sheets, and demand projections. 2) Construct food balance sheets if data available. 3) Interview nutrition/consumption researchers, selected commodity importers and exporters and institutional buyers, and selected rural and urban consumers.	a) Demand drives (or pulls commodities through) subsystems. b) Strength and seasonality of demand affect production and storage incentives, as well as direction and magnitude of marketed flows. Longer run trends and opportunities affect investment decisions of participants in subsystem.
3. Supply Situation	a) Production by year and by region for recent years, noting trends and variability. b) Stocks for transformation and consumption by season and region. c) Flows from major supply areas to major markets, including imports and exports.	1) Review commodity studies. 2) Interview large wholesalers, parastatal managers, crop production researchers, importers, exporters, processors, cooperative and trade association officials. 3) Use map to show flows and apparent surplus and deficit areas. 4) Describe seasonal variation in stocks and flows.	a) Supply and demand are basic elements of economic analysis. b) Production levels and variability affect prices (depending on elasticities), returns via price mechanism, and risk perceptions of producers. c) Level of stocks during different periods affects seasonal variation in prices and commodity availability. d) Shifts in supply over time may indicate response to policies, technological change, institutional environment and alternative institutional arrangements.
4. Price Relationships and Seasonality	a) Secular trends in real prices at the farmgate, wholesale and retail levels. b) Seasonal and cyclical trends in prices. c) Changes over time in relative price relationships.	1) Gather secondary price data for commodity and close substitutes/complements for ten or more year period. 2) Deflate prices or express in constant price terms. 3) Analyze secular, cyclical and seasonal price trends, and changes in relative price relationships. 4) Estimate supply and demand relationships if data permit.	a) Prices are a measure of incentives facing food system participants. b) Changing relative price relationships may indicate shifts in production and marketing incentives, especially if coupled with accurate cost of production data. c) Pricing structure provides insight into regional and national comparative advantage.
5. Food System Participants and Organization	a) Marketing channels and commodity subsector stages. b) Types, numbers and geographic distribution of firms at key subsector stages. c) Important assembly, redistribution and terminal markets.	1) Review previous commodity studies. 2) Check if existing enumerations or sample frames in government agencies (e.g., licensing offices). 3) Interview knowledgeable observers of subsectors and selected participants. 4) Draw subsector map (flow chart) showing principal stages and marketing channels. 5) Use map to show important marketplaces.	a) Food system organization (or structure) influences conduct of participants, which in turn affects performance. b) High levels of concentration of firms at particular stages of food system may lead to higher production/marketing costs than under conditions of lower concentration. c) Prevalence of myriad small firms who fail to specialize at one or more levels of food system may lead to scale diseconomies and high costs.

Table 2 - (Cont.)

AREAS OF INVESTIGATION	COMPONENTS	METHOD OF INQUIRY	REASONS FOR INVESTIGATING
6. Subsector and Food System Operation or Behavior	a) Practices and strategies of subsystem participants (individuals, firms, organizations for procuring inputs, productive transformation, storage and marketing of outputs). b) Vertical coordination mechanisms: exchange arrangements, risk-reduction/sharing, information dissemination. c) Adaptability and responsiveness of subsystem to shifting supply/demand, exogenous shocks, policy changes and uncertainty. d) Evidence of market power.	1) Identify key stages and participants. 2) Develop informal interview guidelines. 3) Sample purposively based upon knowledge of universe from previous records or studies, or from above characterization of subsystem (#5). 4) Conduct selected in-depth informal interviews. 5) Crosscheck findings with other subsystem participants and knowledgeable observers.	a) Operation and behavior in the aggregate affect performance. b) Adaptability and responsiveness of commodity subsystems to changing conditions and uncertainty affect levels of output and performance, as well as continued viability of subsystem in a particular country.
7. Marketing System Infrastructure	a) Physical infrastructure (transport, marketplaces, storage and processing facilities, communications). b) Adequacy and bottlenecks.	1) Review studies of transportation and communication infrastructure, storage/processing capacity and utilization, and marketplaces. 2) Inspect and assess adequacy of sample of above. 3) Use map to show key infrastructure. 4) Identify bottlenecks.	a) In some developing countries infrastructural constraints constitute severe bottlenecks to food system development.
8. Government Marketing Institutions and Policies	a) Regulatory environment: rules; input and product regulations; laws affecting marketing and trading activities; property rights. b) Public marketing institutions (parastatals, cooperatives, joint ventures): extent and nature of participation in marketing; effect on behavior and performance of private participants in food system. c) Macroeconomic policies: price policies; exchange, interest, wage rate policies; fiscal and monetary policies. d) Banking and credit policies.	1) Regulations: use informal interviews with subsector participants to identify vexing or constraining regulations. Followup interviews with selected policy-makers. 2) Institutions: interview managers, determine mandate, outline functions, estimate market share, examine pricing policies, assess effectiveness of marketing services, assess impact of participation on system. 3) Policies: review macroeconomic assessments of World Bank, IMF or others. 4) Interview bank and credit agency officers.	a) The regulatory environment and particular regulations affect the behavior and incentives of food system participants. b) Public marketing institutions dominate food systems in some countries, influence the organization, operation and performance of food sytems in all countries, and generally affect behavior of system participants. c) Macroeconomic policies condition and shape the environment in which system participants make decisions about investments and operations. d) All of the above contribute to food system stability and/or uncertainty, which greatly influence behavior. e) Banking and credit policies determine who gains access to formal credit, which is often subsidized.
9. International Trade	a) Commodity exports and world market situation. b) Imports of commodity or substitutes and impact on domestic production, markets and prices. c) Trends in exports and imports. d) Likely changes in exports and imports, and emerging market opportunities or dependencies.	1) Analyze trade quantity and price data available in statistical abstracts or outside assessments. 2) Review commodity production, price and trade forecasts.	a) Few, if any developing country food systems are autarkic. International trade in agricultural commodities affects production and marketing incentives, consumption patterns and preferences, and the behavior and opportunities of system participants. b) International market conditions influence developing countries' comparative advantage in production and export (import) of agricultural commodities.
10. Representativeness of Period Under Study	a) Timing of RR relative to annual production/marketing cycle. b) Agricultural and economic characteristics of year of RR relative to earlier years or climatic cycles.	1) Compare rainfall data and production estimates with earlier years. 2) Compare economic data: GDP, balance of payments, inflation rates, trade patterns. 3) Assess political factors: change of government, policy changes.	a) The period of observation may be unusual with respect to climate, agricultural production, economic and political conditions, and effects of recent changes. b) Food system development is an ongoing and long term process. Historical perspective of long run patterns of change in basic economic, institutional, political and environmental conditions is valuable in understanding food system development.

V. ANALYSIS OF PRICES AND MARKETING COSTS AND MARGINS[1]

Price analysis is critically important in agricultural marketing and food system research. Prices are a mechanism by which signals are transmitted in market economies. These signals provide incentives to food system participants to supply inputs, produce commodities, and market, transform and consume these commodities. Prices also serve as guideposts in essentially administered economies, although they may not reflect scarcity values and social opportunity costs, and hence encourage nonoptimal allocation of resources. In many developing countries with administered pricing systems, parallel markets emerge in which prices more closely reflect scarcity values, although there is typically some risk premium for participating in the parallel market. This risk premium will vary in direct proportion with the frequency and severity of punishments or sanctions for non-compliance with administered prices and participation outside formal marketing channels.

5.1 Data Collection and the Quality of Price Data

In an ideal research situation reliable price data are available at the farm, wholesale and retail levels of the marketing system on a weekly or monthly basis over a ten or more year period for a broad range of commodities (agricultural and non-agricultural), as well as inputs, in rural and urban areas. This is often not the case, however. When available, agricultural price data are more likely collected at higher levels of the marketing system (terminal and urban retail markets) than in rural areas. Moreover, price data are frequently of unknown reliability because little real analytical use has been made of them. Careful attention needs to be paid to analyzing existing data and examining the way in which the data are collected. An important part of analyzing price data is to ask a series of basic questions that can be remembered by reference to the interrogative pronouns who, what, when, where, and how.

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[1]For a detailed training guide to the use of fundamental price analysis tools and to the use of a microcomputer software program to facilitate this analysis, see Goetz and Weber, 1986.

5.1.1 Who collects the data?

Have they received any training in data collection? How are they compensated? Do they have other responsibilities, such as agricultural extension? If enumerators are poorly paid or collecting data part-time as a secondary activity, they may have little incentive to collect data accurately.

5.1.2 What types of data are collected?

Are farm level, assembly market, wholesale market (consumption/redistribution), retail, FOB or CIF prices measured? Are buying or selling prices (or both) observed? Are the types of data collected by government agencies well-defined? Have the definitions of the data collected changed, or have the actual market participants (levels in the system) from which data are collected varied from one period to the next? If so, then data from different time periods may not be comparable.

5.1.3 Where are data collected?

Are data collected only in urban areas or in rural areas as well? In many African countries, for example, price data are only collected in large urban markets, and sometimes only with any frequency and accuracy in capital cities. If prices are collected in rural areas, at what level of the system are they collected (farmgate, rural assembly markets, consumption/redistribution markets)? If prices are collected in urban areas, are they gathered at municipal markets or in shops or supermarkets? If both, are the prices reported separately or averaged?

5.1.4 When are data collected?

During which periods are data collected (throughout the year, after the harvest)? With what frequency are data collected (daily, weekly, monthly, quarterly)? Are they collected on days of greatest buying and selling activity (large market days as opposed to ordinary days)? Is there consistency across data collection intervals and in the timing of data collection at particular markets?

308

5.1.5 How are the data collected?

If enumerators are given money to buy commodity samples, they may report exaggerated prices and pocket the difference between the inflated and actual prices. If produce is purchased by data collectors, do they purchase it as anonymous, impersonal buyers and weigh it away from the marketplace? Or do they merely ask marketing agents how much they are asking for conventional lots, which may not be standardized, without ever weighing them? In this case, data will be collected for offered as opposed to actual transacted prices. How often are data collected and how many observations are taken per collection period?

5.1.6 How are the data analyzed?

If data are not reported for periods corresponding to the collection interval or frequency, how are they aggregated? Is there any attempt to adjust, say, weekly average prices in calculating monthly averages? If inflation rates are extremely high, as in many South American countries, are adjustments made to average weekly prices obtained at different periods of the month before arriving at monthly averages? In calculating monthly or annual averages how are missing weekly or monthly values handled? If adjustments in the data are made, are these adequately noted? Are price data in any way weighted to reflect volumes moving through different channels?

While it is important to understand how price data are collected and prepared, researchers need not be paralyzed if data collection methods fall short of the ideal. Rather, analysts need to view prices as approximations which provide insights into the workings of markets, the relative scarcity of resources, and incentives facing food system participants. A good understanding of how data are collected, what they represent, and likely orders of magnitude of data error will help researchers appreciate data limitations. Using existing data and asking these questions is an important step in helping to improve the quality of price information collected over the longer run.

5.2 Recommended Types of Price Analysis

Important types of price analysis are listed in Table 3, and supplemented with brief notes about potential data collection and methodological pitfalls. This list draws heavily on work by Tomek and Robinson (1981), Timmer, Falcon and Pearson (1983), Timmer (1985) and many others. The interested reader is advised to see Newberry and

Table 3

PRICE ANALYSIS AND POTENTIAL PROBLEMS

Type of Price Analysis	Data Requirements	Data Collection Pitfalls	Methodological Problems
1. Trends in Real Prices	a) Farmgate prices b) Wholesale prices c) Retail prices d) Deflator	1) Definition of farmgate price. 2) Which side of wholesale transaction (buyer, seller). 3) Reported vs. transacted prices. ** These points apply to other types of price analysis as well.	a) Change in nature and characteristics of product over time. b) Deflator only available for urban area (consumer price index). c) Representativeness of basket of goods, accuracy of weights in constructing deflator.
2. Relative Price Relationships	a) Prices for key substitutes and complements.	1) Are data available for key substitutes?	
3. International/Domestic Price Comparison	a) Import parity prices, including international transport costs. b) Export parity prices, including domestic transport costs. c) Exchange rates.	1) Are domestically produced and internationally traded commodities close substitutes? 2) Which international price? 3) Quality differences. 4) Are actual transport costs known (e.g., if transshipment)? 5) Official exchange rate may diverge greatly from shadow exchange rate.	a) Assumes domestically produced commodity traded or potentially tradeable. b) Poor comparability of domestic and international product can confuse analysis. c) May be no direct transport between international exporter and country.
4. Seasonal Price Variation	a) Average monthly, weekly, or daily prices at same level of marketing system.	1) High rates of inflation and strong trends may distort results of analysis.	a) Price data are typically only available for urban areas. b) Price seasonality facing urban consumers may differ from variation facing rural households.
5. Interspatial Price Variation	a) Detailed price data for at least several locations, collected at same points in time, preferably for same level of market system.	1) Multilocational price data are not often available in time-series. 2) Data may only be available for major towns and not for rural markets.	a) High intermarket correlations may be evidence of effective competition or collusion/oligopoly. Need more information for determining which is the case. b) Correlation may be spurious and no evidence of causality.
6. Marketing Margins	a) Prices at different levels of the food system for same commodity. b) Data on marketing costs if wish to analyze net margins.	1) Prices at different levels of system must be collected during same period. 2) Cost data difficult to collect; may be misrepresented. 3) May fail to enumerate key cost components.	a) Marketing costs vary by scale of enterprise, resulting in different margins for different firm sizes. b) Size of margin and percent of return to producer vary by commodity, reflecting degree of value added and marketing costs.
7. Commodity/Input Price Ratio	a) Consistent series of commodity prices and input prices or cost index series.	1) Need to identify relevant input (fertilizer, insecticide, pesticide type).	a) Cash inputs (ferts, pests) may only be used by large farmers. b) Importance of input may vary considerably over length of time-series.
8. Processed Product/Raw Material Price Ratio	a) Prices of processed product. b) Consistent prices of raw material.	1) Nature and quality of processed product may change over time. 2) Quality differences in raw material.	a) Comparing ratios with other countries with different factor proportions, costs of production, and prices may be misleading.

Stiglitz, 1981, for an advanced treatment of price analysis and commodity stabilization programs.

In some developing countries, price data are only available for capital cities and large towns (and not for the region of interest or rural areas). When data are available, they are frequently of poor quality, available over a short period, or incomplete (missing observations). In some assessments of marketing systems, it may be necessary to generate price data at different levels of the commodity subsector, although these very short term snapshots of price patterns cannot substitute for longer term information on prices. In most developing countries agricultural production, trade and price data are most complete for exported cash crops, such as cotton, cocoa and coffee, and for staple grains. Data on tuber crops, legumes, oilseeds, and domestically consumed fruits and vegetables are often less complete and reliable, if available at all, or they are highly aggregated (averaged across quarters or years).

Even when reliable price data are available for the commodity in question, it is difficult to do all the analyses listed above in most rapid reconnaissance surveys. Examination of spatial price variation (No. 5) is most useful when detailed, frequent observations of agricultural prices are available for a wide range of markets, which is rarely the case. Analyzing the price ratio of a processed commodity to its raw commodity material (No. 8) is an imperfect measure of technical efficiency, which may be better quantified through raw product/processed product transformation ratios. Nevertheless, attempting price analyses No. 1 - 4 and Nos. 6 and 7 is useful for rapid reconnaissance purposes. Potential difficulties and pitfalls in doing each type of price analysis are discussed below.

Examining trends in real farm level and urban wholesale and retail prices for related commodities (No.1) can be very useful in understanding how incentives to produce and consume particular crops change over time. The validity of the analysis will depend critically, however, on the quality and appropriateness of the deflator used in generating real prices. The only deflator available in many developing countries is typically an urban consumer price index, which is constructed using a basket of goods and services (e.g., food, electricity, transport) consumed by urban residents. This may not be the most appropriate for the analytical task at hand. In some cases, such as where producer supply response is being estimated, an index of prices paid by producers may be more appropriate. An urban consumer price index is better suited to estimating demand functions which use urban wholesale or retail price data.

Since urban consumer price indices are generally all that is available, it is useful to comment on potential problems in using these indices as deflators. Urban and rural consumption patterns differ markedly in many developing countries, so the appropriateness of the basket of goods used in generating the deflator can be questioned. Certain goods consumed in urban areas are not widely available (or available at all) in rural areas. Moreover, these goods may not be important in rural consumption patterns. Including these goods in a deflator to calculate real farmgate prices may introduce bias. In addition, the data from which consumer price indices are generated are urban household and expenditure surveys. Relative prices, per capita incomes, tastes and preferences, and hence consumption patterns, as well as the composition of the urban population are likely to change over time. As a result, the basket of goods used in generating the deflator and the weights assigned to each type of good may not even accurately reflect urban consumption patterns ten or perhaps five years after the budget and expenditure survey has been completed. The differential effect of inflation on the relative prices of goods and services in the basket can also affect the reliability and accuracy of the deflator. Certain goods, particularly luxury goods, may drop out of the basket or carry lower weights several years after the survey data were generated. Other goods, particularly necessities, may assume greater importance as a result of inflation or declining real incomes.

A second difficulty in examining trends in real commodity prices over long periods is that the commodities may have changed fundamentally in nature and quality. The commodity may have greater value added in recent years, through improved sorting and grading or better packaging and hygiene, than in earlier years. Hence data may not be readily comparable over the entire time series. Exercise care in ascertaining whether the definitions of the commodity form and grade are consistent over time.

Examining changes in relative prices facing producers (No. 2), as well as relative costs of production, is extremely useful in analyzing changes in farmers' crop mix and changing regional/national patterns of resource allocation. Researchers should note if prices for commodities are official prices or actual prices, particularly in cases where parallel markets are important. Analyzing changes in the terms of trade facing agricultural producers presupposes availability of time-series price data for rural areas for a broad range of agricultural inputs and outputs, as well as consumer goods. Data are rarely available in long enough time-series or reliable in rural areas of developing countries, particularly in Africa. Using urban price data in analyzing rural-urban terms

31 V

of trade is misleading, because urban prices of consumer goods (particularly manufactured consumer goods) are generally far lower than prices paid by producers in rural areas. Similarly, food prices in urban areas overstate returns to producers, because they are composed of farm level prices plus marketing margins.

Comparing border prices with domestic prices (No. 3) is not appropriate when the commodity is not traded (e.g., tuber crops in Africa). This is not to say that production and consumption of nontraded staples are not affected by shifts in international prices of traded commodities, such as grains, which may be substitutes.

Monthly price data are not always available at the farm level or for rural markets, so analyses of price seasonality will often rely on urban retail or wholesale data (No. 4). These urban price data will show seasonality of prices facing urban consumers but not necessarily seasonality of prices received by rural producers or faced by rural consumers. This will depend upon the degree and volume of storage of commodities after purchase from rural producers, the magnitude and variation over time of transport costs between rural and urban areas, the degree of integration of rural and urban markets at different times of the year, and the possible existence of bottlenecks in the provision of marketing services. Seasonal price trends may also vary between rural and urban areas due to seasonal demand shifts, caused by cultural events or availability of income at particular times of the year (e.g., post-harvest period in rural areas).

Analyzing commodity/input price ratios (No. 7) will not be appropriate when little or no fertilizer or other cash inputs are used in crop (or livestock) production. This is certainly the case for grains such as sorghum and millet, tuber crops and some legumes and oilseeds produced in developing countries, particularly in Africa. Even when a particular group of farmers, such as large commercial farmers, uses cash inputs in agricultural production, the input/output price ratio may not be useful in analyzing the responsiveness of small farmers who do not use cash inputs. The price ratio will, of course, be a useful indicator of incentives to use the inputs for larger, commercially oriented producers.

Examination of available price data can provide analysts with important insights into incentives producers and consumers face in making decisions about agricultural production and consumption patterns. Without a good understanding of this incentive structure, a limited study of one or more related commodities risks overlooking

interrelationships among commodities and patterns of comparative advantage. Subsector studies are partial, which can be a serious drawback when the commodity (or commodities) under examination is not analyzed in a broader context of substitutes and complements in production and consumption.

5.3 Analysis of Price Data

When price data for a broad range of agricultural commodities, inputs and consumer goods are available, and do not have to be obtained from many government agencies, one researcher in the RR team may profitably spend several weeks to a couple months analyzing these data. Since improved data analysis software packages, such as Micro TSP (Time Series Processor), the price analysis modules of Microstat and Ab-stat, and the relevant subprograms of MSTAT, have become available for microcomputers, a surprising amount of price analysis can be accomplished in a short period of time. Analysis can be expedited if the data have been collected and entered into a computerized data base. If the data are ready for analysis, the RR researcher can rapidly analyze seasonal and secular trends in prices of key commodities and their substitutes, compare changes in their relative prices over time and in production and consumption patterns, calculate marketing margins, and perhaps estimate supply and demand functions if data on prices and quantities of inputs, outputs, imports and exports and per capita incomes are available. In addition, constructing food balance sheets can give the analyst a simple overview of supply and demand conditions and food consumption patterns.

As implied in section 5.1, it is advisable to check the accuracy and reliability of secondary data sources. If time permits, researchers might also collect supplementary price data at levels of the marketing system, such as the farm level and rural markets, for which secondary data are not available. In longer RR exercises, the analyst can distill, summarize and further examine useful quantitative information from earlier farm level, marketing and commodity studies, and from rural or urban consumption surveys. Typically, however, a researcher requires more time than available during rapid reconnaissance to process and analyze large data sets.

5.4 Analysis of Marketing Costs and Margins

For the purposes of RR, practitioners are generally advised to examine gross marketing margins rather than trying to collect detailed information on each cost component so as to estimate net margins. High gross marketing margins in developing countries often reflect real marketing costs, due to inadequacies in transportation systems and/or isolation/dispersion of producers in rural areas. In such cases investment in marketing infrastructure is likely to lower marketing costs. High gross margins may also indicate geographic areas or levels of the marketing system where returns to particular marketing activities are high, and where improved access to markets and information or greater competitiveness might lower returns and hence marketing costs.

If researchers are able to collect data on the prices at different levels of the marketing system and costs of different marketing system participants, net marketing margins can be estimated. Collecting such cost data is very time-consuming, however, and marketing agents may not report costs accurately. Cost and return data are sensitive information, and many informants will not divulge complete or accurate information during an initial interview. They usually fear that these data are being collected for tax purposes and will be used to increase their tax burden. This attitude has evolved over years of typically antagonistic relations between developing country governments, particularly regulatory agencies, and private traders.

In-depth case studies, which use multiple interviews, are usually a better tool for obtaining information about marketing agents' costs than single visit interviews carried out with a limited number of informants during rapid appraisal. It is possible, however, to estimate approximate net margins of participants from data gathered during RR field work. One way to do this is through informal surveys, designed to help construct enterprise budgets using data obtained from a purposive sample of relatively homogeneous firms. In most cases researchers will find that it is easier to collect some but not all cost data from individual informants during RR interviews. Certain informants are asked about particular cost components, while others are asked about other costs. What emerges is a composite or synthetic enterprise budget. The budgets are <u>synthetic</u> in that they incorporate data pieced together from different sources but <u>representative</u> of the marketing costs of a relatively homogeneous sample of informants.

VI. KEY INDICATORS AND PROXY VARIABLES IN RAPID RECONNAISSANCE

Rapid reconnaissance techniques developed by other researchers, such as Chambers (1980, 1981) and Honadle (1982), strive to capture essential features of rural and agricultural systems through use of key indicators and, where appropriate, proxies for a series of variables or complicated phenomena. These researchers emphasize that use of key indicators can provide valuable insights and substitute in part for massive data collection. These indicators include soil color as a proxy for soil type and quality, birth weight as a proxy for nutritionally adequate diets, and vehicles (and their contents) at marketplaces, ferry crossings or along important arteries, as indicators for marketed surplus in a rural area and direction and magnitude of commodity flows.

This paper makes only modest contributions to the development of key indicators and proxies for agricultural marketing research. Several of these are discussed below. Considerably more work needs to be done in this area.

6.1 Degree of Commercialization of an Area or Region

One commonly used proxy of the degree of commercialization of an area or region in a developing country, and the purchasing power of people living in that area, is inventories of particular goods. Inventories of consumer goods, such as soap, kerosene and mirrors, in village shops are one example (Chambers, 1980 and 1981, and Honadle, 1982). The proportion of dwellings in rural areas having tin roofs or doors, glass windows or wood-burning stoves is another proxy for village wealth and degree of commercialization. A similar indicator is an inventory of the proportion of households in a village possessing consumer durables such as bicycles or radios. Calculating the ratio of the number of functioning units to the number of purchased units is also a useful indicator of the availability of spare parts and hence a proxy for the effectiveness of input and consumer goods distribution networks, as well as maintenance services (see Pruitt, 1984 and Food Studies Group, 1985).

6.2 Vehicle Ownership and Availability

Another set of indicators which provides insight into the organization and performance of the agricultural marketing system is patterns of truck and pickup ownership and utilization. Transportation of agricultural commodities is typically a high

cost component of marketing in developing countries, especially in Africa, making up a large part of the gross marketing margin. Inefficient utilization of transport and any concentration in ownership or distinctive patterns of ownership and use are likely to affect transport costs. If truck ownership is highly concentrated in the hands of relatively few entrepreneurs based in urban markets, as in the case of Fulbe traders in Northern Cameroon, there may be opportunities for collusion in provision of transport services, which may increase the costs of food crop marketing. In many countries entrepreneurs who provide transport services are, for the most part, a different group from those engaging in agricultural marketing.

Another useful indicator in analyzing transport effectiveness and the performance of input supply networks is the ratio of functioning vehicles to vehicles owned and operated in a region. We shall refer to this as the effective vehicle availability rate, which is defined as the ratio of operating vehicles to the total number of vehicles in a regional fleet, including non-operating vehicles that are potentially repairable and operative. In rural areas of some African countries effective vehicle availability rates are reported to be as low as 25-33% This cripples the ability of rural-based traders to compete against trader/transporters based in urban areas, who have far better access to spare parts and maintenance services. It may also raise marketing costs, as competition among transporters may be reduced, increasing the opportunity for monopoly pricing.

6.3 The Relationship Between Administered and Parallel Prices

Another example of a key indicator in agricultural marketing research is the disparity between official or administered prices and parallel market prices in developing countries characterized by direct state intervention in agricultural pricing. Parallel markets develop as alternative channels to official markets where legal monopolies are granted to parastatal agencies. A large disparity can indicate one of two possibilities. If parallel prices greatly exceed official prices for an agricultural commodity, which is the more common case, it is likely that a) most of the commodity moves outside of official channels, and that b) the effects of any effort to liberalize prices will be minimal. Since most of the commodity moves in the parallel market already, parallel market prices likely approximate quite closely market-clearing prices that would prevail without government intervention. Participants in the food system have adjusted in part to the distortion of administered prices. Yet uncertainty and transactions costs may still be high, affecting the dynamics of the system, participants' incentives, prices (which will

reflect a risk premium), and participation in the food trade. The extent and severity of these impacts is partly dependent upon the enforcement capacity of the government and its ability to administer sanctions. Nevertheless, less short-run adjustment may accompany liberalization when the formal market captures a small share of the commodity trade (see Berg, 1985).

In the second case, where official prices greatly exceed market-clearing price levels, liberalization will likely have a profound effect on the organization and operation of the marketing system (see Timmer, 1985). In order to support an official price above market-clearing levels, the government must stand ready to procure the commodity at the high support price. This can distort incentives of producers and marketing agents, who will shift resources from alternative enterprises to production and marketing of the price supported commodity, for which returns have become artificially high. Once the government is no longer capable of maintaining the support price, and the price drops toward market-clearing levels, producers and marketing agents no longer have the same incentives to grow and market the once-supported commodity.[1] Such a scenario actually unfolded in Liberia in the early 1980s. The parastatal agency, the Liberian Produce Marketing Corporation (LPMC), was compelled to buy paddy rice from all comers at a price above the world price beginning in late 1982. LPMC bought large volumes of paddy at the high support rice until its storage facilities were filled and it no longer had the financial resources to maintain the support price. Local producers sold a larger than normal marketed surplus, and paddy streamed into Liberia from neighboring countries, until LPMC went heavily into debt by August 1984 and ceased buying paddy.

As more RR techniques are applied in food systems research, it will be important to develop and use other key indicators and proxies. The discussion in this chapter is only a beginning.

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[1]This argument is essentially static and dismisses a possible infant industry policy objective. That is, a developing country government might promote production of a particular crop through offering a guaranteed price above international market levels. The government might do this if it believed that production costs would decline or international prices would rise over time, thereby resulting in a shift in that country's medium or long term comparative advantage.

VII. INSTITUTIONAL AND NON-MARKET FACTORS IN FOOD SYSTEMS

During the past couple decades the literature on institutional, public choice, and non-market economics has burgeoned. This literature has arisen in recognition of the limitations of neoclassical economic analysis in addressing common problems of externalities, where private costs and benefits do not correspond to social costs and benefits, of high transactions costs, of the critical role of property rights in determining who has access to particular sets of resources or opportunities, and whose preferences count in economic decision-making, and of the pervasiveness of uncertainty in economies of all types. The literature is broad and diffuse, and there will be no attempt to summarize it here. Rather, we will identify several institutional issues which merit attention during rapid reconnaissance surveys.

7.1 Transactions Costs and Market Improvement

A fundamental problem of agricultural market development is transactions costs. In some cases transaction costs may be so high that no market exists. Assembly of agricultural commodities from small producers in developing countries is plagued by high transactions costs. Small farmers often produce little for the market. Small lots of marketable commodities are widely distributed and assembled at very high cost. Given differences in agroecological conditions across space, even from year to year (e.g., in levels of rainfall, pest and disease incidence and prevalence), and poor information about commodity supplies and surpluses, traders may incur signficant search costs in identifying areas from which marketable surpluses can be obtained at costs which may not exceed likely returns.

High transactions costs in developing countries have encouraged entrepreneurs to create a wide range of both formal and non-formal institutional arrangements which significantly lower these costs as well as uncertainties in relying on spot market mechanisms. Forward contracts negotiated between producers and either assemblers or processors are one means of lowering transactions costs and uncertainty associated with fluctuating supplies, prices and producer incomes. These contracts are most common in the production and marketing of high value commodities, such as fruits and vegetables, dairy products, or export commodities, such as coffee, cocoa, palm products, and copra. Vertical integration of processing firms with suppliers is another institutional arrangement for reducing risk and uncertainty that gives the firm that integrates

vertically greater control over the timing and flow of inputs (e.g., raw unprocessed commodities) and/or the distribution of outputs.[1]

In conducting rapid assessments, investigators need to be alert to these types of institutional arrangements. If most of a commodity flows through such an institutional channel, researchers need to evaluate the effect on returns to producers, processors and handlers, conditions of entry to production, marketing and processing, consumer satisfaction with commodities flowing through these channels, and responsiveness of participants working under non spot market coordination arrangements to changing demand, technology and relative prices.

7.2 Property Rights

Neoclassical economic analysis generally assumes that the distribution of resources, rights and privileges is given and rarely questions the effect of this distribution on access to income streams, participation in economic decision-making, and responsiveness to new economic opportunities. Yet resource distribution in many developing countries is highly unequal. Urban-based people typically have better access to policy-makers and administrators of government programs than do rural people. This enables urban interests to influence policy formulation and facilitates their access to credit, licenses, inputs, information and other resources. Urban based people are able to extract favors which defend and enhance their interests. In some countries rural landed groups control access to land, particularly higher quality, fertile, well-watered and level land. They own large holdings, where economies of size make economically viable and attractive adoption of improved technologies such as mechanization and irrigation. Rural land holders, especially the larger ones, are sometimes able to capture most of the gains from improved technology, inflation (which increases the value of land), and other economic factors affecting rural income streams. Last, particular ethnic groups may dominate trade in certain commodities, particularly at higher levels of marketing systems, restrict entry, and perhaps capture oligopoly rents. In effective food systems research, it is important to understand the evolution of the existing social structure and

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[1]See Minot, Nicholas, Contract Farming and its Impact on Small Farmers in Less Developed Countries, MSU International Development Working Paper No. 31, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan, 1986.

120

the power and prerogatives of urban, rural or ethnic groups in developing countries. Members of interest groups which control particular types of commerce or trade in certain commodities may compete effectively among themselves, but this is not always the case.

Control of resources, such as land, non-recoverable or depletable resources (e.g., minerals or petroleum), irrigation rights, water resources or rights to import/export, obtain credit, technology, etc., has a critical effect on patterns of resource allocation and income streams. The existing distribution of property and rights determines whose preferences count. Groups that benefit from this distribution will most certainly oppose proposed changes in rights and privileges that will weaken their positions and prerogatives. Certain types of research may be opposed by influential interest groups, whether governmental, urban, rural or commodity based, who stand to lose from any change in the distribution of resources and rights. Researchers who conduct rapid reconnaissance need to be sensitive to this. Proposing a thorough and critical review of the accounts and activities of a parastatal organization will, for example, not be well-received in a country where that parastatal dominates trade in a particular commodity and represents a firmly entrenched and special bureaucratic interest.

7.3 Non-Economic Factors

Political economists, sociologists and anthropologists have long been aware of the importance of non-economic factors which affect the performance of food systems in developing countries. In this section we will examine the role of three types of non-economic factors: ideology, religion and cultural endowments.

7.3.1 Ideology

By ideology we mean shared sets of beliefs, attitudes and values in a society which affect the ways in which people interact and engage in political and economic activities. Rigid adherence to an ideology can preclude certain types of economic activity (e.g., gambling, smuggling), lead to prescription of others (collective organization of economic enterprises, administered prices, free markets), and undermine or encourage other types.

324

One example of how ideology has affected the organization and operation of agricultural markets is the People's Republic of China. The communist ideology of sharing in sacrifice and benefits of work were translated into a particular set of policies before the economic reforms of the late 1970s and early 1980s.. Grain production was communally organized, the state controlled disposal of grain surpluses, and prices were administratively fixed. Everyone was guaranteed access to a minimally acceptable quantity of grain. This set of policies affected the incentives of producers organized into collective units. Individuals met the requirements of cooperative units in providing labor to grain production, but they also devoted a lot of time and attention to private production of vegetables and small livestock to meet cash needs. Small vegetable plots or ownership of small stock were means of supplementing meager incomes from communal activities.

A second example of how ideology can affect the organization and operation of an economic system is in the historical evolution of capitalist economies. Capitalist economies are characterized by specialization, exchange, innovation and search for means of reducing costs. This often leads to impressive increases in productivity, but there is a tendency toward increasing scale and concentration over time in many industries, including the food system (se Conner et al., 1985). As concentration increases, opportunities for oligopoly pricing may also increase. Product differentiation may also advance to the point of bewildering proliferation. This is usually accompanied by large outlays for advertising, which do not add value to products but which facilitate capturing of larger market shares by individual companies. Finally, private firms are not always required to internalize the costs of external economies in their production and marketing decisions, thereby imposing heavy costs on society at large or on groups lacking voice in particular.

7.3.2 Religion

Religion is related to and influences ideology, but it will be treated separately here. There is little doubt that religion often has a profound effect on the motivation and incentives of participants in economic systems. The economic dynamism of protestant countries, such as Germany, Switzerland, England and Holland, can be in part attributed to religious attitudes and predispositions toward hard work, savings and investment, characteristics which are not always present in developing countries. In protestant societies commercial success was encouraged and viewed as evidence of

divine blessing. On the other hand, commercial failure and unemployment may be viewed as just desserts for the unfortunate, and redistributive mechanisms may be poorly developed in such societies.

In contrast, Moslem societies are noted for their emphasis on social responsibility of wealthy individuals toward their less fortunate brethren. Moslem societies are often more committed to redistribution of wealth than other western or capitalist societies. There are strong pressures for the wealthy to provide for poor relatives and the indigent. In African countries such as Niger and Senegal, muslim clerics and brotherhoods play an important role in agricultural marketing and redistribution of surplus grain. This does not discourage the accumulation of fortunes, but it may shift relatively more resources to meeting current consumption requirements than to savings and investment. Moreover, it may contribute to fatalistic attitudes which undermine individual initiative in some Moslem countries. "In sha'allah" or "If God is willing" is a phrase which is often uttered. On the other hand, powerful Muslin clerics have the authority to require followers to provide labor for collective agricultural production. This phenomenon, which is practiced by the Mourides in Senegal, is a highly disciplined contractual arrangement for increasing agricultural production and assuring subsistence of the labor force.

Another characteristic of Moslem countries which affects economic activity is the Koranic stricture against charging interest on loans. In principle, interest is never demanded or paid. In practice, profits from use of a loan are sometimes divided between lenders and borrowers. In addition, lenders may not require interest payments, but they may expect other benefits, such as preferential exchange arrangements, tied or close business relations with the borrowers, and special services or favors in providing inputs or outputs. Moslem businessmen are not incognizant of the time value of money. Rather, forms of payment for use of money are often indirect and varied.

Fatalistic attitudes often also pervade animist societies, where rural people attribute economic success or failure to magic, the occult, the blessing or displeasure of ancestors, or the envy and ill-will of neighbors. These attitudes may discourage innovation and receptiveness of producers to new technology and farming practices, as well as to agricultural marketing opportunities. On the other hand, animist societies have often devised redistributive mechanisms for coping with agricultural production shortfalls and periods of exceptional hardship (see Campbell, 1984 and Campbell and Trechter, 1982).

7.3.3 Cultural Endowments

Ruttan and Hayami refer to particular cultural traits, group practices and communal forms as cultural endowments (Ruttan and Hayami, 1984). They cite communal efforts by the Japanese and Taiwanese to maintain irrigation channels as examples of a cultural endowment which has contributed significantly to high rates of agricultural growth in those countries.

Another example of a cultural endowment or characteristic is coping mechanisms developed in resource poor, drought prone African societies. In years of drought, pestilence or other disaster, many African societies redistribute staple foods so that the subsistence needs of as many rural people as possible are met. This redistribution is effected outside of marketing channels. There are strong social pressures to give food, livestock or money to less wealthy relatives and neighbors in times of need. In some cases reciprocity is later expected in the form of agricultural labor, political allegiance or help during crisis periods. In other cases there is little or no expectation of reciprocity. Although there may be no expectation of economic gain or eventual benefit, these types of coping mechanisms can be viewed as a form of social insurance. In addition, in many African societies collective labor is mobilized to maintain rural roads and to meet peak season labor requirements in food production and harvesting, which have important implications for performance of agricultural commodity systems.

A last example of a cultural endowment which affects food systems is the commercial acumen of particular ethnic groups who sometimes dominate marketing and international trade of some agricultural commodities in some developing countries. Examples from Africa include the Hausa in the long distance cattle trade in West Africa and the Somali in the East African livestock trade. The importance of the Bamilike of Cameroon and the Mandingos of Liberia, Guinea and Sierra Leone in domestic agricultural marketing, as well as the predominance of Lebanese or Indian international traders in other countries, are other African examples. An Asian example is the ethnic Chinese who dominate trade in certain commodities in Indonesia, Thailand, Malaysia and other Southeast Asian countries. Numerous examples from Latin America are also available, including regional groups within given countries like Colombia and Brazil.

324

These ethnic groups are often alleged to wield considerable market power, colluding to force agricultural prices low and to propel prices of consumer goods high to rural producers, and creating artificial shortages through speculation and hoarding. While most empirical studies do not support such allegations, it is sometimes true that trade in particular commodities is dominated by certain ethnic groups, and that entry may be difficult for outsiders. This may have important implications for the organization and performance of marketing systems. Barton (1977), Landa (1981), Cohen (1965), Shaffer et al. (1983), and others have noted that trading within an ethnic group significantly lowers transactions costs and generally decreases risks. Informal social obligations and trust can substitute for formal regulations such as legislated grades and standards in many countries. Doing business with members of one's kinship or ethnic group can reduce risk and uncertainty, stabilize returns, lower marketing costs, and decrease the importance of price incentives in transactions.

VIII. PREPARING FOR RAPID RECONNAISSANCE FIELD WORK

8.1 Preparatory Visit and Planning

Before planning for the RR field work begins, the RR team leader should discuss the objectives of the RR with study sponsors and policy-makers, and negotiate to modify the terms of reference if necessary. Several initial, exploratory interviews with selected participants in the commodity subsector will also prove useful as a crosscheck on policy-makers' perceptions and objectives. The team leader can also identify, and if necessary contract, researchers and institutions to collect, compile and analyze secondary data. If these data are entered into a microcomputer data base, further analysis is facilitated. Finally, the team leader can begin to make administrative arrangements for the RR field work. Generally, planning for the RR and preparation of secondary data will have a gradual buildup, unless an expatriate is asked to lead the team. In this case she/he will usually make a preliminary visit to the country where the survey will be done.

8.2 Selecting the Rapid Reconnaissance Team

RR findings are often most illuminating when the RR is conducted by multidisciplinary teams. Selection of analysts with different disciplinary backgrounds will be guided by preliminary identification of marketing problems and the expertise most effective in addressing particular problems. In some cases the RR team will have to depend on the perceptions and demands of organizations and agencies which fund the rapid reconnaissance.

In carrying out the rapid reconnaissance surveys, the RR team may want to divide into two or more groups of two to three researchers each, preferably having different disciplinary skills. RR surveys will generally be stronger if all of the team participants have conducted rapid appraisals in the past, as well as year or longer studies of food systems in developing countries. By having done longer studies, members of the RR team will be more sensitive to seasonal factors and the potential dangers of making inferences about production/marketing systems from information gathered from a limited number of participants, observations and areas during one short and not necessarily representative time period.

When the RR team is composed of researchers who have not all done longer term studies or rapid appraisal, it is advisable to mix experienced with inexperienced analysts. If expatriates are involved in RR work, it is critically important for host country researchers to participate in the exercise as well. Their knowledge of commodity production and marketing systems can offset potential bias from observing the system at one point in time. Their understanding of the sociocultural and political context is also invaluable in approaching key informants and structuring informal interviews. Local researchers will generally be more skilled in approaching participants in marketing systems and handling more sensitive issues than outside consultants. Knowledge of local customs, institutional and political organization and behavior, and agricultural and economic development in historical perspective will also improve interpretation and analysis of data generated by the RR.

While outsiders may come in with fresh perspectives, they lack detailed knowledge of local conditions. They may also come with preconceptions or inappropriate comparisons. In a few cases, however, expatriate researchers may be able to obtain information that local researchers could not obtain. In these instances informants perceive foreign researchers as outsiders who do not represent the government and will not use sensitive information against them, as a local researcher may be perceived as capable of doing.

By developing the capability to undertake rapid assessments, local researchers and research organizations can use the RR process to continue monitoring and evaluating the performance of commodity subsectors. They may also examine the organization, operation and performance of other subsectors. Familiarity with RR methods, and a critical awareness of their strengths and limitations, will also help to instill a healthy skepticism of the findings of short-term consultants and other RR teams.

8.3 Planning the Rapid Reconnaissance Field Work

During the first week or so of a rapid reconnaissance study, the team will need to define RR objectives, review available studies and secondary data, identify data gaps and needs, develop information gathering strategies, and define clearly the objectives of the RR and the roles of each of the team members in the survey. It is often useful to do a preliminary outline of the RR report (see Chapter X). This helps the team to focus on information needs and priority topics.

During this period it is necessary to define clearly the objectives of the RR and the roles of each of the team members in the survey. In cases where some members of the team have not done RR, it is useful to spend at least one day introducing them to the RR methodology. Experienced team members can give examples of problems they encountered in RR in earlier studies or of particular interviewing strategies or time saving techniques for data gathering that they have used successfully. The review of the RR methodology is not only useful for the uninitiated but also for those who have done RR before, so that every team member has a clear idea of how RR will be used in that particular context.

After the discussion of the RR methodology and review of the literature and secondary data, team members should be encouraged to jot down their hypotheses about the food system components under examination. Developing hypotheses about the organization and operation of the system will help to focus data gathering efforts. It will also hopefully make the researchers more conscious of possible sources of bias in their forthcoming information gathering. As a result, they must plan to offset these biases and preconceptions consciously in their research.

Before actually beginning the RR field work, it is useful to develop a research itinerary and activity lists. These lists should note tentative research plans for each day, including towns, agricultural processing plants, rural markets, and producing areas to be visited and government officials, types of marketing agents, and producers to be interviewed. If researchers plan to visit rural periodic markets, it is advisable to find out beforehand which days or how often particular markets are held. It is also useful to plan around government holidays, communal work days, religious festivals, days of worship and rest, or particular times of the day when potential informants are praying, working or otherwise engaged. An activity list is a useful tool in focussing data gathering on critical and necessary activities. It enforces discipline in planning research logistics. When travel and protocol requirements are taken into account, there are often strict limits on the number of places that can be visited and the number of informants interviewed. However, the researchers do not need to be slaves to an activity list, and it is wise not to overload it. Unanticipated opportunities to observe marketing processes or interview system participants may arise which can justify deviation from a fixed itinerary. It is advisable to allow time for improvisation, possible repeat visits or interviews, and other contingencies.

8.4 Review of the Literature and Analysis of Secondary Data

Although it may seem obvious to many that a logical place to begin research is by reviewing earlier work, there are many cases where this is not done, or not done very systematically. There is often a wealth of useful information and data in scholarly studies (including student theses), annual reports of government agencies or parastatals, ministry of agriculture data banks, records of cooperatives and private firms, project documents, trade and professional journals, and consulting reports. Although many researchers like to think that earlier studies are inadequate or unfocussed for their particular purposes, this work often contains useful information and insights.

While planning the RR survey, the team should review the literature and available secondary data. Not every team member has to review every document or data set, thus division of labor along disciplinary or subdisciplinary lines is usually appropriate. Each team member should summarize the principal findings from the literature and preliminary analysis of available data for other team members. During the first week of the RR, team members can make oral presentations, or draft a series of annotations or memoranda. In preparing important data for others, team members may wish to tabulate secondary data so that it is readily accessible and usable. Critically important papers that every team member should read before beginning the RR surveys need to be identified. The objective of this review is not to burden team members with busy work and supplementary writing assignments. Rather, it is intended to prepare all team members for the RR field work in as rapid and systematic a way as possible.

Types of secondary data that are usually readily accessible include :

1. Wholesale and retail prices for agricultural commodities, usually collected in capital cities and other major urban areas. Farmgate prices are often not collected or may only be official producer prices. (See Chapter V).

2. Price indices, usually consumer price indices, constructed for a basket of commodities purchased by urban consumers in large cities. Serious attention needs to be paid to how representative the basket of commodities and the weights used in constructing the indices are for different groups of consumers. Consumer purchasing patterns and price relationships among commodities change over time. (See Chapter V).

3. Data on quantities of commodities marketed, transported, and imported or exported.

a) Extension agents or agricultural statistics enumerators sometimes attempt to collect data on the volume of commodities marketed in rural areas, particularly at rural markets, which capture part of total marketed output. While absolute volume figures should not be taken too literally, year to year changes in marketed output may be reasonably accurate indicators of significant changes in production and marketing. It is important to note, however, that policy changes may shift the location of apparent market surpluses, as well as the direction and magnitude of marketed flows. Furthermore, a change in government policy may encourage more officially recorded marketings through formal channels (transfer of sales from informal to formal markets), even though the total quantities sold may not have changed from one year to another.

b) Interregional transport data are less common and may be highly inaccurate, depending upon government controls and taxes and whether commodities are transported in small or large lots. Data may be collected at entry points to large cities, at shipping and receiving points on rail, air and water lines, and at water crossings (ferries). Origin and destination traffic surveys provide accurate and detailed information but are often carried out at only one point in time, which may or may not coincide with the periods of major commodity flows. When traffic surveys are conducted at intervals over the course of one year, researchers need to assess the representativeness of the periods of data gathering.

c) Import and export data (quantities and value) are usually more accurate than other types of quantity and flow data, but they may understate actual volume of imports and exports if government restrictions, quotas, taxes or overvalued exchange rates encourage smuggling or underinvoicing.

4. Data on the volume of processed or transformed commodities are sometimes collected by government agencies for taxation purposes. Processing firms are often asked to submit records of the quantities of produce processed to

government agencies. Since taxation encourages evasion, government data may significantly underestimate processed output. For example, livestock slaughter statistics are usually quite accurate for large ruminants (cattle, camels, buffaloes) slaughtered in urban areas, but typically incomplete for smaller stock (goats, sheep, pigs, poultry).

During rapid appraisals investigators should collect and analyze only secondary data which can be obtained with a minimum of difficulty. If RR teams can only obtain secondary data through extensive digging in government archives, or if aggregation of voluminous records is necessary, then these activities may be best reserved for later in-depth studies.

IX. IMPLEMENTING RAPID RECONNAISSANCE SURVEYS

9.1 Elements of Rapid Reconnaissance Field Work

The three critical elements of RR field work are :

1) direct observation of food system facilities and processes,

2) examination of firm and organization records, and

3) informal interviewing of subsector participants and knowledgeable observers of commodity systems.

There is no substitute for observing how food system components functions firsthand. This includes inspecting marketing infrastructure, such as marketplace, storage and processing facilities, as well as the transportation network and transport equipment. Observation of physical handling and packaging of commodities, wear and tear on produce in transport, and transactions at different levels of the system (at the farmgate, at assembly and redistribution markets, in retail stores) is also necessary and instructive. By directly observing marketing processes and functions, investigators are able to identify marketing problems and evaluate what key informants say about the organization and operation of the system against what is actually observed.

Examination of detailed firm and organization records can provide data on the volume of the target commodity bought, processed, stored and sold during particular time periods, the value of organization assets, purchase and sale prices for inputs and outputs, and costs and returns of marketing operations. Yet in many developing countries records for individual firms are incomplete and inaccurate, particularly for smaller firms. Managers of many small firms are illiterate or do not keep records. Even in firms or organizations where data are recorded, these data may not always be organized or recorded in a form which can be readily used by outsiders. Or the records may be organized for the convenience of outside regulators, but they are likely inaccurate and designed to misinform or misrepresent. For example, wholesale grain traders in the Peanut Basin of Senegal keep one set of record for government regulatory officials in order to document that they trade grain at official prices, and a second set for recording actual purchase and sale prices (Newman, Sow, Ndoye, personal

communication, 1985). Some larger firms and marketing organizations may deliberately underrecord transactions, understate sale prices, underinvoice or in some other way misrepresent financial transactions so as to evade taxation or close government scrutiny.

Interviewing key informants in the food system is essential for understanding their perceptions of what constitutes good system performance, problems and constraints at the level of the firm and in the overall food system, and unexploited or underexploited marketing opportunities. It is preferable to interview key informants alone and confidentially, under which circumstances they are more willing to discuss their marketing activities and sensitive topics such as price information, credit arrangements and relations with other firms. Group interviews and informal Delphi methods, which encourage intense and frank interaction among participants, can generate much useful information in a short period of time and provide insights into the interaction of participants, but such methods also risk introducing bias into RR findings.

9.2 Where to Begin the Rapid Reconnaissance

In abbreviated surveys, more so than in longer term studies, what one often finds depends heavily on when the surveys are carried out, who is interviewed, what is observed, and where research is conducted. Where an investigation begins is usually a function of the rapid reconnaissance objectives. If RR studies are funded as an input into the design of a project for improving urban food distribution, surveys will begin in urban areas. Researchers will need to analyze demand patterns and prospects and urban food distribution channels before surveying rural producing areas. If RR precedes design of a project which will promote production of particular commodities, surveys will usually begin in rural producing areas. When a particular rural area is targeted for production increases, the researchers will visit that area early in the RR to examine constraints to increasing production and marketed output. If the objectives of the RR are broad and the organization funding the research does not demand that RR focus on any particular segment of the marketing system or a particular geographic area, researchers will usually find it useful to interview wholesalers based in large markets and secondary towns. They are typically more knowledgeable about the organization and operation of the entire marketing system than other participants, and they often have a vantage point acting as "channel captains" in the marketing system (Harrison et al., 1974). They may be reluctant to divulge much information, especially if they perceive that the study is to be used in developing additional regulations and taxes. Special efforts are often required to relate to key system informants.

Where the RR survey begins will suggest where the investigators wish to go next. Studies which begin in urban areas will usually work back through marketing channels to rural producing zones. Selection of zones is not determined by hard-and-fast criteria. In some cases researchers will go first to the producing area which ships the largest quantity of produce to the urban market.

It may also be useful to visit areas where there is agronomic potential for producing the commodity in question, or for producing significantly more of the commodity, in order to examine why production and marketed output are low or nonexistent. When there are several important producing areas, the RR team will need to develop criteria for selecting particular zones and subzones for examination. Random selection is usually suitable for subzones. Selection of zones may sometimes be guided by political objectives or regional equity considerations.

Selection of particular villages or subsector participants presents other problems. In RR selection is generally purposive and rarely defined clearly, so selection criteria have to be established in each case. RR does not include large sample surveys and does not generate estimates which are representative in any statistical sense. In order to sample purposively, RR teams should know something about the population of villages, trading firms, processors, transporters, etc. This can be determined through earlier studies, interviews with key wholesalers or knowledgeable observers of commodity subsectors, and existing enumerations of firms by government agencies. If the general characteristics of the population are known and different strata can be identified, individuals and firms can be selected randomly from each stratum. For example, RR teams may stratify agricultural producers into five groups : small farmers who do not produce the target commodity; small farmers who produce it but who sell little or none; small farmers who sell a significant proportion of what they produce; medium-sized farms which sell most of what they produce; and large farms which sell all or nearly all of the commodity produced. As a second example, wholesalers can be stratified by volume of the commodity they handle, the approximate value of their assets (vehicles, warehouses, storage facilities), or commodity mix.

Purposive sampling becomes more difficult when there are no existing studies or enumerations, if existing enumerations are incomplete or inaccurate, or if knowledgeable observers cannot provide information about numbers of different size/type firms at

different levels of the food system. RR teams are then encouraged to select strategically placed informants, such as large scale wholesalers or processors, for in-depth interviews. They can then proceed to retail firms, first handlers or producers linked vertically to these informants. Alternatively, researchers might interview a second or third informant at the same level of the system.

One RR team can proceed backward through the subsector toward producers, while a second can move forward toward consumers (or institutional buyers). Through this process the teams are able to gain a better understanding of the organization of the food system, marketing processes and vertical linkages in the system. They are also able to crosscheck information provided in earlier interviews with informants at the same stage or at adjacent stages of the system. Different perceptions of problems and opportunities can also be elicited. These will vary, of course, depending on where firms are placed in the subsystem.

9.3 Processes, Functions and Facilities to Observe During Rapid Reconnaissance

The following processes, functions, and facilities are important to observe and inspect during the rapid reconnaissance:

1) Transactions for both inputs and outputs at the farm level (if possible), at assembly and wholesale marketplaces, and at retail outlets.

2) Handling, weighing and measuring, sorting, grading, packaging, processing, transport, and storage of commodities at different stages of the marketing system, including the farm, assembly markets, processing plants, terminal markets, storage facilities and retail stores.

3) Facilities for buying/selling, processing, transporting, grading and storing commodities in rural and urban areas.

A useful technique for observing facilities, functions and processes is to follow agricultural commodities from the farm to the terminal market, or at least through part of the production-marketing chain. This is a form of what anthropologists call "participant observation." Accompanying wholesale traders or their agents to rural areas and then back to urban markets is one method of observation. Investigators can observe

transactions, note costs and losses for a particular marketing trip, ask the wholesaler how representative these costs and losses are for his/her business, and ask the wholesaler questions along the way about marketing processes and functions. Researchers are also usually able to spot inefficiencies and problems in the system during these trips, as well as to inspect marketing infrastructure and facilities.

During RR field work it is often useful to purchase retail lots of the commodity in question in markets and towns visited during the RR. It is important to bring small scales along so that these purchased quantities can be weighed, the price per unit of measure calculated, and comparisons made with values obtained in other locations. If there are unexpected or unexpectedly large differences, the investigators can interview traders and retailers on the spot in order to ascertain reasons for these differences.

It may also be useful to bring hanging scales (and accompanying hooks and ropes for suspending the scale) for weighing bags of produce (or quarters of beef, crates of vegetables, etc.) or other units sold wholesale. By weighing produce sold wholesale, the weight of local units of measure, and any variation therein, can be determined. Since produce is often bought and sold in the same units (e.g., sacks) at the farm, in rural assembly markets, and in urban wholesale markets, prices per unit can be calculated for produce sold at different levels of the marketing system. Adjustments may need to be made as the commodity moves along the marketing chain for shrinkage, loss or addition of foreign matter. Gross marketing margins can thus be established.

9.4 Selection of Key Informants

There are two sets of key informants: subsector participants and knowledgeable observers of subsectors. In the rapid reconnaissance literature subsector participants are not usually considered key informants, who are designated as "key" due to their special knowlege and understanding of agricultural production and marketing systems (see Beebe, 1985). In this paper the term key informants designates selected subsector participants, as well as outsiders with broad and less parochial perspectives.

Subsector participants are linked forward and backward to other participants in the production-distribution system. Some participants, particularly wholesalers and processors, have a systems perspective about the interrelationships among the parts of the system and resulting system performance. They are able to identify both system-

wide problems and potentials as well as stage-specific constraints. Other participants have long years of experience in the commodity subsector and in-depth knowledge of particular problems. They often have parochial views and attitudes and may not be able to identify system-wide problems. Their perceptions of stage-specific marketing problems are important, however, and need to be tapped by RR researchers.

Table 4 lists key informants who can be interviewed during RR surveys. The advantages and disadvantages of each type of informant are noted. The types of informants who will be interviewed during a rapid appraisal will depend on the objectives and focus of the study. It is clearly not necessary to contact all the types of informants listed in Table 4. Moreover, other researchers will doubtless be able to add to the list.

In most RR surveys, more than one set of key informants will need to be purposively selected in order to elicit multiple views of subsector performance, government policies, and subsector potential and problems. Different informants will emphasize different performance attributes and have different ideas of what constitutes desired performance. This reflects different perceptions and priorities, which are often parochial, as well as concerns about the existing and potential distribution of resources and income, which are unstated and implicit.

The types and numbers of informants selected at any one stage of the subsector will depend upon the degree of heterogeneity of the following characteristics of firms: size, patterns of input use, product mix, geographic distribution, resource endowments, management, technology, and standard operating procedures. The more diverse firms at each stage are with respect to the above characteristics, the larger the sample of informants will need to be. Sampling of disadvantaged and less vocal groups, such as landless laborers or nutritionally vulnerable consumers, as well as systematic contacting of women or their associations, may be necessary to offset common biases of many rapid appraisers. It is noteworthy that women play an important role in staple food crop production, processing and retailing in many developing countries, particularly in Africa. While agricultural production and marketing interventions affect female participants in the food system and may exclude women from gaining access to certain resources, some analysts have failed to anticipate these impacts. Given recent interest in disaggregated welfare effects of food policies, most analysts will probably devote some attention to examining consumption patterns of disadvantaged groups in food systems (Timmer et al., 1983).

Table 4

KEY INFORMANTS IN FOOD SYSTEM RESEARCH: ADVANTAGES AND DISADVANTAGES AS INFORMANTS

KEY INFORMANT	ADVANTAGES AS INFORMANTS	DISADVANTAGES AS INFORMANTS
Wholesalers	a) Located at system node which offers vantage point and system perspective. b) Knowledge of production, stocks, flows, prices and strength of demand in different rural and urban areas.	a) Extremely busy and often difficult to interview for more than a short period. b) Given typical hostility of government, they may be uncooperative informants.
First Handlers	a) Detailed knowledge of exchange arrangements with producers and wholesalers. b) Knowledge of market opportunities, production, stocks, and prices in particular rural areas.	a) Knowledge rarely extends outside circumscribed rural areas. b) May have parochial perceptions and attitudes.
Managers of Processing Firms	a) Located at system node which offers vantage point and system perspective. b) Knowledge of production and prices in selected rural areas, and demand for processed products in urban markets. c) Detailed knowledge of exchange arrangements and risk-sharing mechanisms with producers or producer groups.	a) Given typical hostility of government, may be uncooperative informants. b) May be unwilling to divulge details of exchange arrangements with producers. c) Will often underreport throughput in order to evade taxation.
Transporters	a) Knowledge of direction and magnitude of commodity flows. b) Familiar with structure of commodity trade. Can often identify large volume traders.	a) Do not actually participate in trade, so lack knowledge of trading practices, prices and strategies.
Importers/ Exporters	a) Knowledge of magnitude, timing and prices of imports and exports. b) Detailed knowledge of import/export practices, procedures and regulations.	a) May know little about how commodities are assembled for export, or how they are distributed after importation. b) Since smuggling and underinvoicing are common practices in many countries, they may be unwilling to report volumes or prices. c) If rights to import/export are obtained through privileged access or rent-sharing, they may be unwilling to discuss business practices.
Representatives of Cooperatives, Trade Associations	a) Knowledge of numbers and sizes of member firms, and their output. b) May effectively represent membership and its perceptions of constraints, opportunities.	a) If representatives are appointed by government, may not effectively represent membership. b) Memoership may be restricted to larger firms and producers.
Bank Loan Officers	a) May possess information about the operations, throughput and returns of larger wholesalers, processors and retailers. b) Access to information about composition of commercial bank loan portfolios.	a) May not possess systems perspective. May make judgements on basis of narrow rate of return criteria. b) May be unwilling to divulge confidential information about borrowers' operations.
Institutional and Private Sector (Large Supermarket) Buyers	a) Often major buyers of high value commodities, such as fruits and vegetables, livestock products. b) May have negotiated contractual arrangements with large volume wholesalers, processors or importers.	a) As buyers of final products, may have limited knowledge of system organization and operation. b) Usually constitute small proportion of final demand for staple commodities.

Table 4 (Cont.)

KEY INFORMANTS	ADVANTAGES AS INFORMANTS	DISADVANTAGES AS INFORMANTS
Missionaries, PVOs	a) Well-placed to describe difficult to observe phenomena and report on phenomena others unwilling to discuss. b) Sometimes provide extension, input supply and marketing services to rural clients.	a) Usually have separate agendas that lead to parochial perceptions and attitudes. b) May regard donor agencies or government as adversaries. c) May not participate directly in commodity subsystems.
Extension Agents	a) May have detailed knowledge of farmers' production and marketing practices and strategies, producer-first handler exchange arrangements, and the structure of the first handler stage. b) Knowledge of size distribution of farms, alternative technology utilization and range of marketed surplus, and food security situation of local farms.	a) Agents often not natives of area. b) May have few funds and no transport for extension visits. c) Low pay and difficult working conditions may induce poor performance. d) May be biased source of information regarding farmer production practices and technology utilization.
Managers of Parastatal Agencies	a) Parastatals may buy a large proportion of marketed surplus and manage reserve stocks. b) Parastatals are often major importers and exporters of commodities and inputs.	a) If possess legal monopoly powers, may know little of private competitors' operations and oppose them vociferously. b) If parastatal under attack, may be very defensive and try to justify/rationalize parastatal functions and role.
Agricultural Producers	a) Knowledge of sources of input supply, production practices and strategies, alternative technologies, prices, and marketed surplus in own area. b) May be able to identify largest and most productive farmers, as well as least successful farms with precarious food security situations. c) Detailed knowledge of local marketing opportunities and outlets.	a) Primarily subsistence farmers may know little of current prices and market opportunities. b) Some producers may have parochial perspective and malign traders. c) Few producers have systems perspective and knowledge of functions higher up the system.
Urban Consumers	a) Can discuss current and seasonal consumption practices and food prices. b) Able to discuss pros and cons of alternative retail food outlets.	a) Individual consumers cannot speak for full range of consumer groups. b) Care must be taken to identify and interview nutritionally vulnerable groups.
Retailers	a) Possess better knowledge of consumer wants and needs than other market system participants. b) Knowledge of wholesaler-retailer exchange arrangements.	a) Small volume retailers in many countries are relatively homogeneous, parochial, and lack systems perspective.
University or Agricultural Researchers	a) Detailed knowledge of literature and secondary data sources and reliability. b) May possess analytical framework that leads to better understanding of system and its constraints/opportunities.	a) May have parochial disciplinary perspective. b) May lack detailed knowledge of business objectives, practices and problems of participants at different stages of the system.

9.5 Informal Interviewing of Key Informants

9.5.1 Interviewing Techniques

Researchers will rarely have the luxury of developing formal questionnaires (which are pre-tested, translated and back-translated, etc.) for each type of participant interviewed. Rigorous and intensive questionnaire development might be necessary if the researchers wish to focus attention and resources of the inquiry on one or a small number of stages, or if information obtained in initial interviews is deemed inaccurate, inappropriate or ambiguous. Nevertheless, it is useful to develop interview strategies and topic guidelines for different groups of participants, including specific questions, desirable sequences of questions, and types or ranges of questions for initial and followup interviews. Informal interviews will be structured in the sense that the intention is to cover important topics in a preferred sequence. Yet they will be unstructured in the sense that interviewers will be able to vary the length and format of an interview, probing promising lines of inquiry in depth, where feasible, or adhering to non-controversial or less sensitive topics, where necessary. For example, in one instance the interviewer might encourage a respondent to focus on subsector problems, government policies or marketing opportunities. A parallel interview with another informant at the same stage of the subsector might focus on that firm's management, sources and uses of credit, standard operating procedures for carrying out particular marketing functions, and relations with other firms.

While it is useful to develop informal interview guidelines for different types of participants before beginning RR field work, it is important to realize that interviewing busy marketing system participants is an art. Investigators rarely have the time to ask even the most cooperative of informants everything they would like to ask, unless it is possible to arrange a followup interview or two. So investigators have to focus the interview on particular issues and problems. Allowing informants enough flexibility to discuss issues and topics which interest them or problems which they find especially bothersome can have high payoff. Investigators can often uncover unexpected insights in this way.

In addition, it can be very effective to challenge informants on particular issues, if only to stimulate discussion and compel them to articulate their views more clearly. Informants who are bored or annoyed by interviews will sometimes offer incomplete or

unsatisfactory answers to questions, hoping that the investigator will accept those responses uncritically and continue toward completion of the interview. It is very important to challenge such responses and to demonstrate to the informant that the researcher understands enough about the marketing system to realize that his/her answer is incomplete or unsatisfactory. To do this in a humorous or clever way can liven up an otherwise routine interview, improve rapport, and facilitate the information gathering task.

Informal interviews in rapid reconnaissance are best used to elicit information on informants' perceptions of commodity system problems and opportunities, ideas of how the system can be improved, views of the effect of particular government policies, and the need for policy changes. The emphasis should not be placed on accumulating detailed information on the organization and operation of the subsector at each particular stage.

9.5.2 Building in Consistency Checks

Informal interviews can be structured so that information about certain topics is obtained in more than one way, either in different sequences of questions or by approaching the topic from two or more angles. For example, interviewers can obtain information about producers' marketed output by first asking producers directly the number of sacks of a commodity that have been sold since the harvest. An indirect way of obtaining the same information would be to ask the producer the numbers of sacks harvested, given and received, and consumed. The residual would then be the number of sacks sold. Information obtained from interviews with key informants about exchange arrangements, risk reducing and sharing mechanisms, credit arrangements, commodity flows and other vertical linkages should be cross-checked with informants at adjacent stages of the subsector. The overall validity of rapid reconnaissance findings can be also checked with knowledgeable observers of commodity subsectors, including researchers, certain government technocrats, selected agricultural project managers, and regionally important business people.

A useful method of consistency checking is mirror-image interviewing. This technique involves asking informants at adjacent stages of a subsector the same set of questions. Major differences in responses are generally an indicator that one or both informants are misinforming the research team. Such differences may also indicate that one or both of the informants does not know or accurately recall the answer to the question.

9.5.3 Repeat Interviews

Repeat interviews with cooperative and knowledgeable informants, or interviews with informants who substitute for uncooperative or less useful informants, are often necessary in order to:

1) Follow up on initial, more general interviews with questions about the organization and operation of particular firms (especially if these firms play an important role in the subsector or at a particular stage of the subsector).

2) Clarify statements or viewpoints presented during an earlier interview.

3) Cross-check information provided during an earlier interview or by another informant at the same stage of the subsector or an adjacent stage.

4) Discuss more sensitive topics, such as credit arrangements, price formation, relations with other firms, circumvention of government restrictions, parallel markets, etc.

Follow-up interviews with selected key informants during the rapid appraisal can lay the base for case studies during later phases of research. Case studies entail multiple visits over a longer period, typically a year.

9.6 Interviewing Village Headmen and Other Local Informants

One information gathering shortcut in rural studies is to interview traditional leaders, such as village leaders or headmen. In many African countries local notables meet periodically as a group to arbitrate between conflicting parties. These groups often discuss issues of land tenure and use, disputes between farmers and herders and other grievances, and issues of collective organization, such as constructing social infrastructure (schools, clinics), road maintenance, and formation of cooperatives. While calling together all the members of a local deliberating body may take time, it may prove valuable if some of the above issues are addressed in an RR study. When the focus of a rapid appraisal is agricultural marketing, it will generally not be necessary to convene a large group of notables. An interview with a village leader or headman will

usually suffice. Interviews with older members of the community who are producers or traders can also be very valuable in learning about change in agricultural production and marketing practices and policies over long periods. These informants possess a wealth of local knowledge, as well as a longer term historical perspective. Such perspectives are valuable and researchers can elicit perceptions of current problems in historical context, as well as historical information on when particular types of agricultural production technology were first tried and adopted, when rural roads and wholesale trading networks penetrated rural areas, and shifts in agricultural production patterns over time in response to marketing opportunities and availability of inputs.

As a general word of caution, it is advisable not to ask sub-district or village headmen questions which demand detailed responses that they are unable to provide. In other words, it is best to tailor questions to respondents' frame of reference and level of knowledge. For example, a subdistrict official is unlikely to possess detailed information about the size distribution of farms in his jurisdiction or of marketed surplus of particular types of farms, whereas a village headman may well be able to answer questions about these topics.

9.7 Group Interviews

Depending upon the cultural context, interviews of relatively homogeneous groups of subsector participants can elicit views of subsector performance, the need for and effects of government policies and regulations, and system bottlenecks and opportunities. Group interviews can also serve to legitimize the process of inquiry among potential participants. In many Asian and African countries, for example, agricultural producers are more likely to cooperate in survey research once the village chief or elders have met with the researcher and approved the research agenda. The main drawback of group interviews is that they can be dominated by especially articulate and forceful individuals, whose views and perceptions may not be widely shared. The findings of group interviews or of meetings with representatives of producer, trade or industry associations must always be cross-checked with individual informants. Preferably some of these informants will not have attended the group meeting.

9.8 Informal Delphi Techniques

Informal Delphi techniques for obtaining information about the views and perceptions of marketing system participants are sometimes appropriate in rapid reconnaissance field research (Honadle, 1982). Delphi methods are an iterative form of information gathering that can involve several group interviews with brainstorming and intense interaction or iterative, private consultations with anonymous informants. Either form of Delphi is designed to elicit candid appraisals of participants' views, perceptions and ideas (in this case, about marketing system performance, problems, constraints and opportunities). The Delphi approach assumes that the group will move toward consensus and that false or misleading views and perceptions will be exposed and discredited. This approach is a potentially attractive information gathering shortcut for RR researchers in that reliable information on sensitive topics can supposedly be obtained in a short time span. Moreover, the difficult process of trying to separate out reliable information from unreliable information and misinformation supplied by individual informants can be largely avoided.

There are several potentially serious problems with Delphi methods, however, particularly in group meetings. In heterogeneous groupings of Delphi participants, some individuals may not express their views and ideas candidly, deferring to participants with more power in the marketing system or to representatives of government agencies. Less powerful participants avoid risks by being reticent and not openly criticizing participants who can apply sanctions or use confidential information in a way that harms them. Among groups of peers (participants at the same stage of the marketing system), Delphi methods are most likely to generate reliable information. Individual participants are less likely to refrain from criticizing the government or marketing agencies, or other groups of participants (especially powerful participants) in the marketing system.

Informal Delphi techniques can be quite useful in evaluating the performance of organizations and agencies within the marketing system. For example, representatives of producer cooperatives could diagnose problems associated with the input procurement and distribution, crop storage, and crop marketing practices of the cooperative. It is not recommended to include government overseers of the cooperative or appointed cooperative officers, who are often not producers, in the discussions. Unequal status among participants will usually preclude frank discussion of problems.

9.9 Recording Rapid Reconnaissance Findings

When recording information during RR interviews, time-saving techniques must be adopted. There are few things more disturbing to a busy marketing agent than to sit through long interviews where the investigator spends half or nearly half of the time writing longhand notes. Several shortcut techniques are possible. Researchers might only note quantities, prices, and other continuous variables, which are more difficult to recall than qualitative data, during interviews and reserve detailed recording of other information until after the interview is completed. Standardized formats for different types of data gathering, such as forms for recording prices and quantities in marketplaces, and for different types of informants, such as producers, can also speed up the note-taking process. And, of course, developing an effective shorthand for recording information is another means of shortening the time required for interviews.

A common mistake in conducting informal interviews is to postpone writing down observations, perceptions and responses until long after interviews are completed. It is also easy to fall into the trap of taking poor or incomplete notes. It is strongly recommended that researchers record the findings of informal interviews immediately after each interview is completed. In some cases, using a large informal questionnaire is a valuable tool in forcing analysts to record findings during or shortly after each interview. Having this recorded information will be essential at a later stage when the investigators write up the research results.

9.10 Speeding up Information Gathering in the Field

Depending on the circumstances, the two or three members of a RR team can work separately to increase the rate of information gathering. For example, one member of the team can interview wholesalers and retailers at a rural market, while a second can observe the market, counting the numbers of traders of each type, estimating the quantities of the commodity brought to the market that day, noting the numbers and types (make, tonnage) of trucks at the market, and chatting with truckers to obtain information about transport costs and the magnitude and direction of marketed flows. When the RR team is in rural areas interviewing producers, team members can individually interview producers to get a broader sample. The more standardized the informal interview format for producers, the less risk there is in having team members carry out individual interviews. When researchers are not following informal interview

guidelines but are extemporizing, research findings may differ quite significantly, reflecting the interviewers' different interests and biases, or perhaps the asking of questions on similar topics in quite different ways.

While splitting up RR teams will accelerate information gathering, this may not always be desirable. When two or more researchers participate in an informal interview, they may interpret the informant's responses in different ways. At the end of each day, or perhaps immediately after each interview, the team members can discuss informants' responses and their implications. By comparing interview findings and inferences within each RR team, possible bias in interpretation can be offset. Teaming up to do interviews can also speed up individual interviews. One researcher can pose questions in an informal, conversational style, while the other records the informant's responses. The two researchers can take turns asking questions in their areas of specialization during an interview.

In the final analysis, researchers participating in rapid reconnaissance surveys will need to evaluate the tradeoff between breadth of coverage (numbers of participants interviewed) with depth and accuracy of coverage. Choices about interviewing strategies will be influenced by the time available for RR, the skills and experience of researchers participating in RR, and the degree of variation in interview findings and interpretations of informant responses.

9.11 Periodic Meeting of Rapid Reconnaissance Teams and Exchange of Preliminary Findings

Although it is recommended that RR groups divide into two or three person teams during the field research, the teams should not work in isolation. The individual RR teams should meet periodically to discuss preliminary findings during the reconnaissance surveys. The meetings may be infrequent (weekly or perhaps biweekly) due to logistical difficulties. Nevertheless, it is important that the different teams discuss preliminary research findings, tentative conclusions and hypotheses inferred from the findings, information gaps, and needed data gathering emphases during the RR. In some cases there may be disagreement among the participants. In the ensuing debate, the researchers may uncover preconceptions, unstated assumptions, and unclear or unjustified inferences. Periodic meetings are also useful in helping the researchers to focus increasingly on key research issues, which typically emerge during the course of

the RR surveys, rather than to continue gathering information in a broader, less directed way.

347

X. PRESENTING RAPID RECONNAISSANCE FINDINGS

10.1 Writing up the Results of the Rapid Reconnaissance Survey

It is useful to outline the written report that will be prepared before initiating the survey research. The final organization of the report will probably be somewhat different, but outlining the report during the planning stage helps to identify key issues as well as who will be responsible for addressing these issues. When preparing the final report, separate papers along disciplinary lines are discouraged. It is the responsibility of the team leader to integrate different disciplinary findings into a summary report. In many cases it is desirable to write a concise (less than 10 pages) summary which discusses key findings and marketing system problems, while attaching the more detailed reports of subject matter specialists as annexes. If policy-makers are the principal audience for the document, it is recommended to prepare a cross-referenced summary that directs the interested reader to elaborations in technical annexes.

A suggested format for the summary paper is as follows :

1. Executive summary
2. State RR objectives
3. Briefly discuss research methodology and its limitations
4. Define policy objectives and performance goals

5. Food (or commodity) system overview
   a) Commodity characteristics
   b) Commodity consumption patterns
   c) Supply situation for the target commodity
   d) Price analysis
   e) Marketing system organization
   f) Marketing system operation
   g) Marketing infrastructure
   h) Institutions and policies affecting agricultural marketing

6. Identify and diagnose key problems and constraints, as well as untapped and underexploited opportunities to improve system performance

348

7. Suggest policy and program options
8. Identify further research needs

10.2 Presenting the Principal Findings of the Rapid Reconnaissance

In many cases RR investigators will be asked to brief any policy or decision makers who commissioned the RR about the principal findings of the investigation. Presentations should be kept relatively short (no more than one hour) and may need to be considerably shorter for senior policy-makers. Ample time should be left for discussion of the RR findings. The RR team should try to elicit discussion of the identified marketing problems and constraints. Do the policy-makers agree that these are key problem areas? If so, how would they rank order them? If not, which problems were missed, and why are these important? In addition, what areas do policy-makers view as most promising for further research? Do they support research in certain areas but appear reluctant to approve research in other areas? What are the reasons for the enthusiasm and/or hesitancy?

10.3 Follow-up to Rapid Reconnaissance

A rapid reconnaissance study may serve as a one-time, stand-alone effort which requires no further research. Some policy-makers may feel that a RR survey provides enough information on which to make informed policy choices. Others may wish to commission further studies, which follow guidelines laid out in the RR summary report.

RR surveys will identify food and marketing system problems and constraints which may be diagnosed in depth during later phases of marketing research. In moving from rapid reconnaissance to a longer term program of research, it is often difficult to reach a consensus as to the key problem areas and the most feasible and relevant research topics. It is very important to present the RR findings as clearly and lucidly as possible to help establish the rank ordering of research problems and priorities for further research agenda.

One tool for facilitating this process could be a two-dimensional array having perceived subsector problems as row headings and subsector participant groups and government agencies as column headings. Subsector problems could then be discussed and prioritized by the researchers in collaboration with policy-makers. It may be useful

to distinguish between system-wide and stage-specific problems. Criteria for prioritizing problems and constraints will have to be specified clearly. Another tool might be a marketing constraint matrix with constraints as rows and selection criteria such as system-wide effect of the constraint, feasibility of doing research on each constraint, likelihood that research findings will lead to policy change, and other factors as columns. Ordinal scales can be developed to rank order the potential payoff of doing further research on different constraints and taking action to relieve constraints.

XI. LIMITATIONS OF RAPID APPRAISAL

11.1 Time-Boundedness and Bias

Rapid reconnaissance should be used with caution as a tool for generating policy prescriptions because it has two fundamental limitations. First, it does not allow for observation of all the seasonal dimensions of agricultural production and marketing (see Chambers, Longhurst, Bradley and Peachem, 1979). It is not a substitute for longer term, more data-intensive studies in obtaining a comprehensive understanding of agricultural production and marketing systems. Rapid reconnaissance techniques are particularly unsuited for obtaining reliable information on flow variables, such as agricultural production, quantities and prices of inputs and outputs purchased and sold, commodity flows, and labor inputs, over long periods. Yet RR methods are often useful as a first step in the design of formal surveys with which flow data are collected. Second, rapid reconnaissance can be subject to bias, because informants and areas or facilities for visits are selected non-randomly. Predispositions of researchers may also introduce biases (Chambers, 1980, 1981; Carruthers and Chambers, 1981).

Policy prescriptions coming out of rapid appraisals may be premature. They may also fail to identify key marketing opportunities, or they may lead to the implementation of weak or invalid marketing strategies (Belshaw, 1981). Rapid reconnaissance is a very useful tool, however, for identifying food system problems, constraints and opportunities, and for informing longer term, focused studies of particular aspects of food systems. In some cases it may be useful to test on a pilot basis, during longer term research programs, technical or management innovations identified during RR. The International Livestock Centre for Africa (ILCA) has found this willingness to experiment and transfer known technologies to a new research environment to be an important dimension of a longer term program of applied research (personal communication, Stephen Sandford, 1984). Such a research strategy will help to satisfy client groups that clamor for action and that are not inclined to support long term research programs without demonstrable intermediate results.

11.2 Limitations of the Subsector Framework

An important strength of the subsector approach is its focus on how the system operates as a whole, and its emphasis on dynamic forces which drive and transform food

systems. Yet subsector performance is often evaluated with reference to concepts which have been criticized as elusive and difficult to quantify. Concepts such as workable competition and effective coordination have been attacked as imprecise and dependent upon researchers' judgement.

The subsector approach has also been criticized as being overly descriptive and unfocused. Since the subsector framework is a systems approach, albeit a partial one (i.e., a subsystems approach), researchers can become bogged down in describing and analyzing many different elements of the subsystem. The temptation is always to collect too much information without adequate focus. This is a very real problem. Proposing working hypotheses about the system at the outset and tailoring data gathering efforts to test, disprove and modify these hypotheses can help to focus data collection. This approach is at the heart of inductive methods of research (Platt, 1964).

At the same time, it is important to remember that rapid reconnaissance is essentially an empirical approach to initiating research. Overemphasis of formal hypothesis testing at an early stage of the research may effectively limit the scope and comprehensiveness of rapid reconnaissance. In particular, expatriate researchers who do applied research on food systems in developing countries may not know enough about these systems to formulate useful, relevant and testable hypotheses before they begin doing research. It is important to know in general how the system is organized and how it functions within its particular institutional, social, and macroeconomic environment before focusing research on gathering data to test a set of hypotheses. Acquiring this understanding requires an investment in analyzing secondary data, observing the system at different levels and locations, conducting informal interviews with system participants and knowledgeable observers, and identifying system constraints and opportunities before finalizing hypotheses that guide intensive data collection.

Another criticism of the subsector approach is that it is partial. In focusing on one or more related commodities, researchers may miss important interrelationships among commodities which are substitutes in production and consumption. Use of a broader partial equilibrium framework, such as the Food Policy Analysis approach developed by Timmer, Falcon and Pearson (1983), is often advanced. This approach focuses on several key staple crops simultaneously. Heavy emphasis is placed on price analysis broadly construed; that is, analysts examine input and output prices, and interest, wage and exchange rates, and their effects on incentives facing producers,

marketing agents and consumers. The effects of macroeconomic policies and international trade on agricultural production/marketing systems are analyzed.

There is much in the Food Policy Analysis perspective that can be usefully adapted to subsector studies. Clearly, the effects of macroeconomic policies and international trade on incentives facing subsector participants (including input suppliers, producers, first handlers, wholesalers, processors, retailers, importers and exporters) are often underestimated if the analysis takes a too partial view of production/marketing systems. Moreover, the subsector approach needs to be expanded to include examination of close substitutes of the commodity under examination in production and consumption. The challenge for researchers examining subsectors is to know when and how to broaden the approach to include important factors without making the research agenda unmanageable.

XII. CONCLUSION

Rapid reconnaissance surveys are often sponsored by donor agencies or developing country governments seeking information for policy formulation or justifications for developing and funding projects. The rapid reconnaissance guidelines presented in this paper are designed to be a tool for generating knowledge about food and commodity marketing systems in a short period of time that may be used in policy formulation and project development, but that are best suited to informing longer term programs of applied research. The fundamental strength of rapid reconnaissance is that applied researchers can obtain a broad understanding of commodity marketing systems in a relatively short time and that system constraints and opportunities can be identified. Through this process it is hoped that the design and policy relevance of follow-on applied research will be improved. By identifying promising areas of further research, rapid reconnaissance can help to improve the allocation of resources to programs of food and agricultural marketing research. Rapid appraisal can also play an important role in pointing out actual or proposed policies with adverse or potentially adverse consequences. This can help policy makers to reform counterproductive policies or to avoid poor decisions. Rapid appraisals can also be conducted intermittently and repeatedly in the policy and project formulation, monitoring and evaluation cycles. In this way rapid reconnaissance can inform the policy-making process and project design and implementation on an ongoing basis in a timely and cost effective way.

BIBLIOGRAPHY

Agricultural Administration, Vol. 8, No. 6, entire issue, November 1981.

Bain, Joe, Industrial Organization, Second edition, John Wiley and Sons, New York, 1968.

Barton, Clifton G., "Credit and Commercial Control: Strategies and Methods of Chinese Businessmen in South Vietnam," Unpublished Ph.D. Dissertation, Cornell University, 1977.

Beebe, James, "Rapid Rural Appraisal: The Critical First Step in a Farming Systems Approach to Research," Farming Systems Support Project, Networking Paper No. 5, International Programs, Institute of Food and Agricultural Sciences, Univeristy of Florida, Gainesville, 1985.

Belshaw, Deryke, "A Theoretical Framework for Data-Economising Appraisal Procedures with Applications to Rural Development Planning," Rapid Rural Appraisal, IDS Bulletin No. 4, Vol. 12, Institute for Development Studies, University of Sussex, October 1981.

Berg, Elliot, "Why Don't LDC Governments Liberalize Agricultural Markets?" Paper presented at the World Bank's Agricultural Marketing Seminar, May 6-17, 1985.

Boomgard, James J., Stephen P. Davies, Steve Haggblade, Donald C. Mead, Subsector Analysis: Its Nature, Conduct and Potential Contribution to Small Enterprise Development, MSU International Development Working Paper No. 26, Dept. of Agricultural Economics, Michigan State University, East Lansing, Michigan, 1986.

Byerlee, Derek, Michael Collinson et al., Planning Technologies Appropriate to Farmers: Concepts and Procedures, International Maize and Wheat Improvement Center (CIYMMT), El Batan, 1980.

Campbell, David J., "Response to Drought Among Farmers and Herders in Southern Kajiado District, Kenya, Human Ecology, Vol. 12, No. 1, 35-64.

Campbell, David J. and David T. Trechter, "Strategies for Coping with Food Consumption Shortage in the Mandara Mountains Region of North Cameroon," Social Science and Medicine, Vol. 16, 2117-2127, 1982.

Carruthers, Ian, "A Mental Construct for Unstructured On-Farm Interviews for Use in Rapid Rural Appraisal," Agricultural Administration, Vol. 8, No. 5, 1981.

Carruthers, Ian and Rober Chambers, "Rapid Appraisal for Rural Development," Agricultural Administration, Vol. 8, No. 6, November 1981.

Casley, Dennis J. and Denis A. Lury, Monitoring and Evaluation of Agricultural and Rural Development Projects in Developing Countries, World Bank, 1982.

_____, Data Collection in Developing Countries, Clarendon Press, Oxford, 1981.

Chambers, Robert, Institute for Development Studies (IDS), University of Sussex, "Shortcut Methods in Information Gathering for Rural Development Projects," Paper for World Bank Agricultural Sector Symposia, January 1980.

_____, "Rapid Rural Appraisal: Rationale and Repertoire", Public Administration and Development, Vol. 1, 95-106, 1981. Published earlier as IDS Discussion Paper No. 155, September 1980.

Chambers, Robert, Richard Longhurst, David Bradley and Richard Feachem, "Seasonal Dimensions to Rural Poverty: Analysis and Practical Implications," IDS Discussion Paper No. 142, Institute for Development Studies, February 1979.

Cohen, Abner, "The Social Organization of Credit in a West African Cattle Market," Africa, Vol. 35, 1:8-20, 1965.

Collinson, Michael, "A Low Cost Approach to Understanding Small Farmers," Agricultural Administration, Vol. 8, No. 6, 1981.

_____, Farming Systems Research in Eastern Africa: The Experience of CIYMMT and Some National Agricultural Research Services, 1976-81, MSU International Development Paper No. 3, Dept. of Agricultural Economics, Michigan State University, East Lansing, Michigan, 1982.

Connor, J.M., R.T. Rogers, B.W. Marion and W.F. Mueller, The Food Manufacturing Industries: Structure, Strategies, Performance and Policies, D.C. Heath and Company, Lexington, Massachusetts, 1985.

Ellman, Anthony, "Rapid Appraisal for Rural Project Preparation," Agricultural Administration, Vol. 8, No. 6, 1981.

Food Studies Group, Oxford, U.K., "Results of the Small Farmer Survey, Bandundu Region, Zaire," Report under Contract for USAID/Kinshasa, 1985.

French, Ben C., "The Analysis of Productive Efficiency in Agricultural Marketing: Models, Methods, and Progress," in A Survey of Agricultural Economics Literature, Vol. 1, Traditional Fields of Agricultural Economics, edited Lee. R. Martin, University of Minnesota Press, for the American Agricultural Economics Association, Minneapolis, 1977.

Goetz, Stephan and Michael T. Weber, Fundamentals of Price Analysis in Developing Countries' Food Systems: A Training Manual to Accompany the Microcomputer Software Program "MSTAT", MSU International Development Working Paper No. ,M.S.U., Dept. of Ag. Economics., East Lansing, Michigan, 1986.

Goetz, Stephan with Harold Riley and Michael Weber, "Diagnostic Assessments of Food-Grain Subsectors in the Context of Food Security in Africa," Forthcoming MSU International Development Working Paper, Dept. of Agric. Economics, Michigan State University, East Lansing, Michigan, 1986.

Goldberg, Ray A. and Richard C. McGinity, Agribusiness Management for Developing Countries: Southeast Asian Corn System and American and Japanese Trends Affecting It, Ballinger Publishing Company, Cambridge, Massachusetts, 1979.

Harrison, Kelly, Donald Henley, Harold Riley and James Shaffer, Improving Food Marketing Systems in Developing Countries: Experiences from Latin America, LAMP Research Report No. 6, Michigan State University, East Lansing, Michigan, 1974.

356

Harriss, Barbara, "There is a Method in My Madness: Or is it Vice Versa? Measuring Agricultural Market Performance," Food Research Institute Studies, Vol. 16, No. 2, 197-218, 1979.

Hay, Roger, "The Food Accounting Matrix: An Analytical Device for Food Planners," Oxford Bulletin of Economics and Statistics, No. 42, May 1980.

Helmberger, Peter G., Gerald R. Campbell and William D. Donbson, "Organization and Performance of Agricultural Markets," A Survey of Agricultural Economics Literature, Volume 3, Economics of Welfare, Rural Development and Natural Resources in Agriculture, 1940s to 1970s, edited by Lee R. Martin, University of Minnesota Press, for the American Agricultural Economics Association, Minneapolis, 1981.

Hildebrand, Peter E., "Combining Disciplines in Rapid Appraisal: The Sondeo Approach," Agricultural Administration, Vol. 8, No. 6, 1981.

_____, "Summary of Sondeo Methodology Used by ICTA," Instituto de Ciencia y Technologia Agricolas, Guatemala, June 1979.

Holtzman, John, John Staatz and Michael T. Weber, An Analysis of the Livestock Production and Marketing Subsystem in Northwest Province, Cameroon, MSU Rural Development Working Paper No. 10, Michigan State University, East Lansing, Michigan, 1980.

Honadle, George, "Rapid Reconnaissance for Development Administration: Mapping and Moulding Organizational Landscapes," World Development, Vol. 10, No. 8, 1982.

_____, Rapid Reconnaissance Approaches to Organizational Analysis for Development Administration, Working Paper No. 1, Development Alternatives, Inc., Washington, D.C., December 1979.

Institute for Development Studies, University of Sussex, Rapid Rural Appraisal, IDS Bulletin No. 4, Vol. 12, October 1981.

Landa, Janet T., "A Theory of the Ethnically Homogeneous Middleman Group: An Institutional Alternative to Contract Law," The Journal of Legal Studies, Vol. 10, June 1981.

Marion, Bruce and NC 117 Committee, The Organization and Performance of the U.S. Food System, D.C. Heath and Company, Lexington, Massachusetts, 1986.

Marion, Bruce, "Application of the Structure, Conduct, Performance Paradigm to Subsector Analysis," N.C. Project 117 Working Paper No. 7, Madison, Wisconsin, November 1976.

Menegay, Merle R., "Indonesian Assessment Development Report," USAID, Bureau of Science and Technology, Office of Rural and Institutional Development, Small Farmer Marketing Access Project, Washington, D.C., 1985.

Minot, Nicholas W., Contract Farming and Its Impact on Small Farmers in Less Developed Countries, MSU International Development Working Paper No. 31, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan, 1986

Morris, Michael L., "The BAME Fleuve Cereals Marketing Study: Methodology," ISRA, Bureau d'Analyses Macro-Economiques, Working Paper 85-16, October 1985.

Ndoye, Ousseynou and Mark Newman, "Approches Methodologiques pour l'Etude de la Commercialisation des Produits Agricoles et Alimentaires au Senegal," Actes de l'Atelier de Kahone, 8-13 Mars 1984, Institut Senegalais de Recherches Agricoles, Bureau d'Analyses Macro-Economiques, Document de Travail 84-2, Dakar, December 1984.

Newberry, D.M.G. and J.E. Stiglitz, The Theory of Commodity Price Stabilization: A Study in the Economics of Risk, Clarendon Press, Oxford, 1981.

Newman, Mark D., A. Pap Sow, Ndoye Ousseynou, personal communication and "Regulatory Uncertainty, Government Objectives, Organization and Performance of Cereals Markets: The Senegalese Case," ISRA/BAME Working Paper 85-11, Dakar, 1985.

Pagliaro, John, Method for Conducting a Diagnostic Study of Wholesale/Retail Food Distribution Systems in Developing Countries, Prepared for USAID, August 1984.

Platt, John R., "Strong Inference," Science, Vol. 146, No. 3642, 16 October 1964.

Pruitt, William, "Small Farmer Study, Central Bandundu, 1984: Notes in Progress," USAID/DEO, Kinshasa, Zaire, August 1984.

Rhoades, Robert E., "Informal Survey Methods for Farming Systems Research," Human Organization, Vol. 44, No. 3, 215-218, Fall 1985.

_____, "The Art of the Informal Agricultural Survey," International Potato Center, Social Science Department Training Document 1982-2, Lima, Peru, 1982.

Riley, Harold and Michael T. Weber, "Marketing in Developing Countries," in Future Frontiers in Agricultural Marketing Research, edited by Paul L. Farris, Iowa State University Press, Ames, Iowa, 1983.

Riley, Harold and John Staatz, Food System Organization Problems in Developing Countries, Agricultural Development Council Report No. 23, December 1981.

Ruttan, Vernon W., "Social Science Knowledge and Institutional Change," American Journal of Agricultural Economics, Vol. 20, No. 5, December 1984.

Ruttan, Vernon W. and Yujiro Hayami, "Toward a Theory of Induced Institutional Innovation," The Journal of Development Studies, Vol. 20, No. 4, July 1984.

Sandford Stephen, ILCA, Livestock Policy Analysis Unit, personal communication, 1984.

Scherer, F. M., Industrial Market Structure and Economic Performance, Second Edition, Rand McNally, Chicago, 1980.

Scott, Chris, Sampling for Monitoring and Evaluation, Technical Supplement to Monitoring and Evaluation of Agriculture and Rural Development Projects, World Bank, 1985.

Shaffer, James D., "On the Concept of Subsector Studies," American Journal of Agricultural Economics, Vol. 55, pp. 333-335, 1973.

_____, "Food System Organization and Performance: Toward a Conceptual Framework," American Journal of Agricultural Economics, Vol. 62, No. 2, May 1980.

Shaffer, James D. with Michael Weber, Harold Riley, and John Staatz, "Influencing the Design of Marketing Systems to Promote Development in Third World Countries," Paper presented at the International Workshop on Agricultural Markets in the Semi-Arid Tropics, sponsored by ICRISAT, Hyderabad, India, October 24, 1983.

Shaner, W.W., P.F. Philipp, and W.R. Schmehl, Farming Systems Research and Development: Guidelines for Developing Countries, consortium for International Development Study, Boulder, Colorado, 1981.

Sherman, Jacqueline R. and Chantal Dejou, Forthcoming Monograph on Rapid Reconnaissance Survey of Grain Marketing in Burkina Faso, Center for Research on Economic Development, University of Michigan, Ann Arbor, 1986.

Sosnick, Stephen H., "Operational Criteria for Market Performance," in Paul L. Farris, editor, Market Structure Research: Theory and Practice in Agricultural Economics, pp. 81-125, Iowa State University Press, Ames, Iowa, 1964.

Southworth, V. Roy, William O. Jones and Scott R. Pearson, "Food Crop Marketing in Atebubu District, Ghana," Food Research Institute Studies, Vol. 17, No. 2, 157-195, 1979.

Swift, Jeremy, "Rapid Appraisal and Cost-Effective Participatory Research in Dry Pastoral Areas of West Africa," Agricultural Administration, Vol. 8, No. 6, 1981.

Timmer, C. Peter, "The Relationship Between Food Marketing and Price Policy," Paper presented at the World Bank's Agricultural Marketing Seminar, May 6-17, 1985.

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

Tomek, William G. and Kenneth L. Robinson, Agricultural Product Prices, Second Edition, Cornell University Press, Ithaca, 1981.

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361

Workshop on Applied Research and Technical Assistance in Agricultural Marketing

Commentary

A two-day workshop on Applied Research and Technical Assistance in Agricultural Marketing was held in Washington, D.C. on November 18 and 19, 1986 under the auspices of the Agency for International Development, Bureau for Science and Technology, Rural Development Division. Sigma One Corporation organized and carried out the Workshop on behalf of the Agency.

The Workshop is part of a program of activities designed to assist S&T/RD in its plans to amend and renew the Small Farmer Marketing Access Project. The objective of these activities is to review the applicability of recent key approaches to the analysis of agricultural marketing systems, and to select from these future directions in applied research and technical assistance. Throughout the program, empahsis is placed, not merely in understanding how existing systems are currently performing, but why they function as they do, and how their structures and performance are changing over time. Next, the question is how can appropriate innovations be identified and implemented so as to accelerate or redirect the dynamics of the marketing system.

In order to validate the usefulness of a dynamic perspective in agricultural marketing development, Sigma One commissioned several components to experienced scientists from national universities and private concerns. Speakers at the meeting included university professors from Michigan State, Purdue, Idaho, Texas A&M, Kansas State, Maryland and Pensylvania, the World Bank, the Inter-American Development Bank, the International Fertilizer Development Center, and marketing consulting firms.

The November Workshop was designed to bring together the efforts of these marketing specialists, who until then had worked independently but simultaneously on their respective components. Expert presentations were made on the following areas: (a) three commodity market studies, selected to be representative of major commodity groups (grains, livestock products, and fruits and vegetables); (b) fertilizer marketing and delivery systems, and (c) urban food distribution systems (wholesale and retail).

Moreover, the Workshop reviewed progress in the design and use of promising rapid market appraisal techniques to diagnose market problems and identify research and assistance needs.

Following summarized presentations of each study's paper, two separate critiques were made by independent reviewers. A general open discussion followed involving participating AID agricultural development officers. Final versions of the paper were then prepared incorporating the comments of the reviewers and the discussions, and they appear as separate reports elsewhere in this volume. The reviewers written comments, including points from the general discussion, are attached in this report, in order to help the reader see marketing issues from the contrasting and diverse perspectives of top specialists in the field.

Attendance at the meeting by AID agricultural development officers from both regional bureaus and S&T technical officers exceeded expectations and available space, evidence of the interest and urgency of the subject for the Agency's agenda.

Among the conclusions of the workshop it was pointed out that traditional approaches of economic analysis do not sufficiently account for changes in the structure and performance of agricultural markets, and the driving forces behind these changes. There is a need to understand better the evolution of market structures as they adjust to constantly changing technological and economic conditions, so more appropriate prescriptions for market system improvement can be fashioned. Work is also needed in understanding and developing institutional arrangements which can improve the efficiency and increase incomes of farmers and marketing system participants to the eventual benefit of consumers.

The findings of the Workshop is now being used by S&T and Sigma One to redesign the S&T/RD Agricultural Marketing Systems project.

WORKSHOP ON

Applied Research and Technical Assistance in Agricultural Marketing

CONDUCTED BY:
Sigma One Corporation

FOR:
The Agency for International Development
Rural Development Division
Bureau for Science and Technology
Contract No: DHR-1096-C-00-6037-00

November 18-19, 1986

364

TUESDAY, NOVEMBER 18, 1986

9:00 Welcome and Introduction

Chair.....Edgar J. Ariza-Nino, Sigma One Corporation
Welcoming Remarks.....David L. Franklin, Sigma One Corporation
Opening Remarks.....Eric Chetwynd, AID Bureau of Science and Technology

9:15 Livestock and Meat Marketing Development in Third World Countries

Chair.....Edgar J. Ariza-Nino, Sigma One Corporation
Speaker .....Donald E. Farris, Texas A&M University
Reviews .....Harold M. Riley, Michigan State University
Peter Hopcraft, World Bank
Open Discussion

10:30 Coffee Break

10:45 Grain Marketing Development in Third World Countries

Chair .....David L. Franklin, Sigma One Corporation
Speaker.....Donald W. Larson, Ohio State University
Reviews .....Bruce L. Gardner, University of Maryland
James D. Shaffer, Michigan State University
Open Discussion

12:00 Lunch

1:30 Fruits and Vegetables Marketing Development in Third World Countries

Chair.....Merle R. Menegay, Clark University
Speakers.....Richard W. Schermerhorn and Harvey C. Neese, Postharvest Institute for Perishables, University of Idaho
Reviews .....Harold M. Riley, Michigan State University
Erdener Kaynak, Pennsylvania State University
Open Discussion

2:45 Coffee Break

3:15 **Fertilizer Marketing Development in Developing Countries**

Chair.....Carl F. van Haeften, Sigma One Corporation
Speakers.....Mohinder S. Mudahar and Edwin C. Kapusta, International Fertilizer Research Center
Reviews .....Paul L. Farris, Purdue University
James D. Shaffer, Michigan State University
Open Discussion

4:00 **Adjournment**

WEDNESDAY, NOVEMBER 19, 1986

9:00 **Urban Food Distribution Systems in Developing Countries**

Chair.....Edgar Ariza-Nino, Sigma One Corporation
Speaker.....Kelly M. Harrison, Kelly Harrison Associates
Reviews .....Bruce L. Gardner, University of Maryland
Erdener Kaynak, Pennsylvania State University
Open Discussion

10:15 **Coffee Break**

10:30 **Rapid Market Appraisal Guidelines for Developing Countries**

Chair .....Jerry Martin, Abt Associates
Speaker.....John S. Holtzman, Michigan State University
Reviews .....Paul L. Farris, Purdue University
Frank Meissner, Interamerican Development Bank
Open Discussion

11:45 **Concluding Remarks, David L. Franklin, Sigma One Corporation**

12:00 **Adjournment**

Workshop on Applied Research and Technical Assistance

in Agricultural Marketing

Foreign Service Institute, Room 210.
Oak Street and Key Boulevard, Arlington, Virginia
November 18 and 19, 1986

Edgar J. Ariza-Niño
Sigma One Corporation
2045 N. 15th Street, Suite 309
Arlington, VA 22201
(703) 243-2626

Donald E. Farris
Dept. of Ag. Economics
Texas A & M University
College Station, TX 77843
(409) 845-2105

Paul L. Farris
Dept. of Ag. Economics
Purdue University
West Lafayette, IN 47907
(317) 494-4309

David L. Franklin
Sigma One Corporation
3300 Drake Circle, Suite 360
Raleigh, N.C. 27607
(919) 781-1717

Bruce L. Gardner
Dept. of Ag. Economics
University of Maryland
College Park, MD 20742
(301) 454-3807

Kelly M. Harrison
Kelly Harrison Assoc., Inc.
5025-C Backlick Rd.
Annandale, VA 22003
(703) 642-2747

John S. Holtzman
Dept. of Ag. Economics
Michigan State University
East Lansing, MI 48823
(517) 355-2320

Peter N. Hopcraft
Room N 1111
The World Bank
1818 H Street, N.W.
Washington, D.C. 20433
(202) 676-1730

Edwin C. Kapusta
International Fertilizer
Development Center (IFDC)
P.O. Box 2040
Muscle Shoals, AL 35662
(205) 381-6600

Erdener Kaynak
Professor of Marketing
Pennsylvania State University
Middletown, PA 17057
(717) 948-6343

Donald W. Larson
Dept. of Ag. Economics
Ohio State University
2120 Fyffe Rd.
Columbus, OH 43210
(614) 422-2822

Gerard J. Martin
Abt Associates
4250 Connecticut, Suite 500
Washington, D.C. 20008
(202) 362-2800

Richard C. Maxon
Dept. of Ag. Economics
Kansas State University
Manhattan, KS 66506
(913) 532-6702

Frank Meissner
(Interamerican Dev. Bank)
1300 New York Ave., N.W.
Washington, D.C. 20577
(202) 623-1000

367

Merle R. Menegay
SARSA (Clark University)
2009 N. 14th St., Suite 304
Arlington, VA 22201
(703) 243-8587

Mohinder S. Mudahar
International Fertilizer
Development Center (IFDC)
P.O. Box 2040
Muscle Shoals, AL 35662
(205) 381-6600

Harvey C. Neese
Postharvest Institute
for Perishables (PIP)
College of Agriculture
University of Idaho
Moscow, ID 83843
(208) 885-6791

Harold M. Riley
Dept. of Ag. Economics
Michigan State University
East Lansing, MI 48824
(517) 355-2160

Richard W. Schermerhorn
Dept. of Ag. Economics
University of Idaho
Moscow, ID 83843
(208) 885-7869

James D. Shaffer
Dept. of Ag. Economics
Michigan State University
East Lansing, MI 48824
(517) 355-1695

Carl F. van Haeften
Sigma One Corporation
2045 N. 15th Street, Suite 309
Arlington, VA 22201
(703) 243-2626

PARTICIPANTS IN THE WORKSHOP REPRESENTING AID

Dean Alter
AID/ANE/TR/ARD

David Alverson
AID/ANE/TR/ARD

Eric Chetwynd, Jr.
AID/S&T/RD/

Phillip Church
AID/S&T/AGR

Richard Edwards
AID/AFR/TR/ARD

Michael J. Korin
AID/ANE/TR/ARD

Ken Kornher
AID/S&T/RD/IDM

Ernesto Lucas
AID/AFR//TR/ARD

Robert S. McClusky
AID/S&T/RD/PO

Tom Mehen
AID/S&T/RD

Frank Mertens
AID/S&T/AGR

Tridib Mukherjee
AID/ANE/TR/ARD

Don Osburn
AID/S&T/AGR/EPD

Curtis Reintsma
AID/AFR/TR/RD

Robert W. Resseguie
AID/ANE/TR/ARD

William L. Rodgers
AID/LAC/DR/RD

Christopher H. Russell
AID/S&T/HR

Howard H. Steele
AID/LAC/DR/RD

Richard Suttor
AID/ANE/TR/RD

Charles Uphaus
AID/ANE/TR/RD

Roberta K. van Haeften
AID/S&T/N

Patricia Vondal
AID/S&T/RD/IDM

OTHER PARTICIPANTS IN THE WORKSHOP

Gerald Karaska
SARSA

Christopher Mock
Independent Consultant

John Horton
Kelly Harrison Associates

Renee Mathieu
Department of Commercee
International Trade Administration

Cheri Rassas
Abt Associates

Comments on the Paper —
"Improving Livestock and Meat Marketing in the Third World"
Author of Paper: Donald E. Farris
Reviewer: Harold M. Riley

The paper stresses the differences between livestock and meat systems in more developed and less developed countries and then traces the long-term historical development of the U. S. system, calling attention to the central importance of technological advances in transport, refrigeration, mechanized processing and communications, undergirded by a relatively stable political-economic environment and reliable government services, such as market information, product grading and sanitary inspection. All of this facilitated the development of an efficient system of pricing, buying and selling of livestock and meat products.

It is stated in the paper that the developed country system has been and will continue to be transferred to Third World Countries--but that certain basic conditions--infrastructure, legal and economic framework and effective product demand must exist for the system to operate effectively.

Now that's a tall order, since these conditions don't exist and aren't likely to evolve very soon in most Third World Countries, especially in Africa.

The preliminary identification of problem areas and constraints that appear early in the paper points to so-called inadequacies when viewed against more modern, advanced systems.

The description of livestock and meat subsectors by regions of the Third World provides useful descriptive assessments and identifies significant problem areas. In the African section the diversity of conditions among countries is brought out and the critical importance of resource degradation due to overgrazing, the prevalence of diseases, insects and predators are cited as major production-related problems contributing to very low levels of productivity. Price controls are identified as one of

the more important disincentives to expanding production and to the production of higher quality meat animals.

I was pleased to see the recognition of the relative importance of small ruminants (goats and sheep) in the livestock subsector and the need for better marketing methods for these animals. But achieving these conditions is apparently complicated by the uneven flow of these animals into markets that are related to climatic conditions and the need to convert this form of wealth into cash for food, other necessary consumer goods or for ceremonial purposes. It's clear that the small ruminants play an important role in the food security of rural residents.

In drawing on previous African studies I was surprised not to see more utilization of the studies by the Center for Research on Economic Development at the University of Michigan which were carried out in the Sahelian zone. These were carefully conducted descriptive, diagnotic investigations that shed considerable light on the actual operational characteristics and the performance of existing marketing systems. Interestingly enough, the authors of the CRED judged the system of livestock marketing to be operating rather effectively and at reasonable cost levels, given the conditions over which the private traders have little control, e.g. infrastructure, government price controls and basic resource conditions. Even the informal information system appeared to be working well in transmitting information from major livestock markets back to assemblers located in the more distant areas of production. Treking was also judged to be generally cost effective as compared to alternative means of transport.

In describing the Latin American livestock and meat subsector the paper makes a useful distinction between the more modern marketing systems orienting towards export as contrasted to domestic meat systems characterized by slaughter, wholesale and retail distribution without refrigeration. As in Africa, retail meat price controls are cited as a disincentive to the possible adoption of improved marketing methods. Export taxes are

also cited as having a similar disincentive effect. Farris suggests that the role of government should be to develop rules and policies to assist in decentralizing meat packing where refrigeration is feasible. I question the economic feasibility of this recommendation in many of the developing countries situations. We are aware of many underutilized white elephant slaughter plants that have been built in poor locations and with very expensive equipment including refrigeration.

I found the description of the Asian livestock and meat system to be relatively underdeveloped, and for that reason will turn to my reactions to the recommendations pertaining more directly to the broader objectives of this seminar.

First, regarding problem identification and areas that should be given greater prominance. In Africa, I believe more attention should be directed to the role of livestock in basic food security and in longer-term agricultural development. This should be accompanied by diagnostic, prescriptive assessments of both input and livestock marketing. A better understanding of the role of livestock in providing food, draft power, manure, fuel, etc. while utilizing resources not readily converted into other useful outputs is needed.

Second, I would like to see the basic approach to a research agenda brought together in a more comprehensive subsector framework that can be adapted to particular country situations. In that regard our discussion of rapid reconnaissance guidelines should be useful in suggesting such a framework.

Third, we need to be thinking about long-term problem solving, applied research combined with an in-service training, policy dialog and institution building within countries. There seems to be support for this approach within AID, but the process is not facilitated by existing administrative procedures. I am referring particularly to the need for continuity and sustained effort to achieve major develop goals.

Fourth, although as indicated in the paper's summary, "...there are many rather simple and inexpensive improvements that can be made in marketing and processing methods in facilities and government policies and services." However, I would caution that these proposed improvements may require careful assessments and well conceived system compatible approaches to ensure successful adoption.

Fifth, where major facility investments in slaughterhouses and market facilities are being considered, it is particularly important that realistic feasibility assessments be made so as to avoid repeating some of the mistakes that are still around to illustrate what can go wrong without adequate planning and follow-up implementation efforts. As will be emphasized by others in this workshop, we need to be careful not to overdesign modern institutions and facilities.

COMMENTS ON DONALD LARSON'S "GRAIN MARKETING DEVELOPMENT IN THIRD WORLD COUNTRIES"

By James D. Shaffer
Michigan State University

Prepared for Sigma One Corporation
Conference Presentation Nov. 18, 1986
Arlington, VA.

Professor Larson prepared an interesting and informative paper that emphasizes the changes which have taken place in grain marketing systems over the last 20 years. The paper makes some comparisons across grain marketing systems at different stages of development. It identifies some important issues and suggests some actions to improve the performance of grain marketing. The approach is broad brush. The paper does a good job of introducing the topic and of providing background but does not go as far in defining strategies for research and technical assistance to improve the performance of grain marketing systems as is needed to develop a research and technical assistance program, hereafter referred to simply as the program.

One important conclusion which can be drawn from the paper is that the national grain markets must be considered in the context of the global market. At least in the next few years large international supplies of grain are expected which will have a major influence on national markets. The program needs to consider the international market. Economies could be achieved by some centralized activity organizing information about the international market which would be useful in many national projects. Many developing countries are faced with issues involving the economics of specializing in export crops and importing food and agricultural inputs. The program could usefully consider developing the general methodology and international market data needed for analysis of this issue.

It will be useful to differentiate two types of research and technical assistance. One type involves technology and the other involves institutions. Grain marketing involves a number of technical problems that greatly influence costs and productivity. These include storage, transportation, conditioning, processing, retailing, grading, varieties, inputs and the like. Reducing costs and improving quality, including safety of the products, have the potential for increasing real incomes of both farmers and consumers, releasing income for other things and contributing to general development. This technological research has a component which is general and directly relevant to many systems and a component which is situation specific.

The institutions of the market are the second category. These include price policies, the role of parastatals, market regulations, taxes, tariffs and many other actions of government as well as the customs, standard operating procedures of firms and public organizations, and other practices of those involved in the grain subsector. All together, these institutions have a profound influence on the performance of the market.

Don Larson correctly identified government price policy and the role of parastatals in grain marketing as particularly important in the performance of grain subsectors. He argues that experience with government intervention in grain pricing, and especially the grain marketing parastatals, have produced serious negative results. I agree that this is a very important area for a marketing program.

There are at least four general approaches taken by donors in respect to parastatals.

(1) Accept the objectives of the parastatal and government, providing technical assistance to impove the technical operations.
(2) Promote parastatals because of the belief that the private market cannot be relied upon.
(3) Refuse support and otherwise pressure to eliminate parastatals because of the belief that they are inherently inefficient.
(4) Promote a pragmatic examination of the parastatal and alternatives, taking into account economic as well as other political objectives.

I believe the program would be more successful adopting the fourth approach.

The accumulating record of performance by grain marketing parastatals and the often related price-setting policies leaves much to be desired. Research and technical assistance is needed to sort out functions of government which can improve the performance of the grain subsectors based upon realistic assessments of capacity to perform the functions. In some cases, improving the technical capacity is the critical problem. Poor performance of a parastatal does not provide evidence that the private sector would perform the functions well in the absence of the parastatal. It is important to recognize both market and government failure or more appropriately the problems and limitations of both. Because a parastatal will frequently be supported by vested interests and political leaders antagonistic to traders, developing empirical evidence of situations where the private sector works and evidence of problems with existing policies is important in promoting improved performance.

I have in mind, for example, such research recently conducted in Senegal and Mali. (Morris, Newman, et.al.) Morris found that given an opportunity, private operators were willing and able to invest in and operate small rice mills, performing significantly better than the large mills operated by the parastatal. It had been assumed that the large mills were more efficient and that public investment was necessary to provide the essential processing. Similarly, studies of some grain marketing regulations in practice showed that the regulations increased uncertainty and costs and failed to achieve the objectives of the policy makers.

As Larson indicated there have been recent examples of shifts in grain marketing policy toward privitization. It is important to monitor the performance consequences of these changes in policy. Such changes are underway in Senegal and Mali as well as many other African countries. Assessment requires at least some original data collection because the official data are frequently lacking and can be very misleading. The official data, for example, frequently reflect official prices and volumes while a large part of the actual trade was unofficial and unreported. In fact the real policy change in Senegal and Mali has been different than the official record would indicate.

Grain prices are politically sensitive in many developing countries. Programs promoting fairly stable and low food grain prices to consumers may be important in achieving political stability. Political stability is not only important to the existing government but is also an important factor in the process of economic development. At the same time reducing prices to farmers has negative economic and political consequences.

Similarly, policies attempting to maintain uniform grain prices throughout a country can be shown to be inefficient. But it is not so clear that the President of Malawi is making a poor trade-off by using uniform corn prices as one means of promoting social integration. Economic analysis can usefully show the costs but cannot assess the benefits.

An important area of inquiry treated only indirectly in Larson's paper involves uncertainty. Many of the problems of both policy and private markets involve uncertainty. The program could usefully contribute to the development of both market institutions and public policies that reduce the uncertainty resulting from human decisions.

Finally the program of research and technical assistance should contribute to the development of an improved

376

understanding of the processes involved in the transition from low-productivity agriculture to a much more productive economy, especially the role of farm product and input markets in this process. Similarly the program should seek to contribute to an improved analytical framework useful in both future inquiry and policy design. (See Shaffer, et.al.)

One of the problems to be faced in this workshop is that the need for research and technical assistance in agricultural marketing in the less-developed world greatly exceeds any possible available resources. Thus it is imperative to identify methods for organizing inquiry and assistance, of accumulating knowledge with more general applicability and of identifying priorities. Since it is not possible to study everything which is relevent at once, my inclination is to emphasize problems of economic coordination within major commodity subsectors, but with considerable flexibility to adapt the research and assistance to the needs of particular host countries. Rapid reconnaissance studies can be designed to help in identifying critical issues at relatively low cost.

Citations

Morris, Michael L. "Cereals Marketing in the Senegal River Valley," MSU International Development Papers Reprint. Department of Agricultural Economics, Michigan State University, East Lansing, MI. 48824. Dec. 1986

Newman, M., Sow, P.A. and Ndoye, O. "Regulatory Uncertanity. Government Objectives and Grain Maket Organization and Performance: The Senegalese Case." MSU International Development Papers Reprint. Department of Agricultural Economics, Michigan State University, East Lansing, MI. 48824, Dec. 1986.

Shaffer, J.D., Weber M.T., Riley, H.M. and Staatz. J. "Designing Market Systems to Promote Development in the Third World Countries." Agricultural Markets In the Semi-Arid Tropics, Proceedings of the International Workshop held a ICRISAT CENTER, India, 1983. pp.305-318.

Comments on "Grain Marketing Development in Third World Countries", by Don Larson

Bruce Gardner
University of Maryland

There are two ways these remarks could be focused: on the paper, or on the issues that the paper addresses. I am choosing the latter route, bringing in the details of the Larson paper as they bear on them.

What it makes most sense for AID to be interested in is helping developing countries find high-return investments in marketing--to help these countries make advances in agricultural marketing that will parallel the successes that many countries have already achieved in agricultural production. One way to look for high-return investments is to locate points of irritation or discontent with current marketing arrangements. The payoff to intensive investigation of possibilities for change in such areas is exceptionally likely to be high. The risk of this microscopic approach is that it would tend to miss larger opportunities for improvement in the overall marketing system, where nobody can place a finger on things going wrong but the system is nontheless obsolete or greatly improvable. A second way to look for high-return investment is to compare the overall structure of grain marketing in a country with alternatives available.

In order to carry out the first approach the main ingredient is intensive investigation of a country's grain marketing system, by experts familiar with the existing system and knowledgable about what to look for. The second approach requires breadth of experience, and imagination to see a wide range of potential improvements that can be done on a larger scale

and to solve less easily detected problems.

The Larson paper takes a broad view for the most part, but it is not focussed on potential improvements. Instead it describes marketing systems that exist and recent changes in them. Insofar as it is analytical it concentrates on causes of the evolution of marketing systems rather than diagnoses of problems. (It is stated that the "analytical approach selected is that of a food system" (p. 1), a tipoff that there will be more description than analysis properly so called.) Description well done can be very helpful and perhaps this is what the author was asked to provide. The next step though is to provide more diagnoses, or lay out steps to be taken to provide diagnoses.

The data provided in the paper are overwhelmingly about aggregate production and consumption trends. These trends are undoubtedly linked to evolution in grain marketing systems, and the discussion of this on pp. 1-7 is sensible and a useful step in understanding some aspects of changes in these systems. However, the more central facts about grain marketing are not to be found.

The evidence should be better developed on the following points:

--The trend that "farms are more specialized in the production of a few commodities" (p. 4)

--"This dualistic structure appears to be most severe in several countries of Latin America..." (p. 5) (How does it compare with colonial-based plantation systems?)

--"Income distribution in the growth process can have major impacts on the grain marketing systems" (p. 7)

--"As grain markets have grown, the number and size of market participants appears to have also increased,..." (p. 8)

No doubt, as Professor Larson states with reference to the last point, data for even a few country case studies on these points are scarce. But we should have some further details on what has been observed to justify

379

the statements that these points are really true.

The discussion of causes of change is reasonable, but I question the following:

--"Because of these basic differences, grain marketing systems and government policy in Africa may have to be very different from those in South America and Asia" (p. 3). Which differences are basic and how do they cause marketing systems to differ?

--"This (specialization) means that the marketed quantity from each farm has increased even faster than grain production so that the marketing system has had to handle rapidly increasing amounts of grain". (p. 4) (What's the point?)

--"Grain marketing systems will need to evolve most rapidly in the middle income countries because the consumption in cereal equivalents per capita is increasing most dramatically" (p. 7). (Presumably this need is related to increasing variety of diet as income increase, but the analysis of this should be spelled out).

--"In the traditional marketing systems, the number of participants appears to have increased without much change in the size of the operation because of the nature of the traditional labor intensive system from consumer to producer".

--"In Brazil, the high concentration of income has slowed the evolution of the grain marketing systems..." (How so? Earlier, diversity of rice retailing was cited favorably).

These are matters of detail but it would increase the value of the paper to have them spelled out more fully. More important are the topics discussed in the last half of the paper on problems and prospects. Following are items that I thought deserved more detailed treatment.

380

--"The opportunity to further reduce transport and handling costs is large" (p. 9). Which countries? What investments are required to do it? What has hindered infrastructure development in some countries compared to others?

--"These losses seem to have been reduced to half the level in many developing countries" (p. 10). Which countries? How was it accomplished?

--"The discussion of overvalued exchange rates and related policies says that these can have major impacts on grain marketing systems" (p. 12). Are they harmful? Would more liberal border policies improve domestic marketing systems? This is important, if true, but I don't see it.

--"The supermarkets have become important change agents" (p. 14). This is intriguing and discussion of some cases would be interesting and might lead to generalizable ideas about how to promote improvements in marketing systems.

--The margins given in table 7 are the type of marketing data that we need more of, but they raise questions. Do differences across countries reflect differing services, differing costs for the same services, or differences in producer or consumer taxes or subsidies?

The last several pages emphasize governmental bungling and bias against the middlemen. Are these phenomena going to provide ongoing or impenetrable obstacles to improvements in marketing systems? This might be a useful topic for a cross-country research project.

The conclusions contain some recommendations which should have more detail about the problem that the recommended action would remedy. "Better market information" (p. 16) is recommended; what salient problems now existing are attributable to poor information? Similarly, for "new ways to improve coordination in the supply channels" (p. 17), what is lack of coordination costing?

The concluding point about training people in developing countries to conduct research on marketing problems is worth more detailed exploration in my opinion. It could be the most productive investment that could be made in these countries. Or would newly trained people find themselves with good ideas in a political morass in which they couldn't be carried out?

In sum, the paper provides appropriate background information about grain markets and marketing, but is weak on diagnosing problems and proposing ways to foster progress in grain marketing in developing countries. There is little to indicate that serious problems exist. Yet other reports on marketing difficulties such as those associated with food aid shipments to the Sahel suggest that there really are serious problems. It seems that we cannot learn about these very well from sectoral price or quantity statistics, or even from marketing margins and markups. The key issue that remains for further research is how to detect these problems, and still more difficult, to isolate the causes of such problems.

FRUIT AND VEGETABLE MARKETING DEVELOPMENT IN THIRD WORLD COUNTRIES: A REVIEW

By

Erdener Kaynak
Division of Business Administration
Pennsylvania State University at Harrisburg

This paper is a comparative analysis of fruit and vegetable marketing systems of developing countries with special reference to Jamaica and Sri Lanka. At the beginning of the paper, the role of marketing in agricultural development is discussed very thoroughly. However, this tends to be rather general. It does not tell us much what the optimal conditions are for food marketing system development in developing countries. For instance, what are the desired end results the author talks about on page 1 ? Are these set from the perspective of fruit and vegetable industry or from the perspective of public policy makers? What yardsticks are utilized for the measurement of "desired end results"?

The author takes a system approach in his analysis. This is very commendable. However, he does not answer some very important system related questions in his analysis. What are the components of a national food marketing system in developing countries? What are the alternatives of a system? How does such a system relate to total socio-economic development? How does food marketing/distribution system compare with non-food marketing/distribution system? How do different food product(i.e: fruit and vegetable) marketing/distribution systems compare? Can there be certain parallels to be drawn among them?

In a study of fruit and vegetable marketing in developing countries the total food system needs to be looked at. The system consists of three parts: production, marketing and consumption. Marketing component of the system creates time, place and possession utilities. Design of an ideal food marketing system necessitates the determination of food system goals, expectations or requirements of food consumers, food product portfolio, and food marketing mix emphasis. Effective handling of marketing functions will lead to marketing efficiency. To this end, the author examines time and place components of marketing

efficiency in developing countries and does not say anything about possession utility. Small farmers in Jamaica or in Sri Lanka create possession utility- that is exchange of ownership at the farm gate.

Food marketing efficiency signifies the movement of food commodities from producers to consumers at the lowest cost consistent with provision of the services both parties desire and are able to pay for. Food marketing efficiency is envisaged with the following strategic dimensions: a) prices(cost and profit marg'), b) size of firms and number of firms in the food industry, and c) services provided in the food chain.

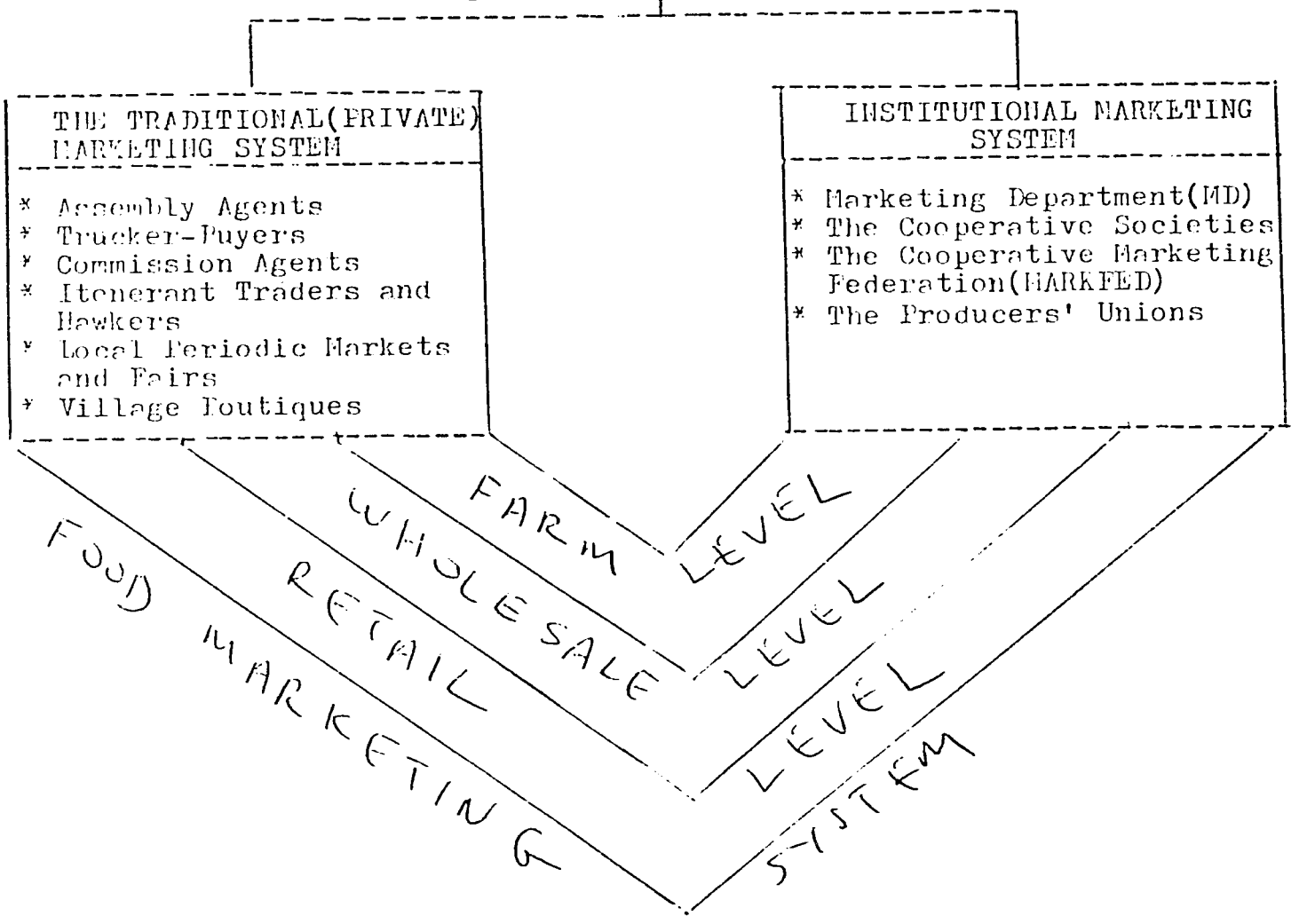
In developing countries including Sri Lanka and Jamaica most of the food problems arise from farm structure and size. Primarily agricultural holdings small in size, great in number and dispersed throughout the country. Agricultural commodities are mostly produced for the need of farmers' families, only the surpluses go to market. This traditional structure brings on ineffective bargaining power to the small farmers, hence middlemen enjoy a high marketing margin at the expense of the farmers. The production, small in quantity, if produced in small holdings causes considerable difficulties in marketing phases particularly transport, processing, price setting and storage which are the services farmers in developing countries can not get on their own.

The author makes a plea for change and development in the fruit and vegetable marketing system of developing countries. He only makes references to government initiated programs for the development of food marketing systems. What about the role of private sector as in both countries some 80 percent of fruit and vegetable are distributed through the private sector. Figure 1 depicts fruit and vegetable marketing system in Sri Lanka operating at primary(farm) level, wholesale level, and retail level of the food marketing chain.

Planners in developing countries are production-oriented. Most efforts are aimed at how to increase output without paying much attention to the role of consumers in the system. Consumer needs and expectations are not integrated as input into the production planning and scheduling. Changing fruit and vegetable consumer characteristics

Figu |

Fruit and Vegetable Marketing System in Sri Lanka



Source: Adapted from P.J. Gunawardena, "Some Issues in Marketing of Vegetables in Sri Lanka", Agricultural Administration, Vol.11, No.1, 1982, pp: 23-37

need to be monitored and examined. In particular, population increase and urbanization, changing purchasing powers, changing food habits and changing mobility and the resultant diverse shopping behaviors are worthy of exploration. One also needs to look at the market structures and its workings. For instance, there is a three-tier market structure in India. These are village, district and state levels. At each level, different activities are performed, different institutions operate and consumers shop and behave differently.

Under approaches to reducing problems arising from changing food market systems, small farmer production and marketing system for Jamaica as well as government initiated Agricultural Marketing Corporation(AMC) activities are examined. Again government market interventions are looked at. What about the producer-oriented or initiated changes? What is the suitable mode? Market intervention by the governments of developing countries varies from complete takeover (i.e: Libya) to joint efforts with the private sector (i.e: most developing countries). The critical question is what should be the role of government in food marketing system development of developing countries? When should the government play a facilitatory role and when should the government be actively involved in food marketing? A construct for research in food marketing systems in developing countries is shown in Table 1.

National Agriculture, Food and Nutrition Strategy(NAFNS) of Sri Lanka discussed by the author gives us the general guidelines. Within this, I think, we need specific action-oriented programs for different food products i.e: fruit and vegetable. For instance in the Mexican government's National Development Plan, policies are outlined to ensure a stable supply of basic food stuffs, controlled prices, and better nutrition. In an effort to achieve these,policies are implemented which included providing basic producers with financial guarantees; supporting farmers' and fruit growers' associations through the storage, transport, and wholesale systems; reducing or reversing rural-to-urban migration through rural development and industrial decentralization programs;

Table 1

A Construct for Research in Food Marketing Systems in Developing Countries

Problem Under Study	Aspects of Research in Food Marketing
Who are food marketers of a given marketing system?	The actors' characteristics: Producer cooperatives, channel intermediaries, government agencies
What functions do food marketers of a given marketing system perform?	The actors' activities and interactions: Activities include assembling, transporting, grading and sorting. Initiatives: who initiates the contracts? Techniques: competition, cooperation and coordination.
How are food marketers related to each other in a given marketing system?	The actors' relationships: membership or environmental scope (over what matters?) and nature of relationships (types of relationships).
What do food marketers contribute in a given marketing system?	The actors' contributions: Nature: behavioral, economic Recipients: society, consumers, institutional buyers Size: quality and efficiency
How are food marketers affected by their marketing environment?	The independence between marketing environmental factors and the actors' characteristics, activities, interactions, relationships and contributions

and developing a nutrition education program for the poor with emphasis on mother and child health(1). The action programs adapted should incorporate clear-cut goals and objectives for each food category as well as resources allocated and markets served.

The author concludes his analysis by looking at the critical factors affecting food marketing system intervention in developing countries. It is my contention that we should be more concerned with the critical factors affecting food marketing system development at three different levels of the food system namely production, marketing, and consumption. Some of the critical factors one should consider for planning purposes are listed below:

a) Look at the structural components of the food marketing system in developing countries. In particular, trade channels, prices and margins, physical distribution and logistics aspects need to come under close scrutiny.

b) One needs to take the existing food marketing system of a developing country as given and work on it. Whatever is done needs to be consumer-oriented, that is taking the expectations of consumers and economic development goals of developing countries into consideration.

c) The developing country planners and public policy makers alike need to construct measurements of the innovativeness trait of fruit and vegetable consumers, distributors and producers. Such an effort can point out how different segment of consumers(rural versus urban), channel intermediaries and producers are likely to react to new innovations and innovative ways of doing things.

d) The establishment of medium-sized retail market centers(fruit and vegetable shopping malls) and widening the physical area of wholesale markets are aspects that should deserve particular attention.

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1. Chloe McKinney, "Urban Food Systems, Mexico City", The IDRC Reports Vol.12, No.4, January 1984, p.14

e) The provision of price and other market information, and improvements to infrastructural facilities such as roads, cold storage, transportation and warehousing facilities would have a much wider relevance.

f) To provide and disseminate adequate information which will enable the producer to make better decisions on what to produce, and when and where to sell it; to permit the middlemen or traders to make the right decision as to where and when to sell and to adjust thaeir trading business to changes in supply of the products they deal in.

COMMENTS ON THE PAPER —
"A Comparative Analysis of Fruit and Vegetable Marketing in Developing Countries
Author: Richard Schermerhorn
Reviewer: Harold M. Riley

I was concerned when I first examined the paper and discovered that it did not include a list of references and then relatively little empirical content. However, as I read the paper more carefully, I realized that it was well organized and contained very useful, experienced-based descriptive, diagnostic and prescriptive material on the fruit and vegetable marketing system in developing countries.

At the outset the author first gives us his views on the role of marketing in the development of a fruit and vegetable industry. He stresses a fundamental point at the outset, namely that there should be a market oriented approach to fruit and vegetable production as contrasted to the traditional production oriented approach. The first major chapter of the paper contains some solid statements on the potential contributions of the marketing system to overall agricultural development and lays out a set of conditions required for "effective marketing" including support services, infrastructure and policies. These "...conditions required for effective marketing" are well stated and could apply to any commodity system. The underlying approach emphasizes public sector support for a system of private trading with policies and programs that are consistent with national goals.

The second section of the paper picks up nicely on the evolutionary but dynamic process of change in fruit and vegetable systems including demand shifts and the kinds of public sector actions required to facilitate appropriate changes in marketing systems. The emphasis is on strengthening the private sector and to warn against direct intervention. I particularly liked the brief statements on the provision of market information, grading, post-harvest loss reduction and processing where there has typically been a lot of idealistic, impractical advice by well-meaning technical advisers. The section concludes with some useful observations on the detrimental impacts of

policies and programs such as export taxes and marketing boards on incentives to farmers and private traders. It is suggested that governments should include the private sector participation in planning and initiating food policies and related programs. We are cautioned that farmers (and private traders) face considerble risk in producing fruits and vegetables, especially as they shift towards greater specialization. Hence, programs to encourage expanded, commercial production of these commodities must be carefully formulated and implemented. We are reminded that when planning new marketing institutions, social and cultural influences may be critically important although cooperatives are not explicitly treated. I was also surprised that this section of the paper did not include some consideration of the need for wholesale fruit and vegetable markets in large urban centers and their potential role in bringing about major improvements in national fruit and vegetable marketing systems.

The section of the paper describing fruit and vegetable production/marketing systems in Jamaica and Sri Lanka provides some worthwhile illustrations of market interventions intended to improve performance. The recent experience with the AID marketing project in Jamaica illustrates the problems and pitfalls in over designing a project in terms of uneconomic physical facilities and institutional arrangements not carefully worked out in relation to farmer and market trader perceived needs. The report on the Jamaican experience is very brief and could well be developed into an instructive case study.

The Sri Lanka case is more adequately elaborated. The two government agencies directly involved in the marketing of vegetables are severely criticized as being uneconomic and ineffective in their operations (2% of national market). The poor performance of the entire fruit and vegetable subsector is outlined in terms of restrictive, uncoordinated policies and weak public sector support for research, extension and information services. A recent study (not cited in the paper) reflects a change in government attitude away from direct intervention and toward a more supportive role in

further developing the private sector. This effort apparently will stress applied research; however, it's not yet clear how the marketing research-extension efforts will be positioned within the government bureaucracy--an organizational problem of considerable importance.

I find little to quarrel with in the Conclusions section of the paper which identifies eleven critical factors affecting marketing system interventions. I think the diagnostic assessments and the cautions about particular interventions are basically sound and should provide guidance to those attempting to design new policies and programs. The choice of priority market interventions follows and is consistent with the diagnostic assessments (provisions of market information and intelligence, and marketing credit). However, the need for institution building and training seems relatively neglected.

Schermerhorn proposes two priority areas for research. The first seems to endorse descriptive, diagnostic, prescriptive studies, but he appeals for more adequate attention to "sociological" investigation so as to avoid some of the problems faced in introducing changes in marketing systems. This seems reasonable, particularly if the sociologists would actively direct their efforts toward program and policy issues and alternative institutional approaches rather than a description of the existing social systems.

The second area for priority research represents an important and relatively neglected area, namely, trying to better understand what market interventions seem to work (or don't work) and why. This would require more case studies of past experience, along with more careful monitoring and evaluation of on-going projects.

Schermerhorn strongly supports the view that we need a more structured procedure to guide short-term research efforts to gain insights and to identify system constraints and opportunities. However, he would suggest more attention to sociological issues and post-harvest losses than has been provided in the Holtzman working paper on guidelines for rapid reconnaissance.

FERTILIZER MARKETING SYSTEMS AND POLICIES IN DEVELOPING COUNTRIES: REVIEW

by

Paul L. Farris
Department of Agricultural Economics
Purdue University

The paper on fertilizer marketing systems and policies in developing countries makes clear the high importance of the topic and the problems and challenges associated with improving performance of those systems. The paper includes a comparison of fertilizer marketing systems in selected developing countries and a more detailed examination of the system in Bangladesh. Several suggested approaches are made that are designed to overcome some of the more pressing operational problems and government policy constraints in fertilizer marketing.

As I read the paper, I was impressed by the numerous insightful aspects that the authors observed. These related especially to the general characteristics of fertilizer marketing, the considerable role of government intervention, the importance of infrastructure, the significance of finance and the compelling need for education at all levels.

Review of "Fertilizer Marketing Systems and Policies in Developing Countries" by Mohinder S. Mudahar and Edwin C. Kapusta, International Fertilizer Development Center, Muscle Shoals, Alabama 35662, November 1986.

A Key Role of Fertilizer in Economic Development

A major driving force affecting fertilizer marketing systems in developing countries is the great contribution that fertilizer is making to economic development. Developing countries generally recognize the importance of fertilizer in increasing the productivity of agriculture, which, in turn, leads to more food for the people, more labor for nonfarm sectors and other benefits that spread throughout their economies. The total fertilizer system is, therefore, much affected by the public interest. Governments in developing countries are generally aware of this, and they intervene in various ways in fertilizer production, procurement and distribution. Governments are also drawn in because of the substantial capital requirements and infrastructure investments associated with developing their fertilizer systems.

Fertilizer Marketing Characteristics

The paper identifies the salient components and functions in the fertilizer system. Because of the basic characteristics of fertilizer and its use, problems associated with fertilizer systems in different developing countries are remarkably similar. From the standpoint of improving economic performance of fertilizer marketing systems, policies and programs need to be concerned with uninformed farmers, uninformed dealers, lack of basic information about when and where different types of fertilizer may be needed, management skills at various levels in the fertilizer system, infrastructure development, and finance for developing production capacity, carrying inventories and farmer credit. The paper does an excellent job describing and highlighting the nature of these characteristics and in chapter 5, on improving the efficiency of fertilizer marketing systems, several suggested areas of focus are presented in a useful list.

Areas for Special Focus

In reflecting on the list of suggestions in chapter 5, I wondered about presenting fewer more inclusive topics that might include some implementation recommendations. To begin with I believe it is especially important to keep in mind that the fertilizer system is greatly interconnected and interwoven and there is great potential gain, particularly in developing countries, from increasing the overall performance of the system. Thus there is an important role for government. The difficulty seems to be that the substantial government involvement that one usually finds includes a number of things of the wrong type, things that are inhibiting rather than facilitating. And, as is noted in the paper, government decision making may be fragmented rather than coordinated, based on inadequate information, subject to delays in administrative procedures and possibly opportunities for manipulation to favor certain sectors or for fraud.

Approaches to Fertilizer System Improvement

To build on the information and findings reported in the paper, attention might be given particularly to the role of government, finance, education and forecasting for both the short and long run. Two major types of activities would seem desirable to improve fertilizer marketing in a developing country. One is research, and the other is implementation of a pilot operating system. Results from the research and pilot project might provide guidelines which could be extended to other countries, perhaps by employing some shortcuts.

Research Objectives

In the research, one basic objective would be to make aggregate projections of fertilizer needed by type, location and season. A simple

model could be developed that could be elaborated as more information is acquired. As a first approximation, I would recommend basing this on agronomic information, productivity assumptions and demand projections. Some preliminary work would likely need to be done by agronomists and economists to develop the relevant input data.

Another research objective would be to identify the most important physical infrastructure barriers to efficient functioning of the system and evaluate the alternatives and costs of overcoming them. Results of the model recommended in the first objective should be useful for this purpose. These infrastructure needs might be bridges, roads, ports, warehousing or transportation equipment.

A third objective would be to develop information on finance. At least three major categories of finance should be considered: (1) Capital requirements for infrastructure investments; (2) financing of inventories, and (3) credit for farm borrowers. Ways would be sought to provide financing efficiently and without impairing system efficiency or operation of the pricing system. In servicing farmers, consideration might be given to a promotional type subsidy at very low or zero prices for a period.

The fourth objective would focus on educational needs and alternatives for farmers, retailers, wholesalers and government policy makers. It is clear from the paper that the requirements at all these levels are considerable. The research would emphasize particularly the kinds of education or training that seem to be needed at each level, ways to develop the information required and the types of educational delivery systems that would seem most appropriate in each case. Demonstration programs would seem to have a useful place. (In this connection, I think I would have some reservation about relying heavily on retail dealers to provide information

for farmers since the paper also observes that most dealers are not specialized, and they handle several different items. However, it could be that some brief rules of thumb might be prepared for dealers to help them avoid serious mistakes in advising farmers.)

Pilot Project

The second major activity would be the development of a pilot project that would involve joint participation by USAID, an outside or multinational fertilizer firm, the government of the country selected and the relevant parts of the private sector within the country. This would seem to be an extension of the idea mentioned in the paper about the USAID-funded Fertilizer Distribution Improvement Project II (FDI-II) in Bangladesh. This project, which is oriented toward large-scale wholesalers, involves credit, technical assistance for dealer development and training programs and infrastructure improvement.

But because of the interrelated nature of the entire system, I would propose a more encompassing project. I would further propose that such a project proceed in two stages. The first stage would involve a study team, including representatives from USAID, the multinational firm, the country's government and the country's private sector. The team would consider all aspects of fertilizer production or procurement transportation, storage, wholesaling, retailing and farmer purchasing. It would also consider data needs, training programs, financial requirements, government policies or interventions and any other relevant aspects of the project.

The second stage would build on the first and be an actual joint operating venture. The multinational firm would become a joint operating partner with local industries and the government of the country. USAID personnel and professional participants or collaborators would give special

attention to incentives, rules, procedures, capital investment subsidies and any other matters concerned with performance of the pilot system. Arrangements would be incorporated for a gradual phase-out of the multinational firm after a reasonable period unless the country itself and its participants were to decide on their own to negotiate continuation arrangements.

The basic idea underlying a proposal like this is the assumption that the multinational fertilizer firm has a wealth of experience, technical expertise and managerial knowhow that would make it possible for it to help a country to develop its fertilizer system much more rapidly than if it were not a part of the team. When the new system is in place the outside firm may or may not continue to be needed and, if not, it could be withdrawn.

It is believed that the two types of activity suggested, research and operational, could proceed concurrently. After the experiment, an evaluation would be made and relevant findings determined for possible guidance in long term fertilizer system development and performance in the country and in other developing countries.

COMMENTS ON THE PAPER BY MOHINDER MUDAHAR AND EDWIN KAPUSTA ENTITLED "FERTILIZER MARKETING SYSTEMS AND POLICIES IN DEVELOPING COUNTRIES"

By James D. Shaffer
Michigan State University

Prepared for Sigma One Corporation
Conference Presentation Nov. 18, 1986
Arlington, VA.

This is an informative and useful paper which describes many problems involved in getting the right amount of the right mix of fertilizer to the right place at the right time. The paper also makes a number of suggestions for improving the performance of fertilizer delivery systems. I say delivery systems rather than market systems because a large part of the systems they discuss make limited use of markets.

Particularly interesting are the data they present showing very significant differences in the prices of delivered fertilizer among countries. It would be useful to inquire into the reasons for these differences in more detail and to include a broader range of countries. Similarly it would be useful to associate the differences with the effects on farm level production.

The authors identify a very large number of research, policy and program action gaps. They create the impression that problems and needs of the fertilizer system in the third world countries would require a Ministry of Fertilizer with a large staff and budget. Perhaps the first priority would be to identify the most cost effective measures which could be adopted by governments in promoting an effective fertilizer system.

The paper leaves some confusion about the authors' conclusions concerning the proper role of government in the fertilizer system. They conclude in favor of minimum government intervention but leave a good deal of uncertainty about what that minimum is. They tell us, for example, that the optimum mix of government and private participation is largely determined by the state of affairs in the particular country and by the degree of maturity of the agricultural sector as a whole. They also give many examples of needed programs which in most LDCs would require goverment involvement. Perhaps this simply reflects the importance they place on being pragmatic. They do imply conclusions about the role of government which I would consider to be open for further examination.

A very serious problem in many areas of semi-arid rain fed agriculture in Africa is the lack of knowledge of response to fertilizers under the conditions of uncertainty prevailing in

these areas. The problem is complicated by the apparent expense of developing useable agrinomic information. Research is needed to design the methodology for a system of on-farm trials to generate data which can be analyzed and made available in a form which is of practical value in farmer decisions at a cost consistent with the potential payoff.

The problem of coordination of supply with potential and effective demand is particularly difficult in the case of fertilizer, especially in areas of uncertain rain fall. The most effective institutional arrangements for coordination are not at all clear. The authors call for effective coordination across different marketing organizations and government agencies to improve the operational efficiency of the fertilizer marketing system. At the same time they favor private distribution with multiple competitive distribution channels. This raises two basic questions which need to be considered in determining an appropriate distribution system.

The first question concerns the economies of scale and scope related to the potential volume of commodities which might flow through the system. There appear to be substantial potential economies of scale in at least some aspects of an agricultural inputs distribution system. At the same time in many LDCs there is currently a very small market for these commodities. Is there sufficient volume to support multiple distribution channels? The scale economies involve more than transportation. Especially important, as pointed out by the authors, is the knowledge of the merchants as advisors to their farmer customers.

There are economies of scope to be considered, suggesting the desirability of multi-input distribution systems. This increases the importance of both management skill and knowledge of the products being sold. Counting on existing extension services to deliver the needed information about technical inputs to farmers may work in some LDCs but does not appear to be a cost effective alternative in many. There are advantages to having information delivered with the input.

Second is the problem of devising the mechanism of coordinating supply with effective demand in both the individual retail areas and the country as a whole. In uncertain environments it is difficult to estimate total effective demand. Having to estimate consequences of the decisions of competitors greatly complicates the problem. Failure to have sufficient supplies or to have significant

400

excess supplies of farm inputs are serious problems. There is plenty of evidence that monopoly parastatals make errors but what is the evidence for the success of multiple private distribution systems?

A number of countries are apparently in the process of privatizing aspects of the farm input delivery systems. They need help in determining which functions can be effectively privatized and which functions should remain with the parastatal. At the same time monitoring the experience should provide evidence about what works and what does not. The authors report interesting work along these lines in Bangladesh. Some research has been underway in Senegal within ISRA in cooperation with Michigan State University economists. It is impossible to arrange significant experiments in economics: thus it is important to learn from the natural experiments as they take place.

The authors note the problem of providing credit for fertilizer to get appropriate quantities used by small and poor farmers. This is an especially difficult problem where there is uncertainty of the ability to produce a crop which would provide a sufficient marketed surplus to repay the credit. It would appear that some institution is needed to make it possible to share the risk with the farmer. Studies of traditional traders playing this role might be instructive.

Similarly, studies comparing coordination performance of either private or parastatal export monopoly organizations with competitive market organization would appear to provide the basis for estimating some of the potentials from improving coordination. The export monopolies I have in mind provide inputs, including fertilizer, other chemicals, seeds, credit, information and tie all this to a requirement to sell the crop through the organization, thus assuring repayment of the credit. In case of a crop failure they may share the loss with the farmer.

Research and technical assistance dealing with fertilizer needs to deal with both the technological and institutional problems. Both should be concerned with innovation--designing technology and institutions to improve performance. Innovative institutional arrangements to deal with the coordination problem in distribution of purchased agricultural inputs, including fertilizer, deserve special attention. Developing a distribution system which combines the individual care and initiative of private merchants with an over-arching organization for the planning and global coordination is needed. It may be that something important could be learned from the operations of large franchising

organizations.

The institutional and technological problems involved in the transition from traditional agriculture are great and the resources for research and technical assistance are small, relative to the need. It is important to leverage the resources to get more for them. This suggests that inservice training be an important component to any agricultural marketing program.

URBAN FOOD DISTRIBUTION SYSTEMS IN DEVELOPING COUNTRIES

By

Erdener Kaynak
Division of Business Administration
Pennsylvania State University at Harrisburg

Most of the studies conducted on the food distribution/marketing system of developing countries conducted in the last two decades have been descriptive, exploratory in nature rather than causal. With the exception of some doctoral thesis, empirically oriented analytical studies are lacking in the literature. Most of the studies are cross-sectional in nature; relatively few are longitudinal. This study also suffers from the same shortcoming. A common body of knowledge has, so far, been developed with the efforts of Latin American Market Development Center(LAMP) studies in Latin America and Food and Agriculture Organization(FAO) studies in the Near East and Asia. We are now in a position to go a step further. What kind of food marketing systems have been successful in what type of countries and environments? Are there certain commonalities we can work on? With the exception of Lessons from the Record of Interventions starting on page 27, the preceding part is a summary of the existing literature.

The author tries to trace the path of development of the urban food distribution system at different stages of economic development of developing countries. He uses commodity approach in his analysis. To me, a commodity approach to food marketing development seems no longer suitable. Problems of coordination between concerned agencies may lead to the creation of separate boards and institutions to deal with each commodity. Although, this may sometimes be convenient to producers of food products, food consumers may find it difficult because for them, each of these commodities is one commodity called "food". Three groups of commodities can be treated separately namely cereals, raw materials, and perishable food items.

Dr. Harrison proposes two groups of forces namely predictive and associated variables as impinging upon the evolution of food

marketing systems. What we need is measurable correlates of these two groups of variables and relate them to the development of urban food marketing systems of developing countries. Otherwise, we will not have any actionable type of data and information to work on. For instance, rapid rate of urbanization has certain effects on the urban food marketing system of developing countries. It is pointed out by Mittendorf(1) that comparatively high rates of urban growth are expected in Africa and in Asia where the urban population is expected to increase between 1970 and 2000 by 1,120 million or by 200 percent. It is further stated that these are the regions of the world where marketing infrastructure is already inadequate and out of date so that the population growth will make the food distribution problems more acute unless some drastic actions are taken to improve the situation. In cities of developing countries, the demand for food has doubled over a period of a decade, which necessitates a doubling of the capacity of food marketing facilities. A second consequence of this dramatic urbanization process is the low income levels of the majority of the population in developing countries because of serious unemployment and underemployment. It is estimated that in most cities of the developing world the numbers of impoverished people living in slum areas will grow rapidly in 1980s and beyond, creating additional problems for the existing food marketing system of urban areas of developing countries.

Per capita income of a country is not a good predictor of the food marketing system development. Instead, per capita expenditures on food may be a better predictor. As well, cost-benefit analysis is needed on the governmental efforts to facilitate the development of the food marketing system.

Under transformation of the wholesale-retail marketing system, there is an underlying assumption that when the system becomes more complex it will become more productive and efficient. This may not be so as

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1. Hans-Joachim Mittendorf, "The Challenge of Organizing City Food Marketing Systems in Developing Countries", Zeitschrift fur auslandische Landwirtschaft, Vol.17, No.4, October-December 1978 pp: 323-341

proven by per square foot turnover figures of small versus large food stores in developing countries.

How do we determine at what stage a particular developing country is on the so called appropriate evolutionary pattern of development? Might there be differences among the different food product categories in the way of development? The role of central wholesale markets changes as economic development takes place and as the food retail structure changes. Mittendorf(2) identified three different food distribution stages that are in harmony with the state of economic development of a developing country. These stages are summarized below(see Figure 1).

Stage I:The predominance of many small retailers and hawkers characterizes this stage. Wholesaling and retailing activities are undertaken by one enterprise. Example: tropical Africa.

Stage II:At this stage of development there are well-established traditional wholesalers who have an important function in the distribution of fruit, vegetables, and fish to a larger number of specialized retailers with a higher level of operation than what prevails in Stage 1. Example: many urbal centers of Latin America, Mediterranean countries, and more highly developed Near and Far Eastern cities.

Stage III:Associated with increased consumer income and GNP is the development of integrated and associated food chains. An increasing proportion of fruit and vegetables are purchased directly from packing stations and sent directly to the wholesale depots of food chains for redistribution directly to supermarkets, without passing through the wholesale market. At this stage, the tracitional wholesale markets perform only a supplementary function in supplying highly seasonal and perishable food but not the bulk of the fruit and vegetables distributed.

Traditional food retail markets still dominate most developing countries. For instance, more than 50 percent of total food sales are made in traditional food retail markets in Asia, Africa and the Near East. The principal problems of public retail markets in

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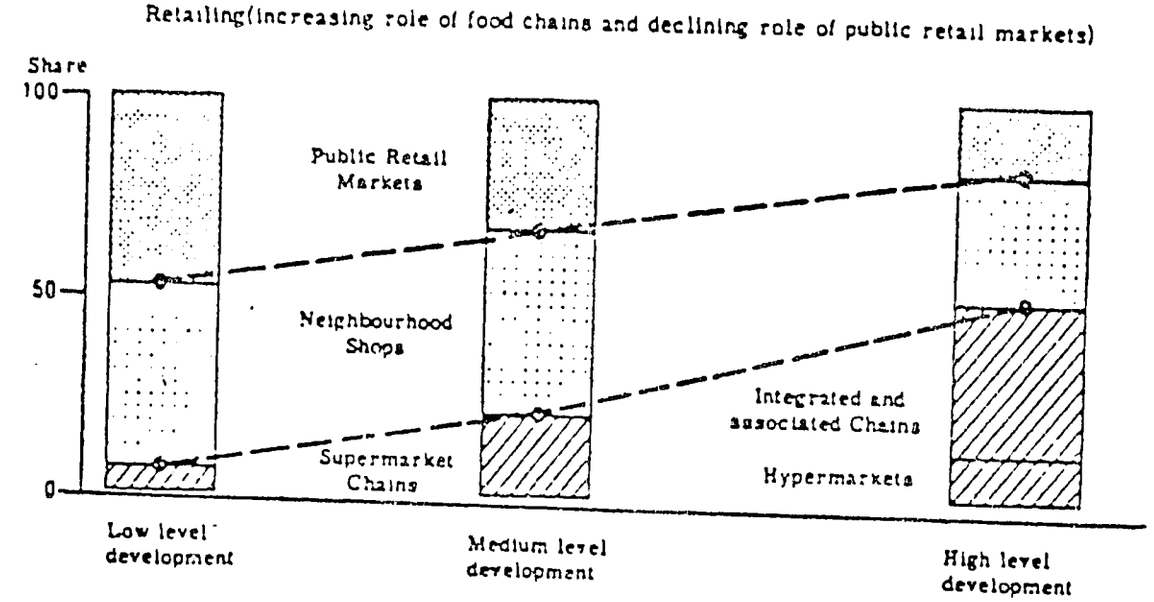
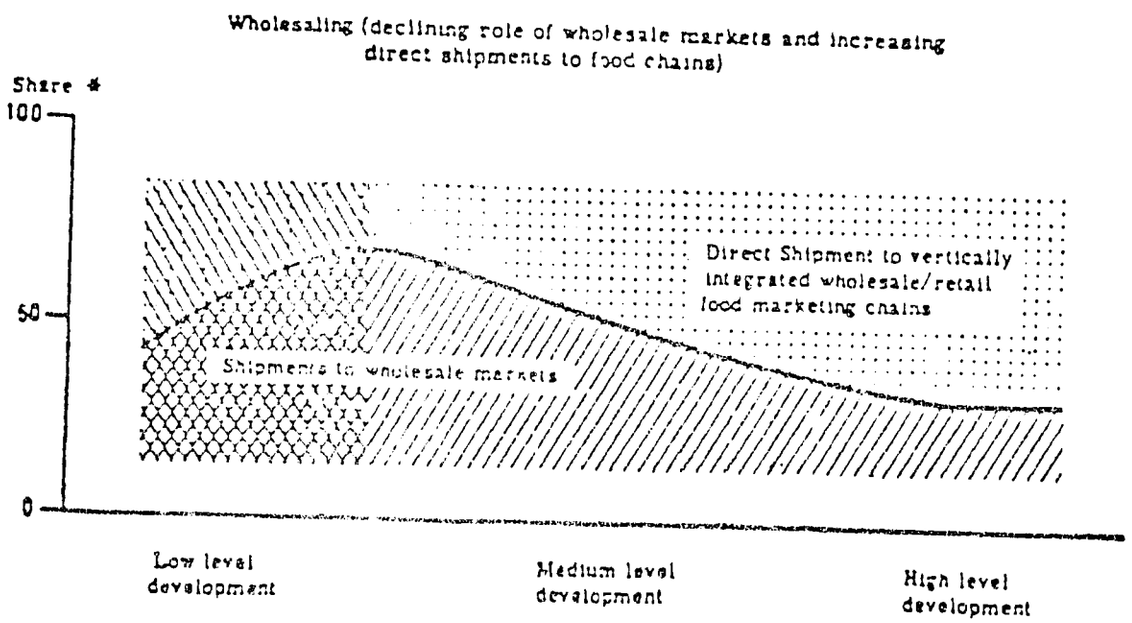
2. same reference as of 1

Figure 1

Changes in Food Retailing and Wholesale in the Course of Economic Development in Developing Countries





* Share of Food passing through wholesale markets and direct shipments to food chains

Source: Hans J. Mittendorf, "The Challenge of Organizing City Food Marketing Systems in Developing Countries", Zeitschrift fur auslandische Landwirtschaft, Vol. 17, No. 4, October-December 1978, p.[illegible]

these countries are mainly of an organisational and management nature, consisting of finance problems, management problems, and problems of lack of planning concept. Most of these problems are aptly presented by the author on pages 21 and 22.

Before any work is undertaken food marketing systems of developing countries under study should be compared. To this end, the framework presented in Table 1 can purposefully be utilized. As pointed out before we have a common body of knowledge on Latin American countries. Successful as well as unsuccessful examples of interventions from Latin America need to be carefully examined for application in other parts of the globe, particularly in Asia and Africa for orderly decision making purposes in food marketing and distribution.

Food marketing system planning with the main accent on physical facilities is not sufficient. As pointed out before human, institutional and operational aspects of the food marketing system have also to be considered. Smooth and effective coordination between the government and non-government agencies concerned is of paramount importance. For instance in vegetable and meat and livestock marketing, several Ministries are involved but they often have divergent interests; the result is to penalize both producers and consumers.

Food marketing system planning should be thought of when production is planned and not only at the stage when a surplus of production is experienced. Thus, one can not actually separate marketing from production. They go hand to hand at each stage of the economic development process of developing countries as depicted in Table 2. Food marketing system planning must be carried out at three different levels which are interrelated to each other, if properly done necessitates certain structural, institutional and behavioral changes in the system. Lets now look at the areas where planning can help then examine the type of changes for improving food marketing systems in developing countries.

<u>ServiceImprovement:</u>

How to improve and strengthen the services of food marketing systems for the benefit of consumers, farmers and channel intermediaries in

Table 1

Comparison of Food Marketing Systems in Developing Countries

STEP 1: Look at the General Economic/Political History of the Countries and Development Paths of their Economies

STEP 2: Discern Similarities and Differences in Marketing Environments

STEP 3: Food Marketing Operational and Managerial Effectiveness

STEP 4: Food Distribution Efficiency
*Types and number of institutions
*Integration and concentration
*Location
*Assortment policy
*Pricing and credit policy

STEP 5: Food Marketing System Efficiency
* Food marketing system performance
* Productivity
* Cost
* Profitability
* Efficiency

Table 2

Stages in the Marketing System during the Economic Development Process

Participants	*Predominant types of markets*	*Marketing inputs*	*Production inputs*
Peasant producer-consumer	Local marketplace	Labor intensive	Labor intensive
Peasant producer-middlemen-consumer	Local marketplace and distribution fair	Labor intensive	Labor intensive
Peasant producer-middlemen-wholesaler and consumer	Distribution fair with increased growth in local marketplace	Increased capitalization through wholesaling	Labor intensive
Peasant producer-wholesaler-consumer	Distribution fair and urban consumers' market	Increased capitalization on all levels of distribution	Labor intensive
Alternatives			
a) Large-scale producers-wholesaler-consumers	Urban consumers' market	Capital intensive	Capital intensive
b) Peasant producer-wholesaler-middlemen-consumers	Marketing cooperatives for urban areas	Capital intensive	Capital intensive
arge scale producers-easant producer-wholesaler-consumer	Urban consumers' market	Capital intensive	Capital intensive through voluntary cooperation

urce: Shepard Forman and Joyce F. Riegelhaupt, "Market Place and Marketing System: Toward a Theory of Peasant Economic tion," *Comparative Studies in Society and History* 12 (1970): 208. Reprinted with permission.

the food marketing system to reach the major objective of a marketing system to become a major dynamic force for socio-economic development.

Cost Reduction:

How to reduce losses, particularly for fruits and vegetables. Implementation of standardized procedures for products, packages and for other marketing activities.

Structural Changes:

What is the most suitable type of food marketing enterprise to be promoted? What should be the most suitable marketing structure for different situations?

Marketing of Strategic Food Products:

In most developing countries a few of staple food products(i.e: rice, wheat etc), special attention should be focused on how far the distribution system for these strategic products could be improved, particularly under conditions of scarcity.

There are three types of changes namely structural, institutional and behavioral which foster improvements in the food marketing systems of developing countries. Lets look at these in more detail.

Structural Changes

1. Provision of marketing infrastructure (roads, transportation systems, market places etc.)

2. Development of standardization and grading processes for food products.

3. Government ownership of and/or participation in food retailing, food production and food allocation (government serves as a counter-vailing power).

Institutional Changes

1. Integracion of food marketing system either vertically (that is integration through ownership or contact)

2. Integration of food marketing system through horizontal coordination (that is formation of chain store form of organization).

3. Retraining or education of food marketing system members.

4. Introduction of innovative food marketing techniques.

Behavioral Changes

1. Change of behavior of consumers, farmers and the intermediaries through education and introduction or control of marketing strategies (e.g. price controls, store locations, licensing, product assortments, packaging, etc.)

Agenda For Research in Food Marketing System in Developing Countries

We need to build on past conceptual as well as empirical studies. To this end, critical issues for additional research suggested by the author on pages 35-39 will be helpful. Additional insights may be gleaned from the following:

a) Development and testing of Universal models of structural and institutional changes within food marketing system of developing countries.

b) Cross-national studies of urban and rural food distribution and marketing.

c) Comparative studies of food marketing system goals, actors and efficiencies in developing countries.

d) Development and application of yardsticks for assessing and measuring food market system productivity and efficiency in developing countries.

e) Development of normative yardsticks for the evaluation and measurement of food marketing system performance in developing countries.

f) Critical factors affecting food marketing system development at three different levels namely production, marketing and consumption. Are there differences among different developing countries? Are there differences among different food product categories?

g) What kind of institutional arrangements have been successful in the marketing system of developing countries? Can the successful institutions be transferred from one developing country environment to another?

COMMENTS ON
"EVOLUTION OF URBAN FOOD DISTRIBUTION
IN THE THIRD WORLD" BY KELLY HARRISON ASSOCIATES

Bruce Gardner
Department of Agricultural & Resource Economics
University of Maryland

The issues as addressed in this paper largely involve "imperfections" -- departures from the competitive norm in urban food marketing. Undoubtedly they exist, but how to pinpoint them? What constitutes evidence for them?

A helpful starting point is the "squeaky wheel" principle. This sort of problem is detectable by any sensible observer. Of course the difficulty exists that the political system typically is organized so as to apply grease according to such a rule. The economic squeaks are quite distinct and different: indeed a prime cause of untreated marketing problems is the grease applied to stop politically sensitive squeaks, for example, the shortages associated with food price controls.

This paper as well as several others at this conference conclude that governmental intervention in marketing has tended to create more problems than it solves, and is in this sense counterproductive. The fact that government action is counterproductive suggests either that the analytical problem is difficult, so mistakes are made, or that the objective of government is inappropriate from the economic viewpoint. If the latter is the case -- a "political" problem -- then as economists we do not have much to say about it. We can just count up the costs of achieving the political ends. Let's suppose that if we can identify problems or imperfections in markets, and propose investments to improve things, there is a reasonable chance that the investments will be made. The hard part then is to identify where the bottlenecks and inefficiencies are.

The closest approach the Harrison paper makes to doing this is the list of "signs of disequilibria" (p. 21). I didn't find these helpful, however. They indicate when a marketing system is not evolving according to a pattern expected a priori, but this is not necessary a problem to be remedied. The items that do indicate problems, like shortages and gluts, are not clearly linked to the evolutionary framework -- they would be a problem at any stage.

This raises the general question of whether in analyzing problems of marketing in developing countries it is helpful to adopt <u>any</u> a priori approach, model, or paradigm? For example, the structure-conduct-performance framework from the study of industrial organization could be applied to agricultural marketing in developing countries. The benefit of this is that it leads one to ask certain questions that might otherwise be forgotten. In investigating food retail outlets in an urban area, a natural first step is to count up the different outlets and calculate their market shares. But knowing that we also have to consider conduct -- how these outlets interact with one another, set prices, share market segments -- prevents us from stopping our investigation too soon. Even when we know how the industry behaves, we are impelled by the structure-conduct-performance framework to push further and inquire about outcomes. Performance here involves the prices at which products are delivered to consumers, and the quality, variety, and reliability of marketing services.

Yet I believe it would be a mistake to base a whole research project or a whole paper on a topic like urban food distribution systems on the structure-conduct-performance framework, and I am glad that the Harrison paper did not do this. The reason is that such a framework or model inevitably leaves out some features of the problem. For example, income distribution issues might be neglected. The way to use these models or

412

framework is to raise questions to be addressed, but then forget the model. Besides structure-conduct- performance, examples are: a "systems" approach, which is helpful because it forces one to think not only about a market in isolation but how it fits in with other market. It opens the possibility for the suggestion implicit in Mr. Arizo-Nino's comment that a good investment for improving food marketing might be a reliable and cheap telephone system. A neo-classical approach is helpful because it forces one to think about adjustment at the margin, and marginal benefits and costs resulting, and distinctions between fixed and variable factors; even a Marxian approach, which makes one think about winners and losers and who controls the state, can be helpful.

The Harrison paper, and those generally at this conference, adopt an evolutionary approach of which I have not seen the benefit. In fact, I found the least valuable part of the paper was pp. 14-15 where notions of evolution and perfect competition are brought in together. The paper attributes "neglect of marketing reforms" to belief in perfect competition. I find this an unlikely risk, and believe that one is more likely to err by ignoring the elements of competition that exist. We don't need "perfect" competition, but only free entry and slight enough market power that supply-demand analysis is applicable.

The author claims that the idea of taking an evolutionary perspective has been helpful (preface), but it is not clear why. The issue is how such an approach helps us to investigate what problems now exist in food distribution systems and how to provide remedies. There might be a temptation in an evolutionary perspective to be too impressed with the fact that whenever a change is observed, it occurs for a reason; this is a recipe for papering over problems, or discovering those problems which have already

been solved. The other side of the methodological argument is given in the last paragraph of p. 20 but I didn't find it convincing. Still this approach does make us justifiably sceptical of "easy answers" to perceived problems.

Where the paper provides its most useful information is in the case studies of intervention, pp. 27 ff. The main lessons I draw from this is that planners should investigate the ramifications of a proposed project or intervention very carefully, in depth and breadth, before acting. One has to pay attention to the specifics of a problem, and not rely on a general model or pattern of what should work.

The main single conclusion of the paper is that "human resource development is the neglected complement to improvements in physical facilities" (p. 36). I don't see exactly how this conclusion comes out of either the evolutionary schema or the case studies, but I agree with it and the discussion in the paper does somehow support it. Seeing that the issues in marketing are complex, yet yield to systematic thought and inquiry, indicates that skills are required, and the existence of unsolved problems and mistaken solutions suggests that the skills aren't available or aren't being used.

On what the salient problems are, or the promising investments to solve them, the paper is not so helpful. The guidelines for redesigning market interventions (pp. 33-34) and the "reorientation" proposals (pp. 35-39) are sensible. To move toward application, however, more is needed.

First, we need better criteria to indicate when a problem exists, and how severe it is. This point has been mentioned several times already, but may merit another repetition because it is important.

Secondly, there should be more specific discussion of the criteria for success of an intervention. What do we look for in the data to judge whether

an attempt to improve marketing has been successful? In the cases described on pp. 27-34, it is not clear enough how it was determined whether they are successes or failures.

BG:asv/evolutio/11/86

41

Guidelines for Rapid Marketing Appraisal in Third World Countries:
Need for Early Identification of Potentially Bankable Projects 1/

by Frank Meissner
Inter-American Development Bank, Washington DC 20577 2/

"Bankable means that some investor or banker who has available resources is given sufficient evidence regarding viability of a specific project to justify his allocating those resources to that activity. Banker is used to denote any individual or institution with resources, which might be allocated to marketing system interventions."
Dr. Kelly Harrison, 3/

Table of Content

1. Introduction
2. Praises
3. Gaps
4. An Illustration
5. Roads Ahead

Tables

1. Production Costs and Prices Received for Internationally Traded Agricultural Commodities, Caribe, 1985.
2. Inventory of Data Needed at Different Stages of Project Preparation.

1/ Review of John S. Holtzman Rapid Reconnaisance Guidelines for Agricultural Marketing ... in Developing Countries, paper presented to the USAID Workshop on Applied Research and Technical Assistance in Agricultural Marketing, held at Foreign Service Institute (FSI) in Arlington (VA), November 18-19, 1986.

2/ I am solely responsible for the comments. Opinions expressed and proposals made do not necessarily reflect policy or practices of the Inter-American Development Bank or any other agency referred to in the text.

3/ Recent Evolution of Urban Wholesale/Retail Food Distribution Systems in the Third World, November 1986, p. 40.

1. Introduction

I have been assigned three tasks.

1.1 "Comment on: (a) how adequately key problems were identified, (b) what additional areas should be highlighted, (c) to what extent research gaps have been identified, and (d) suggest how these key problems and gaps might be addressed."

1.2 "Present and discuss those critiques at the Workshop."

1.3 "(Submit) final written summaries of the review no later than November 26, 1986, to allow sufficient time for authors to incorporate those comments."

1.4 I will:
(a) praise John's paper;
(b) identify a hole in his scheme;
(c) illustrate how to plug the hole; and
(d) make some suggestions for roads ahead.

2. Praise

2.1 John has presented a first class essay, a worthy contribution to the Michigan State University International Development Papers as well as to our profession.

2.2 He provides ample clues about doing Rapid Marketing Appraisals (RMA) as a way to reduce excessive research costs. At the same time he shows how the data to be obtained can be sharply targeted so as to form a solid basis for initial formulation of action programs.

To my delight and surprise I find that the Back of the Envelope Annotations (BOTEA), which I have practiced for over 3 decades, has now acquired a buzz acronym RMA.

2.3 John enumerates five potential uses of RMA in marketing and food system research. Let me focus on the first two:

(a) "identification and design of agricultural marketing projects", and

(b) "evaluating feasibility of making particular types of investment such as a new storage or processing facility" (p.2).

3. Gaps

3.1 Previous speakers have already focused on the latter three topics. I am therefore going to focus on the two RMA uses. This is because John does not say anything aboutways in which RMA could be used for "identification and design of agricultural marketing projects."

3.2 As a professional work 3 in a development bank I consider this to be an oversight that urgently needs to be remedied. This is simply because:

(a) multinational development banks primordially finance projects, even though there has been a recent trendlet towards sector or broad-brush Structural Adjustment Lending (SAL); 1/

(b) the teaching of project identification selection, formulation, evaluation and execution is a subject submitted to benign neglect in our institutions of higher learning, and especially among Land Grant Universities; and

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1/ The essential feature of structural or sectoral adjustment lending (SALs) is to enable " a developing country government to undertake major policy changes aimed at creating the basis for resumption of sustainable growth of per capita consumption ... Without (which) ... no permanent progress can be made in the attack on poverty...
Revived growth must be consistent with feasible levels of current account balance, inflation and politically achievable policy reforms necessary to underpin that growth." In contrast to "a loan for a traditional investment project, most adjustment lending is provided to finance, not specific investment, but general imports needed to overcome key constraints in the economy and to improve the efficiency with which it can function. The counterpart to (SAL) financing is not, as in an investment project, the creation of physical assets, but implementation of a government program of specific reforms aimed at growth-oriented adjustment."
See: Michael F. Carter, Deputy Director of European Office, World Bank, Structural Adjustment, World Bank News, 11/20/86, p. 4.

(c) the Inter-American Development Bank (IDB) and her sister institutions are suffering an acute draught of agricultural projects, which threatens to become chronic 1/.

3.3 The project draught is due to a combination of factors:

(a) harder loan conditions;

(b) high indebtedness, making LDC finance ministers reluctant to provide guarantees for additional loans;

(c) LDC's face difficulties in mustering local counterpart funds, which are needed to match or complement funds received from international lenders;

(d) most standard farm products (wheat, dairy products, soybeans, corn, cotton) are in worldwide surplus, making it difficult to justify projects aimed at increasing production of traditional commodities;

(e) joint ventures, among foreign equity investors and providers of technology for non-traditional export products (winter vegetables, flowers, ornamentals, tropical fruits and roots aquaculture and other such exotics) and their local counterpart-entreprenerus are difficult to put together becasue the required technology is not locally known.

3.4 Furthermore, the recent emphasise on privatization has made the job of project preparation even more challenging. This is simply because

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1/ The April 1981 IDB report on the Role of the Bank in Latin America During the 1980's states on page 13 as follows:
"The Bank's participation in agriculture has suffered from chronic shortage of agricultural investment projects in the region. Traditional preinvestment lending is not well-suited to agriculture because project identification and preparation is very complex, costly and time consuming. As governmemnts assign higher priority to agriculture attention to project identification and preparation becomes a major concern."
Likewise, during the November 1, 1986 conference on Opportunities for Small and Medium Sized Firms in Industry, Agriculture and Trade, held at Organization of American States (OAS) in Washington, D.C., Dr. William Demas, President of the Caribbean Development Bank, said:
"As incredible as it might sound, one of the prime challenges of international development agencies, is lack of well prepared potential investment ventures, and not money. The phenomenon is referred to as project draught, a problem nowadays faced by many financial assistance agencies."

private/public joint ventures, which do not require government repayment guarantees, call for a spreading of risk over several participants. The more participants the more complex it becomes to prepare well integrated technical and financial project packages.

3.5 Under those circumstances it should be mandatory for any practitioner of RMA to come up with specific, even though preliminary, clues about potential projects as well as policy changes that RMA results indicate. The last installment of payments for RMA contracts should be based on satisfactory compliance with this requirement.

4. An Illustration

4.1 Let me illustrate with a typical RMA, which was recently commissioned by the Planning Institute of Cariba (PIOC) for purposes of guiding investments under the Action Program for Rehabilitation of Cariba Agriculture (APRORCA).

4.2 As indicator of comparative advantage, a well known international CPA firm was to do a RMA of costs and prices of 13 products.

Results of this survey, based primarily on secondary sources, appear in columns 1 and 2 of the attached table. These "facts were to speak for themselves". I consider such a statement to be a useless and unacceptable cop-out. After all, if facts were to speak for themselves, libraries would be the noisiest places in the world.

4.3 I started to massage the figures by adding columns 3 and 4, which at least provide some clues about the type of products among which potentially bankable projects might be encountered.

4.4 Here is how I would have concluded the RMA report. "Considering the huge estimation errors. which such data customarily suffer, we assume that FOB unit product prices would need to be at least 50% above FOB costs to indicate a potentially attractive global profitability. When the proportion dips below 50% the product would be considered marginal."

This rule of thumb leads to the following conclusions about products, which might provide opportunities for development of bankable projects.

(a) Among <u>traditional export crops</u> coffee, banana and all spice (pimento) makes economic sense. Sugar can be grown profitably only because Cariba has priviliged access to two markets at prices far in excess of open market levels.

(b) Among <u>non-traditiona export crops</u> vegetables and tropical fruit offer much promise. Among cut flowers roses seem to make sense, while haliconias and red ginger are marginal, at best. Furthermore, the U.S. Floral Trade Council (FTC) is lobbying for

imposition of protective tariffs so as to protect U.S. producer from unfair competition. 1/

(c) Among import substitution products only fresh prawns and tilapia (silver perch) seem to have potential to eventually perhaps even becoming important export crops. In contrast, the widely promoted corn, soybeans and beef are marginal; rice would be an outright money looser."

4.5 On basis of this type of examination it would be relatively easy for the authors of the RMA to sort out the inventory of potentially bankable projects at hand, as well as suggest fixing a preliminary priority for their preparation and evaluation. 2/ The ambitious import substitution projects for rice, corn, soybean and beef --which the government of Cariba is promoting for early development-- would evidently have to be reconsidered.

4.6 That type of modest project identification and tentative priorization would certainly be useful grit on the development bankers mill. Since the CPA firm did not provide that type of interprepation I would have withheld the last payment on the RMA contract.

4.7 In many cases, preliminary reports for specific projects might already be on hand. Usually they would be optimistically referred to as "prefeasibility" or "feasibility" studies, no matter how green the

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1/ In May 1986 the Floral Trade Council (FTC), which represents U.S. producers and marketers of fresh-cut flowers, filed a complaint with the U.S. Department of Commerce (USDC). FTC claimed that exports from eight countries (Canada, Chile, Colombia, Costa Rica, Ecuador, Kenya and Mexico) violate US anti-dumping statutes because charging "unfairly low prices", which partially reflect government subsidies.
In 1986 the USDC tentatively determined that local producers are being injured, and suggested that anti-dumping and/or countervailing duties might have to be imposed. Pending final decision in early 1987: "U.S. importers will be required to post cash deposits or bonds to cover the penalties that might be assessed".
See: Flowers from 8 Nationa Are Dumped, Wall Street Journal, October 30, 1986.
Although Cariba was not named in the FTC complaint, increased tariff and other trade barriers would adversaly affect the chances for profitable exports to the huge U.S. market.

2/ The type of agricultural marketing projects, which have been funded by IDB are reviewed in: Frank Meissner, Micro and Macro Marketing Activities of the Inter-American Development Bank (IDB) - 25 Year Track Record and Roads Ahead, Quarterly Journal of International Agriculture, Vol.25/3, (July-September 1986), pages 271-282. I will be glad to send copies upon request.

data. The RMA contractor should assemble these project clues, prepare a project profile for each of them, and appraise its "maturity". The inventory of data needed at different stages of project preparation, presented in Table 2, might serve as a guide in determining the project maturity.

5. Roads Ahead

5.1 From the above comments you correctly concluded that I strongly feel that John's good guidelines could be turned into excellent ones by explicitly addressing the need to:

(a) formulate suggestions for directions, in which potentially bankable projects might be sought; and

(b) on basis of available information sketch out initial project profiles, even if they would be initially very crude.

5.2 For the profession to be able to do that more effectively U.S. institutions of higher learning need to teach hands-on courses on how to effectively identify, select, prepare, appraise and execute agricultural projects in Third World Countries, a real opportunity window for service. The American Society of Agricultural Consultants (ASAC) has already started this work by offering a workshop on the subject at its 1986 annual Convention, held in September 1986 in St. Louis (MO). There is no need to start from scratch.

5.3 Finally, I want to endorse Kelly Harrison's proposal for an International Agricultural Marketing Research Institute (IAMRI). Whether or not affiliated with the Consultative Group for the International Agricultural Research Centers (CGIAR) an IAMRI is long overdue.

5.4 The idea has been batted around for at least 20 years. Some progress is evident. Several of the CGIAR centers now have marketing specialists on their staff. The International Food Policy Research Institute (IFPRI) has recently initiated a series of publications on food marketing. Yet, all these efforts are accidental sidelines. No institution has yet fully geared up for systematic examination of what we already know about effective bridging of the gap between food producers and consumers in LDC's. Specifically, I visualize that within IAMRI development assistance agencies would act as partners to marketing dialogues, based on accumulated experience of a wide range of country situations and approaches. Such dialogues would focus on a broad gamut of issues, all the way from marketing organizations and management systems for public enterprises to pricing policies for fertilizers, from preparation and analysis of marketing investment projects to impact of taxes on producers and intermediaries, from selection of crop rotations to vocational and in-service training in marketing management.

4/22

5.5 This workshop has generated an ample inventory of potential future research topics. This unfinished agenda can serve as point of departure for defining the specific objectives of what IAMRI should do.

5.6 To start the ball rolling, I herewith invite interested individuals for an exploratory and highly informal get together in IDB's beautiful new cafeteria at 1300 New York Ave. in Washington DC. We can start putting together a skeleton for IAMRI.

5.7 Congratulations again to John for a superb job. Thanks to Sigma One for an intellectually stimulating workshop, it warrants vigorous follow-up.

TABLE 1

Production Costs and Prices Received for
Internationally Traded Agricultural Products, Cariba, 1985 1/

Crop	Total Cost FOB (1)	FOB Price (2)	Price as % of Cost (3)	Comments (4)
A. Traditional Export Crops 2/				
1. Coffee	$1,096	$1,697	152%	good prospects for efficient generation of foreign exchang
2. Sugar (a) small farms	116	271(UK)	352	costs significantly above world price; no comparative advantages
(b) large farms	254	368(US)	204	
3. Banana (a) low technology	98	264	269	offers much promise for exporting
(b) high technology	132	433	328	
4. Allspice (pimento)				profitable over its economic life
B. Non-Traditional Exports				
5. Vegetables				
(a) Cucumbers	80	120	150	offers much promise for potential exportation
(b) Zuchini	100	160	160	
(c) Sweet Pepper	116	180	155	
(d) Squash	80	140	175	
6. Tropical Fruit				
(a) Mango	2,060	4,360	212	
(b) Papaya	650	1,100	169	
7. Flowers				
(a) Roses (1000 blooms)	133	600	451	- promising
(b) Haliconias (1000 blooms)	649	873	135	- marginal
(c) Red Ginger (100 blooms)	300	360	120	- marginal
C. Import Substitution				
8. Rice	332	300	90	- not profitable
9. Corn: (a) mechanized	23	32	139	- marginal
(b) labor intensive	22	32	114	- marginal
10. Fresh Prawn	764	1,514	198	great potential
11. Silver Perch (tilapia)	1,111	2,917	266	Very profitable
12. Beef				
(a) semi-intensive with grain finish	217	236	109	- marginal
(b) extensive grazing on improved pasture	194	236	122	- marginal
13. Soybeans	166	218	131	- marginal

Table 2

Inventory of Data Needed at Different Stages of Project Preparation

Type of Data Required	Identification of idea (1)	Preliminary report (2)	Pre-feasibility (3)	Feasibility (4)	Ready for Funding (5)
1. Identification					
1.1 Country	X				
1.2 Subsector	X				
1.3 Geographic location	X				
1.4 Name of project	X				
1.5 Borrower	X				
1.6 Executor	X				
2. Definitions					
2.1 Problem	X				
2.2 Purpose of project	X				
2.3 Project objectives	X				
2.4 Goals to be achieved	X				
2.5 General consistency with government priorities:					
(a) Type of project	X				
(b) Type of solution	X				
2.6 Fit with policy of potential international funding agencies					
(a) AID		X			
(b) IBRD		X			
(c) IDB		X			
(d) Private entrepreneurs		X			
(e) Other (specify)					
3. Market	X				
3.1 Supply		X			
3.2 Demand		X			
3.3 Prices		X			
3.4 Marketing channels		X			
3.5 Organizations			X		
3.6 Facilitating infrastructure			X		
3.7 Marketing Strategy			X		
(a) General				X	
(b) Detailed				X	
3.8 Other (Specify)					
4. Beneficiaries					
4.1 Location	X				
4.2 Income level		X			
4.3 Number		X			
4.4 Other (Specify)					

5. Cost	X				
5.1 Total			X		
5.2 Foreign exchange			X		
5.3 Local currency				X	
5.4 Investments categories				X	
(a) Preinvestment				X	
(b) Civil works				X	
(c) Equipment, machinery, vehicles				X	
(d) Concurrent cost				X	
(e) Working capital				X	
(f) Technical cooperation				X	
(g) Cost escalation				X	
(h) Contingency				X	
(i) Other (specify)					
5.5 Sources of Funds					
(a) Private loans or equity		X			
(b) Development agency					
(i) Local		X			
(ii) International		X			
(c) Other (specify)					
6. Technical Aspects					
6.1 Technical characteristics	X				
6.2 Physical facilities		X			
(a) Overall			X		
(b) Detailed				X	
6.3 Implementation schedule					X
6.4 Justification of technology			X		
6.5 Other (specify)					
7. Institutional Aspects					
7.1 Borrower	X				
7.2 Executor	X				
(a) Legal mandate		X			
(b) Organization		X			
(c) Staff			X		
(d) Operation capability				X	
(e) Accounting					X
(f) Resources		X			
(g) Financial projections				X	
(h) Controls and internal audits				X	
(i) Required institutional strenghtening					X
(j) Other (specify)					
8. Socio-Economic Justification					
8.1 Flow of costs and benefits		X			
8.2 Indexes		X			
(a) Cost/benefit			X		
(b) Internal rate of return			X		
(c) Present net value				X	
(d) Sensibility analysis					X
(e) Employment				X	
(f) Income and its distribution				X	
(g) Balance of payments				X	
(h) Environment				X	

9. Project Implementation					
9.1 Designs and specifications					
(a) Preliminary				X	
(b) Final					X
9.2 Execution schedules				X	
9.3 Technical cooperation					
(a) Terms of reference				X	
(b) Costs					X
(c) Plan of operations					X
9.4 Other (specify)					
10. Follow-up Actions					
10.1 Technical cooperation missions					
(a) Orientation	X				
(b) Short term		X			
(c) Analysis			X		
10.2 Financial assistance					
(a) Preinvestment		X			
(b) Technical cooperation			X		
(c) Short term missions					
10.3 Monitoring system				X	
10.4 Other (specify)					

RAPID RECONNAISSANCE GUIDELINES FOR AGRICULTURAL MARKETING AND FOOD SYSTEM RESEARCH IN DEVELOPING COUNTRIES: REVIEW

by

Paul L. Farris
Department of Agricultural Economics
Purdue University

The paper on rapid reconnaissance guidelines by John S. Holtzman contains many insightful and instructive procedures to obtain information about marketing in developing countries. It has been prepared by a person who has had much relevant experience related to his topic, and his expertise shows through in numerous ways. The author also credits the contributions of distinguished individuals who are leading professional marketing economists with broad international experience. The result is a set of guidelines that has been carefully and competently examined and elaborated and that covers a wide range of topics relevant to marketing in developing countries. I, therefore, consider the paper to be a significant and valuable contribution.

In reviewing the paper, I found myself both greatly impressed and also stimulated to engage in discussion about the approach in applying the guidelines. Following are aspects that I would propose for further consideration.

This is a review of the paper "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food System Research in Developing Countries," by John S. Holtzman, Working Paper No. 30, 1986, Department of Agricultural Economics, Michigan State University.

1. Identification of motives or objectives that are to guide the collection of data

It is recognized in the paper that there are various uses for rapid reconnaissance (page 2). These include designing research projects, evaluating investment feasibilities and assessing policy alternatives. And in discussing an analytical framework, in which appropriate emphasis, in my opinion, is given to industrial organization and subsector concepts, a list of the commonly identified performance goals is presented (page 15).

It is further recognized in the paper that performance goals may be conflicting. For example, technological progress may conflict with society desires for efficiency in a short run static sense, with income distribution, with employment of the labor force, or with natural resource conservation. There may be other conflicts. Which goal to emphasize is an important decision. Therefore, before undertaking a data gathering effort it would seem useful to specify, at least provisionally, the main purpose of the survey and the particular performance goal, or goals, that would be given highest priority. Is it desired to seek greater technical efficiency in a physical or engineering sense? And is efficiency to be conceived in terms of a plant, a firm, a group of firms, or the system as a whole?

Alternatively, the purpose might be to achieve a more equal distribution of economic power and income, or more competitive markets. Perhaps there is presumed to be an encouraging market growth opportunity that would favor developing a particular industry, along with its related infrastructure, or to produce for an export market. There may be a promising potential for adoption of new technological innovations, and this would guide reconnaissance efforts. Or the principal objective might be to project future growth potentials for an industry, or for the

agricultural and food marketing sectors, that might be achieved under alternative conditions and assumptions. The point is that a more precisely defined objective would seem important in guiding data collection efforts.

2. Employment of an interactive process

The paper seems fairly heavily oriented toward a type of rapid reconnaissance that includes a comprehensive data gathering effort that is specified rather completely in advance. The reconnaissance then moves forward progressively toward the development of a set of conclusions based on the plan adopted at the outset to obtain empirical observations.

I would raise the question whether more emphasis might be given instead to an interactive process in the reconnaissance. That is, initial hypotheses and objectives, including possible policy interventions, might be specified temporarily and tested in a pilot survey. The results could lead to a redirection or refinement of objectives, which would undergo further testing. The interactive process would continue until some confidence would be achieved that the more intensive data gathering efforts envisioned in a rapid reconnaissance survey would be focused in directions that would seem to provide the most relevant and useful information. The author may have in mind a more interactive process than appeared in the paper. If so, I would recommend that it be more explicitly developed and presented.

3. Identification of driving forces

A critical requirement for understanding a marketing system is knowledge of driving forces that affect both day to day operating patterns

and longer term changes. I believe that a rapid reconnaissance survey should especially seek to identify those driving forces and determine their effects.

An important driving force that affects marketing may come from economic development in related sectors or in the economy as a whole. The impacts may be on labor mobility, labor costs, demand changes, market growth, shifting market or production locations, technological feasibilities, pricing processes, industry structure and industry practices. Infrastructure investments, both directly related to marketing, and investments made to develop the overall national economy, can develop pressures on the marketing system provide new incentives, and bring important changes in marketing.

Some important driving forces may not be readily visible from physical attributes that would be outwardly observed in a survey. A pervasive example is risk. Questions involving how much risk, what kind and who bears it, may have an important influence on the organization of the system, on margins taken and on possibilities for change. The types of risk might include product perishability, storage quality and availability, weather, uncertain supplies, or variable demands. There may be several others. Seeking an understanding of these various aspects of risk can help to identify programs, investments, institutions or interventions to improve market system performance.

The organization of industry itself can influence market system organization and performance. For example, the location and characteristics of key decision makers in a production and marketing system affect the organization of the system, how the system may be routinized or integrated, and to whose advantage or disadvantage, who bears the risks and how returns

for performing particular functions are shared. In this respect, the role of multinational firms and their development of products for export may be important to understand as constituting a driving force.

A general influence is the role of government as it seeks its own goals and motivates businessmen through affecting the business environment in various ways. It would be important to ascertain whether there might be particular interest groups to which the government might be especially sensitive. Government influences may include policies with respect to taxes, fixed prices, international trade, finance, competition and others. All may generate incentives and pressures that shape the evolution and affect the behavior and performance of the marketing system.

Because of the need to understand various driving forces, rapid reconnaissance efforts should provide time series information to help in this respect, as well as cross section data from an empirical survey. While historical information may be difficult to obtain in some countries, it appears essential to seek out such data and understanding as might be available about developing trends, how the system is changing, what are the causes of changes, and judgments of informed people about future prospects.

4. <u>Specification of basic conditioning influences</u>

The paper contains an excellent section (page 34) recognizing institutional and nonmarket factors in food systems. I believe it would be useful to give these more prominence. Those identified include factors related to transaction costs, including aspects of risk. The importance of property rights is discussed, along with ideology, religion and cultural endowments. I would also stress education, including areas of educational

emphasis and how widely and easily educational opportunities are available to various groups of people. I believe these various nonmarket influences strongly influence market organization and behavior and can provide powerful resistances or stimuli to both efficiency in a static sense and to progressive change.

The paper observes that a number of marketing studies generally conclude that markets in developing countries appear to operate reasonably well. The conclusion may well be correct, given the particular institutional setting and conditions that prevail, and their expected continuation. One would expect that the self interests of numerous buyers and sellers would motivate them to become skilled in seeking out various opportunities for gain and in exploiting arbitrage opportunities as they might be discovered in the traditional systems with which the traders are familiar. This is not to argue that there is not a role in traditional systems for market information, grading, inspection, rules to prevent fraud and the availability of basic economic data about supplies and demands.

But there may be more important gains to be achieved through changes in traditional systems than in looking for some types of deficiencies in traditional system. If traditions, customs and marketing institutions are of long standing and ingrained, distortions from the standpoint of overall efficiency or progress may develop and be perpetuated. Such systems may become quite impervious to basic efficiency improvements and especially to technological progress. Unless a research study focuses particularly on institutional impediments and resistances, potential changes that would bring greater efficiency, more rapid technological progress, or the achievement of some other desired performance goal, may be overlooked.

Thus, rapid reconnaissance efforts might need to be especially alert to

ways in which institutional factors influence market behavior and performance, in addition to the effects of other basic conditions (page 13) of a more observable type. Also relevant in the context of basic conditions is stability of the government and trust of the people in its political processes, legal systems and public administration procedures.

5. Suggestion of interventions

The paper appears to emphasize the importance of obtaining a mass of descriptive data in rapid reconnaissance, although it indicates that possible policy interventions to deal with perceived problems should be identified. I would suggest giving somewhat greater emphasis to suggesting, at least tentatively, such policy initiatives as might seem relevant in dealing with the main problem identified at the outset before undertaking large data gathering efforts.

In suggesting policy intervention possibilities, I would again propose employing an interactive process, concurrent with that recommended above in defining the objectives. It could be that the process of examining and appraising the consequences of alternative interventions to deal with tentatively defined problems would lead to a more clear statement of objectives and definition of the problem. Policy interventions that might be considered should include a broad range of options, including possibilities for physical and institutional infrastructure development and market facilitating programs as well as government regulations or other government interventions. The greater focus recommended on understanding institutional factors, customs and values of the people will also be helpful

in determining the types of policy interventions that might be acceptable and workable.

6. Specification of initial steps

As a practical suggestion, it seems to me there is a need to bring together in one place a set of proposed initial steps. Perhaps a manual on how and where to start could be developed. The paper includes many insightful ideas on procedure in Sections VIII, IX and X that I think would be exceedingly useful. Among these are initial exploratory visits within the country, selecting the team, learning about customs and characteristics, determining who to talk to within the country, seeking secondary data sources, actually observing food system facilities and processes, and deciding on techniques of data gathering.

I especially like the idea of developing a preliminary outline of the written report that will eventually be prepared before initiating the data gathering effort. I would recommend that such an outline give special attention to the principal purpose of the survey, the underlying driving forces and the possible interventions to be proposed. In keeping with my earlier comments, preparation and refinement of the outline should be an evolutionary process as the proposed interactive procedure is employed. In fact, the outline can be used as an explorer's trail map, in which only the most obvious trails are known. As the exploration proceeds, modifications can be made and details filled in. In this respect, I would recommend that the drafting of sections of the final report also begin as soon as the reconnaissance begins. The team should write about those aspects they know

as they learn them from secondary sources, from empirical data gathering and from the verification of preliminary working hypotheses.

Writing as one proceeds is a superb disciplining process. It helps to clarify analysis and understanding, it helps to identify needed mid-course corrections, and it also eases the preparation of the final report. It will be much easier to revise and edit a report that has been in process than to start from a preliminary outline after most of the empirical work has been done.

As a consequence, given the short time span that characterizes rapid reconnaissance, I believe that a short manual of procedures would save time in getting started, would help to focus sooner on important objectives and would lead to a more substantive and relevant report. I am sure that no one is more capable that Mr. Holtzman and his colleagues to develop such a set of initial steps.

RAPID RECONNAISSANCE GUIDELINES FOR AGRICULTURAL MARKETING AND FOOD SYSTEMS RESEARCH

RESPONSE TO COMMENTS AND SUGGESTIONS OF PARTICIPANTS IN THE NOVEMBER 18-19, 1986 WORKSHOP ON AGRICULTURAL MARKETING IN DEVELOPING COUNTRIES

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John S. Holtzman

Visiting Assistant Professor
Department of Agricultural Economics
Agriculture Hall
Michigan State University
East Lansing, MI 48824-1039

November 25, 1986

The Workshop on Applied Research and Technical Assistance in Agricultural Marketing, conducted by Sigma One Corporation, was stimulating and provocative for the author of the "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food System Research in Developing Countries," hereafter referred to as the RR guidelines. During the past six months, since the publication of the RR guidelines as a MSU Working Paper, I have had a chance to rethink and reconsider the usefulness and applications of RR. In part, I was able to anticipate the suggestions and criticisms of the reviewers. But they were able to articulate their critiques clearly and forcefully, which will help me in rewriting the guidelines. What follows is a brief discussion of how the input from the workshop will help me in modifying and improving the RR guidelines so that they can be used by USAID, consultants and developing country analysts in identifying and evaluating projects, initiating and updating programs of applied food systems research, appraising agribusiness projects, and examining agricultural and macroeconomic policies and their effects on food system behavior and performance.

Objectives of RR. Paul Farris suggests that it is necessary to identify as clearly as possible the objectives of a RR survey at the outset and to make these explicit. Generally, I would agree with this. By stating objectives explicitly, the analysts will be better able to formulate hypotheses that can be modified, rejected or focussed more precisely in the interactive and iterative process that follows.

In a few cases, however, sponsors of a RR survey may wish <u>not</u> to state the objectives explicitly. This may arise when a donor agency, for example, wishes to examine critically the (disincentive) effects of particular policies or the (inefficient) operation and activities of a parastatal organization. It may be necessary to couch the objectives of the RR survey in different, general terms when proposing research on sensitive issues. In this way the survey will not be vetoed initially by the developing country government. At a minimum, it may be advisable to state the RR objectives as broadly as possible, to avoid controversy.

The figure I used in the workshop presentation may be a useful tool for classifying the type and general purposes of a RR survey. In addition to being a taxonomic tool, the figure should help policy-makers and research sponsors to understand the multiple potential uses of RR.

Performance Goals and Dimensions. Many economists and agricultural economists do not like to use multi-faceted performance dimensions and norms in their work. They argue that performance can be defined in any and every way imaginable, to suit analysts' purposes, and that performance norms are imprecise and subject to value judgements. There is a good deal of truth in these criticisms, and it behooves the analyst to identify critical

performance attributes, and the ways in which they conflict, although it may not be possible to quantify in a clear and easy way the extent of the tradeoffs. It is also important to think about performance can be measured or at least compared across commodity subsectors and countries. Such comparisons must be made with caution, however, as basic economic conditions, resource endowments, institutions and institutional arrangements, technology, management skills, technical commodity characteristics, and the legal and regulatory environment are likely to differ across countries, regions within countries and commodity subsectors.

By focussing too much attention on quantification and comparison of performance norms, the emphasis of a RR survey may be misdirected. Perhaps at the RR stage of an applied research program, it is advisable to identify likely useful and relevant performance dimensions and norms, whether proxies which can be quantified or qualitative measures or judgements, without becoming too deeply enmeshed in a scholastic debate that generates more heat than light. As Shaffer emphasizes, the most important tasks of applied researchers are to identify barriers to improved performance and unexploited or underexploited opportunities. In order to do this, I would argue that it is not essential to define precisely ex ante performance norms. This can come later, as more knowledge is generated about the food system.

Alternative Paradigms. Bruce Gardner's comments on alternative paradigms or frameworks of analysis were very insightful. As he pointed out, wedding oneself too early in an investigation to one paradigm to the exclusion of others may lead an analyst to miss important issues, constraints and opportunities. One early objective of any new USAID funded marketing project might be to articulate as precisely as possible the assumptions, analytical foci, potential utility and applicability, strengths and weaknesses of alternative paradigms. The SFMA project attempted to do this as part of the effort to develop the agricultural marketing assessment methodology, but the task was never completed (see last revision of Assessment Guidelines, Holtzman and Menegay, 1985).

I would recommend hiring analysts familiar with particular paradigms to draft papers that state assumptions, foci, applicability, strengths and weaknesses and then use examples from their own work (or others' work) to illustrate how that paradigm can be used in applied research. I would discourage any USAID funded project from hiring analysts solely on the basis of trying to represent different disciplines or schools of thought. Special expertise can be purchased under contract. A USAID funded marketing project should seek the best qualified and trained analysts available, who have participated in applied research on food systems in various countries and commodity contexts. Having a strong interest in agricultural and economic policies and how

they affect the behavior of food system participants is strongly recommended. If agricultural economists or agribusiness management specialists are overrepresented, this should not necessarily be cause for concern. Agricultural economists trained in the food systems and commodity subsector approaches tend to have broad and policy relevant training. Agribusiness management specialists tend to focus on bottom-line profitability. As Kelly Harrison pointed out, profitability is probably the most critical dimension of private sector adoption of new technology, management practices and institutional arrangements. In an era of declining resources for development projects and efforts to cut back subsidies for unprofitable operations, profitability of firms at different levels of the food system is a critical consideration.

Driving Forces. Paul Farris's discussion of the need to identify and understand forces driving "both day-to-day operating patterns and longer term changes" in food systems is perceptive and useful. Although my RR guidelines are cast in a food systems development perspective, they do not emphasize strongly enough the usefulness of and methods required in identifying driving forces and tracing how they have affected, continue to affect, and will affect in the future food system organization, operations and performance. A developmental perspective accepts and perhaps even welcomes change. Change is inevitable, and it will affect the welfare of different groups of food system participants and third parties. We cannot be paralyzed with fear, because some group of participants or third party may be adversely affected by change. Rather, we can identify and attempt to predict the effects of changes in the food system on the welfare, employment, risks and returns of different groups.

Farris identifies pervasive risk and efforts to offset its negative impacts as a critical driving force in food systems development. Unacceptable risks may compel producers and processors or other buyers to negotiate contracts or integrate forwards or backwards in a commodity subsector. Governments can intervene to offset risk by investing in irrigation, better storage, transport and handling facilities, improved communications and marketing information systems, or by initiating crop insurance schemes.

In addition to risk, I would identify the search for means of lowering or controlling transactions costs as an important driving force in food systems development. In some cases prohibitively high transactions costs prevent any market from developing. In other cases, they are the source of costly inefficiencies, adding significantly to marketing costs. A promising application of the transactions cost approach to examining commodity subsectors in developing countries is Steven Jaffee's paper on "The Organization of Agricultural Sub-Sectors: Insights from Institutional Economics and Evidence from Kenyan Horticulture," prepared as part of the Contract Farming in Africa study.

Generally, USAID should give high priority to studies that examine and pilot projects that promote alternative institutional arrangements in fostering development of agricultural marketing. Institutional design is a very challenging area. Many economists, who are more comfortable with familiar handles such as supply and demand analysis, spatial and temporal pricing efficiency, and marketing costs and margins, hesitate to examine alternative institutional arrangements. In neoclassical economic analysis, institutions and technology are assumed to be given. They are exogenous or outside of the scope of analysis. By assuming away how alternative institutional arrangements and distributions of rights, resources and income affect economic behavior and performance, we may simplify the analytical task, and we may be able to state strongly conclusions, derived deductively from a set of restrictive (and unrealistic) assumptions about human behavior. While intellectually interesting, these conclusions may be of little help to policy-makers, who must contend with the messy real world, replete with special and vested interests exercising powerful property rights, imperfect information, heterogeneous products, and political realities, such as the underlying imperative of remaining in power. I think that USAID would be well-served by including an institutional design dimension in any newly funded agricultural marketing project. An agricultural economist with strong training in institutional economics, or an analyst with a political economy perspective would provide the relevant expertise.

Comments on the Evolutionary Approach. The evolutionary approach is one possible paradigm that could be better developed in a paper comparing alternative paradigms for doing research on agricultural marketing. Kelly Harrison's paper is a good discussion of how urban food distribution systems have evolved. Abe Waldstein also prepared a paper on the evolution of marketing systems, which can also be consulted.

The evolutionary model is useful for tracing the history of foods systems development and long run patterns of change. It may or may not be useful for identifying and weighing determinants of change. While it is instructive to understand how food systems have evolved, there is a great deal of diversity in evolution in particular countries. Moreover, evolution implies a rather passive unfolding of changes in the food system. It is not really consistent with a developmental perspective, which emphasizes dynamic factors, disequilibria and dislocation. Evolution from stage to stage of food systems development suggests a comparative statics framework which may miss some of the dynamic factors in food systems development.

As donor agency officials, consultants and applied researchers in universities, we implicitly endorse a developmental perspective. We are in the business of fomenting change, of

launching experiments, of intervening through projects, training, policy dialogue and policy change/reform. While useful for understanding how food systems have changed over time, an evolutionary perspective does not provide us with many tools for fostering change and development. Hence, I would not recommend that it be the approach underlying a new agricultural marketing project. It could certainly be, however, one paradigm among many for doing research on agricultural marketing systems.

Education. Paul Farris stresses how education should be incorporated into a RR examination of basic conditioning influences. He encourages examining areas of educational emphasis, as well as the distribution of educational opportunities to various groups of people. I think that these are important points, but I would apply different labels. Education can be considered part of the broad area of human capital development, which includes informal as well as formal education. It can also include apprenticeship programs and on-the-job training, which are generally not classified as formal education programs.

Dr. Farris's emphasis of the distribution of the rights, benefits and costs of education in developing countries can be subsumed under the broader area of property rights. In French-speaking Africa, access to jobs in the civil service, parastatals and educational institutions is restricted to those who speak French. Being able to speak and write French constitutes an important property right. Who acquires this property right? Can poorer rural families afford to send their sons and daughters to schools to learn French? Does success in the formal educational system depend in part, as is sometimes alleged, on the frequency and amount of informal payments to educators, who are typically paid poorly? Can poorer families afford to send their children on to higher educational institutes? As suggested by this line of questioning, acquiring the property right of French fluency is likely to depend in part on the existing distribution of rights and resources.

Government Stability and Trust of People in Political Processes, Legal Systems and Public Administration Procedures. This cannot be overemphasized. While it is obvious and rarely stated, government stability is a prerequisite to the development of efficient and effective food systems. Faith in the fairness and effectiveness of political processes, such as elections, the ability of legal systems to uphold laws, particularly those governing property rights and contracts, and the necessity and efficiency of public administration procedures are critical prerequisites to economic development. Countries where economic growth rates have been very low or negative illustrate the importance of these factors. In Liberia the regime falsified election results; the Zairois government enriches a particular ethnic group and fails to enforce contracts in private business; in Uganda, Mozambique and Sudan normal economic activity is

undermined by incessant civil strife and the inability of those governments to protect the property and rights of private business people. The interested reader is referred to an excellent paper by Theodore Lowi, presented to USAID, S&T/RD in early 1985 as part of a series on issues in institutional development, for a deeper and incisive analysis of institutional prerequisites to economic development.

Writing of RR Reports. Paul Farris makes an excellent point in urging analysts to begin writing sections of the report of RR survey results as soon as findings, however preliminary, become available. As he correctly notes, there is no better "disciplining process" than putting one's findings and hypotheses on paper. It becomes easy to see gaps in the knowledge base, poorly or incompletely supported inferences and hypotheses, and emerging research issues. This is a critical tool in helping to focus and narrow the research agenda, which can be overwhelming at the outset.

Bankable Projects. Both Kelly Harrison and Frank Meissner emphasized the importance of using RR methods to develop bankable projects. Harrison states that "the ultimate objective of the (RR) effort is to provide a justification for the allocation of someone's scarce resources to activities that will improve the performance of the system." Meissner suggested that he has drafted a set of guidelines for this purpose. In his written comments he illustrates how to use simple measures of potential profitability to begin to select agricultural commodities for export promotion. Other examples of what Meissner calls "back of the envelope" calculations or analytical techniques would be very useful. Perhaps no one is better placed to make a valuable contribution to guidelines for developing bankable projects. It would be useful to see these guidelines and incorporate relevant dimensions, issues and omissions in the broader RR guidelines.

It is important to remember, however, that RR can be used for a variety of purposes, only one of which is to identify feasible and profitable projects. Doing RR surveys of policy issues and consequences, or of system wide constraints and opportunities to improved performance will not require identification of bankable projects. In a sense these types of surveys focus more on macro-marketing constraints and issues. Feasibility studies are more micro-oriented in that they focus on the financial profitability of a particular investment or project undertaken by a firm or groups of firms. A RR examination of the operations and performance of a parastatal organization could also be considered as a micro study, although the activities of parastatal organizations are likely to have important system consequences. Perhaps this distinction is overdrawn, but I would argue that both the macro and micro perspectives are valid and necessary. In any future agricultural marketing project, USAID should attempt to represent both perspectives and types of expertise. In the SFMA

project, the importance of the agribusiness management perspective was recognized but relevant expertise was lacking.

The RR Process: Moving from Initial Hypotheses to Data Collection, to Hypothesis Revision, to Further Data Collection, and on to Presentation of Policy Relevant Findings. Harrison points out that there is little illustration of how analysts actually do RR studies. He calls for case studies of how RR was effectively carried out in different settings. This is an excellent suggestion. It is rather difficult, at least for this researcher, to elaborate precisely ex ante the details and logic of such a process. I think more thought needs to go into this. Writing up several cases where RR has been used effectively would be one way to begin this process. This approach would be retrospective and inductive, easier for me than a prospective and deductive one.

The RR guidelines are tentative and preliminary, designed to get people to focus on the difficulties and potentials of RR as one technique of information gathering and analysis. Under the SFMA project, we had hoped to do several agricultural marketing assessments in which RR exercises would be undertaken. By doing in-depth research of selected problem areas of marketing systems following RR surveys, the SFMA team hoped to be able to assess the relevance and importance of problem areas identified during the RR. That is, did the RR exercise assist the assessment teams in each case to identify the most critical issues and promising areas of research and intervention? Since we did not get a chance to complete the studies, we are not able to say conclusively. Nevertheless, there is enough experience with RR to write up successful and unsuccessful applications. From this collective experience, some of the important lessons for how to do RR most effectively would begin to emerge more clearly. Such an effort could be the subject of a fascinating and useful book, which would be valuable for researchers, consultants, policy-makers and businessmen. The potential audience is, I believe, quite large. I have occasionally entertained the idea of undertaking the editing of such a book myself.

Key Areas of Investigation. Richard Schermerhorn and Harvey Neese note that the identified key areas of investigation "cover very well accepted areas of investigation that an economist would cover," but "do not cover other factors which impact the performance of the marketing system, particularly sociological factors." I am not quite clear how they use the term "sociological" in their paper. The RR guidelines do stress the importance of non-economic factors and variables in the organization, operation and performance of the food system. Perhaps the guidelines do not show explicitly how to use information about these non-economic factors in doing RR or to incorporate such information in the analysis of constraints and

opportunities (as pointed out by Jerry Martin). I don't think they ignore "sociological" considerations, though.

The PIP researchers also argue that I failed to cover agricultural production practices and systems and post-harvest operations and losses. They are correct in noting that these areas are underemphasized. I would argue, however, that they can be effectively incorporated in the key area of investigation, commodity characteristics. In an earlier draft of the guidelines, this area was called technical commodity characteristics. This category or key area could and should include physical commodity characteristics, including timing of planting and harvesting, production practices that affect commodity handling requirements and desirability (profitability), and the degree of bulkiness and perishability of the commodity , which affect harvesting and post-harvest practices (including degree of processing). The extent to which a RR team will need to examine agricultural production in depth will depend upon the preliminary identification of problems and research needs. As Schermerhorn and Neese imply, production practices may have a significant effect on the ability to initiate market interventions and develop orderly, predictable marketing schedules and practices. The issue, then, is how much do researchers need to examine production practices. As economists are wont to say, it depends.

As a general comment on the PIP paper, I am delighted that the post-harvest researchers have decided to focus on a broad set of food system organization, operation and performance issues in their examination of the rather narrow (though not unimportant) area of post-harvest losses. They should be commended for their systems perspective, and resisting falling in the technician's trap, which is to overemphasize a special problem area. I would be very interested in receiving any guidelines that they have developed for doing rapid assessments of food system problems and post-harvest problems.

Conclusion. To sum up, I found the suggestions and criticisms raised in the workshop most useful in thinking about how to improve and recast the RR guidelines. I plan to continue working on this at MSU, as RR is an important tool with potential applicability to our program of Food Security research in five African countries.

In addition, I think that it would be extremely useful to begin writing up the results and methodologies of RR studies. An evaluation of what has worked and what has failed would be especially useful. From this practical and empirical base, we could then more easily and effectively synthesize the collective wisdom and experience. Such an effort need not be limited to agricultural marketing. Other cooperating institutions such as the Land Tenure Center, PIP (for post-harvest loss assessment), the Food Security in Africa cooperative agreement, and the off-

farm employment project could participate. In fact, MSU has published a working paper on how to use the subsector approach in examining small enterprise development (see Boomgaard, Davies, Haggblade and Mead, 1986). While not focussed on RR as such, the paper does endorse and describe how rapid appraisal methods can be used in research on small enterprises.

I would also argue for two additional efforts at the outset of a program of applied research on agricultural marketing. First, a paper on alternative paradigms in doing food systems research would be useful for applied researchers. Second, an effort to redraft and better focus the marketing assessment guidelines would be a useful exercise in synthesizing lessons from the SFMA project. Merle Menegay, who has continued two of the SFMA initiated assessments as an employee of the SARSA cooperative agreement, would be the best person to do this. Other ex-SFMA staff could collaborate in this effort and help to review and edit the manuscript. I would be happy to participate.

Finally, note that I have attached draft notes of my presentation at the RR workshop, as well as photocopies of transparencies used in the presentation. Further comments and suggestions for improving the RR guidelines would be greatly appreciated.

John S. Holtzman, sigmal, 12/2/86.