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INITIAL WORKING PAPER ON INCORPORATING THE MARKETING DIMENSION INTO THE SIERRA LEONE "RURAL EMPLOYMENT RESEARCH PROJECT" 1/

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I. INTRODUCTION

The purpose of this report is to suggest a set of research activities designed to answer questions which we believe are important in the achievement of the objectives of the Rural Employment Research Project.

We do not make much distinction in principle between the marketing and other dimensions of the research project. The emphasis of this working paper is on the organization and coordination of economic activity in the production and distribution of food and agricultural products, with emphasis on these activities linking the farmer to the general economy and world markets.

Given that the Sierra Leone economy is dominated by subsistence agriculture many of the questions relevant to development planning have to do with the location, specialization and mix of economic activities between the farm family, village enterprises and specialized firms. The basic research question is how would total output, distribution of output and employment be affected by alternative organizations of labour and capital and alternative land use patterns.

What follows is a mixture of observations on important analytical questions, research strategies, organization of research, specific research tasks or projects and some specific survey questions.

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1/This paper has been developed as part of a three year study of rural employment problems in Africa which is being financed under an AID/Washington contract (AID/csd 3625) with the Department of Agricultural Economics at Michigan State University. The research in Sierra Leone is being financed under a Michigan State University sub-contract with the Department of Agricultural Economics at Njala University College, University of Sierra Leone and Rockefeller Foundation and Population Council grants to Njala University College. The research in Sierra Leone is under the direction of Dr. Dunstan Spencer.

The Concept of a Working Paper

This report is identified as an initial working paper. As such it is designed to give an initial organization to a set of research activities. An attempt has been made to relate those activities to other aspects of this integrated research programme. As activities are added, subtracted, and modified the working paper can be modified. Thus, the working paper can become a major means of communicating among co-workers and can serve as an organized means of building the framework of research activities. It should be especially useful in introducing new researchers to the project, providing them a basis for understanding the scope of activities and where their activities "fit in".

Most important the working paper is not finished - it is just a beginning.

The Research Matrix - Organization of Paper and Research

There are many ways of looking at or classifying questions about the organization and coordination of the economy. We could look at particular commodity systems. For example rice is a very important commodity and all aspects of the production and distribution of rice could be the focus of a project. But focusing only on a single commodity results in failures to understand the interrelationships with other commodities. And there are major economics of scale in research by organizing studies involving multiple commodities.

Another research focus is on major functions - for example, farming, assembly, wholesaling, retailing, storage, processing, transportation and financing. Another focus would be on particular institutions - such as farmer cooperatives, credit agencies, marketing boards, etc. Still another way of slicing the research would be focus on problems and issues - for example is the pricing system effective? Are price policies of government agencies effective? Does monopoly exist in assembly markets? Are there profitable technologies which are not adopted and if so why?

In other words there are at least four approaches which could be taken in organizing this programme of research - (1) commodity (2) functional (3) institutional and (4) problem or issue. What we hope to do is provide sufficient discussion of each of these approaches to permit designing a program of research which combines them and yet remain within the resource capacity of the overall project. In any case the whole of the possible universe cannot be analyzed. Hopefully, it will be feasible to select strategic aspects of the economy for study to provide information useful in decision making at many different points in the political economy.

Table 1 indicates the commodities which are suggested for emphasis and the functional aspects of the commodity systems which will be considered. Much of the paper is organized around the table.

Table I. Research Matrix Commodity

Function	Domestic Rice	Imported Rice	Groundnuts	Cassava	Palm Oil	Palm Kernels	Coffee	Cocoa	Ginger	Fish	Cattle	All Domestic Food	Fertilizer	Ag. Chemicals	Domestic Farm Implements	Imported Farm Implements
A. Processing																
On-Farm	X	0	X	X	X	X	X	X	X	X	0	0	0	0	X	0
Commercial	X	0	0	0	0	0	0	0	0	X	0	0	0	0	X	0
Government (Quasi)	X	0	0	0	X	X	0	0	0	0	0	0	X	0	0	0
B. Storage																
On-Farm	X	0	X	0	X	X	X	X	X	X	0	0	X	X	0	0
By Traders	X	X	X	0	X	X	X	X	X	X	0	0	X	X	X	X
Specialized Storage	0	0	0	0	0	0	0	0	0	X	X	0	X	X	0	0
Processors	X	0	0	0	0	0	0	0	0	X	X	0	0	0	X	0
Government (Quasi)	X	X	0	0	X	X	X	X	X	0	X	0	X	X	0	0
C. Transport																
Farm to Village	X	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Village to Assembly Point	X	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Assembly--Final Market	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
D. Buying and Selling																
Assembly or Imports	X	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wholesaling	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Retailing	X	X	X	X	X	X	0	0	0	X	X	X	X	X	X	X
E. Credit																
Farmer	X	0	X	0	X	X	X	X	0	X	X	X	X	X	X	X
Trader Storage	X	X	0	0	X	X	0	0	0	X	X	X	X	X	X	X
Processor	X	0	0	0	0	0	0	0	0	X	X	0	0	0	X	0
F. Coordination Public Policy																
Market Information	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Price Stabilization	X	X	0	0	X	X	X	X	X	0	0	0	X	X	0	0
Price Control	X	X	0	0	X	X	X	X	X	0	0	0	X	0	0	0
Price Support	X	X	0	0	0	X	X	X	X	0	0	0	X	0	0	0
Taxation	X	X	0	0	X	X	X	X	X	0	0	0	0	X	0	0

In the second section a discussion is presented on a functional basis. In the third section the discussion is organized by commodity. In each case problem, issues, research activities and types of survey questions are discussed. Basically what these two sections do is attempt to show what is meant by the X's in Table 1. An X means that some consideration will be given to the particular functional aspect of the production and distribution of a particular commodity. However, what is suggested varies greatly among commodities and functions. For example, the table indicates that attention will be paid to both on-farm processing of domestic rice and cassava. However, in the discussion it is proposed that very different levels of analysis be applied to the two activities; much more on rice than on cassava. Given scarce research resources, priorities must be established.

The fourth section of the paper begins to identify specific surveys or survey elements. A survey element identifies a sample, indicates the objectives of the survey and suggests the types of questions to be dealt with in the survey. This section is very incomplete. Additional survey elements are suggested in the earlier sections and many questions are suggested which have not been included in this early development of the surveys.

The names of the survey elements so far developed, which are discussed in the fourth section of the paper are listed below. They will be referred to in the discussions in sections 2 and 3.

A next step in developing the working paper-or planning the research-is a systematic effort to relate problems and ideas to functions and commodities in developing the survey research design begun in the last section of this paper.

<u>List of Surveys and Supplementary Surveys</u>

Supplements to the farm survey and/or special surveys of farmers

MF1 Farm product sales - additional detail on transaction

MF2 Farm processing activities

MF3 Farmer perceived problems and attitudes related to processing

MF4 Farm storage conditions and farmer's perceived problems and attitudes toward storage.

MF5 Perceived (and real) barriers to expanded land and labour use and barriers to the adoption of economically superior technologies by farmers

A Inland swamps

B Oil Palm

C Credit

D Fertilizers and ag. chemicals

E Price expectation and supply response

MF6 Estimating errors in farm to assembler quantity measures

MF7 Market information and village competition

Surveys of Markets and Marketing Agents

MT1 Retail prices in daily and periodic markets

MT2 Behavior, costs, and problems of retailers and other traders in periodic and daily markets.

MT3 Estimating quantity measurement variations in periodic and daily markets.

II. FUNCTIONAL ANALYSIS

Introduction

This section presents a discussion of the basic functions in the production and distribution of food excluding farming. While farming, per se, is not discussed substantial attention is paid to on-farm activities such as storage, processing, and transportation.

Table I

However, there is one very important function in development which runs across these functions. That is the introduction and assessment of innovation. We suggest significant research activity related to innovation and discuss it as survey MF5. Thus in addition to the functions we include a discussion of introduction and assessment of potential innovation as point G in this section.

Also the relationship of the performance of the food marketing system, especially in respect to costs and coordination, and the utilization of labour in marketing involves an important question for the research project. Some preliminary and tentative comments on this topic are included in the last part of this section.

A. Processing

The processing system for the major crops listed above vary considerably and research is needed to determine if this component of the marketing system should be changed. Farmers use a substantial amount of labour time to process rice, cocoa, palm oil, and certain other products. The Rice Corporation maintains three (3) large rice mills and substantial number of small mills exist throughout the country. The Produce Marketing Board has a number of palm oil plants in conjunction with large scale palm oil plantations.

The cost of farm level processing activities should be assessed, especially the opportunity cost of labour. The trend toward more small village rice mills would indicate that the opportunity cost of labour used for processing may have no alternative and total returns to farmers would decrease if off-farm processing were practiced. But, even in those cases, if farming and marketing are viewed as an integrated system feasible farm plans might be generated where total well being could be increased if off-farm processing is adopted. Total farm income might be limited by use of labor in processing rather than other activities including in some cases employment in rural industries. Farm processing in some cases also may result in a lower quality product that in turn will reduce total returns.

On the other hand, if off-farm processing is to be established questions arise concerning cost, technology, transportation availability of

product and the ability of farmers to accumulate enough cash to take this additional step toward specialization. In the case of surplus processed for sale no additional transport cost would be incurred. That processed for family use would need to be transported both ways. Some mechanical technologies for rice permit recovery of bran and with an increasingly important livestock industry this creates an additional economic product.

These and other considerations suggest two kinds of research activities: (1) analysis of farmers' perceived problems and the economic costs and returns to on-farm processing under different existing or potential farming systems, and (2) the economics of off-farm processing in the light of various processing technologies and availabilites of supplies in regions of varying production density. The most important case to be studied is rice though investigation of other commodities might be warranted.

To deal with the farm level component of the processing question certain farm level data and information concerning farmers' perceptions of their opportunities and constraints will be required. For each of the relevant commodities information on the labour time required for processing, whose time is used, and its seasonal or daily and weekly use will be needed. Additional information required includes such items as:

1. How this time could be used if processing were done commercially including alternative enterprise and their bind or leisure.

2. Whether farmers earn enough money or could increase earnings enough with released labour to pay for commercial processing.

3. What transportation problems exist and whether they would be willing to both deliver and return commodities used for home consumption.

4. Whether they perceive that they would lose from their total food supply if mechanically processed.

5. Whether they would sell products that are marketed in larger allotments or whether gradual sale is used as a cash flow regulator.

6. Whether they would process for home consumption in larger lots or whether the rate of processing serves as a control mechanism on rate of consumption.

These and other kinds of information on storage and transportation, pricing and possibly living patterns will be required to assess the effect of change in the farmers' "marketing" activities. These data in turn would need to be related to production data and village level activity in rural industry study to devise optional programs and enterprise combination that will improve rural employment, output, productivity and welfare.

To assess the feasibility of increased off-farm processing data from the farm survey need to determine the conditions under which farmers would pay for commercial processing. Analysis of the costs of processing and the "break even" volume for different feasible sizes of mills and optional services need to be undertaken.

The procedures in estimating alternative processing systems if carried out in full implies an extensive and highly technical research effort. It probably exceeds the scope of this project. Much can be learned, however, by obtaining cost records from existing modern local mills and of larger modern mills possibly in Nigeria. Data obtained in the study of price spreads at various levels of the market and the transportation component of this study will also be useful. Rough approximations from these sources may be adequate to reach policy judgements. The importance and lasting nature of decisions on major investment in a processing system, however, is such that careful interpretation and informed judgement are extremely important.

The procedures for doing this kind of research are outlined below for rice in the commodity section of this report. These general procedures would apply to other crops. Analysis of meat and fish processing would appear to be completely different and require a different analytical procedure. It is probable that all aspects of meat and fish marketing: processing, storage, transportation, and pricing should be incorporated into a separate commodity study with only preliminary work to obtain information on the existing processing systems incorporated into this study.

B. Storage

Storage is a key function in the market system. The overall purpose of storage is to make products available for processing or consumption at the time and is complacent with the transportation system, at the place needed at prices commensurate with the cost of providing these functions. To adequately measure the effectiveness of storage in this context a number of interrelated questions need to be considered. These are where products should be stored, what kinds of facilities are needed, how much loss is incurred in storage, whether a credit mechanism is available that does not involve excessive interest charges, at what level of processing and level in the marketing chain storage should be done, whether government price and import policy complement or distort the storage process, whether the storage (especially at the farm level) is a constraint on production and whether storage is adequate to provide acceptable quality maintenance.

The specific nature of these questions may vary greatly among the commodities that will be considered in this study. In the case of export crops storage largely needs to be related to the relationship between time of harvest and flow of exports. Flow of exports whether managed by private trade or government might be influenced by seasonal or inter-year price movements in world markets. Overall quantity and seasonal monthly, or weekly flow might also be effected by provisions of international agreements.

Storage needs also are related to levels of production which in turn depend on government price policy. The research procedures for crops thus could include: assessing adequacy and costs of temporary storage at collection points needed to adequately serve farmers. This is closely related to problems of transportation and assembly. A one time survey of farmers and assemblers and licensed buying agents could ascertain whether problems exist warranting further research. Another question of interest would center on the technical adequacy of port storage and whether more or better facilities would permit more effective management of sales or would be needed if volume increased due to change in government policy.

A category where problems related to storage differ considerably are livestock products including fish. The main reason for this is that they deteriorate rapidly unless refrigerated. They also rapidly attract insects. In general, storage facilities for livestock products need to be assessed in terms of needs at processing points and at major centers of consumption and at distribution points to serve rural regions. Refrigerated transportation may also be needed to maintain quality. This kind of research would involve technical questions on designing appropriate systems for conditions in Sierra Leone (or evaluating systems developed for similar countries). Economic analysis would involve the assessment of costs and returns in achieving technical improvements. An important question for both meat and fish is whether total marketing costs would be increased. It probably is more important that poor people eat meat - even if low quality - than for an updated market system to exist.

Rice storage and its interrelationship with other market functions, its interrelationship with pricing, and other elements of functioning of the marketing system is of primary concern. A number of research focuses are warranted. The technology of storage to minimize losses at the farm level and other levels of the marketing system needs to be investigated. Information on current storage facilities, charges for commercial storage, and the location of a storage in relation to needs for cross-hauling of rice should be gathered. The interests costs of storage and the losses due to insects and rodents should be known. Losses from on-farm storage may be important and if possible should be measured. Availability of commercial storage may be constrained because of inadequate credit - both for construction of facilities and for carrying inventories. The Rice Corporation policy that attempts to maintain a constant annual price almost certainly affects the willingness of entrepreneurs to assume the risks and costs of storage.

As with other aspects of research on rice a great deal of information is available from previous research and from the Rice Corporation and the Government. These sources should be explored and incorporated wherever they can eliminate the need for new data collection. Information on problems of storage at the farm level in relation to losses and perceived problems due to price policies, etc. should be obtained through the existing farm survey procedures and an additional one-time survey.

An additional one time survey to cover private processors, wholesalers to obtain information on all components of the marketing system, should incorporate questions concerning the storage function and perceived problems.

It would be useful if improved information on storage stocks of rice and changes in stocks of local and imported rice could be obtained. This would provide the basis for formulating an improved stocks reporting system - an important need for improving the management of imports. Stocks information over time also should be useful in analyzing the effect of government price and stocks policy and operating practices of private firms.

C. Transportation

A number of basic questions and issues are involved in transportation costs and policy. To what extent is high cost transport a barrier to increased agricultrual production? Is it a limiting factor in land utilization and in the use of technical inputs? What is the economics of alternative modes of transportation for farm products and agricultural inputs? What should be the import policy - quotas, taxes, prices, mix of permitted imports of transportation equipment and fuel? How effectively is the current transportation system operating? Is there monopoly or failure to provide economic services, etc? Are transportation charges or costs excessive? Is the information system working? Are the prescribed rate structures causing problems and uneconomic use of resources? Are undesirable substitutions of capital for labour being made?

A very substantial input of labour appears to be expended in transportation between farm and village.

Does this distance and difficulty (labour requirement) of transportation to and from some land keep it out of cultivation and development? What are the problems farmers face in transporting in the traditional way? What are the losses encountered in transporting commodities in the traditional way?

This would best be dealt with in the farm survey in a series of questions about the barriers to using farm land - especially the inland swamps. The inland swamps tend to be further from the village than upland areas.

Does the farmer use any labour saving techniques for transport between village and farm? What? Are the paths to farm areas such that a transport device could be used? Could agricultural engineers devise a cart which would be useful under typical farm conditions? At what cost? Swamps land fertilizer provides a potential for more or less continuous cropping (check crops specialists). Under these conditions would it be economical for farmers to develop paths and invest in a cart? Would this contribute to greater utilization of land, increased production, and increased total labour utilization?

Distances and time from village to farm from on-going farm survey.

Add visual observation on the development of paths and their adoption to cart (enumerators make observations - agricultural engineers specify criteria).

Evaluate total labour time from 1971 Agricultural Statistics Survey plus farm survey data.

Evaluate transport barriers to use of fertilizer and utilization of additional land from survey of farmers on barriers to their use (extension faculty).

Farm to First Buyer and/or Last Seller to Farmer

The major question here is - does the cost of, or difficulty of transportation to and from the village act as a barrier to economic use of inputs or reduce the incentives to market products. Also the labour and transportation costs involved in selling products at different points affect the real price of products to the farmer.

For example, selling a bushel of rice in the village for Le2.50 to an itinerate buyer and selling a bushel in town after head-carrying it two miles and paying 40¢ to bag a bushel and then selling the rice for Le2.80 involves - a different price, a different enterprise (assembly) and the purchase of an enterprise input - (the bushel rice).

It appears that some elaboration of the on-going farm survey plus some one-time questions would be desirable as a source of some of this information. A suggested survey on farm to first buyer linkage will be sketched in a later section.

Substantial additional data for anlaysis of the transport system will be available from the agricultural statistical survey and should be incorporated into this analysis.

Also existing studies from the "Ministry of Public Works" and other sources analyzing costs and benefits from feeder roads should be incorporated to complement the analysis, especially in terms of evaluating the effects of alternative policies of investment in feeder roads on agricultural production, employment, and farm income.

The data from the agricultural statistical survey should provide a good basis, when combined with the farm survey data, for estimating the transport component of the assembly function for specific farm products.

Much of the information for this aspect of transport study should be obtained from secondary data. A table should be developed showing costs and distances between all important shipping and receiving points in the country. Initial estimates for truck and barge (and train for a period?) for major

commodities can be obtained from the established government prescribed rates. Adjustments in these rates for different times and conditions can be estimated by survey of a limited number of trucker (barge operators) and shippers (for example, the licensed buying agents for the Boards ship large quantities of commodities and while paid on allowances for transportation do negotiate rates both above and below established schedules).

The basic table of transport charges will be used in estimating the transport component of price spreads for the commodities studied. This will in turn be useful in evaluating the special differences in commodity prices at particular times. It is, therefore, especially important to be sure that transport costs be identified between the points at which prices are collected in the price study.

The World Bank rail study and other reports should be consulted to determine costs of truck transportation. A significant question is the relationship between costs of providing transport services and the charges for that service. A comparison of costs and charges based upon these secondary data would be useful if it can be done with little additional work.

The lack of reliability of service may also be a problem for agricultural shippers. Fertilizer must be delivered at a proper time to be useful. Perishable commodities must meet shipping schedules. Evidence of such problems should be sought in the existing reports. However, specific questions to shippers and transporters may be designed to add to the analysis.

Since the cost of transportation is an important consideration in agricultural marketing, additional means should be identified for reducing costs.

One problem in the system seems to be excessive cross-hauling of commodities due to lack of information, lack of adequate storage, administrative procedure, and location of processing facilities. Thus, questions to shippers, truckers, and agencies should be addressed to this problem. We know, for example, that rice is transported from Bo to Freetown for milling and then returned to Bo for sale as milled rice. By combining the available data on cost of milling and cost of transportation the economics of this situation could be quickly analyzed.

Another problem is the effective utilization of high cost of imported equipment and fuel. Maintenance is usually a major cost and equipment remains idle or is junked due to lack of maintenance and regular repair. Consideration should be given to an import policy that would both limit the number of makes of equipment and assure inventory of adequate parts. In addition, the economics of maintenance and machine shop production of replacement parts should well be examined as part of the small industry study.

D. Buying and Selling

It is proposed that the effectiveness of the coordination and distribution functions of marketing agents and agencies be evaluated through analysis of price spreads and cost estimates of performing specific functions. It is not proposed that detailed enterprise analysis be undertaken for assembly, wholesale, and retailing firms.

The diagnostic questions include: How effective is the market in allocating products through time, space, and in a form preferred by consumers? Also how effective is the system in communicating information about potential markets to producers and information about potential products to consumers? A question of the cost of performing their services is also involved, especially the question of monopoly profit or the gain from unequal access to information. Traders may be confronted with a number of barriers to the improved performance of their functions. Important questions relate to economies of scale and labour utilization in the performance of these functions. The lack of capital, problem of security, lack of information, inadequate transportation hinder the functions of assemblers, wholesalers, and retailers.

Considerable descriptions and data on marketing channels for major crops already exist in previous reports. Other information will be available from analysis of processing, storage, and transportation functions. The interface between farmers and assemblers including the performance of the marketing functions by the farm family, should be designed into the farm survey (MF1).

One major survey (MT1) should be undertaken in an attempt to establish price spreads between time, place, and form of major commodities. This will involve the development of a regular price reporting system providing periods and geographically representative prices for products of specific form. This system will both utilize the existing reporting systems and hopefully will serve as a model for a continuing system of market reports. Consideration should also be given to attempting to identify market volumes. Where time series of price data already exist these should be used to enrich the anlaysis.

Two groups of traders appear to be of major importance in performing marketing functions including the coordination function. The first group are those who operate in and near the daily and periodic markets. Thus a concentrated effort will be made to understand the total operation of these markets and the functions performed by participants in the markets. These observations will be combined with those on prices in the same markets. It is assumed that for most commodities, other than those exported, their markets and those operating within them are the major link between the farmer and consumer.

The second group of traders of major importance are the licensed buying agents for the boards and the traders who deal with them. Thus, it is suggested elsewhere in this report that special surveys of these agents and those who come to their stations be conducted to identify the functions they perform and the costs and problems they have in performing these functions.

Some attention could profitably be paid to the question of labour utilization in these functions. The public daily and periodic markets may include redundant labour. The labour involved in these markets and its relationship to costs and other aspects of performance could be studied in some of the same markets from which price information is obtained.

The costs of retailing, wholesaling, and assembly are difficult to determine in terms which are comparable among different levels of the system. This often leads to misleading implications about the middleman functions. Also it is both difficult and expensive to do comprehensive cost studies of assembly, wholesale, and retail firms. Information on "middlemen" margins are more meaningful in terms of the set of functions they perform. Thus, it is proposed that emphasis be placed on attempting to identify (1) price spreads, and (2) the functional cost components of processing, storage, and transportation. Hopefully, a system set of accounts can be established for the major commodities and all domestic food as a part of an input-output table showing the expenditures for agricultural marketing with some meaningful classifications.

E. Financing and Credits

The problem of financing and credit is pervasive in that it can represent a major constraint in creating change and improvement at all levels of the production and marketing system. Currently the private banking system in Sierra Leone is limited and government credit for agricultural production and marketing is restricted to parastatal organization and special programmes It is not unrealistic to state that unless the financing and credit system can be improved development in the agricultural sector will be slow at best.

It is suggested that as a part of this research an effort should be made to define the nature and extent of this problem as it faces farmers, traders, processors, wholesalers, and other participants in the food production marketing system. The flow of loans and repayments by farmers is being obtained in the farm survey. This should be supplemented with a one time questionnaire that seeks to obtain insights into farmers' perceived problems with credit, their main uses of credit, and their potential response to increased and lower cost credit.

A one time questionnaire to marketing institutions also should seek to determine the current nature of credit practices including extent of use sources, interest rates, and repayment schedules. Credit both for capital investment and operations should be included. The questionnaire should

also seek to illicit perceived problems and the extent to which credit problems represent a constraint on improvements in the market and input supply system. Ultimately solution of the credit problem will involve charges in institutions, attitude and procedures both in government and the private sector. A useful first step in achieving change is to define the problem and this limit of the research suggested here.

F. Coordination and Public Policy

The government plays a major role in influencing the coordination of economic activity. This is included as a marketing function and involves questions related to market information, domestic price policy, and trade policy especially import and export takes but also foreign exchange policy and other forms of trade control.

Presently the government of Sierra Leone maintains the price of rice through its import policy and its policy of offering to buy rice at a set price that is constant throughout the year. In the case of export commodities (cocoa, coffee, ginger and palm kernels) the government establishes buying prices and has a monopoly on exports through the Produce Marketing Board.

A number of questions arise concerning the functioning of these institutions and other elements of government policy in the light of their effect on employment, production, market coordination and efficiency, and other considerations that are of concern in this research. Some of the specific issues and questions are as follows.

A principle policy objective in Sierra Leone is to achieve self-sufficiency in rice. In achieving this goal the response to change in price, both of quantity consumer and quantity produced, are at issue. Data probably are not available to estimate aggregate demand elasticities. Obtaining some information on the effect that price changes would have on farmers' decisions to sell commercially rather than retain rice for home consumption may be possible. The key question to assess is the extent to which farm price changes would influence production through the use of additional land, through expanded use of purchased inputs (if available) and through changes in farming systems. The economics of expanded fertilizer use at alternative product prices is an important issue. The level of prices needed to generate increased use of swamp land for increased rice production on a double crop basis also deserves examination.

As a component of this kind of analysis the implications of government policies that influence input prices especially fertilizer would be useful. An effort should be made to determine the effect that alternative pricing of fertilizer would have on farmers' decisions. Alternatively if import tariffs apply on other purchased inputs these may represent important constraints on production response at any given product price level.

A similar and closely related component of policy analysis is the progress of extracting a substantial tax from export commodities. The stated

objective of this program is price stabilization but clearly this is at a low level relative to world market prices. While projection of future world market prices is one of the most hazardous of research enterprises the economics of production at alternative price levels is an important component of research that seems to fit within the objectives of this project.

Government programs also affect the operation of market systems and can either complement or distort normal commercial processes. Stabilization of prices should not be interpreted to mean that prices should be at the same level thorughout the year. For products where storage is required to provide year-round consumption or year-round processing for domestic use or export storage costs (e.g., interest charges) are incurred. If a storage function is to be performed costs should be covered to prevent distorted selling and temporal distribution practices. Similarly identical prices at all locations can distort special patterns of storage and in the longer term production.

Another question concerning government price programs is their workability. Under current systems of marketing where farmers sell by numerous volume measures rather than accurate weights, undetected pricing distortions can occur. Assessing these and divising more effective control mechanisms need to be considered.

A particularly difficult problem of policy analysis arises where the government attempts to both support farm prices and control consumer prices. Unless price spreads are realistic subsidies to marketing firms will be required or either the support effort on the control effort or both will not work. If monopolistic control exists in the market excessive profits arise if the spread between consumer and farm prices is too wide. Information about costs in the marketing system along with careful control is needed to carry on this kind of program.

Government programs can also affect marketing effectiveness through policies that influence costs. Import tariffs that affect prices of capital investments (e.g., rice mills) or input prices (e.g., petrol) can be significant in their effect on costs. The effect of government price and trade policies both existing and potential warrants investigation in several components of this study. The data being collected in the farm survey will be useful for formative analysis. Consideration might, however, be given to whether additional data could usefully be collected in the marketing study on how farmers would respond, or what they would do, if different levels of prices obtained on major products and inputs - especially fertilizers.

At the marketing level analysis of the effects of government programs on pricing efficiency, storage, and transportation would also appear warranted. It is not proposed that a separate study of government policies or institutions be investigated at this time, though this may be of interest at a future date. The suggestion now is that in implementing various

phases of the marketing study that relevant data for assessing the perceived effect of government policies be incorporated where feasible. This requires a description of these policies, interviews with government agencies participating in these programs, interviews with market participants on their perceptions and reactions, and observations based on the price data. Another important question at all levels of the production and marketing system is the usefulness and role of government provided market information. It is suggested at several points in this paper that information be obtained with respect to the sources accuracy and use made of market information.

G. Introduction and Assessment of Potential Innovation

Development involves innovation. A basic question is how can economic activity be reorganized in order to provide more productive employment of available resources.

A priority early research task is to identify promising innovations and technologically feasible alternative enterprises which might be introduced into the rural economy.

It is proposed that members of the Faculty of Agriculture and others with knowledge of potential innovation be interviewed systematically to develop a list of possible applicable innovations which could be systematically introduced into the analysis of alternative organizations. Where the innovation seems to have application additional work would be undertaken to attempt to establish relevant technical and economic relationships. The technical faculties would also be asked to help assess or design innovations to deal with constraint on improved employment of resources in the rural community.

For example, earlier studies and personal observation indicate that most products move from the field to village and from village to road by head-carry. Fertilizer would be transported in a similar manner. This is hypothesized to be a constraint on increased production for the rural village. Can the Agricultural Engineering Faculty devise a "cart" adapted to the conditions found in the countryside which would be an economical device?

Similarly there appears to be a potential of obtaining an additional crop in some circumstances which would improve the use of land and labour. These possibilities need to be explored with those who have technical and extension knowledge. Of course, such analysis must consider the potential family utilization and market for such increased output.

The point to be made is that a major research task is to systematically explore potential innovations with other faculties and to develop research relationships such that they will participate in the essential assessment of selected alternatives.

H. Marketing, Development, Labour Efficiency, and Employment

It has generally been accepted that the transition from a traditional subsistence agricultural economy to a more productive one involves increasing specialization in employment. This process is the focal point of the employment project. Increasing specialization requires the development of a system linking production and consumption units in the economy. This system involves two classes of functions - one is the physical distribution of goods and the other is the coordination of activities. A major question for the marketing study is how does the performance of this system affect output and employment.

As an economy develops it is usually true that the percentage of resources devoted to "marketing" increase. The "marketing system" performs functions previously performed on the farm and within the household as well as providing the linkage among the participants in the system.

The effectiveness and cost of the marketing system is critical to productivity and employment in the total economy. This is true of both the cost of distribution and the effectiveness of the coordination functions. For example, the cost of distributing fertilizer affects the economic use of it, but also the availability of fertilizer at the time, place, and in the farm needed greatly affects its utility for crop production. Moreover, the marketing system at its best provides manufacturers or importers with knowledge of the potential market and provides users with knowledge of the potential availability and benefits of use of products or inputs. This is part of the coordination function and is an important factor in the stimulation of innovation.

In traditional societies merchants tend to be very passive in performing the coordination function. They search out any surplus available for the market and make it available to consumers who seek it at traditional places. Wholesalers, for example, seldom seek to develop or find markets for new products nor do they provide information to farmers about a potential market. Seldom do they provide retailers assistance in selling their products. Again using the example of fertilizer in Sierra Leone it does not appear that merchants are promoting the economic use of fertilizer. There is, for example, no systematic merchandising program to encourage increased use. Similarly there appears to be a potential for second and third crops on some of the inland swamp. The marketing system is not working to provide farmers with the kind of knowledge about potential markets and profits which might be gained from such new enterprise.

This general discussion is in way of an introduction to a major policy issue related to employment in the marketing system and to the role of government in economic coordination. Marketing activities tend to be sources of residual employment. Food retailing especially provides employment for large numbers of people usually at very low returns. Since there are usually few barriers to entry, (little capital or knowledge is required to enter the business) people who might otherwise be unemployed attempt to make something by performing a marketing function.

A significant problem is that while the individual may receive a small compensation for his work, the marginal contribution of his efforts for the system are zero or negative. The "extra" retailers in a market place, for example, may add to the congestion of the market increasing the costs of supplying the market and in shopping. More important, the very large number of small operators in all aspects of the marketing system makes it very difficult for any firm to develop the skill and capital needed to perform the development coordination functions. Even the "static" coordination functions may be poorly performed due to the failure of traders to invest in acquiring information, by the incentive to gain an immediate profit and due to distorting information about quantities and prices.

Thus, the coordination function may be performed more adequately with some larger scale traders and retailers who put pressure on the system to perform. However, these larger scale operations economize on labour thus adding to the short run on employment problems.

Similarly increasing the efficiency of the distribution system - that is producing the cost of distribution at a given level of service - can be achieved by reducing the inputs into the distribution system. In a traditional system these are mostly labour inputs. Thus, reducing marketing costs reduces labour requirements in the short run.

The analytical problem is to distinguish between the immediate effects and longer run consequences. Again referring to fertilizer, reducing the marketing costs, improving delivery schedules, or "selling" fertilizer to farmers who can make profitable use of it will increase the use of fertilizer and, in turn, food production, thus, reducing the needs for imports of food and perhaps providing higher returns to farmers for developing additional land for cultivation. This may result in increased employment in agriculture. At any rate employment at a positive marginal social product seems preferable to employment in activities with negative social returns.

Given the situation of traditional attitudes, lack of knowledge, considerable uncertainties, and significant externalities, government intervention in the marketing system may contribute to the development process. Thus, considerable attention in the marketing study will be paid to the role of government related to improving the coordination and distribution functions. Price policies are, of course, at the heart of the coordination process.

III. COMMUNITY ANALYSIS

A. Introduction

In this section a discussion of problems and research oriented toward commodities is included. It is recognized that this involves some redundancy with both the preceeding and following section. Nonetheless it is believed that development of a coordinated research effort requires both a functional and commodity approach. Many strategy and policy questions are unique to specific commodities. Also, it is most likely that research reports will be at least in part organized around commodities as well as functions and problems.

In this section some attention is paid to the relative emphasis that is suggested be placed on the different commodities. This is something which will need to be adjusted to the available research resources, including the special interests and knowledge of new research assistants.

The commodities are discussed in the order they appear in Table 1.

B. Rice

The research matrix developed in Table 1 suggests a more comprehensive analysis of the rice market than any other commodity. The purpose of this statement is to suggest an integrated approach to rice marketing research at all levels of the production - marketing process. As perceived now the kinds of issues that exist in the rice industry are:

1. Inadequate rice is being produced for domestic consumption despite an apparent capacity to substantially increase production.

2. Too little is known about many details of the functioning of the rice market and subsidiary functions such as availability of credit. Major questions also exist concerning the kinds, quantity, plant size and location of storage, and processing facilities and buying and selling practices.

3. Government policy operated through the Rice Corporation influences the market to produce both desirable and undesirable results. The implications of government policy at all levels of the marketing system need to be understood so that policy changes can be devised that seek to increase desirable outcome and reduce undesirable outcomes. As with all research dealing with solutions to policy problems, what is desirable and what is undesirable needs to be defined.

Research undertaken related to these problems should be complementary with work prescribed for the farm level and with functional components of the marketing study (e.g., determination of transportation costs, etc.). Two kinds of research can be undertaken: (1) Diagnostic and prescriptive analysis based in part on considerable information already available from other studies, and (2) a more extensive analysis aimed at determining the optimum number, size, and location of processing plants. The former of these can be incorporated into the study within its existing framework. The latter would require the concentrated time of one person and would have to incorporate information from many aspects of this overall study - including some of that which will be suggested under point one above. Assistance would also be required from agricultural engineers. Further, this kind of analysis should be based on projected future demand and supply conditions so that a processing industry for the future and not one for the present is developed.

The starting point for a diagnostic - prescriptive study is to assess the usefulness of previous research. One important element is to try to assess off-farm processing and storage costs.

These data then can be used in conjunction with transportation costs and farm to retail price spreads to analyze the relationship between temporal and spatial prices and the costs of performing these services. This kind of analysis is done in the recent AUHF study and unless deemed inadequate need not be repeated. An important extension can, however, be developed. The information in the AUHF study can be related to relevant information in the farm level survey to make judgements about where smaller scale processing and/or storage facilities could be located and expect sufficient volume to be successful.

In addition to the analysis sketched out above additional information about the rice market would be useful for a number of purposes. It is suggested that this be obtained by a one (or two) time survey that would have approximately the following format:

1. The survey sample should be taken in a pattern similar to that covered in the retail - wholesaler survey.

2. All surveying should be done at fixed processing points and at Rice Corporation storage points.

3. The proprietors of rice mills and a selected number of traders who sell, buy, or use processing and/or storage services at these fixed points should be interviewed.

4. Each interviewer after interviewing the proprietor of rice mills only should return to each location long enough to complete the interview of traders.

The purpose of these interviews would be to obtain the following kinds of information from the rice mills.

1. Kind of facilities - type of mill and amount and kind of storage.

2. Kind of processing services performed and charges (milling, parboiling), the technology used.

3. Buying and selling methods - arrangements with traders, from farmers, measured through weight or volume. Difference in price of raw and parboiled rice, other practices.

4. Storage practices and charges; do seasonal price charge normally cover the cost of storage - tie in with government price programs.

5. Do they have problems with losses; are by-products recovered?

6. Sources of market information for pricing and decisions to store if on their own account.

7. Do they know of the Rice Corporation and its purposes. If yes, does the government program affect their operation? How?

8. Do they have adequate capacity to handle rice brought to them at all seasons of the year?

9. Preparation of raw and parboiled rice processed.

10. Do they use credit to finance inventories, cost of equipment or for other purposes?

11. If so, what is the source and cost of the credit?

12. Are changes in their facilities or operating practices needed?

13. If yes, would they use credit for these purposes if available at a relatively low cost and if so what would credit be used for?

From traders that can be sampled at mills questions related to buying and selling practices, prices paid or received, whether they have storage, problems with losses, sources of market information, knowledge of the Rice Corporation, the effect of policy on their operations, price differences on raw and parboiled rice and use of and need for credit should be included. The specific questions and their formulation likely would differ from those asked millers. In each case the kind of trader, whether farmer or itinerant merchant, retailer or wholesaler and the place where the commodity was obtained or where it will be delivered for sale should be obtained.

The above set of questions likely is not comprehensive and undoubtedly will have to be expanded. Their purpose is to obtain information on operation of the market for rice between the farmer and retailers and wholesalers who operate at periodic and daily markets. Information on the effects of government policies combined with other data should provide insight into the market implications of current Rice Corporation program and modification of existing programs that might be needed or gaps that suggest an extension of the program. The information obtained will be supplementary to cost analysis in estimating the scope for additional investment in processing and/or storage facilities.

The objective under point 2 above would be to assess specific conditions under which processing plants of various kinds and sizes could economically be installed.

If this analysis were undertaken in depths assessment of the costs of processing and the "break even" volume for different feasible sizes of mills and optional services would be needed. Optional services in the case of rice would include providing storage, parboiling and transport. The first step in this process is to work in conjunction with agricultural engineers and extension to assess potential technologies for the various sizes of mills to be considered. When optional technologies have been chosen costs for a selected set of volumes should be computed. The matrix of costs to be arrived at is as follows:

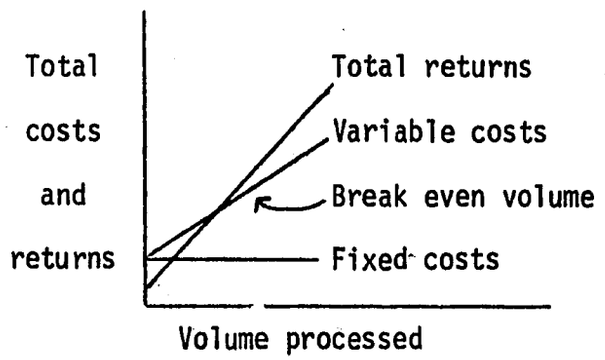
Processed per year	200	600	1200	2000
Plant Option				
A				
B				
C				
D				
ETC.				

Each cell of this matrix would be filled with total cost. Costs to be computed would include:

Depreciation
Interest on investment

Power
Other costs

These total costs in turn should be related to returns from processing charges, sale of bran and other revenues to arrive at a break even volume required for economic viability. This volume can be illustrated as diagrammed.



Three basic kinds of systems might need to be considered in this analysis: (1) Local mills that are relatively small in size and process largely on a fee basis with few if any other services, (2) local mills whic process on a fee basis and which also purchase rice for processing and later resale, (3) larger mills that would need supplies beyond these available in any local area. The latter two categories will require estimating the costs involved in assembling and storage as well as processing. Assembly costs for local mills could be approximated from the margins obtained by itinerant traders. For large mills these costs and transportation from local assembly points to the mill would need to be estimated. Once these costs have been approximated a guide to the number, size, and locatio of larger plants could be obtained through an L.P. approach. This approach likely would not prove feasible if a system of small plants is developed. A less formal approach that is based on assessment of potential volume in local areas should be used.

C. Groundnuts

It is proposed that groundnuts be included as a commodity study, but that they receive a minimum of attention beyond that which would occur in survey data being collected in the general surveys.

On-farm processing would be analyzed based only on the farm survey enterprise labour and cost data. Farmers would be asked to estimate storage losses, but no attempt would be made to confirm the loss estimates. Price spreads and overall market efficiency would be estimated based upon the transport data, daily and periodic market price study, and data collected from the trade survey. The trader survey would need to include sufficient data to obtain good estimates of losses as in storage, length of storage, and conversion factor in transformation from shelled nuts

to roasted and processed products, as well as any other costs of function performed. The price study will need to include the several products representing the different levels of processing. An estimate will need to be made of the distribution of the off-farm sale of groundnuts devoted to the different products in order to estimate a weighted average price spread for the commodity. The trade survey could provide additional information about cost and problems associated with marketing of groundnut products.

Given sufficient resources a useful additional analysis would be made to the economic feasibility of processing groundnuts for oil. Significant quantities of food oils are imported. The substitution of palm oil in both production and consumption as well as the possible acceptance of substitution for imported oils in consumption would need to be considered. Engineering data would need to be assessed in respect to feasibility for oil production. The feasibility of oil production with existing palm oil processing facilities could be investigated with little expense.

An added dimension of this question would be a comparative examination of processing of soya-beans. Soya beans offer an alternative to both palm and groundnuts as a potential source of oil.

In general the potential for introduction of soya beans, the facilities for their processing and the analysis of both their potential as an alternative farm crop and as an addition to the diet and possibly as an export commodity needs to be evaluated.

D. Cassava

The level of treatment and sources of data for cassava is very similar to groundnuts. The problems are also similar. It may be reasonable to limit the study of marketing of cassava to less than the entire country. At least the study in the Western Area would be different than other parts of the country and would have to be differentiated because of the importance of foofoo in the west and the fact that the variety of cassava used for foofoo is different.

Because of the high perishability of cassava after harvesting the problem of spoilage, storage, and efficient transportation would require special attention.

Cassava leaves are a minor commercial product and losses and quality deterioration seem to be a problem. However, this does not seem to be of sufficient volume to merit external study.

Given sufficient resources additional consideration could be given to: (1) new technologies for processing and preserving cassava in commercial

channels, (2) the extent to which cassava is and would be substituted in the diet for rice when rice is in short supply--expended use of cassava as a rice substitute might have serious dietary consequences since rice is very superior in nutrition, especially in supplying protein, and (3) the extent to which cassava could be used as animal food.

E. Palm Oil and Kernel

Following rice it appears that palm oil and kernel should have priority in allocating research efforts. Palm oil and kernel are joint products in production but are produced for completely separated markets and have through different market channels. This presents at least one major unique feature in marketing analysis. This is the relationship between final demands and how much should be produced. One guide would be that enough palm oil should be produced to satisfy domestic demand and that kernel should be viewed as a by-product to be sold in world markets at whatever price can be received. On the other hand, exports of kernel can be used as a guideline irrespective of the level of self-sufficiency for oil. Alternately, full self-sufficiency of domestic oil plus expansion into export markets may be feasible. This points up the need to assess demand prospects both the domestic and international market in planning both production and marketing programmes. This is a key issue that needs to be considered in developing price policy and in planning the palm oil processing - plantation operation by the SLPMB. The Board's production programme is understood to include in addition to the plantation system a programme of small farms development.

One kind of analysis that probably could be usefully carried out, is the nature of the small farmer development programme to determine its successes and problems. This opportunity to provide a linkage between the PMB system and improvement in the welfare of small farmers should be fully exploited especially in light of the present bid to increase oil production for domestic consumption.

It remains true, however, that large quantities of palm fruit represent incidental production on many small farms. In the case of kernel from these sources analysis of assembly practices and pricing to farmers as well as pricing and handling practices by the Board can be identical to that suggested for coffee and cocoa.

In the case of oil produced by farmers outside the Board programme, a wide range of information is needed to assess marketing practices and arrive at recommendations for improvement. Information on prices at the retail and wholesale level should be obtained and related to transportation and buying and selling costs. Processing and storage technology at the

farm level should be looked at both from an engineering and economic point of view. Nuts are for the most part cracked by hand and primitive methods of oil processing prevail. The feasibility of increased use of simple mechanical devices for both processes should be assessed.

Storage also appears to be a problem and can result in losses and taste contamination and should be included if an economic - engineering study is done. Also, the data collection suggested in the list of supplementary surveys [illegible] through MF4 would be relevant to study marketing problems for oil [illegible] at the farm level.

One of the problems that seems to exist in the palm fruit market is that prices offered by the Board appear to be adequate to cover production costs on plantations. At these prices considerable wild palm fruit is harvested. This creates an additional complexity in determining what is an appropriate price. It does clearly suggest, however, that there is need for research that would reduce the costs and problems that small farmers incur in harvesting, processing, and transport of palm commodities. The possibility of obtaining small commercial processing and storage facilities to serve local communities should also be investigated.

F. Coffee and Cocoa

Coffee and cocoa are almost exclusively export crops handled through the SLPMB. From the point of "wholesale assembly" at the location of licensed buyers these commodities are completely under the control of the Board. The analysis of these commodities need not be extensive but a few major questions arise.

One is the pricing and marketing practices of the Board and the scope that exists for increasing returns to farmers through changed practices. An analysis of the relationship between prices received by the Board in world markets and prices paid at licensed buying points and costs of handling commodities from buying points to time of sale would indicate the scope for increasing prices to farmers. The costs involved include transportation storage, and allowances to licensed buyers.

Transportation charges will be available from the proposed survey in this study. Allowances to buying agents and storage costs should be available from Board records. The official prices paid and the prices received by the Board are published. These will permit analysis of the potential for increasing farm prices in past years. Great uncertainty exists about future market prices and the effect of international agreements both on prices and in the case of coffee export quotas. Perspective on these issues would have to be obtained from analysis available in international

organizations in order to make judgements about future prospects. Another important question is Sierra Leone exchange rate policy. Over-valuation will penalize the country in foreign sales.

A second need is to determine if farmers are receiving prices commensurate with the announced prices by the SLPMB. This problem should be looked at in the framework suggested in supplementary survey MF6. The results of this analysis should be used in conjunction with price data (quantity and value of sales) being obtained in the farm survey to determine the extent to which farmer returns could be increased by improved control of buying and selling procedures for quantities sold by farmers.

A survey of traders who buy these products from farmers including the use of sub-stations by licensed buyers should also be considered seeking to obtain information on farm to collection point margins, nature of their buying and selling activities, the territory covered and other conditions that influence the effectiveness of their operation. Some of the additional relevant kinds of information that might be obtained are suggested in the discussion on rice.

G. Ginger

Ginger is a significant export commodity and its potential and problems associated with production and marketing could usefully be investigated. Problems and needs for investigation in marketing closely parallel those in coffee and cocoa. However, since no production information is being obtained it is suggested that ginger be considered in a special study that covers the completed range of production and marketing. Most of the special farm level surveys would be applicable. Vertical chain of production and marketing no special effort to collect data in the marketing surveys is suggested.

H. Fish

The fish production and marketing system has unique characteristics and unique problems. Most fish are processed largely by smoking with some salting and much of what reaches consumers has seriously deteriorated in quality. In addition, freezing facilities exist in bigger towns. From work being conducted in Ghana it would appear that relatively simple techniques for improving the catch could be adapted. Clearly from a technical perspective substantial improvement in market practices is feasible (e.g., increased cold storage and transportation). The extent of economic feasibility is less clear.

For this study emphasis should be placed on a diagnostic type survey that could trace through and describe production and marketing characteristics

in the existing system and try to determine what kinds of problems face fishermen and participants in the market. Research that could be handled by a B.S. level student under guidance would make a useful first effort. If possible some cost data should be obtained (especially transport and storage) and this could be related to prices being obtained at the production level and at periodic and daily markets to get a picture of margins and their seasonal and temporal variation.

Another worthwhile effort would be to assemble available information from neighboring countries and international organizations who have done research or have operational programs in nearby and similar countries.

The limited effort suggested here should provide considerable insight into operation of the fish market and can also lay the foundation for more extensive technical and economic research at a future date.

I. Cattle

Livestock production is African traditional and the commercial livestock slaughtering system is "European traditional." This means that smaller stock (sheep, goats, and chickens) are raised largely for local use by farmers whose main effort is in other enterprises. Cattle are raised by nomadic herdsmen who traditionally used cattle as a store of wealth. As a result off-take rates are low (probably below 10%) and the herd size is large relative to meat production. European traditional means that a large number of slaughter plants (municipally owned) are located in cities and towns throughout the country.

Two major questions have to be raised about this system. One is whether steps can be taken to get herdsmen to more completely commercialize their production. Production could be increased and farm earnings expanded. To achieve this a strong educational component would be required and this suggests involvement by the extension personnel. Notwithstanding the fact that previous efforts in this direction have not been very successful further efforts and analysis of data from the farm survey to demonstrate possible cash flows to farmers from a changed system would be useful.

In the case of slaughter plants the economics of location suggests that they should be located at production rather than consumption centers - except where one of or both of two important constraints operate. These are (1) where adequate cold storage facilities are not available to have a chilled meat distribution system --this includes cold storage at processing plants, in transport vehicles and at consumption centers, and (2) where roads or other transport are inadequate. The first of these conditions suggests that production oriented processing plants are not feasible at the present time in Sierra Leone.

Emphasis in this study should be on problems related to farming systems and changes and on obtaining information that might lead to improvements in the marketing systems as currently structured.

One important question in trying to stimulate change at the farm level is the structure of prices paid to farmers. If older animals are not differentiated adequately from younger well fed animals in the per head purchasing system, the incentive for commercialization is reduced. Farm pricing practices should be combined with cost analysis to assess the economics at alternative production (with or without adequate grazing and/or supplementary feeding to) and pricing systems. Participation of animal husbandry and agronomy specialists may be required to judge technical relations under alternative systems. This kind of analysis could, however, build on the data base being obtained in the farm survey. Price sampling to obtain the value placed on each animal in lot sales would be needed to do this kind of analysis. If each animal is bargained for separately this would be straightforward, if either the farmer or trader would provide the information. If sales are on a lot basis a method of obtaining this information by comparing a sampling of individual sales or through getting the traders to value each animal would be required.

In the market system a number of kinds of analysis would be useful. The price survey at daily and periodic markets should include beef. This should be used along with farm price data to obtain a total price spread in the market or between northern areas and several markets. In conjunction with this information, transportation costs, and slaughtering costs (fees) could be used to approximate the costs attributed to traders' margins and shrinkage in the marketing process. The scope for possible improved marketing practices could be evaluated for use in educational purposes and policy decisions (e.g., improved sanitary control, grading).

J. All Domestic Food and Agricultural Product

Some attention can profitably be paid to developing the aggregate statistic for commercial sale of all food for the period under study. Such information would be useful in developing the agricultural and national income accounts and input-output tables, and these estimates would be useful in putting other data collected in this study into perspective and in developing consistancy checks.

The basic sources for such data include food imports, agricultural product exports, the recent agricultural statistical survey, the recent national urban consumption survey and estimates of sales of particular products adjusted to the national level based upon the farm surveys and surveys in the daily and periodic markets.

One example of a useful figure in understanding the process of commercialization associated with development is the aggregate expenditure for off-farm processing and marketing service. This sometimes is referred to as the food marketing bill.

The food marketing bill as a component of consumer food expenditures is a general measure of the extent of commercialization of the food system.

It may be useful to relate the arithmetic of the "marketing bill" to the projected growth of the non-farm population. For example, given a 2.59% total population growth rate, a stable farm population and with 25% of the population living off-farm the 2.5 percent growth rate results in a one year increase in the non-farm population of 10%. Assuming a constant per capita food marketing changes the food marketing bill would also increase by 10%. This has very significant implications for investment and labour use in food marketing. Since it is usually true that the income elasticity of demand for food marketing services is quite high, it is likely that the marketing bill would increase by more than 10%.

There is, of course, an interest in all food not simply the products emphasized in this report. What is suggested is that some representative additional items be included in surveys where the marginal cost of getting the data is very low. This could be done for example, in the price survey (MT1). Given that one purpose of the price survey is to provide basis for developing the food component of the cost of living index, it would be useful to attempt to include a sample of representative foods sold in the daily and periodic markets.

K. Fertilizer and Agricultural Chemicals

At the current time it appears that all fertilizer and agricultural chemicals are imported. This gives a good data base for quantities, specifications and initial prices for these agricultural imports.

The analysis of fertilizers and agricultural chemicals needs to be closely integrated with the work of agronomists, extensionists and the farm level surveys. The Ministry of Agriculture is currently responsible for importing and is involved in the distribution of much of the fertilizer. An important question involves determining the most economical form and source of the imported fertilizers. Analysis should consider the economics of introducing a fertilizer mixing plant. Such a plant would make it possible to shop for basic nutrients in the world market at the most advantageous price for each of the components. Since fertilizer is bulky and expensive to ship, transport costs might be reduced by importing more concentrated materials. If with a 20-20-0 fertilizer 60 pounds of inert material is being imported with each 40 pounds of nutrients a substantial cost for shipping useless weight is incurred. It also would provide much more flexibility in formulating fertilizer mixes most adapted to the unique conditions of different areas and cropping patterns. Projecting future demand for fertilizer would be an important input into the decision to build a plant and in determining the size and location of such a plant or plants. Thus, projections of future fertilizer demand by agricultural regions would be useful. Such projection would require the input of agronomists, evaluation of adoption possibilities from the farm survey (MF5D), and the optimizing analysis of farm enterprises.

The records of the Ministry of Agriculture and interviews with those involved in distribution would reveal problems in the current distribution system. Similarly farmers' expenses to questions on barriers to the use of

the technical inputs would be important indicators of problems in distribution. Questions to be investigated include problems of availability, adequacy of storage to keep fertilizer in condition and to meet specific demands, the cost of transportation (again in country transport might be reduced by using more concentrated materials - this has to be evaluated against farmers' problems in using such materials), credit as a constraint and knowledge of farmers in using fertilizer. Credit charges may be significantly increasing the real cost of fertilizer.

The government's price policy for fertilizer also needs to be evaluated. The extent of the real subsidy needs to be estimated. If the fertilizer is sold conditionally on sale of the farm product below market price the real price of the fertilizer is, of course, higher than the quoted price. It is likely that the subsidy benefits larger farmers more than small ones.

Another question in distribution involves the size character of the fertilizer containers. This needs to be evaluated in terms of the problem of farm storage and transportation. (MF4 and 5)

The distribution of agricultural chemicals involves a larger number of problems. Lower cost distribution will depend upon achieving some economics of scale. Effective use requires reliable supplies and knowledge of effects. It is suggested that study of the agricultural chemicals be concentrated on putting together technical information on the potential of on-farm use, the barriers to use, the availability of particular chemicals which have high potential, identifying better methods of communicating benefit and hazards in the use of chemicals to farmers and a general idea of the problems faced by importers in distributing the products. The latter information could be obtained from relatively few interviews with officials of the chemical importing firms and the Ministry of Agriculture. Again an initial point to start with is the import data.

L. Farm Implements

Three apsects of the implements study deserving emphasis are: (1) the success of the system in identifying and supplying improved implements, (2) the cost of distribution, and (3) the potential and barriers to the domestic production of implements replacing imported ones.

The first step in this analysis would be to identify a set of implements which are currently in use from the farm survey, etc. and working with the technical scientist, identifying implements associated with improved farm practices. (Some of these may be discovered by observing practices of better farmers in the farm survey.) A second step would be to identify the quantity and mix of imported implements from the import data and if needed interviews with importers. Representative examples of the most important imported implements could then be obtained. The agricultural

engineers could be asked to fabricate examples of improved implements. These imported and developed implements could be taken to potential local manufacturers to determine the problems and costs they would have in producing such implements.

From the rural industry survey and import data the prices of specific implement could be identified. The price spreads for these implements could then be estimated by comparing import and manufacturing level prices with those observed in the local area covered by the price survey. Traders could be questioned about their problems and costs in distributing these implements.

The improved implements could be introduced to a sample of farmers as part of the study of perceived barriers (MF5) to get farmers' reactions to them in order to estimate potential demand and to get ideas for introducing them as part of an extension and marketing program leading to improved practices.

In the final report all of these aspects would need to be integrated into an analysis of the economics of imported and domestically produced implements.

The number and complexity of the implements studied would, of course, have to be very limited. As few as three representative implements could provide significant insight into the relationship between implement import and production, distribution and farm production. Implements for on-farm processing should be considered as well as those involved in field operations.

IV. SURVEYS AND DATA

Introduction

In this section an attempt is made to begin development of the basic surveys needed for the functional and commodity analysis. This is only a beginning and the different surveys are at different stages of conceptional development. An attempt is made to link the surveys with the previous discussions by briefly stating the objectives of the survey and by reference to the survey by code number in the preceeding discussion. In most cases the survey is left unspecified and only in a few cases have actual questions been proposed. In no case should the presentation of a question be taken as the exact way the question should be asked. The questionnaire design is a next step. Since some of the proposals are for continuous reporting from currently on-going surveys there is urgency in getting these developed. Others are one time surveys which can be developed as the need arises.

Data Strategy

To the extent possible data from secondary sources, government agencies and other survey data should be identified and used. In each case the first research task is to search for existing data, from related studies and for ways of including questions in on-going project surveys.

For example, much of the needed data on the export commodities is available (more or less) from the Produce Marketing Board records and Customs Department. Similarly data can be projected from such studies as Marketing Staple Food Crops in Sierra Leone, etc. A basic source of data will be the recent Agricultural Statistics Survey.

Without making maximum use of existing data the data collection task for the marketing system is a very large one.

Survey Element No. MF1

Farmer product sales transactions details (pricing, a farm value, transportation, market information, level of transaction in marketing chain, marketing as an enterprise, costs associated with selling, side conditions, quality).

Supplement to Farm Survey Sections V/Z-F-3 - Continuous Reporting Objectives include:

1. More precise definition of product in order to establish comparable farm level prices.

2. More precise measure of farmer inputs into the "marketing" functions.

3. Identify the characteristics of first buyers.

4. Identify transportation modes and cost in the assembly function.

5. Identify farmer knowledge of market conditions.

6. Identify conditions influencing the terms of trade to farmers.

Obtain only name of product sold, volume, and value on schedule V/A F 3.

Information Needs

The following are suggestions of information desired and do not necessarily suggest the exact question or sequencing of question. Also some means of avoiding repetitive questioning resulting in an over burden in the interview will need to be devised. However, some means is needed to specify the characteristics of the product for any of the commodities wh will be emphasized in the study.

If sold outside of village ask:

3A. In what places is that? _____

3B. How far is that? _____(Interviewer will usually know and will not need to ask)

3C. How did you transport it?

Head

If head or cart - time spent _____hr.
or cost of hiring carried _____Lo

Cart _____

Bus _____

Truck _____

Boat _____

If bus, truck, and Board (could be several) ask - How much did it cost including return trip? _____

How much time was spent going to and returning to make sale?

If several commodities were sold on same day allocate time and cost of transporting among them in proportion to value. If regular sales are made at retail (i.e., consumers - be sure that retailing is developed as an enterprise in the basic reports).

1. What was the level of processing, form or quality of the product? (Where applicable - this is to more accurately define the product, and could be included on the original form).

2. Where was product sold?

In village _____
Outside of village _____

If sold in the village ask:

2A. Who purchased the product - what types of buyer?

consumer _____
other farmer _____
retailer _____
other trader _____
coop _____
government agency _____

If purchase is by other than village consumer or village farmer ask:

2B. How was product transported from village?

Head _____ Bicycle _____
Cart _____ Truck _____
Bus _____ Boat _____

2C. Did you pay for or provide this transportation?

Yes _____ No _____

If yes, How much did you pay? _____
or
How much time did you spend? _____

2D. (Ask only if there is a large quantity which could require much time)

Did you provide loading or other services? Yes _____ No _____

If yes, How much time did it take? _____

3D. Who purchased the product - That is - what types of buyers?

Consumers _____

Retailers _____

Wholesalers _____

Licensed Buying Agents for Boards _____

Rice Corporation _____

(could be several of these -)

For both village and outside sales:

4. What price did you receive?

_____ per _____

Were any fees or costs deducted from that price?

for a) Container _____ c) Grading _____

b) Loading _____ d) Other _____

Did you furnish a container?

What did it cost? _____

Did you have a commitment to sell to this trader or agency?
Yes _____ No _____

If yes, why?

(i) Credit _____ (ii) Membership of Co-op _____

(iii) Exchange for input _____ (iv) Other _____

Comments

In order to get comparable prices to measure price spreads an adjustment to a standard form is needed, i.e., in container, etc.

Adjustment will also need to be made to estimate the accurate volume or weight. A special survey, survey element No. MF6 is designed to provide this adjustment.

Survey Element No. MF2

Labour use in on-farm processing of main commodities; rice, cocoa, coffee, cassava, palm oil, ginger, others; parboiling milling, etc.

A. Supplement to input-output form RER/F-3 and/or instructions.

B. Time and motion study.

C. One time survey.

Objectives

1. To determine which commodities are processed by the family.

2. To determine labour time spent in processing.

3. To determine what forms of processing occur (e.g., extent of parboiling of rice).

4. To determine whose time is used for processing.

Data Needed:

A. Detailed specification of labour inputs into processing from Section II of RER/F-3 should be available. It should be possible to construct the Table shown on the next page. If this is not being reported instruction should be modified. Some of these processing operations may require reporting on a simple basis

Name of Household Number	Sex	Processing Activity	Hrs.	Etc. to allow 3 or 4 Commodities

B. It is suggested that a time and motion study be made of a sample of farms at times when the important commodity processing activities are underway. It would be desirable that the survey farms be ones that have previousl and (recently) had recorded the processing activity in the Form F-3. A sufficient size of sample should be included to give some reasonably reliable estimate of time used by at least the most typical size of family and types of farming areas in order that adjustments can be made in the data on processing for the sample of families based upon the data reported regularly and estimates from a one time survey.

This research shall be done jointly with the agricultural engineering faculty. Analysis would include comparison of current practices with improved processing systems.

C. Survey element MF3 deals with attitudes toward processing. It is suggested that questions be included in that one time survey for all farm families in the enumeration area about (1) Do they do on-farm processing of the commodiites, (2) Who is usually involved in the work, (3) How much time do they estimate is required, and (4) How often do they engage in the processing activity per _____ time.

These data would assist in using small sample of time and motion study to adjust total farm sample statistical estimates.

It would also provide a useful test of the detailed labour record system as compared to general recall by comparing the results of each from the small samples with the results of the time and motion study.

Survey Element No. MF3

Farmers' perceived problems and attitudes concerning processing (possible response to changing conditions, conditions for use of commercial processing, alternative use of labour, effect on sales patterns).

Component of a one time survey of farmers in the enumeration sample.

Objectives:

1. to determine how farmer families would use time freed from processing if time were not used in processing.

2. from the above and survey data assess the opportunity cost of labour in processing.

3. from the price and farm transactions survey determine the returns to farmers from their processing activities (difference in farm level prices for products at different levels of processing).

4. determine if there are non-farm purchased inputs needed in processing.

5. assess conditions under which farmers would use commercial processing for commodities sold and those used for their consumption.

6. determine if timing of sale or other sales practices would change if commercial processing were used.

7. determine what gains or losses would accrue to farm families if commercial processing were adapted.

8. determine if processing labour requirements is a constraint on the amount produced.

Data Needed

1. Information on possible alternative use of processing labour; producing alternative crops, expand land cultivated or develop more intensive systems (e.g., swamp land) engage in non-farm productive activity, have more leisure time.

2. Information on kinds of processing and drying systems used.

3. Data on non-farm purchased inputs used in processing.

4. The nature of transportation costs and other constraints that would affect farmers' willingness to change to commercial processing.

5. Data on current selling practices and changes that seem feasible to farmers in volume timing, etc. if commercial processing is undertaken.

6. Information on the availability of money to pay for commercial processing or how they would try to make more money available. This could be from other consumption - even taking a child out of school to reduce fees or plan to harvest and sell more readily available palm fruit. This latter point is closely related to point (1) above.

Sample Questions

1. What other activities would be performed while parboiling_____
_____.

2. What activities would be performed if processing is not undertaken
_____

parboiling	milling

3. Do you prefer to do processing or pay for it to be done

(For Home Consumption) Parboiling_____Yes_____No_____

(For Sales) Milling _____Yes_____No_____

4. If yes, how much would you be willing to pay per bushel
Parboiling_____ Milling_____

5. Do you earn enough money not to pay for processing?

Yes _____ No _____

6. Would you earn enough money from the other activities performed instead of processing to pay for commercial processing?

Yes_____ No _____

7. Would you sell your rice sooner if you did not need to store it awaiting processing

Yes_____ No_____

8. If yes, why?

9. If no, why not?

10. How far is the nearest mill to your village? _____

11. If you have to use the mill, how would you transport the rice?

By foot_____ By Boat_____ By Ferry_____

12. If you do not transport it yourself, how much would you pay to transport a bushel? _____

13. What is the farest distance you would like a mill to be located?

_____

14. Do you parboil all the rice you consume? Yes_____ No_____

15. If not, why not?

16. Do you store unmilled parboiled rice? Yes_____ No_____

17. If no, why not?

18. Do you store milled rice?

	Parboiled	Raw
	Yes _____	Yes _____
	No _____	No _____

19. If no, why not?

Survey Element No. MF4

Farmers' storage conditions, perceived problems and attitudes (amount and type of storage available, are losses a perceived problem, would commercial storage be considered).

Component of a one time survey of farmers in the enumeration sample.

Objectives

1. to ascertain the amount and kind of storage facilities on farms.

2. to determine if farmers perceived a problem related to storage losses.

3. to determine if limitations of storage capacity is a constraint on production or causes farmers to sell prematurally at harvest time.

4. to determine if farmer storage would increase if lower cost seasonal credit were available.

5. to determine conditions under which farmers do or would store commercially for sale later in the season or return to the farm for consumption.

Data Needed

1. Information on methods of storage and capacity for various crops stored on farms.

2. Information on amount and length of time crops are stored (from the farm input-output survey).

3. Credit used to finance storage.

4. Source and cost of credit.

5. Information on farmers' insights into seasonal price patterns and the source of their information.

6. Information to evaluate the conditions under which farmers would prefer and be willing to pay for commercial storage.

Sample Questions

1. What commodities do you store on this farm and how much capacity do you have?

Commodity	Type of Storage	Amount of Storage
Rice		
Beans		
Palm Oil		
Millet		
Maize		
Groundnuts		
Others		

Type of storage description and procedures for measuring capacity probably should be defined by agricultural engineers.

2. Do you have enough storage to hold all of your crop at harvest?

Maize	Yes_____	No_____
Beans	Yes_____	No_____
Palm Oil	Yes_____	No_____
Millet	Yes_____	No_____
Maize	Yes_____	No_____
Groundnuts	Yes_____	No_____
Other (Specify)	Yes_____	No_____

3. Would you plant more acreage of any crops if you had more storage?

Yes_____ No_____

4. If yes, which crops and how much more would you plant?

Crop_____ Amount _____

5. Do you sometimes have to sell a crop at harvest time because of inadequate storage when you would prefer to hold it to get a higher price?

Yes_____ No_____

6. Which crops does it pay most to hold for a higher price?

List crops _____

7. How much do you expect the price to increase during the year?

_____

8. Do you borrow money to hold crops in storage?

Yes_____ No_____

9. If yes, Who do you borrow from? _____

At what interest? _____

10. Do you lose much_____(name crop) to insects, rodents or through spoilage?

11. For that part of your crop that you plan to sell, would you consider storing it collectively in the village if an insect or rodent proof facility could be built? Yes No

12. Would you trust anyone outside of the village to store your crop?

Yes_____ No_____

13. If yes, would you be willing to pay _____(Amount) for this service?

The above 3 questions could also apply to crops used for family consumption.

Survey Element No. MF5

Perceived (and real) barriers to expanded land and labour resource use and barriers to the adoption of economically superior technologies by farmers (knowledge, response to price, availability of technical inputs, on-farm transport, credit).

A one time survey of farmers in the enumeration sample.

Participation suggested by faculties in the technical agricultural sciences and the Extension faculty.

Objectives

1. To provide information useful to extension in introducing practices designed to improve farm resource use.

2. To identify problems in the institutional and supply system which are barriers to the adoption of techniques.

3. To provide insights into reasons why programs to expand production of particular commodities may or may not work under farm conditions.

4. To provide information useful in interpreting analysis of alternative enterprises in agriculture production.

Information and Data Needs

In this survey emphasis would be placed upon farmers' knowledge of production techniques and production alternatives, on their perception of constraints to increase production and the adoption of new production methods and enterprises.

Hypothesis about production possibilities and techniques might be developed systematically by first surveying agricultural scientist and extension workers to identify potentially profitable possibilities. Specific questions would be developed after such a survey.

Useful additional dimension for such research from the point of extension education would be a systematic survey of extension field agents to determine their knowledge of farmer perceptions on this issue and check this against the results of the survey.

A. Swamp Development

Farmer decision to develop and use inland valley swamps is an area of very high concern. A series of questions and observations related to this decision would be appropriate. How much of this type of land does the farmer have? How much is used and unused? What has been his and his neighbours' experiences from the development of the swamp land? Special attention would need to be paid to the labour constraint and the perception about mechanization.

Among the possible perceived (and real) barriers to the development and use of this land are difficulty in reaching the land, land tenure relationships (water control may not be possible on half a swamp) increased uncertainty, uncertain markets, lack of knowledge of outcome, inability to get or uncertainty in supply of critical technical inputs, inability or unwillingness to get sufficient credit to finance the investment, etc. The questionnaire would need to be structured to probe all relevant areas in terms of the actual situation of the particular farmer.

B. Oil Palm

Oil palm development. A Similar set of probing questions would be appropriate to investigate potential development of oil palm plantations. The long-time investment refinement, credit problems and price expectations would appear to be especially important.

C. Credit

It would appear that credit availability and cost is a major constraint to both land development and acquisition of purchased inputs. The farm survey reports credit purchases and interest payments. Some additional information would be useful in respect to farmers' beliefs about the availability of credit and their willingness to go into debt in order to expand production potential. Some special attention needs to be paid to the availability and use of credit to finance hired labour in land improvement, etc. It has also been hypothesized that consumption credit is very important to farm families. Do farmers have to buy food on credit and does this result in a commitment to sell a future crop to the lender under special terms?

D. Fertilizer and Agricultural Chemicals

To what extent is lack of knowledge, lack of credit, lack of availability, unreliable grades, poor packaging, illiteracy (inability to readable and direction on chemical), high cost and difficult transportation responsible for failure to make economic use of fertilizer and other agricultural chemicals? Questions would have to be based upon realistic evaluation of the profitable use of these purchased inputs.

E. Price Expectations and Supply Response

It is hypothesized that uncertain and low price expectations is an important factor in reluctance of farmers to invest in increased production. Several questions could be usefully designed to (1) determine their price expectations for the major crops and (2) the way they would plan to respond to higher, more reliable prices. Questions and analysis would have to be in the context of the resources with their command and substitutions among crops would have to be considered.

Comment

This survey (or surveys) would best be done late in the record year. They will be most effective if (1) the questions are adapted to the characteristics of each particular type of farm and (2) if technical and some analysis has been made of the economic potential of the technologies and practices under consideration.

If it is determined that the implied set of questions is excessive burden for the enumerated farmers, a sample of matched farmers from the enumeration areas could be used. However, a significant advantage would accrue from having this information on the sample farmers. The possibility would exist to better compare the results with the optimizing models based on the input-output data from the basic survey. This in turn, would provide a better link with the market and institutional constraints operating on the farmers in their situation.

Survey Element No. MF6

Estimating the errors in farm to assembler quantity measures (estimating farm level prices, market information weight and measures).

A sub-sample of the farmer enumeration sample. A specialized survey, not continuous.

Objectives

To estimate actual quantitites of products sold and actual price paid by farmers and by traders in order to make adjustments in basic quantity and price estimates.

It is hypothesized that traders systematically underestimate the quantities of product they purchase. If not adjusted this would result in an underestimation of off-farm sales, an overestimation of on-farm consumption, an overestimation of prices received by farmers and an underestimation of marketing costs.

Two concepts related to this measure are the quantity margin and the quality margin. The quantity margin is the return to the trader resulting from his capacity to sell a larger quantity of product than he buys by manipulating weights and measures.

The quality margin is the gain in receipts achieved by a trader through selling a higher grade than he paid for.

Information and Survey Technique

This test should be limited to sale of basic commodities - probably rice, groundnuts, palm oil and kernels, coffee and cocoa.

Enumerators would be instructed to determine lots of these commodities which are about to be sold by farmers. They would be instructed to weigh the lots recording the weight, volume and, if possible, the quality. The farmer would not be told the weights. He would then record the quantity and value as usual on the next visit to the farm, making sure that the lot is properly identified, and that no change was made in the quantity by the farmer subsequent to the measurement. This will measure both the reporting error by the farmer and the short weight by the trader.

An additional check on short measure would require devising a scheme to measure the quantity before purchase and then observe the purchase or to observe the purchase and then check the measure when observed as when not under observation.

Survey Element No. MF7

Market information and village competition.

Objective

To determine the level of knowledge about market conditions and prices and to assess the extent of competiton among traders in buying commodities from farmers in their villages.

Sample - Farmers in enumeration sample, a quarterly (4 time) survey.
Sample weeks should be selected to coincide with the times important commodities are likely to be sold.

Information and Data

During the sample week a series of questions would be asked each farmer in regard to the most important sale he made which took place in the village. The suggested questions which would follow the identification of the sales would be:

You reported the sale of _____ this past week.

Who furnished the measuring device?

What was it? Scale_____ Volume_____

Who did the measuring? Farmer_____ Trader_____

Do you believe this trader gives an honest measure?

Yes_____ No_____

Do you have a means of checking the measure?

Yes_____ No_____

If yes, how? _____

_____

Has any other trader offered to buy this commodity in the past week?

Yes_____ No_____

Has anyone in the village sold this type of commodity in the past week that you know of?

Yes_____ No_____

Do you know the price he received? _____

What price do you believe you would have received for this product had you sold it in the market at _____(name the nearest place where price information is being collected)

Price_____per_____ Don't know

If - Don't know ask - Do you believe this trader gives you a fair price, as good as other farmers receive in their villages?

Yes_____ No_____

Do you try to find out what prices are before you sell?

Yes_____ No_____

How? _____

_____

Survey Element No. MT1

Retail Prices: special survey involving observations of prices in a sample of daily and periodic markets.

Objectives

1. To determine retail prices for a list of commodities (listed below) at different points in time and space. The retail prices will be used in analysis involving farm to retail spreads (to get a rough measure of the costs of marketing activities taking place off farm and to get information on the effectiveness of the market in distributing products through time and space (to be used in connection with commodity studies, storage, processing and transportation).

2. To develop and test a procedure for the continuous collection of reliabl retail prices information to be used in building cost of living indexes, price analysis, and providing market information to farmers, traders, Rice Corporation and Government officials (to be carried out by Government).

Related surveys may be done by the same interviewers based on interviews with retailers and wholesalers and in observing trading practices (Survey Elements No. MT2). The proposed criteria for selecting the sample of daily and periodic markets should be to:

1. Include a representative sample of markets in major metropolitan areas. (Select the market in the largest cities or representative medium cities which local people believe represent the market with the most representative prices and quality of products. If there is more than one market in a large city and one is basically a wholesale market and the other a retail market and no market can be called representative, then two markets may have to be selected.)

2. Include a representative sample of markets outside of the major urban areas.

3. Provide a wide geographic distribution of markets (to test spatial price spreads).

4. Include markets to provide a basis for checking farm to first buyer prices spreads. This will require a sample of markets in which farmers from the enumeration areas typically sell.

5. To the extent possible (constraint with above) select markets in areas which coincide with sample towns of the other surveys, especially the industrial activities surveys (in order to economize in supervision).

6. Select markets in close enough proximity that one interviewer can make essentially all day observations in one market one day and another market the next day.

It is proposed that this survey be conducted as part of a set of surveys of operation in and around these markets (MT2). Thus, if possible efficient use of enumerators could be made by having them work four full days in these markets, leaving one day a week for related work interviewing processors or traders outside of these markets (MT4, etc.).

Price observations would be made in such a way as to be representative of the sales of each commodity for the period of the market day for each of the commodities.

An initial survey and experiment is suggested to work out procedures for making effective price observation. This is described to some extent below as MT3.

The products tentatively anticipated to be included are:

- Rice
  - Locally parboiled
  - Local "rough" rice
  - Imported
- Cassava
- Foofoo
- Palm Oil
- Groundnut
  - Shelled
  - Unshelled
  - Ground
- Fish
  - Bonga
  - Polock
  - Shinenos
  - Snappa
- Meat
  - Steak
  - Meat and Bone
- Pepper
- Okra

Included with the above a set of agricultural implements will also be checked.

Survey Element No. MT2

Behaviour, costs, margin and problems faced by retailers and other traders in periodic and daily markets.

Objectives

To determine costs of marketing a list of commodities at different points in time and space.

To identify storage types and losses at trades level.

To identify modes of transportation and cost for various marketing functions.

To identify traders' knowledge of market conditions.

To identify traders' inputs in the marketing functions.

To identify factors influencing traders' pricing policies.

Information Needed

Surveys will be carried out at daily and periodic markets. Traders will be interviewed by enumerators conducting the price survey. At the daily market information will be sought on:

(i) The source of traders' products.

(ii) The mode and cart of transport to and from market.

(iii) The average length of time products are stored before they are finally sold.

(iv) Spoilage of products in store and during transportation.

(v) Information on the various functions performed by traders and the cost.

(vi) Market dues paid by traders for use of market place.

(vii) Source and cost of credit for retailers.

(viii) Method of storage by retailers and capacity of stores.

(ix) Retailers' knowledge of the market and source of market information.

At the periodic marke level interviews will be conducted for two sets of traders those selling agricultural products and those selling nonagricultural products.

Information will be sought on the following:

1. Who traders of agricultural products are farmers or traders?

2. The origin of the products.

3. The cost and mode of transport to and from the market.

4. How they sell their products--wholesale or retail?

5. To whom they sell wholesaler, retailer.

6. What happened to products that are not sold?

   Stored to be sold in another market?
   Stored to be sold on the following week in the same market?
   Processed and stored for use.

7. Kinds of storage used by traders.

8. Knowledge of market and source of market information.

9. Information on cost and margin.

10. Market dues paid for each commodity.

11. Products that are demanded which could not be supplied.

Survey Element MT3

Estimating quantity measurement variation in periodic and daily markets

A sample of retailers and wholesalers in selected markets.

Objectives

1. To provide information useful in training observers to collect accurate price information and to assist in interpreting price reporting.

2. To assist in establishing appropriate units for price reporting in a government system of markets information.

3. To provide information useful in developing a system of weights and measures acceptable in the traditional markets.

Information Needed

Variations in weights among quantities sold in traditional standard containers would be recorded for those commodities included in the price study and sold by measure. A test would be made to determine the error associated with the average of a given number of observations. If it is determined over a number of samples that, for example, there is only a 1 percent variation in the means between 10 samples of 100 observation of sales from a particular type of container than it is reasonable to use a standard weight for that container, reducing greatly the problem in collecting price data. (The acceptable variation is not meant to be specified at 1 percent; perhaps 3 percent would be acceptable.)

The same procedure could be applied to sales in different types of markets and sales to different types of consumers to estimate biases in weights and then differences in real as compared with apparent prices.

Also to be tested are means which can be used to visually estimate weight or volume of products sold by the number (e.g., 3 fish). If this turns out to be imported, then procedures for measurement will be developed.

Survey Element MT4

Behavior, costs and problems of buying agents for the Boards.

The Rice Corporation and traders dealing with these agents.

Objectives

1. The same as MT1 and MT2 only as applicable to the exported commodities and the operation of the Rice Corporation.

2. To provide information useful in analysis of special operational and policy questions for these Quasi governmental agencies.

Data of Procedures

Information on functions performed, prices paid, costs, problems, etc. for both the buying agents and the traders who trade with them would be collected. The questionnaire for MT2 would be adapted. Buying stations falling within the interviewing area of those conducting the surveys in daily and periodic markets would be included in this survey.

Interviews would be conducted periodically at times to assure representation of periods when each of the export commodities is being delivered to the buying stations and when rice is being delivered to the Rice Corporation.