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THE FOOD ASSEMBLY SYSTEM
IN THE DEVELOPMENT PROCESS

By

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CHAPTER I

General Problem

The agricultural sector in my home country of Costa Rica, as in many other developing countries, has been playing an important role in the economic development of the country. This sector presently contributes approximately 30 percent of the gross national product, generates 69 percent of the total foreign exchange, and employs 47 percent of the total labor force in the country. Nevertheless, full use of the labor resource is lacking. Part of this limited use of labor is reflected in the form of open or disguised unemployment in the agricultural sector. There are no reliable estimates of the magnitude of these forms of unemployment, but it is likely that underemployment or migration might have increased.

This underemployment of human resources has stimulated a greater migration towards the main cities, causing a disproportionate growth of these urban centers. The disproportionate growth of the urban centers has brought about a sharp increase in the urban demand for food, which is exerting pressure on the existing marketing channels.

In order to avoid inflationary pressures on the economy, it is necessary that increases in the demand for

food products be accompanied by a parallel growth in the supply of agricultural products, which will require a matching expansion in the marketing channels.

Preliminary marketing studies by the Michigan State University Latin American Studies Center¹ have indicated the magnitude of the problem cited above.

Orientation of the Study

Since the development of an improved food marketing system is a vital part of the process of rural development and of the economic growth of the urban centers, the principal purpose of this paper is to provide some insights into problem identification and solving in assembly channels for people working on improving the marketing system in Costa Rica. Thus, the objectives of this paper are summarized as follows:

- 1) to define the role of the food marketing system in developing countries,
- 2) to examine the functions of the assembly system as a part of the food system, and

¹Kelly Harrison, Harold Riley, et al., Improving Food Marketing Systems in Developing Countries: Experiences From Latin America, Latin American Studies Center Research Report #6 (East Lansing, Michigan: Michigan State University, November, 1974); and Kelly Harrison, et al., Fomenting Improvements in Food Marketing in Costa Rica, Latin American Studies Center. Research Report #10, East Lansing, Michigan: Michigan State University, November, 1972.

- 3) to identify and examine procedures for diagnosing food assembly system problems and for implementing reform programs.

Organization of the Paper

Attempting to achieve the purpose of the paper, the presentation of the material is organized in the following way:

Chapter One describes the importance of effective marketing institutions and policies in the development process. Emphasis is placed on understanding the role of the marketing system as a coordinator of production and consumption activities. Secondly, the perspective of the marketing system is described, departing from a general macro-economic point of view. Finally, the concept of a food system is explained.

Chapter Two analyzes the role of the assembly system, starting with the identification of the components of the system. Further, the functions of the participants in the assembly system, as well as the main links with the other components of the subsector are explained. The factors leading to change or promoting change in the assembly system are identified.

Chapter Three is an exposition of the procedures for diagnosing food assembly system problems, and for implementing reform programs. The chapter begins with general

concepts of performance of a food system and is followed by sections relating to structure and conduct concepts, as well as the interrelations of the concepts involved in the framework of analysis. Detailed discussions are made of procedures for carrying out diagnostic assessments.

CHAPTER II

THE ROLE OF FOOD MARKETING SYSTEM IN THE DEVELOPMENT PROCESS

The Importance of Effective Marketing Institutions and Policies

In every economy, especially in developing countries, there are two broad classes of resources which are scarce and must be rationed: the goods and services used by the consumers and the factors of production used in the production of such goods and services. The capability to allot scarce goods and resources plays an important role when the rural-oriented production and consumption patterns shift to a more urban-industrialized ones. As economic development occurs changes in urbanization, industrialization, and technologies can be identified.

As people migrate from rural areas to the urban centers and cities increase in size, urban consumers' food expenditures for marketing services such as transportation, storage, and processing, tend to increase. On the other hand, as agricultural producers change their traditional production techniques towards more specialized and commercially oriented methods they become increasingly dependent on purchased food as well as on industrially produced farm inputs and nonfood consumer goods that come from the urban areas to the rural areas.

Finally, as consumers' incomes increase, the demand for marketing services consequently increases. As a result of this process of growth it is important to develop new technologies and institutional arrangements that will offset the tendency for costs to increase.

Summarizing this phenomenon, "as economic development occurs, the proportion of consumer expenditures for marketing services tends to increase and the marketing system becomes more important as a coordinator of production and consumption activities."²

Another dimension of the importance of effective marketing institutions and policies is that the marketing system has two aspects closely related to, but different from each other. One aspect refers to the physical transformation that takes place in the production-distribution system. In the production-distribution process utility is added to the products by transferring products from the producer to the consumer,³ changing the product form and condition, as well as adjusting consumption of goods from

²Kelly Harrison, Harold Riley, et al., Improving Food Marketing Systems in Developing Countries: Experiences from Latin America, Latin American Studies Center Research Report #6 (East Lansing, Michigan: Michigan State University, November, 1974), p. 9.

³It is important to clarify that "producer" in this context refers to farmers, assemblers, processors, and other participants who add some utility to the product.

one period of time to another. The other aspect is the coordination of the economic activities in the system. This coordination usually can be viewed as follows:

- 1) Interaction between participants in the system which determines prices (these prices finally act as incentives and guides for both producers and consumers).
- 2) Internal administrative coordination within firms and public organizations.
- 3) Management rules and regulations that determine what must be considered in deciding actions of economic relevance.

Effective marketing institutions and policies are also important in achieving alternative economic growth targets (employment, production of exports, income distribution, etc.). Their importance is explained in the next paragraphs.

If the developing economy aims to generate or transfer scarce resources to achieve a rising rate of employment, effective marketing institutions and policies are required. In generating employment in services, trading, industry, manufacturing, agriculture, investments in consumer-goods industries, agricultural-inputs industries, agricultural processing industries, and many others are required. And if the development process is to increase the productive capacity of the economy, it is necessary to achieve effective marketing institutions and policies which allow the transfer

of inputs and products between the production and consumption-income sectors of the economy.

On the other hand, if increased production of exports is sought in the developing process, there is a need not only to improve production, but also to develop new technologies and institutional arrangements that will mitigate the tendency for costs to increase, created by the increased demand for marketing services.

When developing countries are concerned that equitable distribution of income does not become an automatic corollary of economic growth,⁴ strategies changing income patterns will increase the demand for certain goods, such as basic foodstuffs, clothing, and low-cost housing. In this case, low-income classes may be adversely affected by increases in the general cost of living, due to increased demand. Thus, effective marketing institutions and policies become a necessity in order to avoid high notes in the cost of living.

Marketing, then, should not be considered in isolation, but as part of an integrated process of economic development applied in such a way that rural and urban population share in the results.

⁴International Bank for Reconstruction and Development (World Bank), Education Development Strategies for the 1970's and Beyond -- World Bank Education Strategies, World Bank Working Paper (Washington, D.C.: International Bank for Reconstruction and Development (World Bank), 1970), p. 14.

These results are usually stated as increased rate of capital formation, increases in the effective supply of labor, and qualitative improvements in the use of capital and labor.

The Marketing System

For the purpose of this paper, I am specifying and examining a simple macro-economic model which is aimed or propelled by a primary mechanism that provides the coordination of production and consumption of goods and services. This mechanism is the marketing system. "From an economic viewpoint, marketing includes the exchange activities associated with the transfer of property rights, the physical handling and transformation of products, and the institutional arrangements for facilitating these activities. But market processes are embedded in the larger social system."⁵ Thus, a marketing system "consists of the complex set of institutions and physical installations (infrastructure) which relate human beings to things in the exchange of goods and services."⁶

⁵Allen Schmid and James Shaffer. "Marketing in Social Perspective". Agricultural Market Analysis. Ed. Vernon Sorenson (East Lansing: Bureau of Business and Economic Research. Michigan State University, 1964). Ch. 2.

⁶Ibid, p. 16.

The Food System

The food system includes the institutional framework within which enterprises organize and carry out productive activities to meet the consumer demands for food and related marketing services. This perspective is consistent with the preceding parts of this paper and with that established by Kelly Harrison and others in the Latin American Studies Center⁷ research reports.

In food system analysis the channel linkage coordination and integration plays an important role. Coordination generally is associated within the context of product flow. Included, however, are communication and financial flows as parts of the channel coordination.

In order to fully utilize the actual and potential productive capacity of the resources in the economy, it is necessary to continuously search for new or improved ways to increase returns of resources. Coordination and physical distribution failures delay the transition from a traditional economy to another characterized by higher levels of productivity.

If the food system includes the institutional framework within which enterprises organize and carry out productive activities to meet consumer demands for food and related marketing services, it is possible to make reference

⁷Ibid., p. 26.

only to a commodity or set of associated commodities. Thus, a subsector was defined by Shaffer as "the vertical set of activities in the production and distribution of a closely related set of commodities."⁸

It is important to note that it differs from an industry in its inclusion of all vertical components as opposed to only horizontal activities. Shaffer argued that this type of orientation would provide more manageable units of observation and still permit consideration of the horizontal relationships that were essential in evaluating coordination and performance of the industry. In this sense, two major components in the commodity production-distribution channels have been identified: (a) The assembly system and (b) The wholesaling activities, which may be separated by a processing activity in the food system.

The description of the most prominent views of the assembly system is presented in the following chapter. The basic tasks of wholesaling are essentially a break-bulk and regrouping procedures. Once volume shipments are assembled from supply points at some nodal points (warehouses), bulk shipments are sorted and grouped into specific assortments for retailers dispersement.

⁸James D. Shaffer, "Scientific Industrialization of the U.S. Food and Fiber Sector -- Some Implications for Economic Research," Proceedings: A Seminar on Better Economic Research on the U.S. Food and Fiber Industry, U.S. Department of Agriculture, Economic Research Service, 1968 (Washington, D.C.: Government Printing Office, 1968).

CHAPTER III

THE ROLE OF THE ASSEMBLY SYSTEM AS PART OF THE FOOD SYSTEM

Components of the Assembly System

The identification of the components of the system serves basically to determine its limits. Thus, the components of the assembly system, as all the firms -- both public and private -- involved in the farm production activities, are defined, including gathering, processing, and storing products. In defining the components of the assembly a complex set of activities are condensed into a two-dimensional design. Participants and their activities could be defined as interdependent vertically and horizontally. These components are characterized by their interdependent behavior; that is, "the change in its attributes affects some of the components of the system and the rest of the system affects all these attributes."⁹

Other components could exist such as credit institutions, transportation, etc., that affect the system through

⁹Pablo Torrealba, "Improving the Organization of Fruit and Vegetable Production -- Assembly Systems in the Coffee Zone of Colombia: A Case Study in the La Mesa Region" (unpublished Ph.D. dissertation, Michigan State University, 1972), p. 38.

changes in its attributes. Nevertheless, changes in the system do not significantly affect the attributes of the components.¹⁰ The range of elements involved in the assembly system is shown in Figure 2-1.

Functions of the Participants in the Assembly System

The assembly system has a diversity of functions which are carried out by different components. Although there is not complete agreement on the functions of the assembly system, the assembly functions are outlined as follows:

i) Functions of Physical Supply. Those functions performed in transporting and storing the products. These functions also include some aspects of the production process such as packaging, labeling, and input supply.

ii) Functions of Farmer-First handler Exchange. These functions comprise the buying, selling, and price determination activities.

iii) Facilitating Functions. Usually these functions involve: (a) standardization, (b) market information, and (c) credit activities.

Theoretically, any component of the assembly can carry out any (or all) of these functions. Thus it is

¹⁰ Ibid., p. 38.

important to note that "it is possible to eliminate intermediaries but it is not possible to eliminate the functions of service or transformation of the product that these intermediaries carry out."¹¹ Although in the real world there are a complex set of relationships between the institutions performing the assembly functions, it is possible to summarize graphically those institutions and their relationship, as well as the functions involved in each stage. This summary is done in Figure 2-2.

The figure illustrates the usual levels that agricultural products may pass through between farmers and consumers as well as the relationship among the activities. These relationships usually are complementary in the channel, but also they could have repetitive characteristics.

Nevertheless, as a subsector becomes more specialized the resources possessed by the components of the system are allocated in such a way that the assembly functions become closely related and interdependent with the wholesaling and retailing activities.

Resource specialization implies that the resources are organized to produce certain goods and services, depending upon the specific conditions of the market structure. Thus, some resources become specialized in the production of form utility, others in the addition of "time" utility, and/or

¹¹Ibid., p. 45.

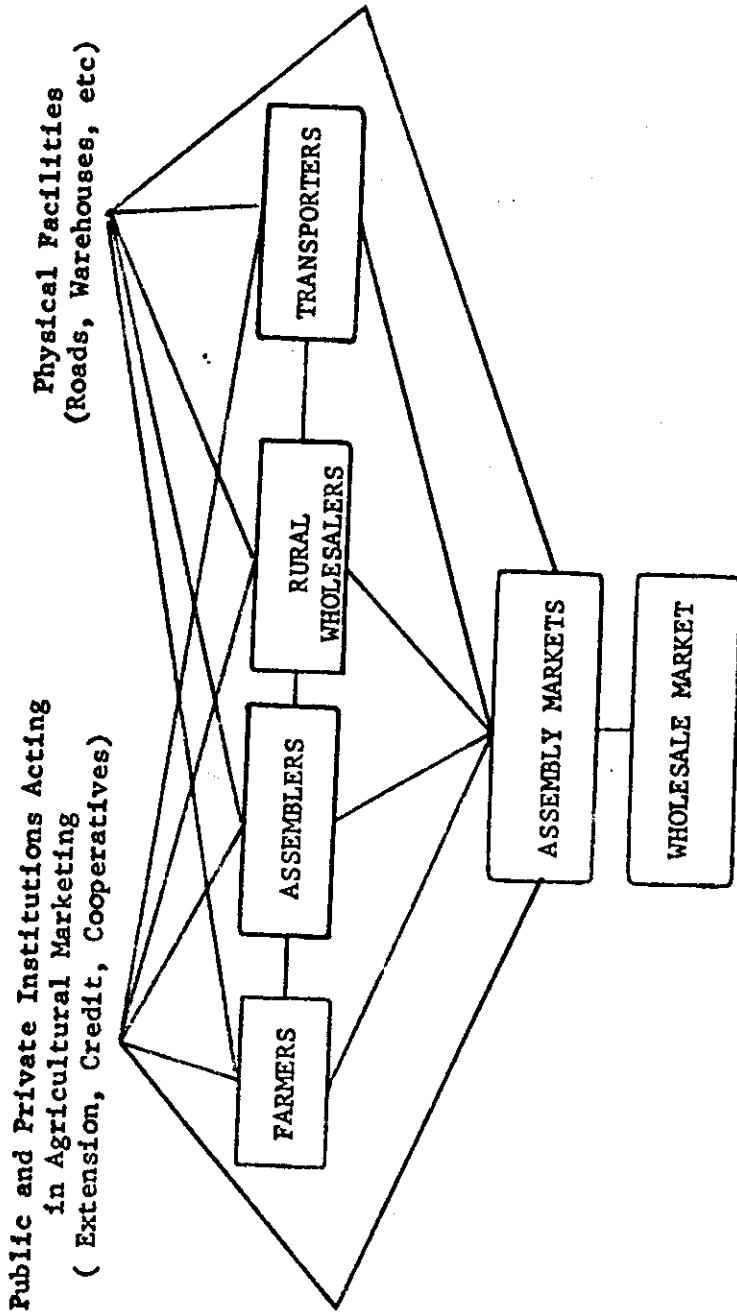


Figure 2-1
Elements Involved In The Assembly System
Source: Modified from Pablo Torrealba.
Ibid., p. 40

in producing "space" or "possession" utilities. Since all these types of utilities must be provided by the production-distribution system, the needs of assembly components to other components of subsector, and vice versa, could be readily understood.

Factors Leading to Change or Promoting Change in the Assembly System

In this part of the chapter, the factors leading to change in the assembly system are briefly explained. In particular, the effect of changes in population growth, the effect of changes in urbanization, and the effect of changes in income levels will be considered as factors affecting the assembly system.

Changes in Population Growth and Urban Migration

Urban population growth has been the major factor affecting traditional food assembly channels as well as the facilities and institutions involved in this process, since urban consumers can seldom produce their own food supply. It is important to notice that migration of population to urban areas is a well-defined characteristic in almost every developing country.

Thus, agricultural production and marketing structures must be adapted to prevailing consumption patterns, if improvement in social and economic welfare is sought.

STAGES IN THE MARKETING SYSTEM

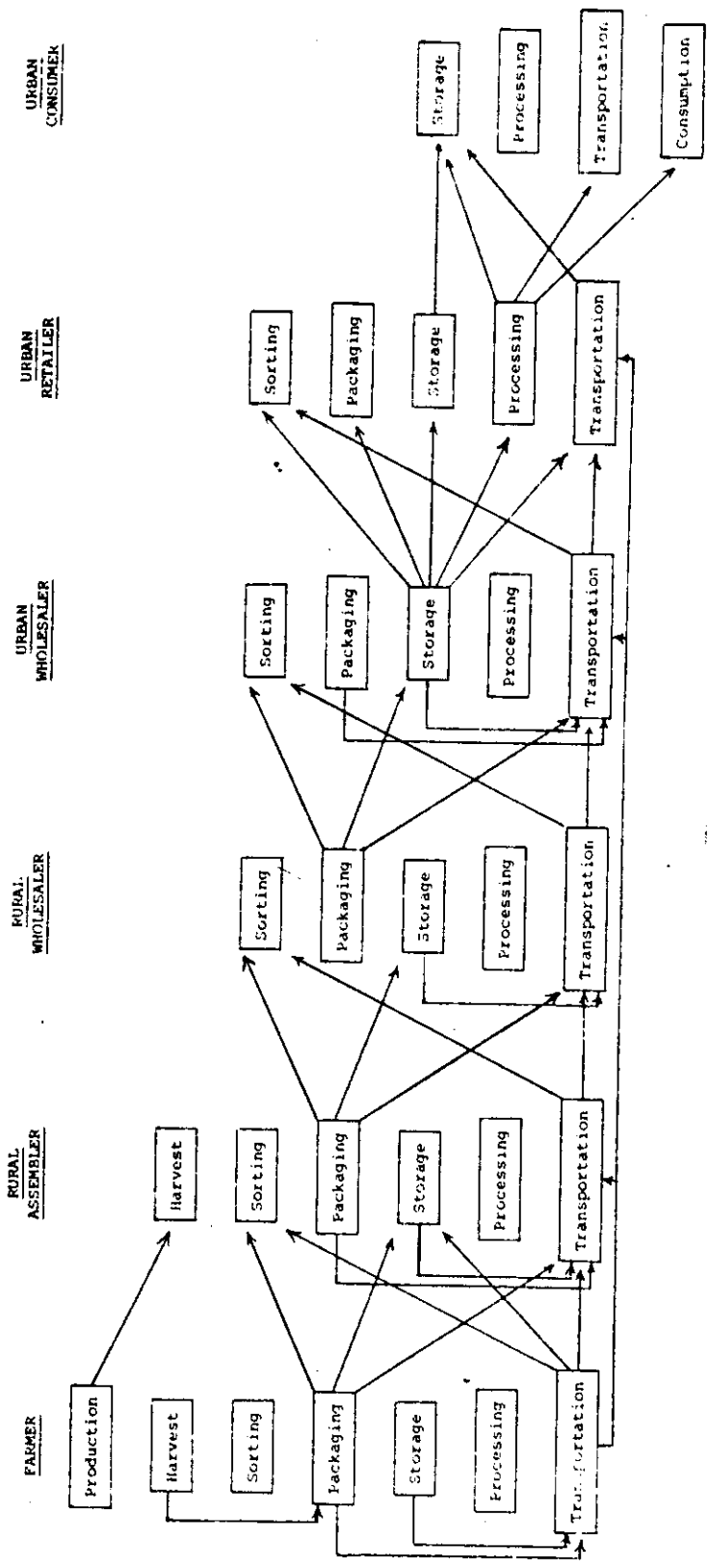


Figure 2-2

Transformation and Physical Distribution Functions and Channels in a Marketing System

Source: Pablo Torrealba, Ibid., p. 43

Furthermore, a high proportion of the high-income population groups is located in urban areas and, therefore, there is an increased potential market for a great variety of quality food, shopping services and specialty goods. In this process improved supply of marketing services is required.

Although the factors cited above could imply incentive for improvement in the efficiency of existing food distribution operations through implementation of modern management operations and methods, there has been a proliferation of traditional techniques. Small farmers with no consistent link to the market, assemblers with inadequate means of transportation, and wholesalers with obsolete storage facilities are the common state of affairs in developing countries. The implementation of modern management methods is specially important in perishable products.

Thus, it is necessary to search for more efficient systems of assembly that could result from closer cooperation between individuals and private and public enterprises.

Income Levels and Food Expenditures

Due to relatively low incomes the percentage of family incomes devoted to food purchases in developing countries is "very high compared to that in developed countries."¹² Also, the income elasticity of demand for food in developing

¹²Harrison et al., p. 19.

countries is relatively high. Using cross-sectional food expenditure data, the LAMP team has "estimated overall income elasticity of demand for food to be 0.6 in Cali (Colombia) as well as in La Paz (Bolivia). Thus, for every 10-per-cent increase in income, consumers in these countries will spend 6 percent more for food products and associated marketing services.

Since food expenditures usually make up more than one-half of total family living expenditures, a reduction in food prices could have a significant effect on real family income. In such a situation it is estimated¹³ that a 10-per-cent reduction in food prices could increase total purchasing power by 5 percent or more. Under this condition, obviously the result will be increased effective demand for both food and nonfood products.

At this point it is interesting to notice that there appears to be a high degree of correlation between income level and type of retail food outlet patronized. It was found by the LAMP studies that self-service stores are mainly used by upper income groups. Nevertheless, neighborhood stores are the major food outlet for low- and middle-income families. Public markets are used by all groups, but there is a relationship between the use of public markets and the physical proximity.

¹³Ibid., p. 19

CHAPTER IV

PROCEDURE FOR DIAGNOSING FOOD ASSEMBLY SYSTEMS' PROBLEMS AND FOR IMPLEMENTING REFORM PROBLEMS

The chapter begins with general concepts of performance of a food system. This explanation is followed by brief sections on structure and conduct concepts, as well as the interrelations of the concepts involved in the framework of analysis. In the last part, a description of procedures for carrying out diagnostic assessments will be delineated.

Performance in the Food System

Since the assembly system involves a set of production and exchange activities as well as the coordination of such activities, it is necessary to ascertain the final consequences flowing from the system that could affect all its participants. "At an operational level this means seeing if these results are compatible with the general objectives of social and economic development."¹⁴

¹⁴Torrealba, "Assembly Systems in the Coffee Zone of Colombia," p. 170.

Guides to Evaluating Performance

Assuming that what society wants from the assembly system is good performance, the problem is to develop performance measures that allow, at the end, a diagnosis of assembly operations. Nevertheless, with the present state of the arts, subjective evaluation is in some cases the only method of appraising certain performance characteristics.

The aspects that guide the evaluation of performance at a more general societal level have been grouped by H. Riley et al.¹⁵ in three major dimensions: (1) economic efficiency, (2) progressiveness, and (3) distribution or equity.

In order to arrive at a more detailed description for the food system of these dimensions, I am proposing the following measures to evaluate the assembly system performance: (1) responsiveness of firms and industries to consumer preferences and needs; (2) a build-up of agricultural productivity; (3) adaptation and innovation, both for the marketing system as a whole and the assembly system (progressiveness); (4) adequate income distribution among participants in the process according to the risk assumed by each one; (5) volume, quality, and price stability;

¹⁵H. Riley, K. Harrison, et al., Market Coordination in the Development of the Cauca Valley Region -- Colombia, Research Report No. 5, Latin American Studies Center (East Lansing, Michigan: Michigan State University, March 31, 1970), pp. 6-8.

(6) development of adequate marketing facilities and programs to serve low-income groups; and (7) discouraging uneconomic use and spoilation of natural resources and the environment.

However, the simple measurement of the assembly system performance is not sufficient to determine if it is exhibiting good or bad results. It is necessary to specify norms or acceptable level of performance which can represent the goals of policy decisions. It is very important to remember that in the social sciences it is very difficult to have nonnormative descriptive data. When one decides what descriptive data is relevant, a normative judgment is already made. For the purpose of this paper, it is considered that there are no given, absolute norms of magnitude to evaluate performance, but that these norms depend upon what could be attainable under certain conditions and new alternative arrangements.

In comparing the dimensions with the norms, we must take into consideration that each of the participants behaves (and acts) trying to maximize the economic benefits obtained from his participation facing some legal, social, and cultural constraints. Thus, there is no sense in blaming the participants on an individual basis for the assembly system performance.

Possibility of Improved Performance

The basic purpose in analyzing food assembly performance is to determine the possibility of modifying the interaction of forces acting in the assembly system so that the results obtained by new arrangements can lead to improved performance for the overall food system and society in general. Nevertheless, there exist conflicting wide differences in perceptions of marketing performance and, as a result, a wider variety of opinions on what ought to be. Thus, individual and partial approaches to the problem often prohibit one from arriving at adequate solutions. The differences in perceptions of marketing problems are basically due to the lack of comprehensive economic analyses of agricultural marketing in the context of economic growth as well as studies of specific marketing operations. Differences in normative concepts about what is good, and for whom, is also an important source of differences in opinion. Thus, in the next paragraph, the broad elements in such an analytical framework are outlined. "A comprehensive analysis of agricultural marketing systems requires a broad analytical framework to supply essential operational research questions and to indicate appropriate research methods."¹⁶ This analytical framework can be found in the

¹⁶Norris T. Pritchard, "A Framework for Analysis of Agricultural Marketing Systems in Developing Countries," Agricultural Economics Research, Vol. XXI, No. 3 (July, 1969), p. 78.

structure-conduct-performance analysis.¹⁷ The importance of this relationship of structure-conduct-performance lies not only in the scientific field but also in reasons of policy making.

Structure of the Food Assembly System

The structure of a food assembly system refers to the many characteristics of the organization of a market, often referred to as "rules of the game," that it possesses which determine the relationships between the participants in the system. These variables or characteristics may exert a strategic influence in the nature of the competition and price formation in the market.¹⁸

The strategic characteristics most emphasized are the degree of seller (buyer) concentration as measured by numbers and size distributions of firms, the degree of product and service differentiation among sellers, and the conditions of entry into an industry and its markets.¹⁹

Torrealba, in his study in the La Mesa region, has used the structure-conduct-performance framework "as a means

¹⁷This approach has been presented by Joe Bain, Industrial Organization (New York: Wiley, 1959).

¹⁸Ibid., p. 7.

¹⁹R. L. Clodius and W. F. Mueller, "Market Structure Analysis as an Orientation for Research in Agricultural Economics," Journal of Farm Economics, Vol. XLIII, No. 3 (August, 1961).

of organizing the diagnostic part of the rural market analysis."²⁰ The main variables or market structure to be considered are: (1) degree of concentration of buyers, (2) seller concentration, (3) degree of product differentiation, and (4) the conditions for market entry.

At this point it is important to note that in developed economics, the structure-performance relationships have been analyzed and several generalizations have emerged. Nevertheless, many economists have challenged these generalizations because they "allow, and (have) fostered, performance implications out of structural analysis which are unwarranted."²¹

Factors Affecting the Structure

Following the Scherer²² approach, it is possible to state that there are some "basic conditions" which affect or determine the structure of the market. Basically these conditions are related to the supply and demand relationships, and underlying property rights over resources, physical and human.

²⁰Torrealba, Ibid., p. 114.

²¹Ibid., p. 113.

²²F. M. Scherer, Industrial Market Structure and Economic Performance, (Chicago: Rand McNally and Co., 1970), pp. 4-5.

In the food assembly system case the basic conditions affecting the supply side could be summarized as follows: (1) location and ownership of productive resources, (2) the character of the available technology, (3) the durability of the product, and (4) the value-weight characteristics of the product.

The basic conditions affecting the structure on the demand side could be enumerated in the following way: (1) price elasticities, (2) substitutes, (3) rate of growth, (4) purchase method, and (5) cyclical and seasonal character.

Conduct within the Food Assembly System

Although the conduct concept is a controversial one, it serves basically to identify intermediate behavioral links between the structure and the performance of the system.

Market conduct refers to the behavior pattern of the assemblers when participating in the markets in which they buy and sell. Market conduct is basically a dimension of a firm's policy and action towards (a) its markets, (b) its competitors, and (c) its reactions to the policies and actions of its competitors.

Then, in understanding the market structure analysis, it is of primordial importance to emphasize the causal relationships running from industry and market structure through the conduct of marketing firms to their performance and, at

times, from performance back to structure.²³

Description of Procedures for
Carrying Out Diagnostic Assessment

Since there are evidences that the traditional food marketing system is not adjusting effectively to rapid changes in production, urbanization, consumer incomes, and customs, there is a need for further research and action programs in order to improve such a situation. But ongoing research and evaluation require to think in "system" terms. Nevertheless, the scope of any particular system study will be circumscribed by the limits of available resources.

A specific problem ought to be cast in a systems perspective, but it may not always be possible, due to limited resources, to do a broad system study. Then, the examination and description of the factors involved in the problem need to be performed and accumulated over time in order to provide comprehensive knowledge about the system. Thus, among the first-order objectives of a system study we must include the purpose of providing a conceptual framework for organizing existing knowledge about the system as well as defining the nature and importance of missing information.

In providing this conceptual framework to analyze the systems, it is necessary to classify the objectives of

²³J. S. Bain, Industrial Organization.

the analysis study in four related dimensions: description, diagnosis, prediction or projection, and prescription.

Using these terms, the objectives of the study would be defined as follows:

1. To describe the indispensable or basic economic characteristics of the system. Although "the profession has recently tended to berate descriptive research,"²⁴ I am recognizing the value of descriptive studies and measures. These can provide useful insights into the characteristics of a food marketing system: the issue is not over description, but concerns relevant information. Description of the essential characteristics about the operation of a system over time may provide useful evaluative information on the ability of the system to coordinate its functions effectively and to adapt or adjust in response to changes in economic conditions or the environment, thus providing a base or guideline to researchers as well as to policy decision-makers:

The following breakdown proposed by Bruce W. Marion and Charles R. Handy²⁵ could be used in describing the basic characteristics:

²⁴James D. Shaffer, "On the Concept of Subsector Studies," Technical Seminar on Subsector Modeling of Food and Agricultural Industries, Department of Agricultural Economics, University of Florida, March 30, 1970.

²⁵Bruce W. Marion and Charles R. Handy, Market Performance: Concepts and Measures, Agricultural Economics Report No. 244, Economic Research Service, U.S. Department of Agriculture (Washington, D.C.: Government Printing Office, September, 1973), p. 22.

- (a) Participants: organization, institutions, and so on, that are an integral part of the system;
- (b) Functions performed by participants;
- (c) Resource inputs used by participants;
- (d) Market rules and arrangements that influence participant behavior;
- (e) Structure of authority and decisions within the system which control and coordinate it; and
- (f) Environment within which the system operates.

2. To provide diagnostic information about the system in such a way that allows one to identify the unexploited economic opportunities and barriers to improved performance. Also it is important in this part of the study to discover the felt problems of participants as any other type of problem. To discover these problems it is necessary to use an interdisciplinary approach. Participants in the subsector as well as other professionals from other disciplines can help in providing such diagnostic information. In the same way, unexploited economic opportunities many times are recognized by those who work in a system. Nevertheless, the barriers to improved performance are often technical or attitudinal. Thus, the economist, "as a trained diagnostician of economic systems, has a special but not unique role to play in such research."²⁶

²⁶Shaffer, "On the Concept of Subsector Studies," p. 9.

According to the above explanation it must be considered that diagnostic knowledge is basically a matter of identifying problems. Diagnostic knowledge must be generated to determine what if anything, is wrong or bad and what could be causing it. Thus, a combination of descriptive, normative and descriptive, nonnormative knowledge is required.

3. Prediction or projection. The purpose of this part of the analysis is to project the significant variables as well as the future economic configuration of the system. In this process, the researcher must combine experience, judgment, and the ability to integrate fast-flowing information. The projections of alternative futures can not be simply projection of the past. Instead, they must be conditional probability statements about the future. Thus, the forecasters must be concerned about specifying and estimating important cause-and-effect relationships so that the impact on and trade-offs between important planning and policy variables can be reasonably estimated.

In this process the introduction of new information and technology must be considered. Nevertheless, in formulating the appropriate model of relationships the system can not be considered as an independent system. There are many relationships between the systems in the economy that would affect the projections.

4. Prescription. The prescription process involves the "changing" concept. Changes in institutions, practices, or behaviors are usually prescribed in order to lead to improved performance of the system. Nevertheless, the prescription process cannot be expected to provide final details on all the different kinds of problems and related solutions that might have been uncovered, but only to provide public and private decision-makers with information about the flow of consequences associated with alternative rules of behavior. Thus, "the research should provide insights to consequences or effects which are not obvious in the absence of research by trained economists."²⁷

Since the dimensions of performance are many and the alternatives prescribed in order to improve performance may be rejected by some applied economists as well as by some decision-makers, I will describe in the last part of this chapter some strategies for implementing program reforms.

Strategies for Implementing Reform Programs

Designing and implementing assembly system reform programs must be considered an evolutionary process. Obviously, the appropriate reform program depends upon the socio-economic reality of a particular system. Also, it is assumed that the system is related to the stage in the

²⁷ Ibid., p. 10.

development process some particular region has. The needs and potentials vary from region to region and even from commodity to commodity. Thus, in establishing an analysis and planning group it is necessary to be aware that there are vertical and horizontal linkages and sequences into the system as well as some barriers or constraints to improved performance of the system.

In identifying the vertical and horizontal linkages, it is necessary to take into account that there are three levels in the food system at which development must take place (1) the firm or farm level, (2) the commodity distribution channel level, and (3) food production-distribution channel level. Thus, there could be different, but closely related, development objectives, strategies, and programs into a food production-distribution system depending upon the type of level we are dealing with. The general development goals related to the system can be accomplished by achieving specific development objectives, strategies, and programs at some particular level or combination of levels. Nevertheless, the government administrative legal and policy environment will determine the specific kind of actions to be followed in promoting good production-distribution system development.²⁸

²⁸For a more specific analysis of this point, see Kelly Harrison et al., Improving Food Marketing Systems in Developing Countries, pp. 92-108.

On the other hand, the process of promoting food production-distribution system development can be initiated at any level, depending upon where the need for adjustments toward a higher output and more productive system is initially detected and systematically studied.

Thus, where the "system" approach is used, there could exist overall strategies for food system development that may include several entry points into the system. For instance, in the study of the Recife Area of Northeast Brazil,²⁹ it was found that one entry point was the urban food distribution system, a second was the rural markets for assembly of agricultural products, a third was the distribution of agricultural inputs, and a fourth was the urban industrial system.

The important thing at this point is to be concerned that albeit the first phase of the study can be initiated at some particular level, the dynamic adjustments which might result from the marketing reform needs to be accomplished simultaneously at several levels and with different amounts of resources.

Since the local initiative for marketing improvements can arise in a variety of ways usually involving wide differences in perceptions of marketing problems and a

²⁹Harold Riley et al., Market Processes in the Recife Area of Northeast Brazil, Research Report No. 2, Latin American Studies Center (East Lansing, Michigan: Michigan State University, June, 1969), pp. 1-11.

variety of opinions on what ought to be done about them, the problem is how a task force should be organized to deal with such problems in a systems context.

Although valuable insights for organizing and implementing marketing improvement programs are described in the study done by Kelly Harrison et al.³⁰ with special emphasis on problem diagnosis, formulation of reform strategies, and detailed program design, there is a felt need for further research on how to achieve program and/or project promotion, including institutional arrangements, legal requirements, in order to successfully carry out the program and/or project implementation.

Thus, in this part of the paper, a discussion on what could be an extension of the basic model is done, in order to provide a better understanding about the program and/or project promotion as well as the project implementation.

The model tries to identify the stages or functions which could be embodied in project promotion and implementation when a social change is involved. For instance, changes in the wholesaling or assembling process that can affect the people living in a given region or community. First of all, it is necessary to note that the stages explained below do not always occur in the same sequence.

³⁰Harrison, Improving Food Marketing Systems in Developing Countries, pp. 111-130.

Thus, all stages may not be present in all cases or, in other cases, stages may occur simultaneously. Obviously, the model I am offering may well not be the only approach which can be used.

Stages in Project Promotion
and Implementation

Stage 1. In this stage, as pointed out by Kelly Harrison et al.,³¹ the need is to recognize the prior social situation as well as to discuss the basic ideas on how to approach marketing problems. Clearly, the problems will not be defined in the same way for all groups within the community. Thus, the technical assistance group is going to be trying to modify several statements of the problem. Then, this stage usually involves some definition of the nature of the problem as well as some indication of the individuals, groups, and institutions that could be affected in implementing the foreseen changes. If these groups are overlooked, it is possible in a later stage, that these same groups will be in active opposition to the project. As stated above, each group could have its own special interests that must be recognized by the technical assistance group.

Stage 2. The objective in this stage is the formation of a number of small groups of individuals who become

³¹Ibid., p. 111.

convinced of the desirability of the program or project. It is assumed that this group will offer consultation and/or communication with other relevant individuals while the original technical assistance group is working on problem diagnosis and strategy formulation. At this point it is important to recall that the institutional positioning of the task force is a critical and delicate issue. Again, Kelly Harrison et al. have described a useful approach to this problem.³²

In forming the consulting-communicating group, personal contact is emphasized because it is so important that these individuals be carefully selected. However, in some cases the people promoting reforms may not know who may be available or which persons should be contacted. In this situation the most appropriate way to reach influential people is through written messages designed to bring support.

Stage 3. Assuming that within every society, organization, or institution there are certain individuals who are responsible for major policy decisions, the objective in this stage is to reach these influential people. If these individuals reject an idea, the probability is that the idea will fail. If they are willing to give their blessing to the program, the probability of its being successfully accepted increases. Nevertheless, these people are seldom

³²Ibid., p. 116.

active in the early stages of the program or project. Usually, they may not want to be associated with the program; but if they disagree with the idea, they readily block its adoption by saying "no."

However, there exists two kinds of people in authority. The first type is the formal authority. This is the individual with the legal or appointed power of decision-making. The role he plays is to examine the proposed projects and then to accept them or reject them.

The second type of authority can be called "informal authority." Usually this type of individual is harder to identify and difficult to understand. Usually they talk with many people. Thus, because of the amount of communication they have with the community they are able to influence and eventually to control, in an informal manner, the decision-making process.

It is important to note that the technical assistance group can be formal or informal authorities. Nevertheless, a high degree of motivation and recognition of deserved merits must be done in order to keep the technicians engaged in the project.

Stage 4. In addition to convincing people who are influential and in authority, it is necessary to diffuse the problems and the possible solutions which the project offers to all the people who will be affected by it. The size of the diffusion group is dependent upon the amount of

time each member has to engage in transmitting information and the access he has to the recipient groups. It is important to notice that not all influential people are good diffusion people. These individuals have power, but usually they do not have the desire to communicate with large numbers of individuals.

In this stage the members of the diffusion groups will have to supply information about the proposal to the media. Such information may take the form of press releases, television spots, and question-and-answer sessions on the radio.

It is in this stage that the project begins to take on noticeable social characteristics. There is a need to explain to people why the project is desirable. It is possible to state that change almost never occurs if there is not a felt need for the change. Everyone in the community will have to be aware, at least, of the necessity of implementing the project or program. As stated before, it is in the stage that the identification and definition of general public opinion and goals concerning the project play a very important role. At this juncture the various social systems that will be affected by the implementation of the project might develop a set of goals for themselves or might accept the proposal offered to them by the people working on the project. However, various groups with different sets of goals could be in agreement with a particular project or

program. For example, suppose the case of the community considering the development of a new central market place. Members of the municipality concerned with the market building can see the project as an effective way to raise the quality of life for the citizens in the neighborhoods. Members of the truckers group can see the project as reducing load and unload time and costs, and so on.

Then, goals must be explicitly stated in a separate way, other than agreement on the implementation of the project, in order to be more effectively included as a portion of the persuasive messages that help to accomplish the program.

Stage 5. Since we are dealing with "systems," situations could arise where several solutions to the original problem occur. Frequently there seems to exist a combination of actions that can solve the problem. The important aspect at this stage is to determine the methods to be used in selecting the alternative actions to solve the problem, in addition to the sequence which secures the implementation of the project or program.

For example, in improving the marketing system in some region, the technical report may state that the solution is to build a new public warehouse. On the other hand, the people believe that the solution is to eliminate the middleman. If individuals working on the project are unable to convince the people of the superiority of the new public

warehouse, they may be forced to pass a program reform proposed by others, reducing the number of middlemen before acting on the new public warehouse project. Such action may preclude or delay indefinitely the possible construction of the warehouse.

Stage 6. When the larger public has finally been committed to the idea, it is necessary to have a formal plan of work which details the steps and methods to be followed if the program or project will be finally implemented.

A methodological approach is presented by Michael T. Weber et al. with specific reference to Costa Rica.³³ They believe that the formal plan of work should include decisions about financing, operational steps to be taken in the implementation, as well as the time sequence that has to be followed. It is assumed that specific individuals engaged in the implementation of the project must be responsible for the accomplishment of the tasks that were entrusted to them and that the operational structure will provide appropriate lines of authority.

Stage 7. This stage has been placed last but really is not a single stage. This is the evaluation process. Once decisions are made, evaluation occurs and changes

³³Michael T. Weber, Juan M. Villasuso, et al., Proyectos de Mercadeo a Nivel Cantonal: Politica y Metodologia de Evaluacion para el IFAM (San Jose, Costa Rica: Programa Integral de Mercadeo Agropecuario (PIMA), Mayo, 1974).

may be suggested. It is important to note that two kinds of evaluation could exist: the formal and the informal. Thus, any of the individuals involved in the program or project may suggest modifications if he feels that the operations are not progressing well or that it is not accomplishing what he feels it should accomplish.

In addition to this informal evaluation, we can define the formal evaluation as those actions which attempt to determine whether a step that has been taken is actually accomplishing what it was intended to accomplish. Also, this evaluation could indicate the next steps to be taken in a complex series of actions.

Thus, the functions involved in any evaluation of project reform may include: (a) the efficiency of the groups in performing their specific tasks, (b) the adequacy of the planning methods used in performing the tasks, (c) the adequacy of the communication structure, (d) the degree to which the actions actually met the needs which were initially established at the beginning of the project, and (e) the degree to which the goals were or are accomplished.

A Concluding Comment

The main objective of this study was to provide some insights into problem identification and solving in assembly channels for people working on improving the Costa Rican food marketing system. The study and its explanations were

also intended to be of use for the people working in food marketing activities in general.

The study provides a set of definitions and explanations, most of which are expressed in a simple manner, that may allow a better understanding of the relationships that exist among socio-economic variables affecting the production-distribution system.

If improved product and factor market coordination and implementation can be achieved, the marketing system can perform an active and dynamic role in facilitating the transformation from a traditional to a highly productive economy.

In this transition policy makers and others must have a serious commitment in improving the food production-distribution system. Decisions regarding improvements in the food marketing system could be better implemented when people understand the principles surrounding the production-distribution process.

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