Tanzania Rural
Development Bank

Government of Tanzania/FAO

Project Preparation
and Monitoring
Bureau, KILIMO
URT/78/015

Mbeya RIDEP
Project,
CCP/URT/055/DEN

INPUT MARKETING STUDY OF THE MBEYA REGION

A Report Written by
E. Weiler
J. Merryman

and

Study Analysis Performed by
David Eding

August 1982

TABLE OF CONTENTS

	Page
TABLE OF CONTENTS	
LIST OF TABLES	i
GLOSSARY OF ACRONYMS	iv
PREFACE	v
EXECUTIVE SUMMARY	vi
ACKNOWLEDGEMENTS	ix
STUDY PARTICIPANTS	x
CHAPTER I - INTRODUCTION	1
Objectives and Tasks to be Performed	1
Duration, Composition, and Timing of Consultancy	2
Overview of Previous Studies	2
Justification for Study	9
CHAPTER II - PERFORMANCE EVALUATION OF THE TRDB MBEYA REGIONAL OFFICE	11
Brief Overview of TRDB	11
Description of the Mbeya Regional Office	12
Annual Loan Activity	14
Operating Expenditures	14
Effectiveness of the Mbeya RO As a Distributor of Inputs	17
Expenditure of Time on Inputs Distribution by the Mbeya RO Staff	26
Unit Overhead Cost for Inputs Distribution	28
CHAPTER III - OVERVIEW OF OTHER INPUTS DISTRIBUTION AGENTS IN THE MBEYA REGION	29
Parastatal Crop Authorities	30
Coffee Authority of Tanzania (CAT)	32
Tanzania Tea Authority (TTA)	34
Tanganyika Pyrethrum Board (TPB)	36
Tanzania Cotton Authority (TCA)	37
Tobacco Authority of Tanzania (TAT)	38
Parastatal Trading Companies	39
AISCO	40
The Mbeya RTC	41

TABLE OF CONTENTS (Cont.)

	Page
Primary Suppliers	43
Tanzania Seed Company (TANSEED)	43
Ubungu Farm Implements, Ltd. (UFI)	46
Tanzania Fertilizer Company (TFC)	47
Private Institutions: The Tanganyika Farmers' Association (TFA)	48
Regional and District Authorities (RADO's/DADO's)	51
CHAPTER IV - THE DEMAND FOR AGRICULTURAL INPUTS IN THE MBEYA REGION	55
Theoretical Considerations	55
The Input Marketing Survey of the Mbeya Region	56
Quantities of Seasonal Inputs Currently Used By Smallholders	64
Constraints to Use of Inputs	69
Evaluation of the Study Methodology	76
CHAPTER V - ALTERNATIVE INPUT, DISTRIBUTION SYSTEMS	83
Evaluation of Existing Systems	83
System of Vertically Integrated Suppliers	84
Private Organizations	86
Evaluation of Potential Systems: The Cooperative Unions	87
Short-Term Strategy	90
Expanded Role for Crop Authorities	91
TRDB Lending for Additional Branches of TFA	92
Provision of Foreign Exchange for UFI	98
TRDB Lending for Additional TFC Warehouse Capacity	100
Long-Term Strategy: The Cooperative Union	100
CHAPTER VI - POSSIBLE PILOT PROJECTS	104
Rationale	104
Configuration	104
Mbeya Farmers' Reaction to Farm Service Centers	104
Preliminary Pilot Proposals	107
BIBLIOGRAPHY	

TABLE OF CONTENTS (Cont.)

ANNEX A - Consultants' Itinerary and List of Persons Contacted

ANNEX B - Sample Copy of Loan Ledger Care (TRDB Form 403)

ANNEX C - Sample Copy of Ad Hoc Form Used to Evaluate Performance of TRDB Regional Office/Mbeya

ANNEX D - Copy of Questionnaire Submitted to TRDB Mbeya Regional Staff

ANNEX E - Sample Copy of TANSEED Stockist Contract

ANNEX F - The Input Marketing Survey: Questionnaire, Research Design, and Sampling Strategy

ANNEX G - Derivation of Quantities of Seasonal Inputs Used from Sample Survey Results

ANNEX H - Input Marketing Survey Results: Tabular Presentation

ANNEX I - Preliminary Pilot Proposals

LIST OF TABLE

Number	Title	Page
1.0	Classification and Citation of Documents Reviewed	3
2.0	Value of Loans Made by TRDB in the Mbeya Region Vs. Tanzania	12
2.1	Staffing Pattern of the TRDB Mbeya Regional Office	13
2.2	Number of Villages Which Were Provided with Seasonal Input Loans by the Tanzania Rural Development Bank in the Mbeya Region	15
2.3	Operating Expenditures for the Mbeya Regional Office, 1980/81	16
2.4	Quantities of Seasonal Inputs Distributed by the Mbeya RO, 1977/78 - 1981/82	18
2.5	Quantities of Inputs Distributed in the Mbeya Region As a Percentage of Quantities Distributed Nationally by TRDB, 1977/78 - 1981/82	19
2.6	Quantity of Tobacco Inputs Distributed as a Percentage Of Inputs Ordered in FY 80/81, Mbeya Region	21
2.7	Value of Seasonal Inputs Distributed for Maize, Tea and Tobacco by the Mbeya RO, FY 80/81. (Regional Office Records).	
2.8	Value of Seasonal Inputs Distributed for Maize, Tea and Tobacco by the Mbeya RO, FY 80/81. (HQ Management Information Report).	23
2.9	Mbeya RO Financial Data by Loan Portfolio, 1980/81	24
2.10	Self-Estimated Percentages of Time Spent on Distribution Of Inputs by the Mbeya RO Staff	27
2.11	Percentage of Time Spent by RO Staff on Inputs Distribution Activities Compared with Percentage of Disbursements Made From the Inputs Distribution Account by Quarter	28
3.0	Relative Shares Among Distributors of Fertilizer in Calendar Year 1981: Tanzania Vs. the Mbeya Region	29
3.1	Percentage of Improved Maize Seed Distributed by TRDB in the Mbeay Region, FY 79/80 - FY 81/82.	30
3.2	Relative Shares Among Distributors of Agricultural Chemicals in FY 80/81: Mbeya Region	31

LIST OF TABLES (Continued)

		Page
3.3	Quantities of Inputs Distributed by CAT in the Mbeya Region, FY 77/78 - FY 81/82	33
3.4	Fertilizer Requirements Vs. Quantities Distributed By TTA in the Mbeya Region (Rungwe District), FY 78/79 - FY 81/82	35
3.5	Quantities of Inputs Distributed by TCA, FY 79/80 and FY 80/81	38
3.6	Value of AISCO's Agricultural Sales by Type of Input, FY 80/81	41
3.7	Location and Number of Employees in the Distirct Offices and Depots at the Mbeya RTC	42
3.8	Quantities of Agricultural Inputs Distributed by the Mbeya RTC, Calendar Years 1980 and 1981	44
3.9	Quantities of Seeds Distributed by the TANSEED Depot in Mbeya, FY 79/80 - FY 81/82	45
3.10	Quantities of Inputs Distributed by TTA in the Mbeya Region By Type and By Branch	50
3.11	Quantities of Fertilizer by Type Procurred Vs. Distributed by the Mbeya DABO, FY 81/82	52
3.12	Various Goods and Services Provided Gratis by the Mbeya DABO, FY 79/80 - FY 81/82	52
3.13	Actual Carryover Vs. Hypothetical Carryover of Fertilizer Stocks Based on Estimated Requirements for the Mbeya DABO, FY 81/82	53
4.0	Villages Surveyed by Zone and District	59
4.1	Households Interviewed and Average Household Size by Zone	60
4.2	1982 Estimated Population, Estimated Number of Households, Households Interviewed and Multiplier by Zone	61
4.3	Survey Estimates of Purchased Seasonal Inputs Used by Small Holders in the Mbeya Regions	66
4.4	Quantity and Types of Fertilizer Distributed Vs. Quantity and Types of Fertilizer Used on Tea in the Mbeya Region, FY 81/82	68
5.0	Quantities of Fertilizer Distributed in the Mbeya Region Vs. Tanzania: 1972-81	93

		Page
5.1	Quantities of Hand Tools and Ox-Drawn Ordered Vs. Supplied in Mbeya Region, Tanzania, 1977-81	94
5.2	Weighted Rankings of Reasons Given for Not Using Purchased Inputs	96
5.3	Weighted Rankings of Reasons for Not Having Ox-Drawn Implements	97
5.4	UFI Production of Plow Shares, 1976-81	99

LIST OF MAPS

Number	Title		Page
1	Regional Development Zones	Villages Surveyed	57
	Mbeya Region: Development	Villages Sampled	58
2.	13 Regional Development Zones	the Mbeya Region	62
	Mbeya Region: Development	and Crops	63

PREFACE

The intended audience for this study is by design a restricted group....viz, policy makers and technical experts who are already familiar with the institutional setting both of rural credit and the inputs distribution system in Tanzania. Thus in the present study, those who have mastered the formidable battery of organizational acronyms are invited to step behind the institutional facade to observe the workings of the inputs distribution system in Tanzania. Despite the fact that some of the findings herein reflect unfavourably on various institutions, the study is not intended as an expose of individual malfeasance. On the contrary, the major emphasis here is on the structure of the inputs distribution system, and on the consequences which logically follow from that structure.

The study was financed by the Tanzania Rural Development Bank with funds from the United States Agency for International Development's Resources for Village Production and Income Project and the Mbeya RIDEP Project. The views expressed in the study are solely those of the authors and in no way reflect policies of the sponsoring institutions.

GLOSSARY OF ACRONYMS

Organization/Institution	Acronym
Agricultural and Industrial Supplies Company	AISCO
Coffee Authority of Tanzania	CAT
District Agricultural Development Officer	DADO
Farm Service Center	FSC
National Bank of Commerce	NBC
National Development Corporation	NDC
National Food Corporation	NAFCO
Regional Agricultural Development Officer	RADO
Regional Development Director	RDD
Regional Office (of TRDB)	RO
Rural Integrated Development Program	RIDEP
Structural Adjustment Program	SAP
Tanganyika Farmers' Association	TFA
Tanganyika Pyrethrum Board	TPB
Tanzania Cotton Authority	TCA
Tanzania Fertilizer Company	TFC
Tanzania Seed Company	TANSEED
Tanzania Rural Development Bank	TRDB
Tanzania Tea Authority	TTA
Tobacco Authority of Tanzania	TAT
Ubungo Farm Implements	UFI

EXECUTIVE SUMMARY

For Input Marketing Study: Mbeya Region

Findings

(1) An evaluation of the TRDB Mbeya Regional Office was made with regard to its role as a distributor of agricultural inputs. Our findings are as follows:

- Approximately one-third of all professional man hours available annually are expended on the distribution of inputs.

- In FY 80/81 the overhead cost of the Regional Office attributable to inputs distribution amounted to 1.5 percent of the value of inputs disbursed. In FY 81/82, this amount increased to 1.9 percent, for an increase of 27 percent over the preceding year.

- The increased overhead cost noted above is due exclusively to higher costs for personnel in the face of declining amounts of inputs distributed.

- Records in the Regional Office of quantities of inputs disbursed in many cases do not coincide with the quantities shown in the Managemen Information Report at TRDB Headquarters.

(2) An evaluation of other distribution agents in the Mbeya Region was made in order to determine their potential for an enlargement of their role in inputs distribution. Our findings are as follows:

- Tanganyika Farmers' Association: TFA has two existing branches in the Mbeya Region which serve a diversity of agricultural producers. Most sales, although not all, are on a cash basis. Despite the present economic difficulties in Tanzania, TFA is continuing to expand. Top management indicated an interest in expanding the number of its branches in the Mbeya Region, should financing be made available through TRDB or some other financing institution.

- Crop Authorities: In general, the crop authorities are well positioned to distribute all inputs (i.e., for both food crops and cash crops) to their client producers. At the same time, in recent years the crop authorities have suffered substantial losses due to high overhead costs and generally low commodity prices.

- Regional Trading Company: Although the RTC has an extensive network of outlets in the Region (15 shops and depots), it has neither the necessary technical competence nor the inclination to permit an expansion of its current role as a distributor of inputs.

-Agricultural and Industrial Supply Co., Ltd.: AISCO has opened a branch in Iringa which purportedly serves the Mbeya Region as well as Iringa. Although AISCO expresses interest in extending its role in the distribution of inputs, there are no plans for expansion in the Mbeya Region.

-Tanzania Seed Company: While in the past TANSEED was interested in developing its own network of retail outlets, the company is now attempting to spin-off this activity to contract stockists. There appears to be no interest on the part of TANSEED to become a general distributor of agricultural inputs.

(3) Based upon a sample survey of 330 farmers in the 13 agro-economic zones of Mbeya Region, it has been found that:

-The lack of available supplies has been identified by farmers as the primary constraint to greater use of seasonal inputs, purchased hand tools and ox-drawn plows.

-The problems due to a lack of credit notwithstanding, there is a significant portion of farmers who are willing to pay cash for their inputs.

(4) Based in part upon the foregoing survey results, as well as upon discussions with the inputs distributors discussed in (2) above, it has been found that shortages of fertilizer, hand tools, and ox plows plus related spare parts have become endemic. Production of UFI has been consistently less than the quantities ordered by its distributors over the past several years. Fertilizer production declined in 1981 over the level of 1980; and operations at the Tanga plant have been in suspension since January 15, 1982. In both cases, the production shortfalls are due to the scarcity of foreign exchange for the purchase of the necessary raw materials.

Recommendations Vis-a-Vis Supply Issues

(1) To expand the supply, both of hand tools and ox plows plus related spare parts, UFI should immediately seek funding for foreign exchange for the purchase of the necessary raw materials. One potential source of such funds is USAID's Resources for Village Production and Income Project.

(2) The critical shortage of fertilizer notwithstanding, it is recommended that no foreign exchange be made available to TFC for the importation of raw materials for fertilizer production under the Resources for Village Production and Income Project. In view of TFC's relatively high costs of production, such funding would be an uneconomical use of scarce foreign exchange resources.

Recommendations Vis-a-Vis Distribution Issues

(1) Given its rapidly increasing costs, coupled with an inadequate record keeping system, it is recommended that TRDB be gradually relieved from its role of inputs distribution in the Mbeya Region.

(2) In the long term, it is recommended that the reconstituted cooperative unions and societies be responsible for the distribution of all agricultural inputs. It is envisioned that each cooperative society will own and operate its own centre for retailing and distributing farm inputs, with potential for depots at the village level.

(3) To fill the near-term void left by the withdrawal of TRDB as a distributor of inputs, the following actions are recommended for the Mbeya Region:

- Financing under TRDB experimental lending funds should be made available to TFA for the opening of district-level branches at Kyela and Mbozi.

- With the objective of providing for the distribution of inputs for food crops at the sub-district level, each crop authority in the Mbeya Region should be evaluated with regard to its potential for handling the distribution of such inputs. In principle, the provision of these supplementary (i.e., non-cash crop) inputs should be sold on a cash basis. A distributor's margin of sufficient breadth to cover all additional costs to the authority should be allowed.

(4) To permit a realization of the economies of rail freight, it is recommended that TRDB experimental lending funds be made available to TFC or some other interested third party for the construction of additional go-downs at TAZARA railheads in the Mbeya Region.

ACKNOWLEDGEMENTS

The Consultants wish to express their gratitude for the efforts of Mr. P.A. Magani, General Manager of the Tanzania Rural Development Bank, who had the foresight to initiate this study. Gratitude is also expressed to Mr. V. Mrisho, Director for Planning and Marketing, Ministry of Agriculture, who extended the support of Kilimo, and who encouraged the Consultants to seek solutions to the problems of inputs distribution in Tanzania with open minds.

The Consultants also wish to thank Mr. T.R. Komba, TRDB Mbeya Regional Manager, and the various members of his staff who participated in our evaluations of the Mbeya Regional Office. Special thanks also to Mr. Andrew Shepherd, RIDEP Marketing Consultant, who graciously shared his thoughts as well as his documents.

STUDY PARTICIPANTS

R. Bloom	-	USAID - RVPI Project Manager
M. Constable	-	Mbeya RIDEP - Project Coordinator
R. Daniels	-	USAID - IDI
D. Eding	-	TRDB - Planning Adviser and Overall Study Supervisor
A. Kibola	-	TRDB - Chief Manager (Planning)
W. Makundi	-	TRDB - Chief Manager (Research)
J. Merryman	-	TRDB - Consultant
P. Mkulia	-	TRDB - Project Officer
A. Mwaipopo	-	PPMB - Economist
G. Mwakyusa	-	TRDB - Director of Operations
E. Weiler	-	TRDB - Consultant and Team Leader

CHAPTER I. INTRODUCTION

Objectives and Tasks to Be Performed

1.0 The Consultants were provided with the following objectives with regard to the Input Distribution Study of the Mbeya Region:

(1) To determine the demand for agricultural inputs within the Mbeya Region as a basis for designing improved input distribution systems.

(2) Review the present channels of inputs distribution.

(3) Assess the current problems related to inputs procurement and present feasible means of reaching a solution through the use of TRDB experimental loan fundsunder the Resources for Village Production and Income Project funded by USAID.

(4) Evaluate all proposed alternatives within the national, zonal, regional, district and area context, and prepare strategies for their improvement.

(5) Analyze the short and long-term efforts of any proposed changes and relate them to the status quo.

(6) Make recommendations for priorities for early action and possible pilot projects.

1.1 In order to achieve the foregoing objectives, the Consultants were instructed to perform the following tasks:

(1) Review the literature pertaining to inputs procurement and distribution in Tanzania as it relates to its effect on agricultural production.

(2) Interview TRDB employees and quantify the proportion of time that is presently spent on inputs distribution by the Mbeya TRDB Staff.

(3) Assess the capabilities (past and future performance) of all organizations currently disbursing inputs in order to determine how future disbursements might be handled.

(4) Prepare and implement a sample survey that determines the demand for agricultural inputs (seed, fertilizer, insecticides, hand implements, oxen-drawn implements ... i.e., all inputs necessary for production and processing) on an area basis and establish a base for future studies and evaluation.

(5) Interview agricultural inputs manufacturers, and collect data on past disbursements and projected production and distribution, with particular emphasis on hand tools and oxen-drawn implements.

(6) Analyze how farm service centers (agricultural input retailing and distribution centers), cooperative unions or similar institutions could resolve the current inputs distribution problems in the short and long-term in the Mbeya Region.

(7) Recommend how TRDB or other institutions can increase the availability of agricultural inputs, and effectively disburse them through the lending of funds on an experimental basis in the Mbeya Region.

(8) Carry out such studies that are relevant to the above objectives.

Duration, Composition and Timing of Consultancy

1.2 The Consultants arrived in Dar es Salaam on June 6, 1982. Covering a period of approximately eight weeks, their consultancy consisted of three man-weeks of data gathering/liaison work in Dar es Salaam and thirteen man-weeks of research, data analysis, and report writing activities in the Mbeya Region. A detailed itinerary of the Consultants and a list of officials contacted is found in Annex A.

Overview of Previous Studies

1.3 Since no provision was made for the Consultants to exploit in-country library facilities, no exhaustive literature search was conducted. Instead, recourse was made to the various documents presented to us in the course of our research in both Dar es Salaam and Mbeya. The primary sources of such documents were: (1) TRDB Headquarters Staff in Dar es Salaam; (2) the Ministry of Agriculture Directorate of Planning, (3) AID/Tanzania Mission; and (4) the Mbeya Rural Integrated Development Planning Office (RIDEP) in Mbeya town.

1.4 The purpose of this review was to ascertain alternative techniques for estimation of agricultural inputs requirements, and/or to survey expert opinion on potential designs for alternative inputs distribution systems. With this in mind, it was useful to categorize the eight documents reviewed into a two-dimensional grid, such that each fit into one of four cells which characterize its overall orientation:

(1) Project proposal/quantitative 1/; (2) Project proposal/descriptive (3) Research paper or strategy document/quantitative; (4) Research paper or strategy document/descriptive.

The eight documents thus categorized are shown in Table 1.0.

1/ That is, quantitative with respect to the estimation of demand or supply inputs.

TABLE 1.0

Classification and Citation of Documents Reviewed

	Quantitative	Descriptive
Project Proposal	(1) Ministry of Agriculture, Draft Report on the Establishment of a Farm Service Center at Mbozi Maize Farm. A report prepared by the Project Planning and Monitoring Bureau, Dar es Salaam: (undated).	(1) Ministry of Agriculture Establishment of Farm Service Centers Towards Easy Availability of Fertilizers and Other Inputs Under One Roof. A draft report prepared by the Directorate of Extension and Training Services, Dar es Salaam: (undated) (2) USAID, Resources for Village Production and Income. A Project Paper Prepared for the AID/Tanzania Mission - 2 Volumes. Dar es Salaam: June 1980.
Research or Strategy Paper	(1) Ministry of Agriculture, Input Distribution in Tanzania. A Report Prepared by the Marketing Development Bureau for FAO/UNDP Project SF TAN 27. Dar es Salaam: December 1977. (2) H. Mwaipyana, Indicative Farm Models for the Major Farming Systems in Mbeya Region. A Report Prepared Under the Co-Sponsorship of the Mbeya RIDEP Project and the Marketing Development Bureau of the Ministry of Agriculture, 2 Volumes, Dar es Salaam: February 1982.	(1) Ministry of Agriculture, National Food Strategy: Farm Inputs. A Working Paper Prepared by the Planning Division. Dar es Salaam: (undated). (2) B.R. Singh, Report on Farm Services and Inputs. A Report Prepared for the Tanzania National Food Strategy Project (CCP/URT/054/DEN. Dar es Salaam: February 1982. (3) DANIDA, Report on Village Storage Facilities and Input Supply Pick-Up Service. A Report Prepared by an Exploratory Mission to Tanzania. Dar es Salaam: October 1981.

Critique of Documents Classified as "Project Proposal/Quantitative"

The Mbozi Farm Service Center Proposal

1.5 In order to estimate the demand for inputs in the study area (i.e., in sixteen villages surrounding the existing NAFCO Mbozi Maize Farm), the authors interviewed village leaders, and where necessary, obtained supplementary information from both the District Agricultural Development Officer (DADO) and the Coffee Authority of Tanzania (CAT). Although to some extent this study represents a bottom-up approach to the estimation of agricultural inputs demand, it should be pointed out that the opinions of village and district level officials were used as a proxy for the felt needs of farmers. The authors of this study did not comment on the potential upward bias inherent in a methodology which relies upon the projections of local officials. For a variety of reasons, these projections have often been unduly optimistic.

1.6 Within the framework of this study, agricultural production is seen to increase steadily over a five-year period around Mbozi as a result of the establishment of a farm service center. Such increases would result from the greater availability (hence use) of fertilizer and from increased mechanization. No further analysis was done to determine: (1) if sufficient quantities of fertilizer would be available in the coming years to assure a ready supply to the farm service center; or (2) the relationship between the Mbozi Project and future development of the inputs distribution network as a whole for Mbozi District or beyond.

Critique of Documents Classified as "Project Proposal/Descriptive"

The Directorate of Extension and Training Services Proposal for a Farm Service Center

1.7 This study proposes the establishment of three pilot farm service centers, one of which would be located in Mbeya in Mbozi District. The primary rationale for the suggested project is to provide fertilizer and other inputs on a timely basis so as to increase maize production. The success of the centres is seen to rest on (among others) the following assumptions: (1) that the Government will guarantee that actual demands for inputs are met; and (2) that an inputs section will be created in the Ministry of Agriculture. No analysis was provided to permit a determination of the amount of inputs required for the service areas of the proposed pilot projects, nor was there any indication of how these pilot projects would relate to the larger question of devising an effective inputs distribution network.

USAID Project Paper: Resources for Village Production and Income

1.8 As the name implies, the primary focus of the "Resources for Village Production and Income Project" is the village. In contrast to the proposals for farm service centers reviewed above, the Project Paper proposes the introduction of village service/storage centers, whereby farmers' grain is stored and their inputs are obtained at the village level. Financing for construction would be provided by special loans through TRDB. Foreign exchange would also be made available to permit UFI to expand the availability supply of hand tools and oxen-drawn equipment following the establishment of such centers. No foreign exchange, however, would be allocated for village loans of seasonal inputs under the National Food Credit Program (NAFCREP)

1.9 With regard to the ultimate institutional housing for a comprehensive inputs distribution system, AID concedes there are presently no clear-cut choices, indicating that additional study is needed. At the same time, the Project Paper squarely endorses the concept of linking the inputs distribution system with the produce marketing system within the framework of the village service center. [illegible] (cf. Annex II-C, P. 13). A link-up of this nature would necessarily result in close ties with the National Milling Corporation (NMC) and/or other crop parastatals which AID has already discredited (cf. Annex II-F, P. 20) as viable institutional bases for its proposed system of village service centers.

Critique of Documents Classified as
"Research or Strategy-Quantitative"

MDB, Input Distribution in Tanzania

1.10 In 1977, the Minister of Agriculture directed his Marketing Development Bureau to recommend improvements in the manner in which inputs were distributed to farmers. Due to the lack of data for other agricultural inputs, MDB focused its attention mainly on the problems of fertilizer distribution.

1.11 A key point raised by this study is the effect that distributor margins have on the efficiency by which fertilizer is distributed. Following the introduction of fertilizer subsidies (50%) coupled with pan-territorial pricing in May 1976, many agents then disbursing inputs (especially the crop authorities) were put under a severe financial strain, as no provision was made for a distributor's margin. Those agencies with more latitude in their operations (e.g., AISCO and TFA) for all practical purposes pulled out of fertilizer distribution.

1.12 In response to the foregoing crisis, MDB proposed that TFC introduce both a distributor's margin (7-1/2%) and an early-purchase discount (7-1/2%) to facilitate the orderly marketing of fertilizer. Implicit in this recommendation was the assumption that the then-existing problems of fertilizer distribution could be resolved without recourse to the creation of new institutions.

1.13 Another aspect of the distribution problem highlighted by MBD has been the failure of policy makers to view the use of inputs in a micro-economic context. Although written nearly five years ago, these words bear repeating today:

> (P.2) "Insufficient attention is given by Government Officers to ascertaining requirements of the farmers for inputs; the farmers' ability and knowledge to utilize the inputs, their actual willingness to purchase inputs and their ability to pay .... is often overlooked when input orders are placed. Too often inputs are ordered on the basis of over-optimistic production targets, on the basis that peasants 'should' use the inputs...."

Mwaipyana, Indicative Farm Models

1.14 The immediate objective of this study was to classify the Mbeya Region into distinct agro-economic zones. Each zone (fifteen in Mwaipyana's scheme) would constitute a unique farming system. The underlying premise here is that agricultural improvement schemes must be specific to the agronomic and economic parameters of the targeted area.

1.15 Significantly, a similar zonal approach was used by the Consultants in their sample survey of inputs demand in the Mbeya Region, the results of which will be presented in Chapter IV. While the estimation of demand was not an objective of Mwaipyana's study, one could derive such estimates from the farm-level data of variable costs presented in the technical appendices of Vol. II. As Mwaipyana himself has cautioned, however, the sample size at the zonal level was too small to attribute statistical significance to the results in a given zone.

Critique of Documents Clasified as
"Research of Strategy/Descriptive"

MDA, Farm Inputs Working Paper

1.16 While providing a wealth of background information on the current structure of the inputs distribution system in Tanzania, this working paper nonetheless admits to confusion on a theoretical plane regarding the interaction of supply and demand forces. As an explanation for the current "low" consumption level of inputs (presumably meaning "low" in a normative sense) it is stated that: (1) supply is less than demand; and (2) input prices are "high."

1.17 If in fact high prices for inputs are a major constraint on their use by farmers, then demand would be less than supply, rather than the other way around. It should be noted that this confusion is inherent in the "advocacy planning" framework in which this study apparently was conducted. In the world of advocacy planning, no distinction is made between inputs requirements and inputs demand. Thus farmers are expected to use inputs at technically optimal levels regardless of the consequences for net revenue.

1.18 Proposed actions for the immediate future (1981/82 - 1983/84) with regard to fertilizer 2/ distribution as follows:

(1) Establishment of a coordination, feedback, and monitoring system at all levels (district/regional/national) to promote better annual estimates of inputs.

(2) Establishment of an Agricultural Inputs Section in Kilimo to serve as focal point for inputs distribution.

(3) Take steps to increase the supply of inputs (primarily through donor aid of foreign exchange to TFC).

(4) Creation of an effective distribution system through mobilization (the Consultants' emphasis) of existing channels/resources, plus the creation of a chain of farm service centers.

(5) More effective use of existing transport networks.

(6) Construction by TFC of additional go-downs.

2/ The recommended strategies for the improvement of inputs distribution are input-specific. For present illustrative purposes, it will suffice to consider only the recommendation vis-a-vis fertilizer.

1.19 Perhaps another hallmark of the advocacy planning approach is the substitution of wishful thinking for concrete, realisable proposals. While presumably no one would disagree that TFC should construct more go-downs, or that the transport network should be be used more efficiently, it remains to be seen how these proposals might be implemented. Moreover, one might question the wisdom of "mobilizing" existing institutions for the purpose of distributing inputs at the retail level. Indeed it was only a few years back that TRDB was similarly mobilized to distribute inputs. Within the advocacy planning approach, however, apparently no distinction is made between adaptation and mobilization.

B.R. Singh, Report on Farm Inputs and Services

1.20 This study is for the most part an outgrowth of the working paper reviewed directly above. As such, it contains a wealth of background information, without which one cannot hope to comprehend the complicated overlapping network of institutions which constitute the present inputs distribution system. Although Singh elaborates considerably the notion of a special inputs section in Kilimo (as originally proposed in the working paper), no conclusion is reached with regard to an operational agency for implementing and managing the proposed farm service centers.

The DANIDA Report

1.21 In concert with virtually all of the documents reviewed above, DANIDA concurs with the need for localized farm service centers for the sale of inputs on both a cash and credit basis. DANIDA cautions, however, against,... "the loading of too many services onto such a centre at an early stage... (P. 22). Thus tractor hire and other agro-mechanical services are seen as being too ambitious as a starting point.

1.22 In line with AID's thinking (see above), DANIDA proposes that infusions of foreign exchange be provided to ensure that the creation of a farm service center in one region does not aggravate the supply situation elsewhere in the nation. This concern, however, should not be construed as an endorsement of open-ended subsidization of inputs. In this vein, DANIDA questions the utility of fertilizer applications where the resulting increase in production fails to cover the foreign exchange cost of its provision (P.21).

Justification for Study

1.23 The lack of an efficient network for the provision of inputs to farmers on a timely basis has been cited frequently as an important constraint to increased agricultural production in Tanzania. 3/ Moreover, it is generally conceded that the Tanzania Rural Development Bank (TRDB) should be relieved of its function as a direct supplier of agricultural inputs to crop-specific parastatal authorities and to village-level participants in the National Food Credit Program (NAFCREP). 4/, 5/ Based upon our reading of the available literature, it appears that a further consensus exists among both Tanzanian Government Officials and technical experts in international and bilateral donor agencies that the existing distribution mechanisms (consisting mainly of ad hoc responses to crisis situations) should be replaced by a comprehensive system of inputs distribution centers which would serve the whole spectrum of agricultural producers under one roof.

1.24 Whether due to time constraints, or perhaps to the seeming intractibility of the inputs distribution debacle, previous studies have been deficient in three key aspects:

(1) Little or no analysis of TRDB's performance as a direct supplier of agricultural inputs was conducted to support the (seemingly foregone) conclusion that it should be released from this role.

(2) Little or no attempt was made to quantify the actual demand for inputs by farmers. Such estimates as made were derived either from expert opinion regarding future agricultural production, or from a meld of scantily documented survey data and judgments of village officials.

3/ Two important examples are found in:

Singh, Bhoj Raj, Report on Farm Inputs and Services. An FAO Report Prepared Under the Tanzania National Food Strategy Project, Dar es Salaam: GCP/URT/054/DEV., 1982, P. 49.

Haule, T.C. and C.M. Mbena, Tanzania National Paper for the First Regional Consultation on Agricultural Machinery Industry in Africa. A UNIDO Country Report, Dar es Salaam: 1981.

4/ USAID, Resources for Village Production and Income (621-0155). A Project Paper Prepared for the AID/Tanzania Mission, Volume I. Dar es Salaam: USAID, 1980, P. 46.

5/ Mwakyusa, G.A., Director of Operations, TRDB Headquarters, "Safari Report to Arusha from 18th to 22nd January 1982." A Report to the General Manager of TRDB, Dar es Salaam, 1982. The stated purpose of this safari was to discuss with the Tanganyika Farmers' Association (TFA) and with Tanzania Seed Company (TANSEED) regarding their potential participation in the establishment of new outlets for agricultural inputs. Implicit in these discussions is an eventual diminution and/or retreat by TRDB from its present role in inputs distribution.

(3) Only cursory attention has been paid to the potential institutional residence for the proposed farm service centers.

1.25 The present study is needed to fill the aforementioned gaps. It would be fatuous, however, to pretend that a consultancy of approximately four man-months (such as the present one) could adequately address these issues on a national scale. Thus it was with an eye toward practicality that the requisitioners of this study confined its geographic scope to the Mbeya Region. At the same time, the Consultants were instructed to devise a methodology whereby the present regional analysis of Mbeya could later be replicated should policy makers ultimately deem this appropriate.

Within the framework of the objectives given to the Consultants, this study will:

(1) evaluate the past and future performance of the Mbeya Regional TRDB Office (Chapter 2);

(2) evaluate the past and possible future performance of other organizations currently distributing farm inputs in the Mbeya Region (Chap. 3);

(3) attempt to quantify the demand for agricultural inputs as perceived by farmers in the Mbeya Region and evaluate the results of this effort with regard to the feasibility/desirability of replication elsewhere in Tanzania (Chapter 4);

(4) propose and analyze alternative strategies for improving the inputs distribution system in the Mbeya Region and make recommendations for early action (Chapter 5).

(5) suggest possible pilot project (Chapter 6).

CHAPTER II. PERFORMANCE EVALUATION OF THE TRDB MBEYA REGIONAL OFFICE

2.0 As was pointed out in the previous chapter, there appears to be a consensus among policy makers that TRDB should be relieved of its role as a distributor of agricultural inputs. This conclusion is based upon the premise that the distribution role places an undue additional burden on the limited staff of TRDB. 1/ Thus the primary objective of the ensuing analysis is to assess (and where possible, quantify) the importance of this burden and the consequences thereof for TRDB's ability to carry out its primary role as a provider of agricultural credit.

2.1 Pursuant to the scope of work provided the Consultants, the focus of the analysis will be on the Mbeya Regional Office of TRDB. Also in accordance with the scope of work, primary emphasis will be on those aspects of the Regional Office (RO) which relate to its inputs distribution function. At the same time it is recognized that the credit-in-kind function of TRDB is in some respects inextricably tied to its distribution function; and to this extent the capabilities of the RO in the area of loan recovery will figure in the evaluation which follows.

Brief Overview of TRDB 2/

2.2 The Tanzania Rural Development Bank is comprised of a national headquarters, five zonal offices, and one regional office in each of the twenty regions of mainland Tanzania. Under the Office of the Chairman and Managing Director the Headquarters is organized into five directorates: Operations, Regional Supervision and Coordination; Finance; Planning and Development; and Manpower Development and Administration.

2.3 The five zonal offices serve as a link between TRDB Headquarters and the regional offices. As such, the functions of the zonal offices are supervisory rather than operational in nature. Most Zonal personnel are physically housed in their constituent regional offices.

2.4 Falling within the Directorate of Regional Supervision and Coordination, the twenty regional offices are the operational arms of TRDB. It is the role of the regional offices to process and forward requests for inputs from the villages to Headquarters, to ensure that the inputs are in fact delivered, and to pay transporter's upon verification of delivery. The regional offices are also responsible for receiving loan repayments and crediting the accounts of the villagers vis-a-vis the Bank. Thus as the Bank's interface with its clients, the regional offices are in principle the best potential sources of current information regarding the quantities of inputs disbursed and the amount of loan repayments made.

1/ Ministry of Agriculture/Division of Planning, op. cit., P.8.

2/ For a more detailed description of TRDB, cf. Singh (op. cit., Annex 2.4).

Description of The Mbeya Regional Office

2.5 The Mbeya Regional Office (RO) is one of four such offices included in Zone IV, along with Rukwa, Iringa, and Morogoro. Within the national context, the RO has administered a relatively small share of TRDB's total loan portfolio. As shown in Table 2.0, the RO's share of the value of loans made in the period 1975/76 - 1979/80 never exceeded six percent in any given year.

Table 2.0 - Value of loans made by TRDB in the Mbeya Region vs. Tanzania.

Year	Mbeya Region	Tanzania	Mbeya Region as a Percent of Tanzania (%)
	Aggregate Loan Value (T. sh millions)	Aggregate Loan Value (T. sh millions)	
1979/80	12.0	207.9	5.8
1978/79	7.9	185.8	4.3
1977/78	13.1	246.9	5.4
1976/77	2.1	77.0	2.7
1975/76	0.5	100.9	0.5

Source: Tanzania Rural Development Bank, "Annual Report and Accounts: 1st July 1979 to 30th June 1980." Dar es Salaam: TRDB, June 1981, P.14.

Staffing and Facilities

2.6 In total there are twenty-six 3/ employees in the RO, including those stationed at district outposts in Mbozi and Chunya Towns, 4/ and at RO go-downs, one in Mbeya, the other at The TAZARA railhead in Chimala the staffing pattern is as shown in Table 2.1.

2.7 The complement of vehicles consists of two Land Rovers (both kept at the RO) and seven motorcycles. A third Land Rover will be allocated to the RO. Housed in the RO, but technically zonal staff, are one accountant and one technician.

3/ This number fluctuates slightly due to the hiring of occasional laborers.

4/ This office space is donated to the RO by the Tobacco Authority of Tanzania.

Loan Procedures

[illegible] Generally, with the aid of a credit supervisor, a village files an application for a loan with the [illegible] for the amount of seasonal inputs it needs. The application is then processed by the RC and submitted for review to the Regional Loan Committee.

Table 2.1 - Staffing Pattern of the TADB Mbeya Regional Office.

Category	Number of Staff				
	Staff (Centre Quarters)	Mbeji District Office	Chunya District	Go-Downs	Total
Regional Manager	1	-	-	-	1
Project Officer	3	1	-	-	4
Field Supervisor	2	1	1	-	[illegible]
Accountant	2	-	-	-	[illegible]
Technical Officer	1	-	-	-	1
Storekeeper	-	-	-	1	1
Manager	2	-	-	-	2
Driver	2	-	-	-	2
Watchman	1	1	-	-	2
	2	1	-	4	[illegible]
Total	16	4	1	5	26

Source: TADB Regional Office Manager

The Regional Loan Committee consists of the following members:

Regional Development Director (usually represented by the Regional Planning Officer).

Regional Agricultural Development Officer

Regional Livestock Officer

Regional Cooperative Officer

Regional National Bank of Commerce Officer

Regional Manager, TADB

The purpose of this body, which in principle meets once or twice per year, depending upon a number of circumstances, is to make recommendations to TADB Headquarters with regard to loan applications in the Mbeya Region. Loan applications for less than T. sh 200,000 may be approved by the Committee without deference to TADB Headquarters.

2.10 With regard to loan applications for seasonal inputs, the Consultants were told that, upon the TRDB Regional Manager's recommendation, approval by the Committee is pro forma. This practice was verified by RO files, wherein it was observed that in 1977 an application for the village of Luwalaje received two separate shipments ... one on May 27th, another on June 4th ... well before the Regional Loan Committee Meeting of June 22nd. While on the one hand this procedure obviously contravenes official TRDB policy, it appears to the Consultants to be nothing more than the time-honored practice by field staff of short-cutting a rather cumbersome system devised by headquarters. Obviously the ultimate wisdom of this procedure depends upon the capabilities of the Regional Manager and his support staff.

2.11 On another level, and perhaps a contributing factor to the short-cutting noted above, the various members of the Loan Committee are often reluctant to convene. There were two main reasons given for this reluctance: (1) the press of other commitments; and (2) the lack of a "seating allowance" (i.e., per diem expenses). Whatever the actual reason(s), it would appear that the Regional Loan Committee process is ripe for streamlining.

Annual Loan Activity

2.12 As shown in Table 2.2, the number loans made annually for tea and tobacco have remained static over the past several years. For maize, the number of loans increased substantially in the years 1977/78 and 1978/79, only to decline rapidly thereafter.

2.13 The primary reason for the declining maize loan activity, according to RO Staff, is the lack of credit-worthy applicants; and herein lies a crucial flaw in a distribution system which supplies goods only on credit. When potential borrowers cannot meet TRDB's loan criteria (which we were told have become more stringent due to repayment problems), TRDB effectively abdicates its mandate to supply agricultural inputs to small farmers.

Operating Expenditures

2.14 For accounting purposes, the RO's operations are funded out of two separate accounts: (1) the Inputs Distribution Account, a revolving fund of T.Sh 600,000 and (2) the Regional Office Operating Expenditure Account, also set up as a revolving fund. According to the Regional Office Accounting Procedure (effective July 1979) the Inputs Distribution Account is to be used solely for expenditures directly connected with the distribution of inputs. In actual practice, however, the RO frequently transfers funds from the Inputs Distribution Account to the Operating Expenditures Account. 5 / Recourse to this expedient is frequently necessary due to a chronically under-funded Operating Expenditures Account. 6 /

---

5 / J.J. Mbelle, Zone IV Manager, "Quarterly Report: January-March 1982." A Memorandum to the General Manager, TRDB (undated).

6 / Since RO staff was unsure of the budgeted amount for this account, it was impossible to determine its adequacy in relation to the RO's scale of operations.

Table 2.2 - Number of Villages which were provided with seasonal input loans by the Tanzania Rural Development Bank in the Mbeya Region.

Crop	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Tobacco	7	8	9	9	9	9	7
Tea	3	105	105	105	105	105	105
Maize	-	-	49	66	21	7	9

Source: TRDB Mbeya Regional Office.

2.15 Salaries are paid by TRDB Headquarters, and thus do not affect either the Inputs Distribution or Operating Expenditures Accounts. According to RO records, a total of T. sh 157,130.95 was paid in salaries in 1980/81. When this figure is added to the inputs distribution and non-salary recurrent expenditures (T. sh 0.42 million), total operating costs in 1980/81 for the RO came to approximately T. sh 1.58 million (Table 2.3). 7/

Table 2.3 - Operating expenditures for the Mbeya Regional Office, 1980/81.

Type of Disbursement	Amount (T. sh millions)
Inputs Distribution[a]	1.40
Non-salary Recurrent Expenses[b]	0.42
Salaries[c]	0.16
Total	1.98

a. Source: Compiled from monthly reports (Form 413) filed at the Mbeya RO.

b. Source: Compiled from monthly reports (Form 412) filed at the Mbeya RO.

c. Source: Records on file at the Mbeya RO.

7/ In the compilation of the monthly reports for both the Inputs Distribution Account (Form 413) and the Regional Office Operating Expenditure Account (Form 412), several omissions and inversions of chronological order were observed. Given this lack of precision, rounding to the nearest thousand is appropriate.

Annual Quantities of Seasona Inputs 8/ Distributed by the Mbeya RO

2.16 The Mbeya RO presently distributes inputs for only three crops: maize, tobacco, and tea. As shown in Table 2.4, the quantities of inputs distributed for tobacco and maize have varied widely from year to year over the period 1977/78 - 1981/82. By contrast, fertilizer distribution for tea has been relatively stable with a light decrease during the 1981/82 season.

2.17 In comparison with TRDB as a whole, the level of annual disbursements by the Mbeya RO appears 9/ to have declined in relative [illegible] as well as absolute terms for maize and tobacco (Table 2.5). For tea however, the Mbeya RO continues to account for nearly one half of all fertilizer distributed nationally by TRDB for that crop.

Effectiveness of the Mbeya RO as a Distributor of Inputs

2.18 To be deemed effective, any input distribution system must deliver the quantities demanded within the time frame required, with only minimal losses of product during shipment and storage. In the ensuing analysis, the effectiveness of the Mbeya RO will be evaluated with regard to the foregoing criteria.

Quantities Distributed vs. Quantities Offered

2.19 In order to measure the ratio of quantities of inputs distributed to the quantities ordered, an attempt was made to cross-check the amounts requested in the original application for credit 10/ with the quantities actually shipped ... the latter information 11/ being contained in the form of a voucher presented for payment by the transporter to the RO.

8/ Inputs for which repayment is due within one cropping season.

9/ Caveat: The Consultants were not able to verify the accuracy of the data provided by TRDB Headquarters Staff. As will be discussed later, there are significant discrepances between data provided by the RO and TRDB Headquarters.

10/ While there is no provision on the loan application form (Form 208) for listing the amount(s) of inputs requested ... only the loan amount is recorded ... the Consultants were told (Mr. Peter Mkulia Project Officer, TRDB Headquarters) that, in principle, a list of the amounts requested is attached to the loan application form.

11/ In principal this information should be contained in the Loan Ledger Card for each loan account (Form 403 ... see Annex B). When requested, RO Staff was unable to locate any Loan Ledger Cards for FY 80/81. To the extent that this information was actually available in RO files, it was subsequently compiled on an improvised form (see Annex C for a sample copy).

Table 2.4 - Quantities of seasonal inputs by type distributed by the Mbeya RO, 1977/78 - 1981/82.

Year/Crop	Type of Seasonal Inputs											
	Fertilizer (tons)	Seeds (tons)	Pesticides (tons)	Watering cans (Pieces)	Hessian cloth (Bales)	Jute twine (Bales)	Barn Thermometers (Pieces)	Empty Drums (Pieces)	Barn flues (Pieces)	Bulking bags (Bags)	Empty felt bags (Pieces)	Tarlined Paper (Rolls)
1977/78				c/								
Maize	2389	137	57									
Tea	NAa/											
Tobacco	2131		-b/	-	172	600	-	-	-	-	-	540
1978/79												
Maize	2389	298	-									
Tea	2270											
Tobacco	1140		6	3311	171	57	4000	1330	-	-	-	1060
1979/80												
Maize	510	24	16									
Tea	2300											
Tobacco	2583		NA	4100	-	-	-	4378	3498	-	-	-
1980/81												
Maize	150	-	-									
Tea	2320											
Tobacco	1374		NA	-	-	-	-	1100	4000	6	-	-
1981/82												
Maize	395	37	41									
Tea	1955											
Tobacco	2882		23	2351	-	-	-	1245	7275	-	-	-

a/ NA = Not Available

b/ A dash (-) indicates no use in a given year

c/ A blank entry indicates that the input is never used

Source: Mr. Mkulia, Project Officer, TRDB Headquarters - for all data except 1981/82 maize, tea, and tobacco, the Mbeya RO provided the latter.

Table 2.5 - Quantities of inputs distributed in the Mbeya Region as a percentage of quantites distributed nationally by TRDB, 1977/78 - 1981/82. [Source: Data prepared by TRDB Headquarters Staff based on orders to primary producers and/or suppliers].

Year/ Crop	Quantities of Inputs Distributed by Major Categories (Metric tons) a/								
	Fetilizers			Seeds			Pesticides		
	Mbeya RO	TRDB Total	% b/	Mbeya RO	TRDB Total	% b/	Mbeya RO	TRDB Total	% b/
1977/78									
Maize	2,389	7,572	32	137	502	27	1.4	7	20
Tea	NA	NA	NA						
Tobacco c/	2,131	23,207	9				-	25	0
1978/79									
Maize	2,389	12,385	19	293	1,452	20	-	451	0
Tea	2,270.	4,297	53						
Tobacco c/	1,140	33,670	3				6	353	2
1979/80									
Maize	510	19,356	3	24	411	6	16	836	2
Tea	2,300	4,305	43						
Tobacco c/	2,583	19,659	13				65	1,104	6
1980/81									
Maize	150	17,920	1	-	-	-	-	-	-
Tea	2,320	4,611	50						
Tobacco c/	3,5[illegible]	26,052	13				-	532	0
1981/82									
Maize	395	10,362	4	37	2,136	2	41	503	-
Tea	1,956	4,415	44						
Tobacco c/	2,[illegible]	NA	NA				23	NA	[illegible]

a / For convenience, minor inputs for tobacco have been omitted from this table. A blank indicates no customary use in a given [illegible] dash ( ) indicates no disbursements in particular year

b/ Mbeya RO [illegible] the percentage point

c/ Caveat: Data su[illegible] may not [illegible] of the Mbeya RO.

2.20 Due to time limitations, the aforementioned exercise was attempted only for FY 80/81. Moreover, given the sporadic character of the RO's records, a meaningful analysis was possible only for tobacco inputs (nine accounts in FY 80/81); records for maize and tea were either missing entirely or else were incomplete.

2.21 As shown in Table 2.6, for none of the five tobacco inputs for which information was available in FY 80/81 did the amount distributed match the amount ordered. This is not to say, however, that TRDB is necessarily responsible for this state of affairs. As discussed elsewhere, 12/ an important constraint to the distribution of agricultural inputs throughout Tanzania is the lack of supply. Nevertheless; it should be noted that the lack of adequate record keeping by the Mbeya RO deprives TRDB of the capability to monitor and evaluate its performance in distribution inputs, as well as that of its suppliers.

2.22 At this point, it is instructive to consider the means whereby TRDB determines the quantities actually distributed for any given seasonal loan account. As it was explained to the Consultants, 13/ the process flows in the following manner:

(1) Following approval of the loan, inputs are dispatched from TRDB's suppliers either to the RO go-downs, or in some cases directly to the client village.

(2) The transporter submits a delivery notice to the RO in order to receive payment for services rendered.

(3) The RO pays the transporter from the Inputs Distribution Account and forwards the delivery notice to TRDB Headquarters for reimbursement.

(4) TRDB Headquarters receives the delivery notice, places it chronologically in a general file (the Registry), and subsequently reimburses the RO.

As discussed previously, the quantities actually disbursed will often differ from the quantities ordered, in which case TRDB must recalulate the loan for repayment purposes. In principle, the RO should be a source of accurate and timely information regarding the quantities disbursed. When the RO fail in this regard, TRDB Headquarters must rely upon the delivery notices, which (as seen above) are filed not by loan account but by date of their arrival. Obviously the compilation (and in cases where quantities disbursed differ from quantities requested, the recompilation) of the delivery notices for the purposes of calculating the loan amount would be (and is) a time-intensive task.

12/ DANIDA, op cit., p.20.

13/ Per discussion with Mr. P. Mkulia, Project Officer, TRDB Headquarters.

Table 2.6 - Quantity of tobacco inputs distributed as a percentage of inputs ordered in FY 80/81, Mbeya Region

Type of Tobacco Input	No. of Loan Accounts with Available Information	Percent of Loan Accounts with Available Information a/	Quantities Ordered	Quantities Distributed	Quantities Distributed as a Percent of Quantities Ordered (%)
NPK Fertilizer (bags)	6	67	41,755	31,276	75
SA Fertilizer (bags)	9	100	21,020	21,139	88
Barn Flues (pieces)	5	56	4,553	1,636	37
Watering Cans (pieces)	6	67	1,397	1,036	74
4% Thiodan Dust (Kgs.)	6	67	33,335	22,475	67

a/ Calculated from a base of nine village loan accounts in FY 80/81.

Source: Mbeya Regional Office Files.

2.24 Thus a timely flow of accurate information from the RO is essential for ensuring the smooth operation of TRDB's role both in the distribution of inputs and the provision of credit. In this regard, it would appear that the performance of the Mbeya Regional Office has been inadequate. For example, neither the Loan Ledger Cards nor the "Monthly Input Distribution Report", two basic record-keeping tools of the RO's are regularly 14/ compiled by the Mbeya Office. 15/

2.25 Were it not for the inconsistency between RO and TRDB with regard to quantities disbursed, the RO's failure to follow established procedures might not be cause for concern. As became clear in the course of our evaluation of the RO, however, there is a significant disjuncture between the records at TRDB Headquarters (the "Management Information Report") and those of the Mbeya RO. For example, according to RO data, 16/ the total value of seasonal inputs distributed (exclusive of interest charges) for FY 80/81 amounted to approximately T. sh 13.0 million (Table 2.7). For maize the amounts are similiar, for tobacco a difference of T. sh 60,000, and for tea there is no information in the headquarter records for Mbeya (Table 2.7 compared to Table 2.).

Table 2.7 - Value of seasonal inputs distributed for maize, tea, and tobacco by the Mbeya RO, FY 80/81. (Regional Office Records)

Crop	Number of Accounts for Which Disbursements were made in FY 80/81	Value of Inputs Distributed (T. sh 000's a/)
Maize	7	524.4
Tea	105	1,265.7
Tobacco	9	1,251.1
TOTAL	121	13,041.2

Source: Data provided by Mr. Y.C. Rashidi, Project Officer, Mbeya RO.

a/ Exclusive of annual interest charges.

14/ In the Mbeya RO, Loan Ledger Cards appear to be available only for FY 81/82 tobacco.

15/ Mbelle, Zone IV Manager op. cit.

16/ Data provided by Mr. Y.C. Rashidi, Project Officer Mbeya RO.

Table 2.6 - Value of seasonal inputs distributed for maize, tea, and tobacco by the Mbeya RO, FY 80/81. (H/Q Management Information Report)

Crop	Number of Accounts for Which Disbursements were made in FY 80/81	Value of Inputs Distributed (T. sh 000's a/)
Maize	7	524
Tea	na b/	na b/
Tobacco	9	8,320
TOTAL	16	8,844

Source: Management Information Report FY 80/81, TRDB Headquarters

a/ Exclusive of Annual interest charges.

b/ Regional office disbursements for tea do not appear in the Headquarters Records for Mbeya.

2.26 What might appear at first glance to be a simple matter of inadequate coordination between the RO and Headquarters, turned out, upon further examination to be a serious problem in the RO's method of record keeping. As an experiment, the Consultants checked the Loan Ledger Cards for FY 81/82 tobacco (the only crop/year for which such forms were on file at the RO) to determine if the information recorded therein could be traced through to the Management Information Report at TRDB Headquarters. To cite a specific case: For Gua Ujamaa Village (Loan Account No. 42001) the Loan Ledger Card indicated that a total of 320 bags of NPK fertilizer had been disbursed during 1981/82. In the course of this exercise, the Consultants discovered a consolidated tobacco inputs report (not an official TRDB form) then in preparation for submission to TRDB Headquarters. Incongruously this latter report showed GUA as having received 500 bags of NPK in 1981/82.

2.27 When confronted with this apparent contradiction, RO Staff informed us that the figure on the Loan Ledger Card (i.e., 320 bags) represented only that NPK which had been shipped from the RO go-down in Mbeya. But The higher figure (i.e., 500 bags) purportedly included NPK which had been shipped from the Chimala go-down, as well as the one in Mbeya. But how was this latter piece of information obtained by the RO? The Consultants were told that the RO credit supervisor who is stationed in Chunya visited the tobacco villages after final delivery of all inputs to compile and forward the amounts received in the RO. In view of this indirect approach to information processing, it was not surprising that a telegram arrived at the RO from TRDB Headquarters (June 12, 1982) urgently requesting the RO to furnish all inputs disbursement information for FY 81/82. 17/

17/ It should be noted that the fertilizer for tobacco production in Chunya had been shipped the previous October.

Table 2.9 - Mbeya RO Financial Data by Loan Portfolio, 1980/81.

Loan Portfolio	Number of Accounts	Value of Disbursements	Opening Balance	Closing Balance	Payments Received 1980/81
			---------T.Sh 000's---------		
01 Mixed Crops	1	0	277	294	0
02 Tractors	1	0	0	0	0
0[illegible] Farm Purchase	2	0	308	325	0
1[illegible] Coffee Inputs	1	0	0	0	0
11 Coffee Equipment	1	-126	44,395	44,540	200
17 Tea Inputs	3	0	34,011	35,2[illegible]	938
21 Tobacco Inputs	51	3,32[illegible]	[illegible],852	15,057	2,500
27 Maize	77	524	6,549	6,072	763
3[illegible] Dairies	0	101	2,796	2,550	474
35 Ranching Cattle	5	50	6,374	6,320	331
[illegible]-[illegible] Godowns/Buildings	1	0	0	10	0
6[illegible]-6[illegible] Transport	1	0	193	132	76
51 Poultry Keeping	1	0	24	27	0
[illegible] Maize Mills	40	100	1,273	1,300	100
[illegible]2 Bar/Hotel	1	0	173	179	12
[illegible]3-[illegible]7 Mining	1	0	250	2[illegible]5	0
[illegible] Farm Machinery	11	700	340	1,[illegible]	50
Total	210	9,786	107,328	11[illegible],[illegible]1	6,133

Source: Data from TRDB's "Management Information Report", provided to the Consultants by the TRDB Planning Advisor.

2.2[illegible] Thus information processing at the Mbeya RO would appear to be mostly ad hoc and largely dependent upon the presence of a few key staff members with relatively long seniority. As such, the RO has virtually no institutional memory.

2.2[illegible] From the information available within the RO, it is impossible to determine if in fact its credit clients are receiving inputs in the amounts requested. Moreover, it would be reasonable to conclude that the haphazard record-keeping noted above is at least partially responsible for the failure of the RO and TRDB Headquarters to agree on the quantities of inputs disbursed.

In discussions with various TRDB staff members, both at Mbeya and in Headquarters, the Consultants were told that a significant cause of friction between TRDB and its clients concerns disputes over the loan amount. Thus it may well be that the lack of systematic record-keeping with regard to the distribution of inputs is at the heart of TRDB's serious problems with loan repayments.

Timeliness of Delivery

2.30 In order to evaluate the RO's ability to deliver inputs within the time frame required by the relevant agricultural calendar(s), an attempt was made to cross-check the date of loan application with the date or dates on which the requested inputs were actually received in FY 80/81. This information was subsequently recorded on the same summary sheet which was used to evaluate the quantities shipped (see Annex C).

2.31 As before, the information on file at the Mbeya RO was too sparse to yield anything more than a general impression. For tobacco, both the SA and NPK fertilizers would appear to have been shipped on time, arriving in late October in time for its application. For the seven villages which ordered maize inputs, all received their shipment of CAN fertilizer in sufficient time (during November 1980) for its applications. Complete information on the other inputs was not available.

2.32 Another important aspect of the issue of timeliness which emerged from this exercise is that the date on which inputs arrive in the village does not necessarily bear any relationship to the date on which a request is made by the villages to TRDB. Thus it was found that the Village of Mbalizi, which applied for a loan on September [illegible], 1980, received its CAN fertilizer at the same time as did its "early-bird" neighboring villages who placed their applications with the RO in January of the same year.

2.33 Contained in the foregoing information is a highly significant point ... viz., that under TRDB's present system for distributing inputs, there is no incentive for a village to register its requirements early in the year. The present distribution system, including TRDB processing at both regional and headquarters levels, and procurement from and shipment by the primary supplier (TFC in this instance) is such that a typical village-sized order (i.e., 10 - 20 tons) must wait to be packaged with other similar orders in the Procurement Division of TRDB Headquarters. In any highly centralized distribution system, such as the present one, concern for "orderly procurement" will tend more often than not to outweigh any consideration of timeliness of delivery to the end user. Thus so long as the distribution system remains highly centralized, the typical village is likely to experience substantial delays in receipt of its inputs, whether or not TRDB remains the agent of their procurement and distribution.

2.34 Despite the conventional wisdom that "transportation is a bottleneck", the Consultants found (from observation of RO files) that, once delivery orders were placed, the actual time of transport was relatively minimal. This is not to deny the existence of problems in the transportation sector. Nevertheless, the greatest portion of lag time between date of request and date of delivery lies with TRDB and/or its suppliers.

Minimization of Losses

2.35 There was no systematic means by which the Consultants were able to evaluate the performance of the RO with regard to the "loss minimization" criterion. On the one hand, we observed that several hundred bags of fertilizer, plus large quantities of hybrid maize seed and endosulphan dust have irretrievably deteriorated in the RO's Mbeya go-down, which is open to the weather on one side. On the other hand, a random inspection of delivery notices on file at the RO indicated that losses during transport are not substantial. Thus in the absence of any other information to the contrary, 1/ it could be reasonable to conclude that the Mbeya RO routinely delivers inputs to its clients without substantial losses.

Expenditure of Time on Inputs Distribution by the Mbeya RO Staff

2.36 In order to estimate the percentage of time spent by RO Staff on inputs distribution, a brief questionnaire was administered to each of the twenty-six staff members (see Annex 3). For a variety of reasons (travel, vacation, and in the case the four staff in the Mbozi District Office, distance from the Mbeya RO) only fifteen questionnaires were returned to the Contultants. Incomplete responses resulted in the rejection of four completed questionnaires, thus leaving a total of eleven responses to be analyzed. Of the incomplete questionnaires, one was from a newly hired bookkeeper, and the remaining three were from lower level employees who understandably might have been unable to isolate their role in inputs distribution.

2.37 As shown in Table 2.10, the average estimated percentage of time by quarter ranged from as little as 24 percent in the second (calendar year) quarter to as high as 42 percent in the third quarter. As a cross-check on the reasonableness of these responses, a comparison was made between quarterly disbursements from the Inputs Distribution Account and the amount of time by quarter spent by RO Staff on inputs distribution activities. As shown in Table 2.11, the pattern of disbursements from the Inputs Distribution Account (mainly for paying transporters) roughly parallels the RO staff's estimate of the percentage of time it spends on the distribution of inputs. Based on the foregoing information, it would be reasonable to conclude that the monitoring of deliveries and the processing of transport vouchers are the most time-intensive aspects of the RO's invovement in the distribution of inputs.

1/ Due to time constraints, the Consultants were unable to visit the RO go-down at Chimala.

Table 2.10 - Self-Estimated Percentages of Time Spent on Distribution of Inputs by the Kenya RD Staff

Job Title of Respondent	Percentage of Time Spent by Quarter a/ (Calendar Year)			
	1st Quarter (%)	2nd Quarter (%)	3rd Quarter (%)	4th Quarter (%)
Regional Manager	25	30	50	43
Bookkeeper	0 b/	0 b/	0 b/	0 b/
Livestock Officer	0 c/	0	0	0
Clerical Officer	10	10	50	30
Project Officer	15	15	30	25
Project Officer	20	10	40	30
Credit Supervisor	50	30	50	80
Credit Supervisor	100	100	60	20
Storekeeper d/	100	100	100	100
Watchman (x4) d/	100	100	100	100
Weighted Ave.	28	24	42	36

a/ For ease of exposition, the monthly responses from the questionnaire (see Annex B) were aggregated to quarterly figures.

b/ Substantially at variance with all others, this respondent indicated that only an insignificant amount of "extra time" was spent on inputs distribution, implying that he was able to accommodate this function within his spare time.

c/ No seasonal inputs are distributed for livestock.

d/ If the KD was not distributing inputs, then no go-downs or related staff would be necessary. Thus it was assumed that go-down staff spend 100 percent of their time on inputs distribution.

Table 2.11 - Percentage of Time Spent by RO Staff on Inputs Distribution Activities Compared with Percentage of Disbursements Made From the Inputs Distribution Account by Quarter

	Percentage by Quarter			
	Jan-Mar	Apr.-June	July-Sept.	Oct.-Dec.
Percentage of RO a/ Staff Time Spent on Inputs Distribution	2[illegible]	8[illegible]	[illegible]2	3[illegible]
Percentage of Disbursements Made from Inputs Distribution Account	1[illegible]	3	67	[illegible]1

a/ Source: Survey of RO Staff, June 1982 (see Annex B for sample copy of questionnaire).

b/ Source: Compiled from RO records for disbursements from the Inputs Distribution Account, for FY 80/81. Disbursement from this account totaled TSh. 1,380,729 in FY 80/81.

* *

Unit Overhead Cost for Inputs Distribution

2.3 According to the Consultants' estimates, in FY 80/81 it cost the RO TSh 1 in overhead operating costs (not including payments to transporters, which are reimbursed by the Treasury) for approximately every TSh 67 1/ worth of inputs distributed. It must be emphasized, however, that this figure represents only some unknown portion of the costs for TRDB as a whole. Thus not included here are the costs incurred by TRDB Headquarters in processing the RO's estimated requirements, and in procuring and dispatching the inputs ordered by the RO. While this figure has little meaning by itself, it could be useful for making inter-regional comparisons of TRDB Branch Office performance taking into account all loans disbursed during any given financial year.

1/ Derivation: The average annual percentage of time spent by RO Staff on inputs distribution (approx. 38%) was multiplied by total overhead operating costs (TSh [illegible].12 + TSh [illegible].16 = TSh [illegible] million; Table 2.1) to yield a value of TSh. [illegible]. [illegible] RO staff the total value of inputs distributed in FY [illegible]/81 was TSh. 13,[illegible]21[illegible]. Dividing TSh. [illegible] by this latter value yields a decimal fraction of approximately [illegible]15. Dividing 1 by .15 yields approximately 7. For FY [illegible]/82, TSh 12,[illegible].3[illegible] was disbursed with TSh. [illegible] million in operating costs which yields a factor of 13,[illegible]/([illegible] x [illegible]) = [illegible] or a ratio of 1 to 82.

CHAPTER III. OVERVIEW OF OTHER INPUTS DISTRIBUTION AGENTS IN THE MBEYA REGION

3.0 As discussed previously (Chapter II), TRDB's seasonal lending activity, and hence its distribution of seasonal inputs, has seen little growth in recent years in the Mbeya Region. While nationally TRDB handled nearly 40 percent of the fertilizer distributed in Calendar Year 1981, its relative share in the Mbeya Region was only 28 percent for that year (Table 3.0). With regard to the quantities of improved maize seeds and agricultural chemicals distributed in the Mbeya Region, TRDB accounts for a relatively minor portion. (Table 3.1 and Table 3.2). In view of TRDB's stagnating position in both relative and absolute terms, and given its seeming inefficiency as a distributor of inputs, it will be the objective of this chapter to evaluate the performance of other distribution agents in the region, thus laying the groundwork for recommended changes to the existing system (Chapter V).

Table 3.0 - Relative Shares Among Distributors of Fertilizer in Calendar Year 1981: Tanzania Vs. the Mbeya Region.

Distribution Agent	Tanzania		Mbeya Region	
	Qty. Distr. (tons)	Pct. of Total (%)	Qty. Distr. (tons)	Pct. of Total (%)
TRDB	38,561.9	38.9	4,860.0	28.1
Crop Authorities	14,296.5	14.8	3,830.0	22.2
Kilimo/RADO/DADO	11,646.6	12.1	2,610.0	23.3
Tanganyika Farmers' Association	8,973.1	9.3	1,953.5	11.3
State Farms, Estates Others	23,090.6	23.9	4,023.0	15.1
TOTAL	96,568.7	100.0	17,276.5	100.0

Source: Derived from data provided by the Tanzania Fertilizer Company

Table 3.1 - Percentage of Improved Maize Seed a/ Distributed By TRDB in the Mbeya Region, FY 79/80 - FY 81/82.

YEAR	Quantities of Maize Seed Distributed by Type (tons)						
	512	613	614	6302	632	UCA	Total Maize
FY 79/80							
Mbeya Region	-	1.4	109.8	25.6	55.0	24.4	220.2
TRDB	-	-	24.1	-	-	-	24.1
TRDB/Mbeya (%)	-	-	21.9	-	-	-	10.7
FY 80/81							
Mbeya Region	29.7	27.2	60.3	44.8	69.0	13.2	24[illegible]
TRDB	-	-	2.0	-	-	-	2.0
TRDB/Mbeya (%)	-	-	3.3	-	-	-	0.8
FY 81/82 b/							
Mbeya Region	32.0	0.1	88.3	21.5	109.5	26.1	278.4
TRDB	-	-	20.5 c/	-	20.5 c/	4.0	45.0
TRDB/Mbeya (%)	-	-	23.2	-	18.7	15.3	16.2

Sources: Mr. Mahenge, Acting Depot Manager, TANSEED, Mbeya; TRDB Regional Office Staff.

a/ Maize is the only improved seed distributed by the RO.

b/ From July 1981 through January 1982, only.

c/ In the data obtained from the RO, H-614 and H-632 were combined. A 50-50 split was assumed.

Parastatal Crop Authorities

3.1 As delineated in its recently announced Structural Adjustment Program (SAP) 1/ it is the Government's intention that the current inputs distribution role of the crop authorities be assumed ultimate by the reconstituted cooperative unions. No definite timetable for the re-introduction of the cooperative

1/ United Republic of Tanzania, Structural Adjustment Programme for Tanzania. A Report Prepared by the Ministry of Planning and Economic Affairs, Dar es Salaam. June 1982, Section 3.25(a).

Table 3.2 - Relative Shares Among Distributors of Agricultural Chemicals in FY 80/81. Mbeya Region

Distribution Agent	Distribution of Agricultural Chemicals			
	Solid Formulations		Liquid Formulations	
	Formulated Product (tons)	Percent of Total (%)	Formulated Product (liters)	Percent of Total (%)
[illegible]	25.8	18.8	-	-
[illegible]al Trading Company	7.6 1/	5.6 1/	-	-
[illegible]ika Farmers' Ass'n	102.8	74.5	98,303	97.9
[illegible] Authority of Tanzania	-	-	2,145	2.1
Tanzania Cotton Authority	1.0	0.7	-	-
[illegible]	137.2	100.0	100,448	100.

Sources: TRDB Mbeya Regional Office, TRC Mbeya, Tukuyu and Mbeya Branches of TFA, C.T Mbeya, and T[illegible] Mbeya.

1/ N.B.: Strictly speaking, there were no sales in FY 80/81. The amount of sales reported here actually occurred in December 1981.

+ + + + + + + + + + + + + + +

unions has been established, however; thus the pace at which this institution will assume the role of inputs distribution is seen, "...to depend upon local initiatives."

3.8 For the near term, the Ministry of Agriculture has been instructed to devise "crop packages" suitable for external financing that will enhance the crop authorities. Among other things, the crop package is to include the provision of inputs to agricultural producers. Specifically targeted as beneficiaries of this program for upgrading were all of the crop authorities currently operating in the Mbeya Region: Coffee Authority of Tanzania (C.T), Tanzania Cotton Authority (TCA), Tanganyika Pyrethrum Board (TPB), Tanzania Tea Authority (TTA), and Tobacco Authority of Tanzania (TAT). 2/

2/ Ibid., Section 3.11.

Coffee Authority of Tanzania (CAT) 3/

[illegible] The largest crop authority in the Kagera region, CAT, has a branch office in every district where coffee is an important crop: Bukoba, Muleba, Tukuyu, and Ilejo.

[illegible] and Quantities of Inputs Provided

[illegible] CAT distributes a variety of inputs to its growers, including fertilizer, agricultural chemicals, and hand tools necessary for proper care of coffee trees (Table 3.3). Hardi ® sprayer pumps and hand pulpers are also provided. The procurement of these inputs is fully funded by the European Economic Commission under its Coffee Development Program (CDP).

[illegible] In general CAT provides on a cash basis those tools costing less than Tsh. 100 -- pruning saws, secateurs, and spray pumps. For more expensive items, such as the hand pulper, provision is made for credit, such that the farmer pays the full cost over two seasons. Fertilizer is sold on both a cash and credit basis. In the latter case, settlement is made between the farmer, village, and CAT at the end of the coffee season.

[illegible] On the grounds that they are essential for controlling contagious diseases and/or insect outbreaks, the following chemicals are distributed free of charge, for which there is an annual levy: (1) blue copper, a fungicide for control of leaf rust; (2) fenitrothion, an insecticide for the control of antestia and leaf miner, and (3) dieldrin, an insecticide applied every other year for the control of stemborer. By contrast, for labor-saving herbicides (Roundup, Gramoxone) the farmer must pay cash.

Procurement of Supplies

[illegible] Other than TFC for fertilizer, there are no fixed suppliers to CAT. One of the funding conditions imposed by the E.E.C. under CDP holds that all inputs procurements must be internationally tendered. While both ICCO and UFI occasionally have been successful bidders, more typically contracts are awarded to European firms.

Capacity to Distribute Inputs

[illegible] Virtually all fertilizer for CAT is shipped via rail, being off-loaded at Mwanza, Kagera, and Mbozi. CAT then uses its own trucks to transport the fertilizer from the railheads to its go-downs for subsequent distribution to the villages. Although in principle TFC is supposed to reimburse CAT for this transport, to date CAT has been unable to collect.

[illegible] In common with all distribution agents in Tanzania, CAT is plagued by shortfalls in fertilizer deliveries from TFC -- a problem which is ultimately due to a national scarcity of foreign exchange. Fro[illegible]ly the

---

3/ Unless otherwise cited, all information in this section was provided by Messrs. S.J. Kayo and G.E. Msaki, Zonal Manager and Zonal Supplies Officer, respectively, of the CAT Kagera Office.

[illegible]

YEAR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible] (Tons)	[illegible] (Million)	[illegible] (Pieces)	[illegible] (Pcs)	[illegible] (Pcs)	[illegible] Shower (Pieces)	Sweater (Pieces)	[illegible] (Pcs)	[illegible] (Tons)	[illegible] (Pieces)	[illegible] (Pieces)	[illegible] (Pieces)
77/78	603.30	-	993	-	-	-	1550	-	-	658	95,500	[illegible]
78/79	1,513.38	-	[illegible]	-	-	-	777	330	-	[illegible]	54,000	101,194
79/80	1,206.75	-	527	1,250		1,692	2101	-		577	[illegible]	[illegible]
80/81	1,5[illegible]7.25	303	515	[illegible]	270	156	1101	1160	2,1[illegible]	-	-	-
81/82	1,[illegible]	-	[illegible]	1,400	-	-	1341	-	760	620	150,500	-

standpoint of logistics, however, there would appear to be no major problems with CAT's ability to provide its client growers with agricultural inputs. The supply of fertilizer available for coffee is further reduced by the tendency of farmers to reallocate some of it from coffee to maize. So long as CAT continues to be funded under the Coffee Development Program (in principle until 1985/86), its ability to procure agro-chemicals and the various necessary hand tools will remain unimpaired regardless of the foreign exchange situation in Tanzania.

3.10 It is worth noting, however, that CAT relies heavily upon go-downs formerly owned by the cooperatives. Should these buildings be handed over to the reconstituted cooperatives, CAT might be hard pressed to maintain its inputs distribution network.

Tanzania Tea Authority (TTA) __/

3.11 Since the 1977/78 production season, TTA has relied entirely upon TRDB for the provision of fertilizer to its smallholder growers. During the two previous seasons (1975/76 and 1976/77, 5/ however, the Minister of Agriculture had designated TTA as the sole distributing agent for fertilizer in the Mbeya Region....a task for which it was ill-equipped to administer. TTA shipped the fertilizer to the Districts at its own expense. Subsequently the respective District Agricultural Development Offices (DADO's) distributed the fertilizer to the villages without keeping adequate records of the quantities distributed. To date TTA has not recovered the funds it lost during this operation.

Types and Quantities of Inputs Distributed

3.12 The inputs provided by TTA through TRDB consist mainly of NPK and SA fertilizers. Given that the smallholder tea program is more or less fixed in the short-run, there has been little or no variation in the annual requirements over the past several years (Table 3.4). The difference between requirements and quantities distributed reflects shortfalls in deliveries by TRDB (and ultimately TFC).

It should also be noted that the quantities of fertilizer distributed by TTA are not necessarily all used for tea production. Thus the Consultants were told that farmers use some of the tea fertilizer for their maize plots. With the recent rise in maize prices on the parallel market, this tendency appears to have increased.

3.13 In addition to fertilizer, TTA has distributed tea pruning knives whenever supplies have been available. In the past, TTA was able to procure knives imported from India and/or England. TTA also tried a knife manufactured locally by UFI, but found the quality unsatisfactory. When TFA opened its Tukuyu Branch in 1979, it began stocking the knives. Subsequently, however, TTA has

__/ Unless otherwise specified, information in this sections was provided by Mr. Mussula, Area Manager for TTA at Tukuyu.

5/ The exact chronology is uncertain. According to the Area Manager, this situation occurred in 1976/77 and 1977/78. But according to the Marketing Development Bureau, (Inputs Distribution in Tanzania, op.cit., p.3) the crop authorities had been relieved of this function as of March 1977.

Table 3.4 - Fertilizer Requirement Vs. Quantities Distributed by TTA in the Mbeya Region (Rungwe District), FY 78/79 - FY 81/82.

YEAR	Quantity Required (Tons)		Quantity Distributed (Tons)	
	SA	NPK	SA	NPK
81/32	1392	928	1392 a/	928 a/
80/81	1392	928	1291	899
79/80	1309	928	1309	910
78/79	1362	908	1362 a/	908 a/

a/ A significant portion arrived too late to be applied for this season.

Source: Area Manager (Tukuyu), TTA.

+ + + + + + + + + + + + + + + +

been unable to procure adequate supplies. TTA estimates an annual demand for 600 pruning knives per year in Rungwe District.

Ability to Distribute Inputs

3.15 In view of TTA's current financial difficulties (TTA was unable to repay its loans from TRDB in FY 79/80 and FY 80/81), it is clear that no additional functions entailing significant costs could be undertaken at this time. As it is now, TTA has requested the Government to assume financial responsibility for TTA's extension agents.

3.16 On the other hand, it would appear that full responsibility for fertilizer distribution would in fact cause little additional burden on TTA. Under the present system, the trucks delivering fertilizer report to a TTA post in Kiwira, where they are subsequently dispatched to the respective villages. According to TTA, each village has a store wherein the fertilizer is held until ready for use. Thus as long as TFC retains the financial responsibility for shipping fertilizer, it would appear to make little difference whether TTA procures directly from TFC, or through the intermediary of TRDB (assuming that TRDB or NBC provides the seasonal credit to TTA to pay TFC for the fertilizer).

Tanganyika Pyrethrum Board (TPB) 6/

3.17 Unlike coffee and tea production which is still carried out to some extent on large estates, virtually all of Tanzania's pyrethrum is produced by approximately [illegible],000 smallholder families. Over the period 1976/77 - 19[illegible]/82 the Mbeya Range has accounted for roughly one-third of national production. While projected [illegible] increase [illegible] slightly in 1982/83 to approximately 2,500 tons of dried flower [illegible], national production is still substantially less than the 1976/77 total of [illegible] tons. When it is considered that the break-even level of production for [illegible] is about 4,000 tons per year, 7/ it would appear that the authority will be in a severe deficit position in the near term, in spite [illegible] provision for its strengthening under the Tanzania Pyrethrum Project [illegible] the World Bank.

Quantities of Inputs Provided

3.18 TPB distributes seedlings produced at village nurseries free of charge to its farmers. Seed to villages are serviced by TPB vehicles, also free of charge. In the case of an occasional attack by thrips, TPB also distributes Dimecron [illegible] free.

3.19 Due to its negative effect on flowering, fertilizer is rarely used in pyrethrum production. Thus the only regular use of fertilizer occurs in the nurseries [illegible] about 20-[illegible] kg per year.

Source of Supplies

3.20 TPB procures its fertilizer from TFA at both Mbeya and Tukuyu. To date, the supply of Dimecron which it inherited from KILIMO in 1975 has been sufficient for TPB's sporadic needs for insect control. Improved seed for its nurseries is produced at the Uyole Agricultural Center.

Ability to Distribute Inputs

3.21 In contrast with the coffee and tea authorities, TPB has never distributed fertilizer to its growers. However, in order to collect the pyrethrum from its growers in remote areas, TPB controls a network of six go-downs. Provided that financing would be available for expansion of these structures, this system could serve as a distribution network for inputs for other crops raised by pyrethrum growers. In this connection, it should also be noted that the World Bank Pyrethrum Project has provided for the purchase of twelve 7-ton lorries for TPB.

6/ Unless otherwise specified, information in this section was provided by Mr. Mbeyela, Zonal Pyrethrum Manager.

7/ Ministry of Agriculture, Price Policy Recommendation, 82/83. A Report Prepared by the Marketing Development Bureau. Dar es Salaam: July 1981, Annex 13.

Tanzania Cotton Authority (TCA) 8/

3.22 A relatively unimportant crop in the Mbeya Region, cotton is grown on about 5000-6000 hectares, 9/ mainly in Chunya District and in the Usangu Plains in Mbeya District. Over the period 1978/79 - 1981/82, production in Mbeya averaged about only 1.6% of national production 10/. Reflecting this small scale of production is the scale of the Mbeya Office of TCA itself. Thus all records for Mbeya's operations are kept at TCA's office in Morogoro. Likewise, the trucks used to service Mbeya's cotton growers are permanently based in Morogoro.

Types and Quantities of Inputs Provided

3.23 The major inputs distributed by TCA are pesticides (DDT WP 75%, and Roger), untreated seed at no charge and solo pump sprayers. The recommended seeding rate calls for one 4-gallon tin (about 18 kg) per acre. The Roger is mixed with the DDT at the rate of one "bottle capfull" to 1-100-gram packet of DDT, this mixture being the recommended dosage per acre. Presumably, disbursements of inputs are made on the basis of these recommended rates.

3.24 No fertilizers are distributed by TCA, the rationale being that the soils in Chunya and Usangu are sufficiently fertile for cotton production. The quantities of inputs thus distributed in 1979/80 - 1981/82 are shown in Table 3.5

Source of Supplies

3.25 The DDT and Roger is procured centrally from Twiga Chemicals by TCA in Dar es Salaam and transported to Mbeya in TCA trucks. Likewise, the solo pumps are supplied to Mbeya through TCA's head office in Dar es Salaam. Seeds are retained from local production.

Ability to Distribute Inputs

3.26 It is clear that TCA is in no position to assume any additional burdens whatsoever. Under present conditions there is insufficient fuel and/or lorry

---

8/ Unless otherwise cited, all information in this section was provided by Mr. S.M. Mhalwike, Area Manager for the Tanzania Cotton Authority in Mbeya.

9/ Kilimo, Taarifa Ya Mwaka, 1981 Annual Report Prepared by the Mbeya Regional Agricultural Development Officer. Mbeya: (Undated).

10/ Ministry of Agriculture, Price Policy Recommendations, 82/83, op. cit., Annex 7. Derived from data in Table 4.2.3.

Table 3.5 - Quantities of Inputs Distribution by TCA, FY 79/80 and FY 80/81.

Input	Production Year		
	81/82	80/81	79/80
DDT 75% WP (Kg)	NA	556	122 a/
Solo pump (Pieces)	62	150	300

a/ The Consultants were told that 4,210 packets at 5 Kg. each were distributed and used. At the recommended rate of 100 grams per acre this amount would imply the treatment of approximately 83,000 ha. -- a number far in excess of that in cotton production in Mbeya Region. The packets shown by the area manager to the consultants in fact contained 100 grams.

+ + + + + + + + + + + +

capacity to transport the harvested crop. Moreover, TCA's record keeping capabilities are inadequate at best.11/

Tobacco Authority of Tanzania (TAT)12/

3.27 Commercial tobacco production in the Mbeya Region is confined to nine villages in the Chunya District, and thus the Area Office of TAT is located in Chunya Town. As noted in Chapter II, all inputs except seedbed packs are procured by TRDB on behalf of TAT.

11/ Ibid. p. 4. According to the Marketing Development Bureau, TCA has no cost accounting system. From this, it might be inferred that TCA/Mbeya would be unable to maintain adequate records regarding the quantities of inputs disbursed, should its present role be expanded in this regard.

12/ Time constraints prevented the consultants from visiting the TAT Office in Chunya. Unless otherwise cited, all information in this section was graciously provided by Mr. Andrew Shepherd, RIDEP marketing consultant, who visited TAT on June 25, 1982.

In recent years tobacco production has been declining, a phenomenon due to untimely deliveries of fertilizer by TRDB, according to TAT. However, based on TRDB's records, it would appear that fertilizer has generally arrived in sufficient time for its application to the tobacco crop. Moreover, in view of the production/importation shortfalls at TFC, it is not clear where the fault really lies for any given late delivery of fertilizer.

3.28 In view of the fact that inputs often are shipped directly from the suppliers to the villages in Chunya without passing through the Mbeya RO's go-downs, one wonders why TRDB need be involved at all in the procurement and distribution of TAT's inputs. Thus fertilizer comes by TAZARA to Iyunga, and is subsequently shipped by truck directly to the villages. Moreover, according to the Mbeya RO records, such diverse inputs as endosulphan dust and jute twine have been shipped directly from the suppliers to the requesting villages.

3.29 In short, there would seem to be no good reason for continuing the present situation. Under the Structural Adjustment Program, TAT has been mandated to purchase tobacco from villages rather than individuals, a procedure which in principle should assure repayment of TRDB's village-based seasonal inputs loans.[13/] Thus TRDB could provide the credit and allow TAT to take full responsibility for procurement and distribution of the inputs needed by its growers. In this regard it should also be pointed out that the quantities of fertilizer presently distributed by TRDB for tobacco include a built-in allowance of about one hectare of maize for each grower. It would seem that TAT could assume this responsibility without difficulty.

Parastatal Trading Companies

3.30 There are two parastatal trading companies involved in the distribution of agricultural inputs: Agricultural and Industrial Supplies Company, Ltd., (AISCO), and the Regional Trading Companies (RTC's). In principle, AISCO is responsible for importation or the purchase at wholesale level of agricultural and industrial goods manufactured domestically by state-owned companies. The RTC's in turn purchase from AISCO and subsequently sub-wholesale the merchandise to retailers at the village level. In the case of goods manufactured by a private company, however, the RTC may bypass AISCO and subsequently sell at wholesale to village level retailers.[14/]

13/ While this procedure might help TRDB, it is also likely to reduce individual incentive to produce high quality tobacco.

14/ Per discussion with Mr. Mark Bizongwako, Acting Regional Trade Officer, Mbeya. June 23, 1982.

3.31 To date neither of these institutions have played a major part in the distribution of inputs in either the Mbeya Region or in the Nation as a whole. It will be the purpose of the analysis which follows to determine if either or both of these entities might be capable of playing an expanded role in the distribution of agricultural inputs.

AISCO 15/

Organization and Mode of Operation

3.32 AISCO is one of a group of specialized import-authorized companies organized under the Ministry of Trade's Board of Internal Trade. In addition to the outlet at its Dar es Salaam Headquarters, there are three regional branches: Iringa (which is said to serve Mbeya and Rukwa Region as well), Mwanza and Tanga. An additional branch is planned for Arusha.

3.33 Through its branches, AISCO sells at retail; where it has no branches, it sells wholesale to the RTC's. At the retail level, AISCO sells fertilizer (procured from TFC), agricultural chemicals (procured from TWIGA) and farm machinery, which it imports directly. Neither agricultural chemicals nor fertilizer are sold wholesale. AISCO has attempted to become an agent for Ubungo Farm Implements but to date no agreement has been reached. Within the past year AISCO has begun to retail TANSEED products, which so far have generated only minor sales.

Value of Inputs Distributed

3.34 In FY 80/81 the value of AISCO's agricultural sales totaled TSh. 112.51 million, of which about 6 percent was sold through the Iringa Branch. As shown in Table 3.6, farm machinery and related spare parts constituted approximately 87 percent of total sales in that year. Since only a small percentage of AISCO's sales are through the Iringa Branch, and in view of the distance of this branch from Mbeya, AISCO's share of the Mbeya market would appear to be negligible.

Ability to Distribute Inputs

3.35 Despite its present posture as a supplier of motorized equipment to relatively large farmers, AISCO is seeking to extend its reach at the retail level. Finding it difficult to market its products through the RTC's, AISCO is looking to expand its number of outlets; but in general, only at the regional branch level.

3.36 The motive behind AISCO's desire to expand its distribution network is financial survival. Despite its status as a "designated importer" under the Board of Internal Trade, there are many other companies which also import directly. However, in order to supply the parastatal crop authorities, AISCO must compete for tender awards -- a competitive game at which AISCO often times is not successful.

15/ Unless otherwise cited, all information in this section was provided by Mr. T.A. Aghai, Acting General Manager, AISCO, Ltd., July 2, 1982.

Table 3.6 - Value of AISCO's Agricultural Sales by Type of Input, FY 80/81.

Input	Value (TSh. Millions)	Percent of Total (%)
Fertilizer	1.484	1.3
Agr. Chemicals	45.792	40.6
Agr. Sprayers a/	0.784	0.7
Agr. Machinery b/	57.000	50.7
Spare Parts b/	7.500	6.7
TOTAL	112.510	100.0

a/ Mostly knapsack type
b/ Tractors and related implements

Source: Mr. T.M. Agabo, Acting General Manager, AISCO

+ + + + + + + + + + + +

3.37 One recent positive development for AISCO has been its designation by the Regional Development Committee of Iringa as the sole supplier of inputs to Mufindi District. Presently the AISCO outlet in Mufindi is staffed by only one person. However, the near-certainty of a substantial shortfall in fertilizer delivery by TFC this year may jeopardize the viability of this new undertaking.

The Mbeya RTC 16/

Organization and Mode of Operation

3.38 The Mbeya RTC consists of a regional headquarters plus 15 district offices and depots. Employing a total of 153 persons, the Regional Headquarters is divided into 3 main divisions: Textile, General Merchandise, and Technical. This latter division, with a total staff of 1 marketing officer plus 4 salespersons is responsible for distributing agricultural chemicals, hand tools, and oxen-implements. The location of the district offices and depots, and the number of employees in each are shown in Table 3.7.

16/ Unless otherwise cited, all information in this section was provided by Mr. J.L.S. Bushiri, General Manager, Mbeya RTC, June 25, 1982.

Table 3.7 - Location and Number of Employees in the District Offices and Depots of the Mbeya RTC.

District	Type of Outlet	Location	No. of Employees
Mbeya	Dist. Hdq.	Mbeya Town	22
	Depot	Chimala	1[illegible]
	Depot	Santilya	7
	Depot	Rujewa	12
Rungwe	Dist. Hdq.	Tukuyu	19
	Depot	Kiwira	7
	Depot	Lwangwa	6
Mbozi	Dist. Hdq.	Vwawa	17
Kyela	Dist. Hdq.	Kyela	18
	Depot	Ipinda	7
Ileje	Dist. Hdq.	Ileje	10
	Depot	Kapalekesi	7
	Depot	Luswiswi	6

Source: Mr. J.L.S. Bushiri, General Manager, Mbeya RTC

+ + + + + + + + + + + +

3.39 In general, the district and sub-district stores are supplied out of the Regional Headquarters. Since the accounting is centralized, there are no margins realized between region and district; thus transport and handling charges are absorbed by the Regional Office as overhead costs.

3.40 The bulk of the RTC's business is done wholesale, although individual consumers may patronize the Regional Headquarters outlets as well as the district and sub-district depots. Hand tools are sold in 12-piece packages, and pesticides are sold in bulk.

Type and Quantities of Inputs Distributed

3.41 The RTC currently distributes pesticides procured from TMIGA and from Tanzania Pesticides Co., as well as UFI hand tools and ox-drawn equipment. No fertilizer has been distributed since 1975, and seeds from TANSEED are sold only in the Santilya store on an experimental basis.

3.42 Despite several visits to the Technical Division of the RTC Headquarters, and despite the aid of a pocket calculator and the Tanzanian-born Swahili

capabilities of Mr. A.M. Mwaipopo of the Inputs Marketing Team, the Consultants were able to obtain very little meaningful quantitative data with regard to inputs distributed. The information thus gathered was compiled to the extent possible and as such is presented in Table 3.8.

Ability to Distribute Inputs

3.43 According to the General Manager, there are two major constraints which prevent the RTC from playing an effective role in the distribution of agricultural inputs. First, there is insufficient space in both its stores and in its go-downs to permit the marketing of bulky commodities. Secondly, the RTC does not have staff who are technically versed in the use of pesticides. Thus in the past, the wrong types of pesticides were ordered, resulting in large quantities of unsalable merchandise.

3.44 Beyond the foregoing considerations, the General Manager is of the opinion that the RTC's main interests lie elsewhere -- viz., in the marketing of consumer goods. Moreover, he was emphatically opposed to the idea of the RTC becoming involved with fertilizer distribution, on the grounds that TFC cannot guarantee sufficient supplies of fertilizer. One result of the chronic shortages at the RTC's has been a mounting tide of public criticism -- unjust criticism in the eyes of the General Manager. Whatever the case, it is understandable that the RTC might not want the additional negative publicity that might ensue from empty fertilizer bins in its stores.17/

Primary Suppliers

3.45 Due at least in part to the lack of effective distribution system, the primary suppliers of fertilizer (TFC), improved seed (TANSEED), and hand tools plus ox-drawn implements (UFI), have made various attempts to retail their own products directly. By contrast, so far as is known, all of the pesticide formulations/repackagers18/ (TWIGA Chemicals, Tanzania Pesticides, Sapa Chemicals, Hoechst, Pfizer, Ltd.) rely exclusively on intermediary agents for the distribution of their products.

Tanzania Seed Company (TANSEED) 19/

3.46 Opened in July 1979, the TANSEED Depot in Mbeya was intended to supply a multi-region service area. With the subsequent opening of other branches, however, this depot now services mainly the Mbeya Region. Some of its major customers are TRDB, the NAFCO Maize Farm at Mbozi, TFA's Tukuyu Branch20/

17/ For the record, the RTC's of Kigoma and Iringa Regions distributed fertilizer in 1981.

18/ There are no basic producers of active ingredients in Tanzania (Ministry of Agriculture, National Food Strategy: Farm Inputs, op. cit. , p. 32.

19/ Unless otherwise cited, all information regarding TANSEED's Mbeya Depot was provided by Mr. J.D. Mahenge, Acting Depot Manager, TANSEED, Mbeya.

20/ According to the TFA Branch Manager at Tukuyu, however, this branch is serviced by TANSEED's outlet in Njombe (Rukwa Region).

Table 3.8 - Quantities of Agricultural Inputs Distributed by the Mbeya RTC, Calendar Years 1980 and 1981.

	1980			1981 c/		
	Received	Sold	Carried Forward a/	Received	Sold	Carried Forward a/
Hand Tools (pieces)						
-2 1/2 lb.Rd.Eye Hoes	6,200	6,140	60	8,240	8,240	60
-2 lb. Round Eye Hoes	7,840	3,960	3,880	720	3,024	1,576
-3 lb. Round Eye Hoes	10,797	NC b/	NC b/	16,280	4,900	11,380
-10" Straight Pangas	14,400	14,400	NIL	NIL	NIL	NIL
Plows (pieces)	224	224	NIL	NIL	NIL	NIL
Chemicals (kg)						
Dithane M-45 (5kg)	NIL	NIL	NIL	180	NIL	180
Dithane M-45 (25kg)	NIL	NIL	NIL	500	NIL	500
Didimac (2kg)	NIL	NIL	NIL	7,200	1,968	5,232
Didimac (5kg)	NIL	NIL	NIL	10,000	350	9,650

a/ In some cases this column reflects consultants' adjustment to the data as provided.
b/ Not able to calculate with the information provided.
c/ Possibly includes some sales in Calendar Year 1982.

Source: Technical Division Staff at Mbeya RTC.

and the various DADOs in the Mbeya Region. As shown in Table 3.9, TANSEED's distribution of maize seed has increased steadily, although not spectacularly, since 1979/80.

Table 3.9 - Quantities of Seeds Distributed by the TANSEED Depot in Mbeya, FY 79/80 - FY 81/82.

Year	Quantities of Seeds Distributed by Type (tons)										
	Maize							Sorghum	Sunflower	Wheat	Beans
	Total Maize	612	613	614	63.2	632	UCA				
79/80	226.2	-	1.4	100.8	25.6	65.0	24.4	12.0	3.90	-	-
80/81	244.2	20.7	27.2	60.3	44.6	58.0	13.2	0.2	0.03	-	0.7
81/82 a/	278.4	32.0	1.1	83.3	21.5	100.5	20.1	20.3	0.12	-	0.3

a/ From July 1981 through Jan. 82.

Source: Mr. J.D. Mahenge, Acting Depot Manager, TANSEED Mbeya.

+ + + + + + + + + + + + + + + + + +

3.47 It is important to note that TANSEED, upon opening its Mbeya Depot, terminated its relationship with the TFA Mbeya Branch, presumably out of fear that demand would not be sufficient to warrant two outlets for TANSEED products in the Mbeya Region. Such caution is perhaps understandable, in view of the fact that only an estimated 12 percent of all seed for food crops in Tanzania are improved varieties.[29]

3.48 Whatever the reason for TANSEED's earlier fears of competition for its Mbeya Depot, it is now moving forward to establish relationships with other distribution agents in the Region. Thus TANSEED is currently negotiating with the TFA Branch in Mbeya. In addition, it has contracted with the following institutions to be TANSEED stockists: (1) the RTC Depot at Santilya, (2) the Ujamaa Village of Suisalya, and (3) the Mbeya Development Corporation.

3.49 Essentially anyone may become a TANSEED stockist, provided he is able to meet the terms of TANSEED's standard contract (see sample copy in Annex E). There are two important features of this contract which would appear to be financially attractive to the potential stockist: (1) TANSEED will sell on consignment, thus assuming all risk for unsold merchandise; and (2) a margin

29/ Ministry of Agriculture, National Food Strategy: Farm Inputs, op. cit., p. 17

of 12.5 percent if offered, provided the stockist pays cash at the time he takes delivery from TANSEED.

3.50 While apparently interested in expanding the number of outlets for its products, TANSEED is not interested in becoming a general distributor for agricultural inputs. According to the General Manager, TANSEED would prefer to remain exclusively in the business of seed production and leave the distribution function to other institutions. The present policy of promoting contract stockists would seem to be a manifestation of this preference.21/

ULungo Farm Implements, Ltd. (UFI) 22/

3.51 Established in 1979 with technical and financial assistance from the People's Republic of China, UFI is both an importer and manufacturer of various hand tools and ox-drawn implements.23/ Historically, UFI has relied primarily upon the RTC's to distribute its products, and to a lesser extent upon TFA. Formerly, UFI sold to the RTC's on 30-day credit, but due to slow repayment on the latter's part, UFI now demands cash prior to delivery.

3.52 As far back as 1979, UFI established a retail outlet in Dar es Salaam (at Kariakoo Market) which carries the basic complement of farm inputs: fertilizer, improved seed, agricultural chemicals, and the line of UFI implements. Another such center was opened in 1981 in Tabora, and two more are anticipated (one each in Arusha and Mwanza) to be opened in the near future.

3.53 Contrary to the conventional wisdom that retail outlets for farm inputs should be established as close to the consumer as possible, UFI's strategy is to establish regional centers out of which delivery service to the village would be provided by truck. Given the relatively high cost of fuel (to say nothing of its uncertain supply) the financial viability of this strategy is open to question. On the other hand, by eliminating the middleman, under the current structure of government-controlled prices, UFI could gain on the average an additional 10.5 percent margin by selling at retail rather than at wholesale.24/

21/ Per discussion with Mr. Lusewa, General Manager, TANSEED Headquarters at Arusha, July 3, 1982

22/ Unless otherwise cited, all of the information in this section was provided by Mr. K. Mwasha, UFI Marketing Manager, July 3, 1982.

23/ Haule and Mbena, op. cit., p. 1

24/ According to UFI's most recent price list (November 1981), the typical margin allowed the wholesaler is approximately 8.0%, while the typical retail margin is approximately 18.5%.

3.54 Regardless of the potential profitability of UFI's proposed farm inputs centers, the fact that UFI is unable to satisfy existing orders for its products under its current distribution network would seem to argue against their establishment within the near future.25/a Usually the rationale for forward integration through the retail level is market development, such that the manufacturer might benefit from economics of scale. Under present economic conditions, which appear unlikely to change substantially in the near term, UFI's major constraint is not lack of a market, but lack of raw materials due to the country's shortage of foreign exchange.

Tanzania Fertilizer Company (TFC)25/b

3.55 TFC's movement into retailing has been even more limited than that of TANSEED and UFI. This past year TFC sold fertilizer for cash out of a go-down in Songea (Ruvuma Region) which was lent to it by Kilimo. In principle, there was to be an inputs distribution center at Sumbawanga jointly run by TFC and TANSEED, but ultimately the two parties were unable to reach agreement.26/

3.56 Prior to the construction in 1972 of the TFC plant in Tanga, all fertilizer in Tanzania was imported. While the installed annual capacity is 145,000 tons per year, the domestic production of sulphuric acid is such that the attainable level of fertilizer production is only about 100,000 tons annually. Due to a variety of problems (erratic supply of raw materials, mechanical failures), domestic production has never approached this level. Typically, imports account for about [illegible] percent of total use.

3.57 It is important to note that total fertilizer distribution in 1980, including imports, was approximately 107,001 tons, or 7 percent above the maximum attainable level shown above. Due to foreign exchange constraints, total distribution in 1981 declined to approximately 95,500 tons. While 91,000 tons have been distributed as of July 1, 1982, the Tanga plant has been closed for the past six months for lack of raw materials.27/ Thus the Government is currently seeking donations of foreign exchange for additional production in order for TFC to resume production.28/ Although additional supplies of fertilizer are clearly needed at this time, it is equally clear that TFC's relatively high production costs (approximately twice the current c.i.f. world price) make the provision of foreign exchange an uneconomic proposition from the standpoint of both the donor and the Nation as a whole.

25/a This issue is discussed in further detail in Chapter V (Para. 5. -5).

25/b Unless otherwise cited, the source of information in this section is a previously cited working paper of the Ministry of Agriculture (Ministry of Agriculture, National Food Strategy: Farm Inputs, op. cit.

26/ Per discussion with Mr. S. Gangwani, FAO Fertilizer Supply Expert, July 10, 1982.

27/ Per discussion with Mr. Mollel, TFC Marketing Manager, July 2, 1982.

28/ The Consultants have been told informally (Per discussion with Mr. S. Gangwani, July 1, 1982) that the Tanzanian Government recently received a grant of approximately 2 million U.S. dollars for the purchase of raw materials for fertilizer production.

3.58 In conclusion, it would appear that TFC, as with UFI, will be unable to produce enough to meet demand for some time to come. In the face of this situation, IFC is an unlikely candidate for a general distributor of agricultural inputs.

Private Institutions: The Tanganyika Farmers' Association (TFA)[29]

3.59 So far as could be discovered by the Consultants, TFA is the only private institution currently distributing agricultural inputs in Tanzania. TFA is also unique in that it handles a wide spectrum of agricultural inputs (i.e., fertilizer, chemicals, seeds, hand tools, and ox-drawn implements), as well as a broad line of general consumer items.

Organization and Mode of Operation

3.60 Headquartered in Arusha, TFA has two branches in the Mbeya Region, one in Mbeya Town and the other in Tukuyu. The number and type of personnel at each branch is as follows:

Mbeya Branch	Tukuyu Branch
Branch Manager (1)	Branch Manager (1)
Asst. Branch Manager (1)	Sales Person (2)
Sales Person (2)	Sales Clerk (1)
Messengers/Shop Assistants (4)	Secretary (1)
Typist/Telephone Operator (1)	Messenger (3)
Watchmen (5)	Watchmen (3)
Branch Total: 14	Branch Total: 11

3.61 While each branch enjoys a certain amount of autonomy regarding day to day affairs, the accounting is centralized at Arusha. Moreover, Headquarters keeps a close check on the inventory in each branch, such that one branch might supply another in times of localized shortages.

3.62 Although anyone may buy from TFA, it is especially advantageous to become a member (initiation fee, TSh. 50), such membership conferring two potential benefits. (1) entitlement to a year-end rebate (15 percent for FY 80/81); and (2) provision of credit.[30] It should be noted that both individuals and institutions may obtain membership; thus most of the district authorities in Rungwe District (DED, DADO, etc.) are TFA members.

29/ Unless otherwise cited, all information was provided by the following sources: (1) Messrs. Nateli and Mwakalorela, Branch Manager and Assistant Branch Manager, respectively, Mbeya; and (2) Mr. Siyala, Branch Manager, Tukuyu.

30/ Membership is a necessary but not sufficient condition for credit. Thus TFA furnishes only "good" customers with credit.

Type and Quantity of Inputs Distributed

3.03 Both branches distribute a full line of agricultural inputs (except for TANSEED seeds, at the Mbeya Branch, as noted previously), plus a variety of other consumer goods.

3.04 The Consultants were told at TFA's Arusha Headquarters that the typical TFA branch stocks 5,000 different items; but from appearances it is doubtful that either of the branches at Mbeya or Tukuyu has an inventory of such breadth. The quantities of agricultural inputs distributed by each branch in FY 80/81 (from Nov. 1, 1980, through Oct. 31, 1981, in the case of TFA) are shown in Table 3.16.

Ability to Distribute Inputs

3.05 There was a virtual consensus among persons contacted by the Consultants that TFA is highly competent at the procurement, storage and distribution of inputs. Perhaps the only negative note was struck by staff[31/] in the Mbeya RADO, who claimed that TFA improperly added storage and handling charges onto the price of fertilizer for which it had handled on behalf of the RADO in previous years.[32/] As will be discussed later, however, there apparently has been a history of poor relations between the Mbeya RADO/DADO's and the Mbeya Branch of TFA.

3.06 Since it does not rely upon the RADO for estimates of inputs requirements TFA is often able to realize the full 15 percent discount offered by TFC for early orders. In the area of agricultural chemicals, TWIGA sells to TFA on consignment, thus freeing TFA of expensive overhead costs. By contrast, the Mbeya RTC, which was formerly able to purchase on consignment from TWIGA, must finance its own inventory of agricultural chemicals. [33/]

3.07 In the final analysis, perhaps the best measure of TFA's ability to perform is its willingness to expand during the present time of economic difficulty throughout Tanzania. Unlike other distribution agents in Tanzania, TFA is a private institution; thus there is no chance for subsidies by the

---

31/ Specifically, Mr. A. Mwambungu, Agricultural Officer, in a discussion with Mr. Edward Moller, June 22, 1982.

32/ In response to a direct question regarding the legality of these charges, the National Price Commissioner in Dar es Salaam, Mr. Mongi, indicated that charges of this nature are a matter for negotiation between buyer and seller (Per discussion at the National Price Commission, July 5, 1982).

33/ Per discussion with Mr. J.L.S. Kushiri, General Manager, RTC Mbeya, June 25, 1982. The Consultants were told that TWIGA stopped selling on consignment with the advent of the present era of foreign exchange shortages. Putting this statement together with the fact that TFA still is able to buy on consignment, the Consultants have conjectured that TWIGA is targeting its limited supplies to its most capable distributors.

Table 3.10 - Quantities of Inputs Distributed by TFA in the Mbeya Region by Type and by Branch. FY 80/81.

Input	Branch of TFA		
	Mbeya	Tukuyu	Total Mbeya Region
Fertilizer (tons)	3,146	422	3,568
-CAN	150	100	250
-SA	1,100	200	1,300
-Urea	50	-	50
-MNK	500	-	500
-TSP	1,200	122	1,322
Maize Seed (tons)	-	14	14
-Hybrid	-	10	10
-Composites	-	4	4
Agr. Chemicals (tons/litres)			
-Insecticies	97.6/95,950	2.0/NIL	99.6/95,950
-Herbicides	0.5/2,187	NIL/6,368	0.5/8,555
-Fungicides	4.8/100	NIL/NIL	4.8/100
Hand Tools (pieces)			
-Jembes a/	988	4,450	5,444
-Pangas	-	3,000	3,000
Grass slashers	900	336	1,296
-Axes	-	700	700
-Grain Testers	135	-	135
-Weeding Forks	369	-	369
-Sickles	3,240	-	3,240
Ox Ploughs (pieces)	-	74	74

a/ Includes a variety of types

Source: Messrs. Matoli and Siyala, TFA Branch Managers, Mbeya and Tukuyu, respectively.

Government should its investment decisions turn out badly. Current expansion plans call for new branches at Babati, Korogwe, Tanga and Mafinga.[34]

Regional and District Authorities (RADO's/DADO's)

3.68 As residual or "last resort" distributors, both regional and district authorities in the Mbeya Region (RADO's/DADO's) have at various times acted to procure inputs (especially fertilizer) for farmers who are otherwise not covered either by a crop authority or by TRDB. In past years the DADO's ordered through TFA, but more recently, some have ordered directly from the primary suppliers.

3.69 From the information available to the Consultants, it would appear that the involvement by the DADO's in inputs distribution is largely *ad hoc* in the Mbeya Region.[35] In general this process has not worked smoothly, with major difficulties for the DADO's in raising cash from the villages and in arranging for transport.

These problems for the DADO's translated into problems for the TFA Mbeya Branch, where the Consultants were told that, in general, the District Authorities were slow in placing orders, and slow in taking delivery and making payments for inputs received. As an exception to this pattern, however, the DADO for Rungwe District has consistently ordered through the TFA Branch in Tukuyu without any apparent serious problems for either party.[36]

3.70 Due to time constraints, the Consultants were limited to an evaluation of the Mbeya DADO with regard to inputs distribution. In the discussion that follows, there is no claim that the performance of the Mbeya DADO is in any way representative of that which occurs in the other districts in the Mbeya Region.

Type and Quantities of Inputs Distributed

3.71 In general, the emphasis of the Mbeya DADO's activities vis-a-vis inputs distribution has been on fertilizer. To facilitate its procurement and subsequent repayment by the villagers, the DADO has set up a revolving account with funds provided by the District.[37] The fertilizer is brought to the DADO's go-down in Mbeya Town, where it is sold to villages and individuals. The quantity of fertilizer procured and subsequently distributed by the DADO in FY 81/82 is shown in Table 3.11.

34/ Per discussion with Mr. E.M.K. Ishiu, TFA General Manager at Arusha Headquarters, July 6, 1982

35/ In at least one region, however, the participation of the RADO/DADO's would appear to have become more institutionalized. Thus the RADO in Iringa is reportedly establishing an inputs distribution center in Mufindi District with a sub-center located at Mtula (Singh, op. cit., p. 10).

36/ Per discussion with Messrs. Mwakwanda and Siyala, DADO for Rungwe District and TFA Tukuyu Branch Manager, respectively, June 2[illegible], 1982.

37/ Per discussion between Mr. A.M. Mwaipopo of the Inputs Marketing Team, and Mr. A.T.E. Mkuchu, Mbeya DADO, June 30, 1982.

Table 3.11 - Quantities of Fertilizer by Type Procured Vs. Distributed by the Mbeya DADO, FY 81/82.

Fertilizer Type	Quantities of Fertilizer		
	Procured (tons)	Distributed (tons)	Carried Forward (tons)
CAN	180.[illegible]	170.15	10.[illegible]
TSP	114.37	21.35	92.[illegible]
SA	226.75	80.30	146.45
Total	531.[illegible]	271.80	258.20

Source: Compiled from data provided by Ms. T. Kyoka, Stores Manager, Mbeya DADO.

+ + + + + + + + + + + + +

3.72 In addition to fertilizer distribution, the DADO also has provided funds for: (1) the purchase of ox-carts to be provided free of charge to villages; (2) funds for the training of oxen, also free of charge; and (3) various special projects. The quantities of goods and services thus provided over the past three years are shown in Table 3.12.

Table 3.12 - Various Goods and Services Provided Gratis by the Mbeya DADO, FY 79/80 - FY 81/82.

Year	Description of Goods or Service	Quantity of Goods or Service	Value of Goods or Service Provided (T.Shs.)
81/82	Ox-carts	10	46,000
	Ox-training	40 pairs	25,000
80/81	Ox-carts	10	34,000
79/80	Ox-training	40	50,000
	Harrows	10	
	Carts	10	

Source: Mr. A.T.E. Mkuchu, Mbeya DADO

Source of Supplies

3.73 The DADO procures fertilizer directly from TFC. The ox-carts are made locally in a Kilimo workshop in Mbeya Town, while the oxen are also trained locally at Uyole Agricultural Center.

Ability to Distribute Inputs

3.74 The involvement of the DADO in fertilizer distribution has come about as an ad hoc response to a crisis situation. As is often the case in such circumstances, the results obtained seem to be less than satisfactory. As was seen in Table 3.11, the amount distributed in FY 81/82 was substantially less than that received, entailing a substantial amount of expense for the DADO in the form of unwanted inventory. Moreover, had the DADO actually received an amount equal to its stated requirements (Table 3.13), the extent of carryover stocks would have been even greater -- approximately 4,482 tons.

Table 3.13 - Actual Carryover Vs. Hypothetical Carryover of Fertilizer Stocks Based on Estimated Requirements for the Mbeya DADO, FY 81/82.

Fertilizer Type	Quantities of Fertilizer (tons)				
	Estimated Requirements a/	Actual Procurement b/	Actual Distribution b/	Actual Carryover b/	Hypothetical Carryover
CAN	320	100.95	17[illegible].15	1[illegible].80	301.20
TSP	1,670	114.30	21.35	92.95	1,577.05
SA	2,750	220.75	[illegible].30	146.45	2,6[illegible]3.55
DAP	300	-	-	-	N/A
Total	5,040	530.00	271.00	258.20	4,4[illegible].80

a/ Source: "Mahitaji ya Mbolea Msimu, 1981/82, Letter from Mr. J.E. Mviza, Kilimo Mbeya to the Mbeya RDD, Feb. 11, 1981.

b/ Source: Table 3.11.

+ + + + + + + + + + + +

3.76 The explanation for the aforementioned carryover was that TFC had delivered the fertilizer too late to be of use to the farmers for the 1981/82 crop year.[32] In view of TFC's comment[33] that the requirements for the DADO's routinely arrive too late in the year to qualify for its "early-ordering" discounts, the foregoing disclaimer is open to question. In this regard, it should be noted further that the Mbeya DADO considers the end of June to be the deadline for the villages to forward their requirements to the districts[34] -- a time well beyond that which might seem prudent in view of the delays typically encountered in the procurement and shipment of fertilizer. By contrast, the Marketing Development Bureau has recommended that fertilizer should be in the regions by July in order to avoid the transport bottlenecks which occur shortly thereafter in the peak period for crop buying.[35]

3.77 As final note, it is worth considering the fact that, in order to obtain the information found in Table 3.11, it was necessary for the Consultants to go to the DADO's warehouse to tally the amounts of fertilizer disbursed in FY 81/82. While this information has been adequately recorded, it is apparent that it has never been passed on to the DADO for planning purposes -- all of which calls into question the ability of the DADO to estimate its own requirements, let alone the requirements of other agricultural entities in the Mbeya District.

32/ Per discussion with Ms. T. Kyoka, DADO Stores Manager, Mbeya, July 15, 1982.

33/ Per discussion with Mr. Mollel, Marketing Manager, TFC Headquarters, July 2, 1982.

34/ Per discussion with Mr. F.D. Naguru, Asst. to the Mbeya DADO, July 15, 1982

35/ Input Distribution in Tanzania, op. cit., p. 8

CHAPTER IV. THE DEMAND FOR AGRICULTURAL INPUTS IN THE MBEYA REGION

Theoretical Considerations

4.0 As pointed out in Chapter I, some of the literature concerning inputs distribution in Tanzania betrays a degree of confusion regarding the concept of demand, at least as this term is commonly understood by economists. Thus before an attempt is made to quantify the demand for inputs, it will be useful to consider the theoretical underpinnings of such an exercise.

The Demand for Inputs: A Derived Demand

4.1 The demand for an input (e.g., fertilizer) derives from the demand for the good (or goods) in which it is a factor of production. In a freely competitive economy, the key determinant (in the short-run) of demand for an input is its own price in relation to the price of the ultimate output. This relationship is shown in Equation (1).

$$(1) \quad Qi = \frac{Pi}{Po}$$

Where: Qi = Quantity of input i demanded
Pi = Price of input i
Po = Price of output o

4.2 Since both input and output prices are typically set by government fiat in Tanzania, estimation of Equation (1) would yield no useful economic information regarding demand. In the face of this situation, recourse must be made to a suitable proxy for the demand for inputs.

Proxies for Input Demand

4.3 There are (at least) two proxies for inputs demand: (1) perceived need by the user of inputs; and (2) inputs requirements. Based upon a review of the relevant literature, it would appear that the latter concept is preferred by a majority of policy makers in Tanzania.

Inputs Requirements

4.4 The notion of required inputs derives either from politically inspired production targets or from technical considerations developed by agronomists. Whichever the source of inspiration, completely missing in this concept is any consideration of the motivations of the intended user of the inputs -- i.e., the farmer. Significantly, this top-down perspective leads inevitably to an "advocacy planning" approach (cf. Chapter I). Farmers are urged to use inputs in specified quantities for reasons which may or may not be in their own financial interest.[1/]

1/ This same point was the thesis of a paper presented nearly ten years ago at a seminar on fertilizer use in Tanzania (Tanzania/FAO/NORAD, Seminar on Fertilizer Use Development, Morogoro, Oct. 22-27, 1973).

4.5 In contrast to the top-down view described above, there is a bottom up perspective, whereby the focus of inquiry is on the user with regard to his perceived need for inputs in relation to their availability. One method which may be used to measure this perceived need is the sample survey -- the technique used by the Consultants for the present study. 2/

4.6 Implicit in the survey technique is an assumption that prices are fixed in the short-run, in that the user is asked to quantify his need for inputs (at least in an ordinal sense) given the current constellation of prices for both inputs and outputs. Thus, strictly speaking, perceived need is a proxy for that which economists have defined as quantity demanded rather than demand. In any interpretation of the survey results, the reader is cautioned to keep these distinctions in mind.

The Input Marketing Survey of the Mbeya Region

4.7 The information presented in the following two sections of Chapter IV (Estimates of Quantities Demanded and Constraints to Input Use) is based primarily on data gathered from the Input Marketing Survey of the Mbeya Region, which was conducted from June 21 to July 10, 1982, as a component of the overall Mbeya Input Study. The survey questionnaire (see Annex F) was administered to 330 heads of households living in rural agricultural villages throughout the Mbeya Region. The research design, methodology, sampling strategy and mode of analysis are elaborated in detail in Annex F. In brief, the survey sampling frame was based on the 13 Regional Development Zones 3/ which were formulated on the basis of their respective development opportunities and distinct sets of problems. Because the Region encompasses such extreme agro-environmental diversity, the 13 zones were used as the basis of a cluster sampling strategy to ensure that farmers from all of Mbeyas major agricultural production sectors would be represented in the survey.

4.8 The 13 Regional Development Zones and the villages selected in each zone are listed in Table 4.0. Following is Map 1 which illustrates the 13 zones and the locations of the 43 villages visited. Table 4.1 lists the number of respondents selected and the average size of households in each zone. Table 4.2 presents the estimated current population of each zone based on a 3 percent growth rate from the 1978 census figures. Following Table 4.2 is an additional map of Mbeya Region (Map 2) demarcating the 13 zones and the principal crops grown in each zone.

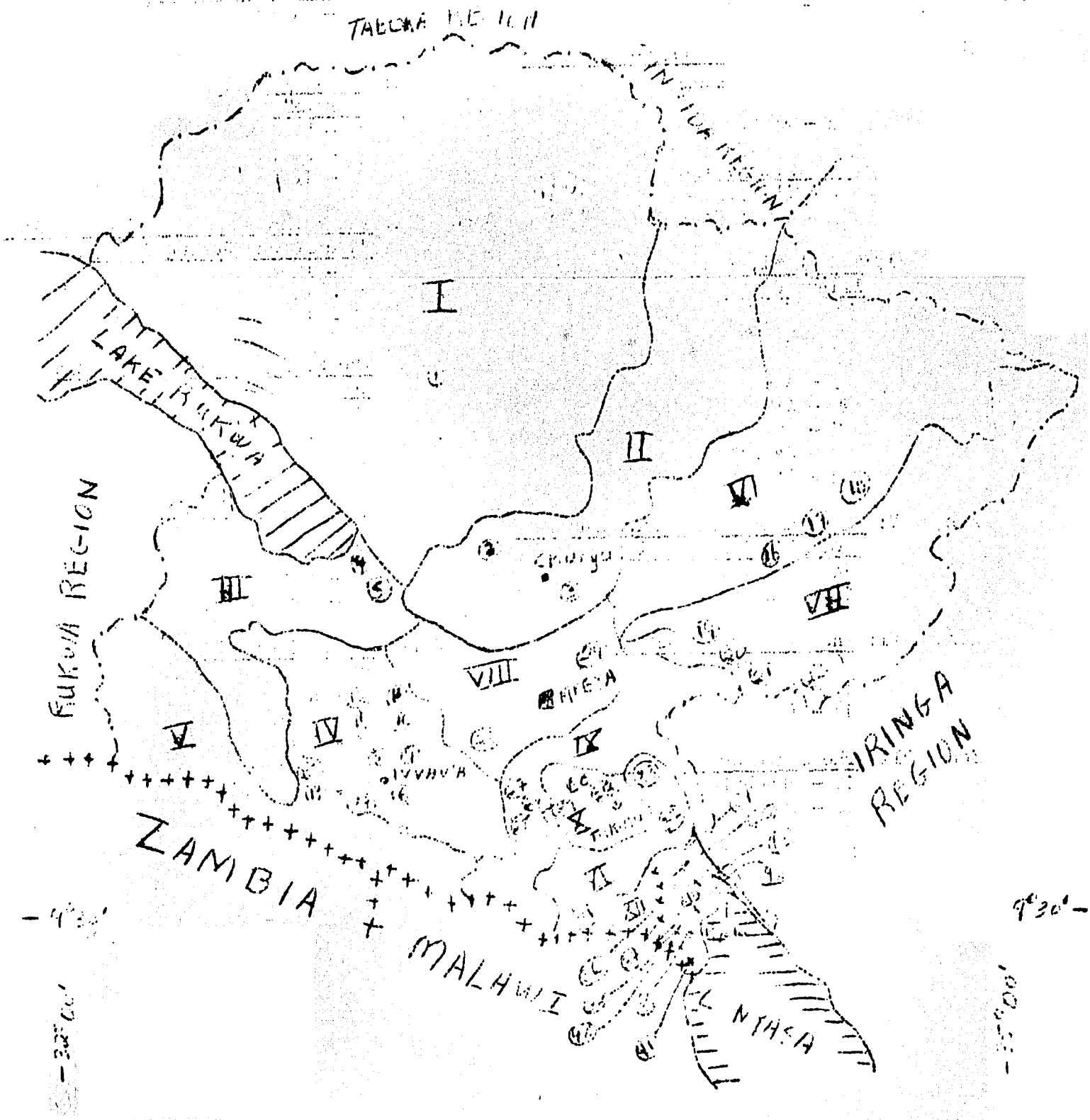
4.9 In addition to generating quantitative data, the field study also employed qualitative techniques including group discussions with farmers and village leaders in order to elicit directly and candidly farmers' felt needs. The object of the entire field study was to obtain a "ground up" approach to understanding input needs from the perspective of the individual farmers. Case examples gathered from group discussions and interview will be used, where appropriate,

---

2/ A detailed discussion of the survey design as well as a copy of the questionnaire can be found in Annex F.

3/ Green, I., Development of Farming Systems in Mbeya Region.

Map 1: 13 Regional Development Zones with Villages Surveyed (key on following page)



I	Development Zone Numbers
——	Development Zone Barriers
- - -	Regional Boundaries
+ + +	International Boundaries
1	Surveyed Villages – see attached list
•	Main Towns
■	Mbeya

Mbeya Region : Development Zones and Villages Sampled

Zone I: The North Chunya Plain
1 - Mtanila

Zone II: The Central Chunya & Msangaji Dissected Plain
2 - Kiwanja
3 - Matundasi

Zone III: The Rukwa Valley
4 - Mkwajuni
5 - Mbalo-Kibwama

Zone IV: The Mbozi, Isuto, Ndola and Ilindi Plateau
6 - Ilembo
7 - Hanseketwa
8 - Isangu
9 - Ilolo
10 - Isansa
11 - Mpito
12 - Magamba
13 - Itumbi

Zone V: The Ndalambo Plateau, Southwest Mbozi & Katende Plain
14 - Msiah
15 - Malolo

Zone VI: The North Usangu Plain
16 - Madabaga
17 - Ihanga
18 - Igomelo

Zone VII: The South Usangu Plain
19 - Uhambule
20 - Itaniboleo
21 - Mwaluma
22 - Muwale

Zone VIII: The Central Mbeya Plain
23 - Utengule
24 - Itezi

Zone IX: The Ilembo Plateau & Poroto Mountains
25 - Pashungu
26 - Iwowo
27 - Isuto

Zone X: The Isoko Dissected Plain, Tukuyu Volcano and Rungwe Valley
28 - Ilenge
29 - Ilinga
30 - Itagata

Zone XI: The Kyejo, Makete and Muguja Areas
31 - Mgaya
32 - Isange
33 - Kandete

Zone XII: The Masukulu Terrace
34 - Ngujubwaje
35 - Katundulu
36 - Itula
37 - Lubanda

Zone XIII: The Kyela Plains
38 - Itope
39 - Kilasilo
40 - Kasumulu
41 - Ikolo
42 - Talatala
43 - Mpunguti

Table 4.0 - Villages surveyed by zone and district

Zone No. and Name	Villages Surveyed	District b/
1. The North Chunya Plain	Mtanila	Chunya
2. The Central Chunya and Msangaji Plateau	Kiwanja, Matundasi	Chunya
3. The Rukwa Valley	Mkwajuni, Kibwana-Mbalo	Chunya
4. The Mbozi, Isuto, Ndola and Ilindi Plateau	Hanseketwa, Ilombe, Ilolo Isangu, Magamba, Isanga, Mpito and Itumpi	Mbozi
5. The Ndalambo Plateau	Msia, Malolo	Mbozi
6. The North Usangu Plain	Mbadaga, Ihanga, Igomelo	Mbeya
7. The South Usangu Plain	Uhambulo, Itamboleo, Mwaluma, Muwalo	Mbeya
8. The Central Mbeya Plain	Itezi, Utengulo	Mbeya
9. The Ilembe Plateau and Poreto Mountains	Pashunga, Iwowo, Isuto	Mbeya
10. The Isoko Dissected Plain, Tukuyu Volcano and Rungwe Valleys	Ngaya, Ilenge, Ilinga Itagata	Ileje Rungwe
11. The Kyela, Naketa and Mugaja Areas	Isange, Kandete	Rungwe
12. The Masukulu Terrace	Ngujubwale, Katundulu, Itula, Lubanda	Rungwe
13. The Kyela Plain	Itope, Kilasilo, Kasumulu, Ikolo, Mpunguti, Talatala	Kyela

a/ The system of 13 Agricultural Development Zones for Mbeya Region was Designed by Green, I. Development of the Farming Systems in Mbeya Region, Mbeya RIDEP Office, March 1982.

b/ Villages surveyed are also listed here by district in order to give readers unfamiliar with the zonal system, a point of reference for conceptualizing the sampling frame. However, there is no direct correlation between zonal and district boundaries; and in some cases, zonal boundaries overlap several districts.

Table 4.1 - Households interviewed and average household size by zone.

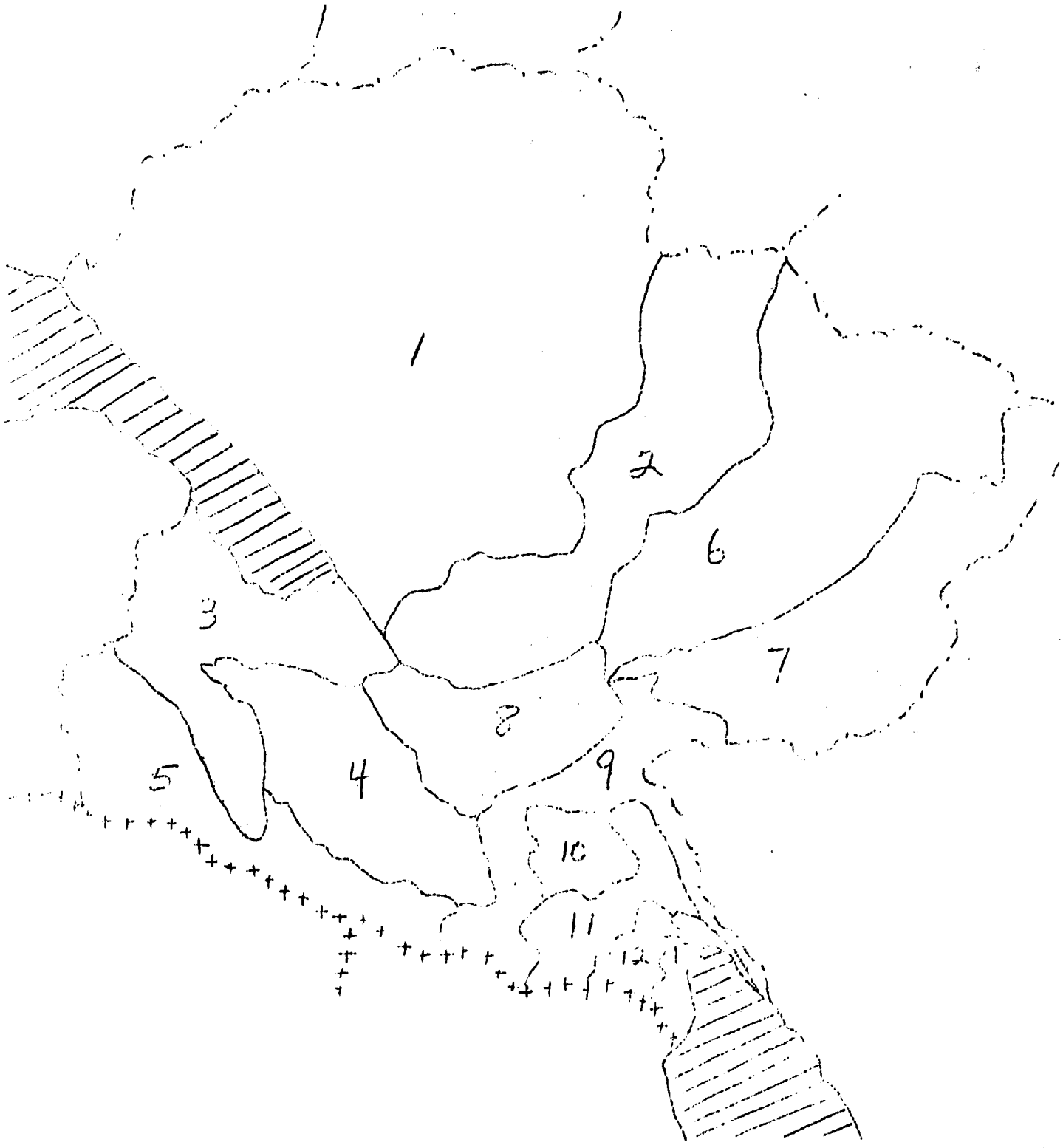
ZONE	...VIEWED		
	(1) Number of Households	(2) Total Size of Households	(3) = (2)/(1) Average Size of Household
1	9	51	5.7
2	18	140	7.8
3	20	136	6.8
4	57	493	8.6
5	23	245	10.7
6	12	83	6.9
7	16	107	6.7
8	18	147	8.2
9	21	135	6.4
10	34	276	8.1
11	15	105	7.0
12	35	304	8.7
13	52	391	7.5
Total	330	2,613	7.9

Table 4.2 - 1982 estimated population, estimated number of households, households interviewed and multiplier by zone.

Zone	1982 Estimated Population	Estimated number of Households	Households Interviewed	Multiplier a/
1	11,768	2,065	9	229
2	32,224	6,695	18	372
3	36,024	5,298	20	265
4	133,661	15,542	57	273
5	38,818	3,628	23	158
6	65,577	6,129	12	511
7	73,271	10,936	15	683
8	43,386	5,291	18	294
9	87,170	13,620	27	649
10	126,672	15,639	34	460
11	74,152	10,539	15	706
12	142,845	16,410	35	469
13	72,611	9,681	52	186
Total Region	958,179	121,536	330	368

a/ The multiplier is the number used statistically to project data from the sample population to the zonal population. The multiplier is derived by multiplying the number of respondents per zone times the average family size. That number in turn is divided into the total zonal population and results in the figure used as the multiplier. In the case of Zone 1, for example, one household in every 229 was interviewed.

Map 2: 13 Regional Development Zones of the Mbeya Region with crops listed by Zone on the following page.



Mbeya Region : Development Zones and Crops

Zones

1 - The North Chunya Plain
Crops: Tobacco, Local Maize, Improved Maize, Cashews, Millet, Groundnuts, Soyabeans, and Cotton

2 - The Central Chunya & Mpangaji Dissected Plain
Crops: Local Maize, Beans, Groundnuts, Improved Maize, Cassava, Sorghum, Pyrethrum, and Wheat

3 - The Rukwa Valley
Crops: Local Maize, Sorghum, Cotton, Groundnuts, Millet, Improved Maize, and Rice

4 - The Mbozi, Isuto, Mola, and Ilindi Plateau
Crops: Coffee, Improved Maize, Local Maize, Beans, Millet, Groundnuts, Wheat, Sunflower, and Soyabeans

5 - The Ndalambo Plateau, Southwest Mbozi & Katende Plain
Crops: Coffee, Improved Maize, Beans, Local Maize, Millet, Sorghum, Cassava, Sweet Potatoes, Groundnuts, and Sunflowers

6 - The North Usangu Plain
Crops: Local Maize, Rice, Improved Maize, Sorghum, Potatoes, Millet, and Groundnuts

7 - The South Usangu Plain
Crops: Local Maize, Rice, Improved Maize, Beans, Groundnuts, and Sorghum

8 - The Central Mbeya Plain
Crops: Improved Maize, Beans, Coffee, Local Maize, Millet, Wheat, Peas, and Potatoes

9 - The Ilomba Plateau & Poroto Mountains
Crops: Improved Maize, Beans, Coffee, Local Maize, Pyrethrum, Wheat, Peas, Millet, Banana, and Cardamom

10 - The Isoko Dissected Plain, Tukuyu Volcano and Rungwe Valley
Crops: Improved Maize, Local Maize, Coffee, Tea, Beans, Barley, Millet, Cardamom, and Groundnuts

11 - The Kyejo, Kakete, and Nyanja Areas
Crops: Improved Maize, Tea, Coffee, Beans, and Potatoes

12 - The Masukulu Terrace
Crops: Local Maize, Coffee, Tea, Improved Maize, Rice, Beans, Banana, and Cocoa

13 - The Kyela Plains
Crops: Rice, Local Maize, Cocoa, Cassava, Millet, Beans, Improved Maize, Groundnuts, and Oil Palm

to illustrate the quantitative data gathered during the survey -- expecially in this chapter under the section entitled, "Constraints to Input Use."

Quantities of Seasonal Inputs Currently Used By Smallholders

4.10 As noted above in the theoretical overview, in order to measure farmers' perceived needs for purchased inputs, one must establish the quantities of such inputs currently being used. Given the present state of record keeping/data management capabilities in Tanzania, it has not been possible to quantify this use with any degree of confidence; hence, the quantities distributed have typically served as proxies for the quantities used.4/

Sample Survey Estimates

4.11 In order for the quantities of inputs distributed to be a valid proxy for inputs used, a minimum of three years of data is required -- a requirement which the Mbeya RADO was unable to provide.5/ Thus it was necessary to include in the sample survey questions regarding the quantities of purchased seasonal inputs6/ currently being used by smallholders in the Mbeya Region. As such the estimates thus generated exclude all inputs used on private estates, state-owned farms, and on village-owned plots farmed communally.7/

4.12 According to the survey results, a total of 22 crops are grown in the Mbeya Region, of which only 9 (coffee, tea, improved maize, local maize, tobacco, cotton, beans, millet, and rice) are produced with purchased seasonal input.8/

4/ Ministry of Agriculture, National Food Strategy: Farm Inputs, op. cit., p. 4

5/ Per instructions from Kilimo in Dar es Salaam, the Mbeya RADO was to provide the Consultants with a time series of data concerning the quantities distributed in the Mbeya Region. Missing from the data thus provided, however, was any information for Rungwe District since 1977/78. The Consultants were told at the RADO that the records for Rungwe District since 1977/78 were not available.

6/ By "purchased seasonal inputs" is meant fertilizer, improved seed, and agricultural chemicals. While hand tools and ox-drawn equipment were also included in the survey, these items are capital goods which are not purchased regularly. Thus it makes more sense to speak of the "current inventory" of such implements rather than "current use." For this reason, consideration of hand tools and ox-drawn implements will be deferred until the following section, wherein the availability of various inputs will be discussed.

7/ Pursuant to a question from the consultants regarding the focus of the sample survey, Mr. A. Kibola, TADB Chief of Planning and Management formally responded that "...the focus of the proposed sample survey shall be exclusively on small farmers" (TADB Internal Memorandum to E. Meiler from A. Kibola, June 8, 1982).

8/ A list of the other 13 crops can be found in Table G.1.

This is not to say, however, that the 22 crops represent an exhaustive list; nor can it be rigorously established that purchased inputs are never used on any of the other 13 crops not included above. Inherent in the sampling process, as opposed to a census, is a possibility even with the best of survey designs, that a typical phenomena will be excluded.

Fertilizer

4.13 According to the sample survey estimates, a total of approximately 7,100 tons of fertilizer were used by smallholders in the Mbeya Region in the 1981/82 crop year (Table 4.3). Perhaps of greater interest than the actual quantities used in the diversity of fertilizer types reportedly applied. Despite the fact that CAT distributes only CAN and SA fertilizers, farmers reported use of MRK and TSP as well. More diverse still was the reported fertilizer use on tea, including TSP, CAN, and a variety of combinations, in addition to the MRK/SA combination that is recommended and distributed by TTA (See Annex Table G.6). Either farmers are woefully unaware of the type of fertilizer they are actually using, or else there is a highly active informal re-distribution network operating among them.

Improved Seed

4.14 Despite the fact that TANSEED reported sales of sorghum, sunflower, and wheat in previous years (Table 3.9), the only improved seed which turned up in the sample survey was that of maize. As shown in Table 4.3, the estimated quantity of seed thus used in Crop Year 81/82 was approximately 1,241 tons -- an amount which would appear to be inordinately high, given that TANSEED reported that an average of only about 250 tons of maize seed have been marketed through its Mbeya Depot over the past three years (Table 3.9)

4.15 Significantly, the sample survey data itself does not appear to be the source of this exaggerated estimate. In the survey, farmers reported (in the aggregate) using a total of 3,047 kg. of maize seed to plant 377.4 acres, giving rise to a calculated dosage of 8.07 kg. per acre. This reported rate seems at least reasonable when it is considered that the recommended seeding rate is 9.8 kg. per acre. 9/

4.16 Initially an explantion was sought in the estimated number of acres. When extrapolations were made from the sample survey data to provide an estimate of total maize acreage in the region, the resulting estimate was 153,765 for improved maize and 160,947 for locally-seeded maize, or a total of 314,712 acres (Table G.2). By comparison, the estimate provided by the Mbeya RADO for Crop Year 80/81 is even higher at 383,838 acres (reported as 150,723 hectare) 10/. Thus the survey-derived acreage seems reasonable.

9/ Ministry of Agriculture, Price Policy Recommendations, 82/83, op cit.; Annex 1, p. 14. The recommendation is stated as 25 kgs/ha., which converts approximately to 9.8 kg. per acre.

10/ Kilima, Taarifa ya Mwaka, 1981 A report prepared by the Mbeya Regional Agricultural Development Office. Mbeya, Tanzania: (Undated), p. 18.

BEST AVAILABLE DOCUMENT

Table 4.3 - Survey estimates of purchased seasonal inputs used by small holders in the Mbeya Region.

Crop	Fertilizer a/		Improved Seed		Agricultural Chemicals b/	
	Acreage With Use (Acres)	Quantities Used (Tons)	Acreage With Use (Acres)	Quantities Used (Tons)	Acreage With Use (Acres)	Quantities c/ Used (tons)
Coffee	49,650	2,158.3	d/	d/	55,537	492.0
Tea	9,308	1,512.9	d/	d/	62	Negligible
Improved Maize	106,196	2,146.9	153,675	1,240.7e/	68,124	633.3
Local Maize	37,988	398.7	-	-	16,973	10.9
Tobacco	3,893	858.8	f/	f/	3,893	12.6
Cotton	-	-	-	-	3,250	9.6
Beans	3,750	1.5	-	-	3,571	10.1
Millet	-	-	-	-	560	0.1
Rice	13,354	1.0	-	-	574	Negligible
Total	224,139	7,078.1	153,675	1,240.7	152,374	2,307.4

a/ Calculated from Annex Table G.6.

b/ Calculated from Annex Table G.10.

c/ All liquid formulations converted to kilograms at the assumed standard rate of 1.25 kg. per liter. Weights are stated in terms of formulated product.

d/ Improved planting stock has been provided by the crop authority under a special development programme.

e/ Derivation: There were 3,047 kg. of seed used on 377.4 sample acres (Table G.0), implying a seeding rate of 8.07 kg. per acres. 8.07 x 153,675 acres (Table G.2) = 1,240.7 tons.

f/ Seedbed packs are provided growers by the Tobacco Authority. According to survey results, 29 grams of seed were used this past year to provide the number of plants needed.

4.17 There are (at least) two other possible explanations for the apparent excess of improved maize seed reportedly used, neither of which can be affirmed or denied:

(1) Farmers in Mbeya Region have access to improved maize seed through channels other than the Mbeya TANSEED Depot or its agents.

(2) Since accessibility was one criterion for selection of the sample villages, there is a possibility that farmers who use improved maize seed were over-represented in the sample.

4.18 As shown in Table 4.3 coffee and maize command the largest share of agricultural chemical use, although tobacco and cotton production necessitates substantial insecticide use on a per-acre basis. Only negligible quantities of chemicals were used on tea (an herbicide) or millet (an insecticide). Additional detail is provided in Annex Table G. 10.

Comparison With Other Estimates

4.19 In principle, the data supplied the Consultants by the Mbeya RADO should have been a valid cross-check on the quantities of seasonal inputs used, as estimated from the survey. As noted previously, however, data for Rungwe District, one of the most important agricultural areas in the Mbeya Region, was completely missing from 1977/78 on to the present. Moreover, the annual report of the RADO (Taarifa ya Mwaka) is of little help in this matter, since the data in this report is aggregated by input type, without regard to the characteristics of the user (smallholder, state farm, etc.).

4.20 Since it proved impossible to find any valid broadly based crosscheck for the survey results, an attempt was made to compare the survey results with the quantities disbursed by the crop authorities. This attempt was also unsuccessful due either to incompatibility of reporting periods.11/ or inconsistency of records among interacting distribution agents. The particular case of fertilizer distribution for tea will be used to illustrate the general situation with regard to the latter issue. As shown in Table 4.4, both the quantities and the types of fertilizer applied bear little resemblance to that which TTA procured through TKDB in FY 81/82. Less comprehensible is the fact that the amount reportedly received by TTA is substantially more than that acknowledged by TKDB's records to have been distributed.

4.21. At issue here is something more than the analyst's familiar lament over the lack of sufficient data. What is at stake is the ability of various parastatal organizations to deal effectively and equitably with Tanzania's rural population. While no one can deny that the present overriding problem vis-a-vis inputs is the simple lack of supply, it holds, nonetheless, that the lack of coherent records will seriously hinder future efforts to rationalize the inputs distribution system in Tanzania.

11/ The TFC reports on a calendar year basis, while the crop authorities report on a fiscal year basis running from July 1 - June 30. TFA reports on still a different fiscal year, running from November-October 31.

Table 6.4 - Quantity and types of fertilizer distributed vs. quantity and types of fertilizer used on tea in the Mbeya Region, FY 81/82.

Actor/Role	Source of Information	Quantities of Fertilizer by Type (in tons)							
		NPK	SA	TSP	CAN	NPK/SA	SA/TSP	NPK/TSP	Total
TRDB Headquarters/ Procurer	TRDB Records H/q	843	1,112						1,955
TRDB Mbeya RO/ Distributor	TRDB Records RO	880	672						1,552
TTA/Receiver	TTA Records	928	1,392						2,320
Farmers/Survey	Survey Estimates	245.5	32.0	49.3	179.8	56.9/149.4	28.5/21.4	7.1/14.2	775.

Source: (1) TRDB files at their Dar es Salaam Headquarters.

(2) TRDB files at the Mbeya Regional Office.

(3) Mr. Mussula, TTA Area Manager, Tukuyu.

(4) Input Marketing Study Survey of the Mbeya Region (Table G.6).

Constraints to Use of Inputs

4.22 The following discussion is based on data from the survey plus group discussions, interviews, and observations from 43 villages in the Mbeya Region. Reflecting the bottom-up perspective of the farmers, the survey results indicated overwhelmingly that the lack of available supply of inputs is perceived to be the primary constraint to increased agricultural production.

Supply of Inputs

Land

4.23 With regard to land availability and utilization, the Mbeya Region provides an unusual case. In spite of the remarkable ecological diversity, extremes in rainfall, and variable demographic patters found within the district, there is a surprisingly homogeneity in the size of farmers' plots (See Annex H-1). For example, Zone 1, North Chunya Plain, is a dry area with low population density, no land scarcity, and it has only 7 percent of the population found in Zone 12, the Masukulu Terrace of Rungwe District, which is characterized by high population density and intensive cultivation. In spite of these area contrasts, farmers in Zone 1 cultivate an average of 5.5 acres and farmers in Zone 12 average an acreage of 5.4 per farmer.

4.24 In fact, the range for the entire Region is between a low of 4 acres in Zone 8 to a high of 6.9 acres in Zone 6. The overall Regional average is 5.2 acres per household (Annex H-1). According to the survey, 5% of all households in the Region cultivate less than 5 acres, 34% cultivate 5 to 9.9 acres, and only 9% of respondents reported farming 10 or more acres (Annex H-1). Not only is there little disparity in land holdings between Zones and among individuals within zones, there would also appear to be no widespread shortage of arable land. Even in zone 4, which encompasses Mbozi District's more progressive coffee farmers, land for cultivation is still generally abundant at present. Not once in village discussions did people cite land shortage as a major constraint to production.

Labor

4.25 As shown in Annex Table H.2, across the zones in the Region, between 83% and 100% of all farmers interviewed worked full time on their own shambas. In fact, the sample mean for the entire region indicates that 97% of all farmers work full time on their own shambas (Annex H-2). These figures suggest that agricultural involvment is a full time activity, leaving little time for other economic pursuits.

4.26 In the Region as a whole, an average of 28 percent of household heads responded that insufficient labor was a substantial limitation to farm production. In Zone 7, the south Usangu Plain, 50% of farmers interviewed reported a labor shortage (Annex H-2). Zone 7 is relatively dry with few oxen and no tractor hire service. Given the degree of aridity and lack of mechanization, it is difficult for farmers in Zone 7 to cultivate enough acreage to compensate for the land's limited productivity. Desire for tractor hire and oxenization were voiced in the group discussions as top priorities by the farmers of Muwale Village in Zone 7.

4.27 Since labor is a constraint to production, farmers in the Region practice reciprocal exchange of labor. Thus 66% of the farmers across the Region assisted their neighbors at some point in the past year (Annex H-3). Almost none of the respondents received any remuneration for their efforts; but 51% of those who assisted their neighbors were given food and beer. A total of 42% gave their labor freely (Annex H-3).

Hand Tools

4.28 When asked to rank their needs for agricultural inputs in order of priority, farmers responded as follows (Annex H-5): fertilizer, improved seeds, insecticides, ox plows, hand tools, tractor hire and inputs (Annex H-5). This ranking is somewhat ambiguous, however, since it lumps seasonal inputs which are recurrent expenditures with hand tools which are durable items more akin to capital investments. Thus in responding to the questionnaire, farmers apparently expressed their more immediate priorities; but in group discussions in a less formal setting, farmers in all villages sampled tended to express the greatest amount of concern over the long-term availability of hand tools, particularly in light of their dwindling household inventories of such tools. For example, 32% of respondents listed their pangas as being in either fair or poor condition, while 28% had none at all (Annex H-10). Likewise, 37% of respondents replied that their axes were in fair or poor condition, while an additional 12% had none (Annex H-11).

4.29 Of all households interviewed, 68 percent needed additional hand tools for cultivation (Annex H-6). Of the tools needed throughout the Region, farmers are most in need of jembes, followed by pangas and axes. During group discussions farmers stressed their need for jembes. In several zones, farmers reported that jembes are black-marketed at over 100/= each, but are still in short supply even at that price. In particular, there appears to be a critical shortage of the large, spade-like jembes (Rungwe hoe) popularly used in zones 10 and 11 (Rungwe District) and Zone 13 (Kyela District). In zones 10, 11 and 13; 65%, 73%, and 50% of respondents listed jembes as their priority of needed tools (Annex H-6). Residents of these zones comment that the Rungwe hoe has not been available for more than three years.

4.30 Farmers' concern for future availability of jembes is warranted considering that, on a Regional basis, 44% of all respondents listed their jembes in fair condition and an additional 23% replied that their jembes were in poor condition (Annex H-7). Additionally, 44% of all respondents replied that jembes were rarely available (Annex H-7).

4.31 Residents in Pashunga Village (Zone 9), for example, stated that jembes were so few in number in the village that it was necessary for many farmers to share their remaining hoes. Jembes are recycled and sharpened until the blades become short stubs and can then only be used for cultivation by small children.

4.32 When asked to rank why they had an inadequate inventory of tools, (Annex H-8) respondents overwhelmingly (89%) listed "Tool not available" as their first response followed by "Tools are available at too great a distance," and "Tool too expensive" was listed as a third constraint by a minority.

4.33 Other hand tools are also in short supply, notably pangas. Forty-three percent of all respondents stated that pangas are rarely available (Annex H-11). Axes are listed as important tools. However, in contrast to panga availability, 46% of respondents replied that axes were always available, and 51% of respondents that their axes were in good condition (Annex H-11). The unusual degree of availability of axes can be explained by the fact that traditional blacksmiths in many parts of the region continue to make axes and Nyengos. In fact, due to the shortage of factory-produced hand tools, traditional blacksmithing is well supported and is far from a dying trade. Unfortunately, local blacksmiths apparently are not capable of making jembes.

Availability of Ox-Drawn Equipment

4.34 Use of oxen as draft animals is highly favored by a large segment of Kyela's farmers. There are only two major areas in which oxenization is considered impossible or otherwise impractical. In Zones 1 and 2 located in northern Chunya District, there are no oxen due to the prevalence of East Coast Fever and Trypanosomiasis. In Zones 9, 10, 11 and 12 there is little oxenization because residents of these areas claim that their plots are too small and too steep to use oxen. In fact, 100 percent of respondents interviewed in Zones 1,2,9,10, 11 and 12 stated that they had no ox plows, and an additional 95% of respondents in Zone 3 also had none (Annex H-13).

4.35 Elsewhere in the Region, use of oxen has been widely accepted. In zone 13 (Kyela), a high rainfall area, for example, 48 percent of all respondents have ox-drawn ploughs (Annex H-13). Interest in oxenization was also expressed consistently throughout the more arid zones as a major means of extending the amount of land under cultivation. In addition to Zone 13, there are five zones in which ox plow use is not uncommon. In Zone 4, 23% of the respondents have plows; in zone 5, 52%; in Zone 6, 24%; in Zone 7, 12% and in zone 8, 31% of the farmers replied that they have plows (Annex H-13).

4.36 Although the concept of oxenization is popularly recieved in other parts of the Region, 81% of all respondents have no plows (Annex H-13). When asked about the availability of ox plows, 85% of all farmers replied that plows are rarely available (Annex H-13). Lack of available ox-drawn equipment is listed as the number one constraint to increased oxenization, followed by financial limitations, and thirdly by lack of draft animals (Annex H-14).

4.37 For farmers who have oxen and ox-drawn equipment, lack of spare parts, particularly for plows, is also a serious problem. Of those farmers who use spares for ox-drawn equipment, most of them need new plow shares (Annex H-15). Additionally, respondents listed in order of need: nuts, handles, [illegible] and chains (Annex H-15). Respondents consistently stated in group discussions that these spares are all but impossible to find. Some farmers improvise [illegible] repairs while others borrow ox equipment from neighbors or are forced to abandon the use of draft animal cultivation until spares become available again.

Seasonal Inputs

4.38 Although the perceived need for seasonal inputs is great throughout the Region, only a minority of farmers consistently use such inputs to any degree. When farmers were asked to rank why they did not use seasonal inputs the leading response for each item was "Not available" -- 80% in the case of improved seed (Annex H-16), 74% for fertilizer (Annex H-18), and 78% for insecticides (Annex H-20) When farmers who used seasonal inputs were asked why they did not use more, those who were not already using the recommended dosages primarily gave lack of availability as the reason.

4.39 The more arid areas of the Region use the least quantities of seasonal inputs, due in part to the simple lack of commercial outlets, and also to the near-absence of cash-crop parastatal authorities which distribute inputs to their clients. Even in the high rainfall, high elevation areas where both commercial outlets and cash crop parastatals are common, however, farmers complained of inadequate supplies.

4.40 The question of availability, of course, has a locational dimension to it. This lack of transport is viewed as a major constraint by many farmers. While most villages interviewed in the high potential areas had the majority of inputs delivered directly to their villages by parastatals, or in some cases by the DADO. However, many other villages are remote and are not well serviced by input distributors. In Bashunga Village in Zone 9, for example, villagers are growing pyrethrum and coffee as cash crops, but their village is relatively isolated and few farmers are even able to get minimal amounts of inputs for their crops. Some of the farmers walk seven kilometers to Isuta, the nearest village, where they are occasionally able to buy meager amounts left over from Isuta's supply.

4.41 In general, where transport of inputs to villages is not provided, perceived shortages are particularly acute. According to the survey, 67% of all farmers interviewed carry their inputs by hand from the source to their shambas (Annex H-22) and currently 40% of all farmers travel less than 5 km. to procure their inputs since in most cases they are currently being delivered to the village (Annex H-23).

4.42 Zone 13 (Kyela) is served neither by commercial outlets nor by any of the crop authorities. This zone has abundant rainfall and thus high potential for providing rice. Among the six villages surveyed in this zone, however, almost none of them located beyond 15 km. from Kyela Town, recorded the use of any purchased seasonal inputs. By comparison with the Mbeya Region as a whole, farmers in Kyela overwhelmingly cited non-availability as the primary reason for not using purchased seasonal inputs (Annex H-16, H-18, H-20).

Financial Constraints

4.43 In the preceding section on availability of inputs, a strong case was made for a high demand for commercial agricultural inputs in Mbeya Region. According to farmers' perceptions as stated in interviews, they need both durable goods (jembes, ox plows, etc.), which generally have a useful life of several seasons, as well as recurrent-expense items such as seasonal inputs (improved seed and fertilizer). There is little doubt that an inadequate supply of almost all farm inputs is currently a serious impediment to increased agricultural production. However, increased availability of inputs alone will not totally

solve farmers production problems. There are also financial constraints which ultimately limit farmers' abilities to purchase inputs.

4.44 In all sectors of the Region there is a high demand for hand implements, and 95% of respondents interviewed stated they would be willing to pay cash in order to obtain them (Annex H-9). The willingness of respondents to pay cash for these items above the current price would seem to indicate a highly inelastic demand for hand tools.

4.45 In contrast to the case of hand tools, there appears to be zonal variations within the Region with regard to the purchase of seasonal inputs. In general, there is a dichotomy between cash cropping and arid-area subsistence farmers.

Financial Considerations of Cash Croppers

4.46 In general, farmers involved in cash cropping in the highland area are much more willing to pay cash for seasonal inputs than subsistence farmers in the more arid sectors of the Region. Coffee farmers in particular voiced a willingness to pay cash for inputs needed in their cultivation. Not only do coffee farmers as a group generally have greater financial means to purchase inputs, but they consistently expressed that procuring inputs was imperative to their production. Coffee farmers in general are critically aware of the need for fertilizer and insecticide in order to maintain production. During hypothetical discussions on subsidies, most coffee growers stated that even if government subsidies on fertilizer were reduced or eliminated (which in the latter case would be equivalent to a price increase of 100% under current rate of subsidy), they would nevertheless maintain present consumption levels.

4.47 On the topic of fertilizer, it should be noted that in all zones except Zone 6, respondents listed fertilizer as their top priority in terms of importance to agricultural production (Annex H-5). Considering the respondents' perception of the value of fertilizer to increased production, one might question the continued need for the present level of fertilizer subsidy. If the original purpose of the subsidy was to induce fertilizer use, then perhaps the deep-subsidy has become superannuated.

4.48 A notable exception to this pattern of high demand and willingness to pay cash for inputs exists in Zones 10, 11 and parts of 12 sampled around Tukuyu. The survey revealed exceptionally low levels of commercial input usage for this area. In fact, as many as 40% of the farmers interviewed were using no seasonal inputs at all on cash crops. This is an unusual finding considering the area has an extended history of cash cropping, the area is fertile and well watered, and most villages have transport access to TFA and ATC in Tukuyu in addition to the coffee and tea parastatals which supply inputs for their respective producers in the area.

4.49 There is some evidence to suggest that these zones, like all areas of the Region, currently have limited supplies of available inputs. However, the degree of scarcity is not commensurate with the total absence of purchased inputs on the part of many farmers.

4.50 An interview with the DADO Rungwe12/ helped to clear up these apparent contradictions. Due to food shortages within the country, food crops,

---

12/ Information source: DADO Rungwe

particularly bananas, presently yield higher returns per man-day for local sale than do cash crops (tea and coffee) grown for export, given current world prices. Bananas, for example, are a minimum tillage crop with relatively low labor requirements. The area average yield is approximately 15 tons per hectare per year. Since food crops cultivated in a traditional manner yield significant returns, many farmers in the area feel little incentive, as present, to make substantial purchases of inputs for cash crops. In fact, there is some concern expressed on the part of officials that some farmers may actually be uprooting tea in order to plant more bananas.

Financial Constraints in Dryland Subsistence Areas

4.51 In village discussions throughout the Region, farmers adamantly voiced their need for greater availability of farm inputs. In fact, when asked why they lacked improved seeds, fertilizers and insecticides, the majority of farmers across the Region responded, "Not available." (Annexes H-16, H-18, H-20). However, when asked their willingness to pay cash for the same commodities, responses from residents of arid zones contrasted sharply and consistently with those views expressed by villagers in highland, cash cropping areas. With the exception of cotton and tobacco, there is relatively little cash cropping in the drier zones, and the majority of the farmers are subsistence producers with minimal cash-generating capabilities. In contrast to coffee farmers, dryland subsistence farmers were generally not willing to pay increased prices for inputs. In fact, they consistently expressed that present prices were too high for seasonal inputs.

4.52 There were varying degrees of understanding of the notion of fertilizer subsidies, but when it was hypothetically suggested that farmers would pay more if subsidies were reduced, most farmers replied that they would buy less. Although farmers of the drier areas have traditionally been highly self-reliant and have shown considerable resilience in responding to harsh conditions, there is also a recurrent attitude expressed that the government isn't doing enough to assist them -- that farmers in other parts of the country are being helped while they are being neglected.

4.53 Instead of a willingness to pay cash for inputs, there were demands for additional credit programs. To some extent, it would seem that overly generous credit programs of the past have bred a growing attitude that credit can often be interpreted as a free gift.

4.54 In concluding this section on financial constraints, it should be noted that, given the present state of shortages of all inputs, farmers can currently point to lack of availability of inputs as their chief constraint. When, if there are unlimited availability of inputs (given current prices), farmers would no doubt find their ultimate constraint to be financial.

Non-Price Determinants of Input Demand

4.55 There are a number of other factors quite unrelated to price which affect the demand for inputs. The survey questionnaire, however, was of limited use in eliciting this information. Thus, open-ended village group discussions and interviews with local government officials were conducted specifically for the purpose of determining the extent to which these non-price factors are binding constraints, three brief zonal case examples are discussed below.

Zone 6: : THE NORTH USANGU PLAIN

4.56 Like other arid zones, adequate agricultural production in Zone 6 is completely dependent on the vagaries of nature and the inconsistent pattern of rainfall. Local inhabitants claim this was a particularly dry year and harvests were poor. Rice cultivation is important in the area, particularly around Ihanga. A big farmer in the vicinity is irrigating 200 - 300 acres of rice by gravity flow from the Mbarali River. Although local smallholders express enthusiasm about digging canals for the purpose of irrigating rice, negotiations for water rights in the area have not been finalized with the government. Increased irrigation in Zone 6 would no doubt spur production in the area and give at least some of the farmers greater control over production in an area of limited precipitation. Although local inhabitants are keenly aware of the benefits of improved seeds, fertilizer and insecticides, they likewise see the risk in these investments when most are totally dependent at present on rain-fed agriculture.

Zone 7: THE SOUTH USANGU PLAIN

4.57 Zone 7 likewise perennially suffers from lack of precipitation. Some drought-resistant crops such as sorghum are grown. However, most farmers depend on maize and rice cultivation due to food preferences. Rice is irrigated in the Muwale area by gravity-fed canals from nearby streams. However, in the driest years when irrigation is needed most, water in the stream does not rise to a sufficient level to feed the canals, and the rice crop suffers. This example illustrates the ecological and technological constraints to increased production in this area which ultimately places limitations on farmers' abilities to purchase inputs.

4.58 Muwale was created as a new village during the villagization program of the mid-seventies. Many of the inhabitants moved five km. to Muwale from their former homes around Ilole. However, many of the new inhabitants continue to return daily to their former shambas which are most suited to rice cultivation. The farmers of Muwale claim that a man can cultivate up to five acres of rice by hand. However, his production capacity is greatly reduced if, for example, he expends both time and energy commiting 10 km. on foot to his best shambas.

Zone 2: THE CENTRAL CHUNYA AND USANGAJI PLATEAU

4.59 Zone 2 is an arid area and the farmers visited seem particularly impoverished and dispirited. While other farmers inhabiting drylands often exercise the option of increasing production through expansion of acreage, the people of Zone 2, particularly around Matundasi, appear unusually limited in their

production options. Land is in abundance, but the number of acres per farmer is minimal and all cultivation is done by hand. Though oxen cultivation is remembered, the last oxen in the area died some years ago from East Coast Fever and trypanosomiasis. There are no cattle dips in the area, and apparently the diseases are so widespread as to preclude any plans for oxenization in the area.

4.50 Because Zone 2 is a drought-prone area, cassava is an important hedge against famine. However, cassava plots are consistently uprooted by wild pigs. In fact, baboons, monkeys and wild pigs, which thrive in number, pose a significant threat to all cultivation in the area. All shambas located at a distance from the village must be guarded day and night, or else they are ravaged by animal predators. Consequently, the residents of Matundasi must confine their cultivation to the immediate environs of their homes.

Evaluation of the Study Methodology

4.51 According to Task 5 of the Terms of Reference (See Chapter I) the sample survey, in addition to determining the demand for agricultural inputs, must also, "...establish a base for future studies and evaluation." Pursuant to informal discussions with various TRDB officials, the Consultants have interpreted this latter portion of Task 5 to mean an evaluation of the survey technique as a method for estimating the demand (perceived need) for inputs, and the potential for replication of the present survey elsewhere in Tanzania (see Chapter I, Paragraph 1.5).

4.52 In the view of the Consultants, however, the resources invested in the Input Marketing Study of the Mbeya Region were of sufficient magnitude to warrant a more comprehensive evaluation than is indicated above. In addition to demand considerations, the present study provided a brief overview of the structure, conduct and performance of the various institutions currently distributing inputs in the Mbeya Region. To ensure the operational relevance of any recommendations which might emerge from future inputs marketing studies, a more thorough evaluation of the institutional landscape than was possible in the present case would be desirable.

4.53 With regard to the issue of supply constraints, the present study briefly evaluated the present and future capacities of the primary producers of agricultural inputs. This supply aspect should also be an integral part of any future inputs marketing studies, so as to avoid the potential error of devising wasteful distribution infrastructure which exceed the productive capacity of the primary suppliers.

4.54 In order to determine the desirability of a replication (or several replications) of the inputs demand component of the present study, one must be able to answer affirmatively to the following three questions:

(1) Does the bottom-up perspective lend itself to a valid approach for estimating the demand for inputs?

(2) Is the survey sample technique a valid tool for estimating the demand for inputs?

(3) Has the particular survey design used for this study produced valid results?

In the discussion which follows, an attempt will be made to answer these questions in light of the experience gained during the conduct of this study.

Evaluation of the Bottom-Up Perspective

4.05 Both in Chapter I (see paragraph 1.16) and subsequently in the present chapter in the theoretical overview, the Consultants have pointed to the existence of two antithetical perspectives from which the demand for inputs might be viewed. In this previous discussion it was seen that the top-down perspective leads one to think in terms of "inputs requirements," and as a consequence, the agricultural planner loses his neutrality and becomes himself an advocate of some particular goal or policy. By contrast, in focusing on the micro-economic context of agricultural production, the bottom-up perspective leads one to take account of the motivations of the users of inputs.

4.06 Perhaps the best way to assess the validity of the bottom-up perspective is to consider the consequences which have resulted from policies formulated under its opposite. Obviously these opposing perspectives reflect underlying differences in political philosophy -- an area which is clearly beyond the scope of the study. In the commentary which follows, the focus of concern is exclusively on the consequences which have arisen out of the advocacy-planning approach followed in Tanzania. No judgement on the desirability of this approach as it relates to political aspirations is hereby made or intended.

4.07 Based upon information gathered during the course of this study, it has been concluded that two serious distortions have been introduced to the inputs side of the agricultural sector as a result of the advocacy planning approach, one of which has short-term consequences, the other of which has more serious long-term consequences.

Short-Term Consequence of the Advocacy Planning Approach: Inflated Demand Estimates

4.08 It is highly ironic that Kilimo, despite its grass-roots network of extension workers who literally live in the village, should routinely produce estimates of demand for inputs which are routinely ignored by primary suppliers,[13/] on the grounds that such estimates typically reflect regionally or nationally determined production targets rather than the needs/wants of the farmers. In this vein, it will be recalled from Chapter III (Table 3.13) that the Mbeya DADO forwarded fertilizer estimates to the RDD for FY 81/82 which were nearly 10 times the [illegible] actually procured and nearly 20 times the amount finally distributed t[illegible]ers in Mbeya District.

13/ Per discussions with marketing staff of TFC and UFI, July 2, 1982, and July [illegible], 1982, respectively.

4.69 Over time, of course, would-be users of Kilimo-generated estimates have devised their own rules-of-thumb for estimating inputs demand. For example, TFC looks at the quantity of fertilizer ordered for a given region the previous year and subsequently increases that quantity by 10 percent to derive a current-year estimate. Yet the fact remains that a potential source of useful information regarding the demand for inputs, Kilimo's extension workers, is apparently under-utilized or ignored completely.

Long-Term Consequence of the Advocacy Planning Approach: Mis-Allocation of Scarce Resources

4.70 Since it apparently has been determined that farmers "should" use fertilizer, deep subsidies (varying around 50 percent of ex-factory cost plus transport costs) have been a mainstay of agricultural policy. While such subsidies might have been necessary in previous times as a promotion gimmick, their enduring economic value to the nation is open to question, especially during a time of severe shortages such as the present.

4.71 As discussed in a previous section of this chapter, it was the subsistence farmers who felt the greatest need for the present level of subsidies, while the cash crop farmers indicated they would somehow manage to pay for fertilizer without subsidies. Thus the present system of subsidies allocates fertilizer from productive farmers to subsistence farmers whose practices are such that the marginal increase in output due to fertilizer use is apparently less than the cost of the fertilizer itself. Perhaps policy makers think all farmers should use fertilizer, but there are countervailing economic signals which argue that some should not.

4.72 Conclusions Regarding the Bottom-Up Perspective

4.72 To date, the bulk of agricultural planning in Tanzania has been conducted whithin an advocacy framework -- the antithesis of that which flows from the bottom-up perspective. In spite of a network of village-based extension workers, the very organization which should logically produce sound estimates of inputs demand -- i.e., Kilimo -- has been unable to generate credible estimates.

4.73 Conventional wisdom has it that the creation of a new inputs unit in Kilimo would remedy the inadequacies of the present system.[14] Yet as noted above, the potential for gathering sound estimates already exists in the present network of extension agents. Whatever the shortcomings of the present extension system, these agents are at least conversant with the daily realities faced by the farmers. Rather than create a new bureaucratic structure, Kilimo should utilize (and upgrade where necessary) this source of information from the [illegible].

4.74 In conclusion, the lack of information regarding the demand for inputs is due, at least in part, to an apparent unwillingness of policy makers to consider the motivations of farmers. This information can be obtained only by information gathering techniques or systems which embody the bottom-up perspective.

Use of the Survey Technique to Estimate the Demand for Inputs

4.75 As discussed at the beginning of this chapter, the survey technique elicits the respondent's "perceived need" rather than his demand for inputs. While

14/ Ministry of Agriculture, National Food Strategy: Farm Inputs, op. cit., p. 9

"perceived need" can and has served (faute de mieux) as a proxy for demand, it nevertheless admits to a certain degree of ambiguity on a conceptual level.

4.76 Perhaps the most serious drawback of the perceived need measure is that the survey respondent is not required to make any economic trade-offs. Thus the respondent's true "willingness to pay" remains hidden, despite the best of survey designs and/or interview techniques.

4.77 Another ambiguity in the notion of perceived need is inherent in the definition of the word "need" itself. This ambiguity can best be seen in the following type of question: "What input do you need most?" Depending upon a number of circumstances, this question might be interpreted by the respondent in one of two ways. (1) "For which input do I lack the most?"; or (2) "Which input is the most essential for agricultural production?"

4.78 If the respondent interprets the question in the former vein, the response is likely to reflect the "shortages of the day," which may or may not be representative of the general supply picture. If, on the other hand, he interprets the question in the latter vein, the respondent would then find himself in a position somewhat analogous to that of a chemist who might be asked the following question: "Which is more important for the production of water, oxygen or hydrogen?"

4.79 Finally, it should be pointed out that a respondent's ranking of needs is not likely to remain stable as circumstances change.[15] Thus in a time of shortages the respondent might rank non-availability of the input as his reason for not using the input. Later, when the supply gap will have been closed, the same respondent might quite legitimately indicate that another constraint prevents him from using the input.

4.80 In that the survey technique elicits the somewhat ambiguous sentiment of perceived need, rather than the more commonly understood notion of demand, the results of such surveys should be interpreted with care until such time that mechanisms are in place which transmit demand information (e.g., freely established market prices for inputs, a flow of information from the extension service regarding farmers' willingness to pay), the sample survey will be a necessary element of agricultural planning in Tanzania.

Evaluation of the Survey Design for the Input Marketing Study

4.81 A considerable amount of time and effort were spent in designing, conducting and analyzing the Input Marketing Survey. Now that the survey has been completed, some self-evaluation is warranted for the sake of interpreting the validity of the present survey results as well as for the benefit of those who may want to replicate the survey elsewhere in Tanzania in the future.

4.82 The approach to the study was a bottom-up perspective formulated to reflect farmers' felt needs in relation to availability of desired commodities. As has previously been mentioned, the field study utilized a combination of quantitative and qualitative methods. Based on a sample of 330 farm households in 33 villages within the 13 Regional Development Zones, the survey instrument provided numerical values for the many types of commercial inputs utilized by farmers in the

15/ It will be recalled that a price-dependent demand schedule similarly requires a ceteris paribus assumption.

Mbeya Region. However, the survey was short in duration and by necessity, generalized in scope, and therefore ultimately limited in the kinds of detailed information it could produce.

4.63 The survey has provided a generalized picture of the patterns of input utilization in Mbeya Region. It has delineated the areas where commercial inputs are in greatest demand, and has provided the basis for identifying target areas for future development. Thus the survey can serve as a point of reference for future in-depth studies on a zonal basis.

The Questionnaire

4.64 Although the questionnaire was structured, it also effectively gave the respondent maximum freedom in formulating his own answers. For example, question 51 of the survey asks the respondent to rank inputs needed for agricultural production according to their importance. The respondent is given nine choices as possible alternatives and then is asked to list additional responses under "other choices." The provision of several possible choices helped to further define the question for the respondent as well as stimulate him to provide additional responses from his specific experience. By utilizing both pre-selected responses and also leaving the question open-ended, these types of questions helped to ensure the greatest range as well as specificity in responses.

4.65 The questionnaire is structured and follows a logical sequence from [illegible] to land holdings to a quantification of all seasonal inputs, etc. However, each section is followed by a series of questions which reflect the respondent's attitudes toward the use of each input and gives him a latitude of free rein in formulating his own responses and expressing personal opinion.

Self Reporting

4.66 As an indicator of felt need, the Input Marketing Survey has provided an effective instrument for reflecting the input priorities of the region's farmers (Annex Table A5) from a bottom-up perspective. Descriptively, self reporting is a useful technique for soliciting the type of inputs needed. However, in spite of its inherent egalitarian qualities, self-reporting in survey research has its limitations, particularly when respondents are expected to give detailed quantitative information regarding their agricultural production, from planting through harvesting. That is, the questionnaire relies heavily on each farmer's knowledge of his own acreage, rates of seeding, amounts of fertilizer and insecticide applications, as well as prices paid per unit amount for these commodities.

4.67 Likewise, self reporting on the survey required respondents to quantify harvest yields and estimate amounts consumed at home in relation to amounts sold and the prices for each crop. Record keeping by the individual farmer is minimal or non-existant and consequently, the researcher must allow for a latitude of error regarding responses to seasonal inputs.

4.68 In contrast, respondents appeared to have little problem quantifying durable inputs such as hand tools and ox plows which are limited in number and have a life-use in excess of a single season. Likewise, numbers of livestock are easier to count than tubes of maize harvested in the last season. In [illegible]

livestock holdings by the farmers in Mbeya Region are relatively small, and questions regarding numbers of livestock did not appear nor appear to be a sensitive issue in the Region. However, in other Regions of Tanzania where livestock are considered a particularly important form of wealth, respondents may be likely to be more evasive in their answers.

Hypothetical Questions

7.89 In the course of the Survey interview, the respondents were systematically asked to answer questions regarding the use of a variety of inputs. These questions follow in sequence and lead finally to Question 55 in which respondents were asked to rank his purchasing priorities if he received a loan for TSh. 10,000/=. The question is followed by seven responses, most of which are types of agricultural inputs followed by "home improvements," "dowry," and "other" listings provided by the respondent. An impressionistic analysis of the data has indicated that this is a meaningful question for cash crop farmers, particularly coffee farmers for whom a 10,000/= annual income is not unknown. However, the question appeared to be more difficult to answer by subsistence farmers inhabiting the drier areas who rarely experience this large a sum of money in several seasons of production.

7.90 In some cases, there appeared to be a tendency for such hypothetical questions to stimulate flights of fantasy among poorer farmers in which reality was suspended and questions were answered according to ideal choices as opposed to basing answers on what they were realistically prepared to pay for. However, no thorough analysis has been made of this data, and, therefore, any superficial interpretation of the data must be regarded as inconclusive at this time.

Qualitative Information

7.91 Qualitative information was gleaned from the group discussions with village leaders and farmers in most of the 43 villages visited. The group discussions, interviews with key informants, plus observations made within each area were useful for drawing a more holistic picture of each area visited. The open ended group discussions proved valuable for augmenting and clarifying questions asked in the survey.

Conclusions and Recommendations for Future Studies

Conclusions

7.92 Based upon the foregoing evaluations of the bottom-up perspective of the survey technique as a means for estimating demand for inputs, and of the validity of the survey design for the Input Marketing Survey of the Mbeya Region, the following conclusions have been drawn:

(1) The bottom-up perspective is inherent in the concept of demand. Its antithesis, the top-down perspective can produce estimates of inputs requirements based upon technical or political considerations, but is otherwise alien to the notion of demand.

(2) Although logically consistent with the bottom-up perspective, the survey technique can generate estimates of perceived need, but not demand for inputs. Despite a certain degree of ambiguity inherent in the term, perceived need can serve as a reasonably valid proxy for the quantities of inputs demanded.

(3) The Input Marketing Study of the Mbeya Region produced two different types of results: (a) quantitative estimates of inputs currently used; and (b) perceptions of need for the availability of inputs in relation to the quantities currently used. The latter category of results would appear to be both of greater validity and of greater interest to agricultural planners than are the former.

Recommendations

..3 With regard to the feasibility and desirability of replicating the Input Marketing survey of the Mbeya Region, the following recommendations are made:

(1) For the purposes of estimating the perceived need for hand tools and ox-drawn equipment in relation to current availability and to current inventory (a proxy measure for pent-up demand), a survey similar to the present one is both feasible and (from the viewpoint of potential contributors of foreign exchange to UFI) desirable.

(2) For the purpose of estimating the perceived need for seasonal inputs, it is necessary to collect information on a continuing basis. While surveys are a useful means for gathering information quickly, they will provide no long-term solution to the problem of inadequate estimates for seasonal inputs. Alternatively, it is recommended that available mental energy and financial resources be channeled toward an upgrading of agricultural extension agents, so that the latter might provide planners and policy makers with valid estimates of what farmers think they need.

CHAPTER V. ALTERNATIVE INPUTS DISTRIBUTION SYSTEMS

Evaluation of Existing Systems

5.0 At present there is no one comprehensive system within which inputs are distributed to agricultural producers. Instead there are three partially overlapping systems, none of which suffices to serve the entire spectrum of agriculture in Tanzania. While in Chapter III an overview of individual distribution agents operating in the Mbeya Region was presented, in the present chapter the analytical focus is on the more abstract level of distribution systems. In the discussion which follows, both the advantages and disadvantages of each system, as well as the potential of each as a paradigm for a future comprehensive system in Tanzania will be evaluated.

System of Crop-Specific Parallel Channels

5.1 This system hardens back to the earliest days of commercial agriculture in Tanzania, whereby erstwhile subsistence farmers were integrated into cash crop production under the watchful eyes of a tutelary organization designed for the production of a specific crop.

Advantages

5.2 At the level of the individual, this system assures the provision of inputs to smallholders who, due either to their small scale of operation or their remoteness from trading centers, would otherwise be ignored by commercial agents. From the national point of view, this system is perhaps ideally organized for the purposes of attracting international funding. While it is difficult to imagine a donor agency funding a "Small Farmer Project" promoting mixed-enterprise farming, donor agencies routinely have funded a variety of crop-specific programs over the years in Tanzania. For example, CAT presently obtains virtually all of its inputs other than fertilizer under the E.E.C. funded Coffee Development Program.

Disadvantages

5.3 The primary disadvantage of the crop-specific system is its rigidity, which operates initially against the interests of the individual farmer, and ultimately against the interests of the entire Nation. In this first regard, the Consultants were told by both CAT and TTA that certain of their farmers, insensitive to the needs of their crop authorities, have a tendency to use authority-provided fertilizer for their food crops. Thus once a coffee or tea farmer, always a coffee or tea farmer, regardless of any considerations of net revenue to the farmer.

5.4 The Consultants were further told that extension agents for the crop authorities attempt to police the application of fertilizer, to ensure that it ends up on the crop for which it was intended. In addition, we were told by the DADO 1/ in Rungwe of the "serious problem" in his District, whereby farmers are neglecting their tea crop to take advantage of the current high prices of food crops on the parallel market. Thus the crop authorities, which have an institutionally vested interest in the production of their respective cash crops, tend ultimately to fossilize the agricultural economy. The price of food crops indicates a demand greater than supply; but the mounting deficits of the Kilimo parastatals dictate that the limited supplies of fertilizer be directed to export crops - - - the much proclaimed goal of national self-sufficiency in food notwithstanding.

5.5 Lest it be construed that crop-specific authorities are inherently biased against food crops, the case of TRDB's involvement in the National Maize Project should be discussed in this context. Under this project, TRDB assumed the role of a (maize) crop authority, providing inputs to farmers on the presumption they would market their grain through officially sanctioned channels. When growers marketed elsewhere and subsequently defaulted on their loans, TRDB was forced to interrupt the supply of inputs. Once again, the inputs distribution system was held hostage to a crop promotion program.

Potential as a Paradigm

5.6 The existence of a system of crop-specific parallel channels for inputs distribution runs counter to the logic of mixed enterprise farming. 2/ Over the long run, an agency organized for the production and marketing of a specific crop is unlikely to promote balanced agricultural development on an area basis. Indeed, in the present era of shortages, it is not difficult to imagine a crop authority threatening to withhold all inputs from a farmer who attempts to divert fertilizer to his food crops.

System of Vertically Integrated Suppliers

5.7 As was discussed in Chapter III, both UFI and TANSEED have begun to integrate forward in order to provide additional outlets for their products.

1/ Discussion with Mr. Jonas Mwakawanga, DADO in Rungwe District, June 28, 1982.

2/ This term is also designated as "farming systems."

Advantages

5.8 In general, a firm vertically integrates (whether forward or backward) whenever it is less costly to integrate a function into the firm, rather than contract with others at a price. Thus the Consultants were told by UFI that it hoped to enhance its net position by retailing its own farm implements, thereby eliminating the middleman role played by the RTC's. 3/ To the extent that UFI is able to finance the opening of additional outlets, and to the extent that it also undertakes the retailing of other agricultural inputs from such outlets, the agricultural community in Tanzania should benefit.

Disadvantages

5.9 From the view point of the individual supplier firm, the financial viability of integration to the retail level is open to question, UFI's apparent enthusiasm notwithstanding. In this regard, TFC has refrained altogether from opening such outlets; and as was seen in Chapter III, TANSEED is attempting to spin off its retailing function to contract stockists.

5.10 From a larger perspective, one might quistion the wisdom of placing responsibility for the national distribution of inputs in so few hands. Let us suppose, for example, that TFC were to be charged with the responsibility of marketing all inputs through a chain of its company-owned stores. In view of its relatively high cost of prodiction, one can easily imagine that the advent of urea production in 1985 4/ might result in TFC's threatening to tie the supply of other inputs to the purchase of its own fertilizer. 5/ Or, to imagine an even worse (albeit highly plausible) scenario: as the Government is forced to reduce its subsidy for fertilizer due to its own financial difficulties, TFC might be forced to raise its distribution charges for all inputs in order to cover its operating deficits in fertilizer manufacturing.

5.11 In another vein, a vertically integrated system for distributing inputs would be highly vulnerable to those who view use of modern agricultural input as an "engine of development". Thus a political mandate might be given the system to distribute inputs down to the village level at pan-territorial prices regardless of the acuual cost. In a vertically integrated structure where there are few or no intermediate pricing points, the real costs of various activities would be hidden from view and passed up the chain where they would ultimately emerge as "overhead costs". Over time, these so-called overhead costs would most likely threaten the financial viability of the vertically linked supply system, and engender subsequent pleas for governmental subsidy, international donor aid, or both.

3/ Per discussion with Mr. K. Mwasha, UFI Marketing Manager, July 3, 1982.

4/ Reference here is to AGRICO's urea plant in Lindi Region scheduled to come on line in 1958. According to Mr. S. Gangwani of the FAO Fertilizer Project, this plant will render Tanzania more than self-sufficient in the production of nitrogen.

5/ It will be recalled from Chapter III that TANSEED, in similar fashion refused to sell improved seed to the TFA branch in Mbeya so as to ensure the viability of its own outlet in Mbeya Town.

Potential as a Paradigm

5.12 In a non-market economy, where there are few freely-determined price signals to indicate real costs, a highly vertically integrated system is prone to lose control of its costs. This feature makes the vertically integrated-primary-supplier system particularly inappropriate as a model for an inputs distribution system in Tanzania.

Private Organizations

5.13 So far as the Consultants have been able to determine, TFA is the only private organization which distributes agricultural inputs in Tanzania. Thus any discussion of private organizations will be necessity be specific to TFA.

Advantages

5.14 Perhaps the greatest advantage of a private organization is its flexibility. Because it is a private organization, TFA has the freedom to initiate or terminate business relationships solely on their commercial interest. By contrast, TRDB has had no choice other than to continue to supply TFA with inputs, despite the fact that the Authority is unable to pay its past debts

Disadvantages

5.15 While the Consultants were often told that TFA is suitable only for big farmers, it is clear that this organization serves all farmers who are able to come to any TFA Branch. From the standpoint of national development (in the guise of inputs promotion development), herein lies a major disadvantage of a private organization: as a profit-making entity, TFA cannot affor to establish branches faster and further than the market will justify. By contrast, a government entity can write off such expansion costs as a "social cost".

Potential as a Paradigm

5.16 Given the present economic context, it is doubtful that an input distribution system based solely on private enterprise would be feasible. The current philosophy of the Government holds that the price of commonly consumed products should be price-controlled. In the sense that fertilizer is similarly a necessity for agricultural production, this product is also priced-controlled. 6/ Over time, as other inputs become viewed as "necessities", it is likely (in the opinion of the Consultants) that these products will also become subject to price-control.

6/ Based upon a discussion with Mr. Mongi, National Price Commissioner, July 5, 1982.

5.17 Since key margins are set by government rather than market forces, it is difficult to see how a system of private entrepreneurs could ensure distribution of inputs much below the district level. For example, the maximum allowable retail margin for fertilizer is 15 percent over the ex-factory price, 7/ regardless of the distance the fertilizer is shipped from TFC's factory in Tanga. Although in principle TFC pays the shipment costs to ensure pan-territorial pricing, it does so only up to the first regional break-in-bulk point. Thus a large retailer in Mbeya would be able to purchase his fertilizer 100 percent free of transport charges, while a small village-based retailer would be forced to absorb transport charges from the regional break-in-bulk point to his store. Yet officially, 8/ these two retailers would capture the same 15 percent distributor's margin.

5.18 In view of the foregoing considerations, one might wonder how TFA is able to remain financially viable. First, it should be kept in mind that TFA markets a wide variety of goods, many of which are not price-controlled. Secondly, TFA has been able to supplement its income by renting excess go-down capacity to the National Milling Corporation. That a network of private distributors could develop under today's economic climate is doubtful, however.

Evaluation of Potential Systems: The Cooperative Unions

5.19 At present there is a secretariat under the Prime Minister's Office which is elaborating the configuration and modalities of the reformed cooperative unions which are to be established within the near future. In view of the lack of any more definitive information on this matter, the Consultants have interpreted the statement regarding cooperative unions in the Structural Adjustment Program to be the latest expression of the Government's objectives vis-a-vis the cooperative unions. To wit: The Government expects local initiatives to determine the pace and progress toward the reintroduction of cooperatives... Cooperatives will be able to

---

7/ The permitted ex-factory price is determined by the National Price Commission on a cost-plus method of pricing. The Interministerial Committee, consisting of representatives from the Ministries of Agriculture, Finance, Planning and Economic Affairs, and Trade, then set the permitted margins to the distributors. The Consultants have been unable to obtain any information regarding the criteria upon which the Interministerial Committee determines these margins.

8/ It would seem that fixed prices are not necessarily as fixed as appearances would have it. It will be recalled from Chapter III (Footnote 24) that the Consultants were told by the National Price Commissioner that added handling charges by a retailer are a matter of negotiation between buyer and seller. If this is the case, then the 15 percent margin cited here is not binding. So far as the consultants could ascertain, there is no clear-cut policy on this issue.

take over the functions of crop authorities in the field of input supply to and purchasing harvested production from constituent members wherever this is feasible." 9 /

Advantages

5.20 An inputs distribution system based upon the reconstituted cooperative unions would appear to offer several advantages over any of the existing systems. First, the cooperative unions, built upon their constituent cooperative society members, represent a mechanism through which farmers can order inputs directly, rather than passing through the DADO or other Kilimo intermediaries.

5.21 Secondly, the regionally-based cooperative union would be reasonably close to the farmers it represents, and at the same time it would be a sufficiently large entity to procure inputs directly from suppliers. Since it will combine both the marketing and input distribution functions, the cooperative union will be able to ensure that farmers pay for their inputs on a timely basis. Moreover, the combining of these two functions should also allow for more efficient use of existing transport and storage facilities.

5.22 Finally, since the cooperative societies will consist of a village, or more likely a group of several villages, farmers will be organized on an area basis, not as "tea growers" or "coffee growers," but as agricultural businessmen who run a business consisting perhaps of a number of crop and livestock enterprises. As such, a system of inputs distribution which would be an integral part of the cooperative network is highly compatible with the notion of "farming systems."

Disadvantages

5.23 From the farmer's view point there may be a distinct disadvantage in housing the inputs distribution system on the cooperatives, at least so far as food crops are concerned. To some government officials, the integration of inputs distribution with output marketing is seen as an ideal mechanism for staunching the flow of maize into unofficial channels. Thus, unless there is a substantial readjustment of producer prices for maize, the marriage of inputs distribution to maize marketing through the National Milling Corporation will result in a substantial transfer of wealth from the farmer to the urban consumer. While in the short run, increased marketings through NMC might be perceived by the Government as "increased supply," in the long term, the supply of maize will decrease as price responsive farmers reallocate their productive factors elsewhere. At this point, the Nation as a whole will experience a net loss.

---

9 / United Republic of Tanzania, Structural Adjustment Program, op. cit., Sect. 3.25(9).

Potential as a Paradigm

5.24 Abolished only six years ago, the cooperative system appears to be an idea whose time has come once again.... if only because of the inability of the combined efforts of TRDB and the parastatals to replace it. This is not to say, however, that all was well under the previously established cooperatives. Thus in a study in 1974, the Marketing Development Bureau indicated that non-repayment on input credit loans was reaching "alarming proportions" for many cooperative societies in many regions. 10/

5.25 Significantly, there is a lack of consensus as to the Governments rationale for abolishing the previous cooperative system. While the Consultants were often told that mismanagement and corruption were the cause of the cooperative's demise, others have suggested that these charges were at least partly a pretext for the advancement of other objectives. Hyden lends credence to this theory in a passage discusssng the Government's attempt in the mid-1970's to remove the middleman from the rural economy:

> "... The cooperatives were run by the petty-capitalist farmers, very often elected to leading positions by the peasants on the grounds that they were the most qualified to run these institutuons. With a growing central direction of the national economy after the Arusha Declaration, cooperatives gradually became more closely tied to the State and its demands. The conflict between the notion of the cooperative as a voluntary association catering primarily for member needs, and of the cooperative as an agency of change responsive to central commands grew increasingly tense. Cooperatives ... were unilaterally turned into multi-purpose institutions, although they clearly lacked the managerial capacity to handle all responsibilities ..... Operational costs increased as a result of inadequate management and members received less for their produce and had to pay more for their goods. Cooperatives lost their legitimacy in the eyes of the peasants ..." 11/

5.26 If Hyden's analysis is valid, then to condemn the former cooperatives of mismanagement is tantamount to blaming the victim. Again according to Hyden, the Government's intent from the beginning was to eliminate the only intermediaries between itself and the farmers. Thus the first step was to tighten central control over the cooperatives and make them engines of rural development. When the cooperatives predictably proved to be incapable of handling this new, more extensive agenda, their abolition was inevitable.

10/ Marketing Development Bureau, "Cooperative Marketing in Tanzania: Its Costs, Present Situation, and Proposals for Improvement," December 1974. Cited in G.V. Ramamurthy, "Revival of Cooperative Unions." Dar es Salaam: Bank of Tanzania, 1980, p.8.

11/ Hyden, Goran, Beyond Ujamaa in Tanzania: Underdevelopment and an Uncaptured Peasantry. Los Angeles: University of California Press, 1980, p.133.

5.27 The fate of the cooperatives might be regarded as little more than an interesting historical note were it not for the tragic compulsion of policy-makers to repeat the past error of assigning a given institution more functions than it is capable of handling. An outstanding example of this problem was pointed out by the Marketing Development Bureau in a recent analysis of the debt-ridden Tanzania Cotton Authority, wherein it was pointed out that an inordinate proportion of the budget is devoted to sports, games, and other social development activities. 12/ Another, albeit less blatant, example can be seen in Kilimo's conceptual design for its Farm Service Centers (FSC), whereby the center will include a variety of extension, training and agro-mechanical services, in addition to the more basic elements of inputs distribution. 13/

5.28 While there is nothing wrong per se with the delivery rural development services, in the headlong rush to provide them, insufficient thought had been given the source of funds for such service. For now, the type and amount of services for which the rural peasantry is actually willing to pay remains a moot point. The creation of a system of voluntary cooperative societies and unions which wholly reflect the needs of its consittuents is perhaps the best way to resolve this matter.

Short-Term Strategy

5.29 As was pointed out in Chapter I, there would appear to be a general consensus that TRDB should be relieved of its inputs distribution role in order that it might function strictly as a lending institution. Moreover, in Chapter II it was shown that, aside from the strain it puts on the Mbeya R.O.'s financial and human resources, the inputs distribution function may also be a contributing cause to the serious problem of loan defaults in the Mbeya Region.

5.30 In view of the foregoing considerations, it is recommended that TRDB be relieved gradually of its role as an inputs distribution agent in the Mbeya Region. While the reconstituted cooperatives would seem to be the most appropriate institution to assume this role, no definitive timetable for their restitution has been set. Thus in the interim, it will be necessary to expand the role of other distribution agents currently operating in the Mbeya Region. Specifically, in order to increase the availability of inputs and to expedite their distribution in the Mbeya Region, it is further recommended that:

(1) Each crop authority currently operating in the Mbeya Region should be evaluated with regard to its potential for assuming the responsibility of distributing all inputs to its client farmers---i.e., all inputs needed for food crops as well as cash crops.

(2) TRDB examine the feasibility of providing medium-term credit to TFA for the addition of one branch in Kyela District, and possibly one in Mbozi District.

12/ Price Policies and Recommendations, 1982/83, op.cit., Annex 8.

13/ Ministry of Agriculture, Farm Service Centres (FSC): Concepts Proposals. A Draft Report Prepared by the Program Planning and Monitoring Bureau, Dar es Salaam: August 1981.

(3) Ubungo Farm Implements seek from external sources the necessary foreign exchange to close the existing gap between supply and the estimated demand for hand tools and ox-drawn implements.

(4) TRDB examine the feasibility of providing medium and/or long-term credit to TFC for the expansion of warehouse capacity at TAZARA railheads which serve the Mbeya Region.

The foregoing recommendations are discussed in more detail immediately below.

Expanded Role for Crop Authorities

5.31 As discussed in Chapter III, it would appear that in most cases the crop authorities in Mbeya Region are capable of assuming responsibility for the distribution of all of the seasonal inputs required by its client producers. To the extent that farmers presently reallocate fertilizer from their cash crops to their food crops, some authorities (especially TTA and CAT) de facto have assumed this role already. It will also be recalled from Chapter III that current government policy under the SAP calls for strengthening specifically those crop authorities which are represented in the Mbeya Region (Paragraph 3.2) through international funding. Judging from recent history, one can conclude that the chances of attracting such crop-specific funding are very high (see Paragraph 5.2).

5.32 In order to avoid repayment problems, farmers should be required to pay cash for their supplementary inputs (i.e., for food crops) at the time of purchase from the crop authority. In the case of fertilizer, distribution for food crops could be made simultaneously with that for the cash crop. The crop authority could finance the purchase of the inputs through either a TRDB short-term loan (for a revolving fund) or with an NBC over-draft facility.

5.33 So that the added transport and handling costs might not add to the already burgeoning overhead costs of the authorities, a distributor's margin should be permitted. In view of the fact that TFC pays transport costs up to the regional break-in-bulk point, the 15 percent distributor's margin allowed for early-ordering of fertilizer would appear to be sufficient. In those areas where improved seeds are in high demand, the authority might contract with TANSEED to become a stockist (see Chapter III), and thus cover its costs by realizing a margin of up to 12.5 percent. For miscellaneous pesticides, the authority would probably find it expedient to purchase from TFA at retail ..... in which case it would realize no distributor's margin. On the other hand, by becoming itself a TFA member, the authority would be eligible for the annual year-end bonus rebate to TFA members.

5.34 It should be recognized that the various crop authorities in the Mbeya Region vary substantially with regard to their financial viability. As pointed out in Chapter III, the Tanzania Cotton Authority is particularly weak in this regard. Thus extreme care should be taken that the added cost of this expanded inputs distribution role be borne by the ultimate beneficiency ..... i.e., the farmer, rather than absorbed by the authority as additional overhead cost.

5.35 Although the necessity for seasonal input credit continues to be a debating point among rural development technicians, it would appear that a sizable cash market exists in the Mbeya Region. In addition to the survey findings in Chapter IV, which pointed to the willingness of a portion of farmers to pay cash, the cash and carry operation run by the various DADO's is proof that at least some small farmers are able as well as willing to purchase inputs on a cash basis.

5.36 Finally, it should be recognized that this proposed network consisting of the crop authorities will not serve all farmers, even under the best of circumstances. Desirable as the goal of serving all farmers might be from a national development viewpoint, it is equally clear that the present state of the national economy is such that "second-best"solutions, as that recommended here, are more appropriate for the near term.

TRDB Lending for Additional Branches of TFA

Current Expansion Plans

5.37 As discussed in Chapter III, TFA is planning to open new branches in Babatati, Korogo, Tanga, and Mafinga, all of which will be financed from its usual sources of credit. TFA appears to have two key criteria for selecting an area for a branch opening: 14/

(1) There must be an adequate transport and communication infrastructure so that the operations of the new branch can be closely coordinated with one or more existing branches.

(2) The area must have substantial potential for diversified agricultural production.

Based on the foregoing criteria, TFA recently passed over Mbozi, and has decided instead to expand in Mafinga in the Iringa Region. The Consultants were told, however, that decisions made to date do not preclude additional expansion in the Mbeya Region should experimental lending funds be made available through TFA. In this regard, an interest in locating in Kyela was expressed. 15/

14/ Per discussion with Mr. Jivraj, Marketing Manager, TFA Headquaters at Arusha, July 6, 1982.

15/ Per discussion with Mr. E.R.K. Mshiu, Gerneral Manager, TFA Headquarters at Arusha, July 6, 1982.

Rationale for Recommended Expansion in the Mbeya Region

5.38 The recommendation for the expansion of TFA's operations in Mbeya Region is based primarily on the fact that the use of inputs (especially fertilizer) has been increasing significantly in recent years. As shown in Table 5.0, fertilizer use nearly tripled between 1972-81; moreover, in relative terms fertilizer use in Mbeya increased from 10 percent to 18 percent of the national total during the same period. 16/

5.39 With regard to improved seeds, it has already been shown (Table 3.9) that the quantities distributed in Mbeya have been increasing in recent years, albeit less rapidly than in the case of fertilizer. Lack of data on the distribution of pesticides precludes any conclusion regarding trends in their use.

Table 5.0 - Quantities of fertilizer distributed in the Mbeya Region vs. Tanzania: 1972-81.

YEAR	Quantities of Fertilizer Distributed (tons)				
	Mbeya Region		Tanzania		Mbeya Region as a Percentage of Tanzania (%)
	Tons	Percent change from previous year	Tons	Percent change from previous year	
1981	17,277	+ 7	96,569	-10	18
1980	16,085	+28	107,091	+14	15
1979	12,561	+ 1	93,704	+14	13
1978	12,404	+15	82,275	- 6	15
1977	10,820	+46	87,615	+24	12
1976	7,433	- 1	70,402	-25	11
1975	7,875	+25	93,541	+13	8
1974	6,291	+34	82,568	+24	8
1973	4,712	-27	66,370	+ 7	7
1972	6,477	-	62,153	-	10

Sources: TFC; Ministry of Agriculture, Input Distribution in Tanzania op.cit., P.14; Uriyo, P.P., and H.O. Mongi, "Development of Fertilizer Use in Tanzania," Oct. 1973.

16/ Strictly speaking, the data in Table 5.0 reflect distribution rather than use. Over the long-term, however, quantities distributed reflect actual usage.

Table 5.1: Quantities of hand tools and ox-drawn plows ordered vs. supplied in Mbeya Region vs. Tanzania, 1977-81.

Year	Hoes (All Types)			Ox-Drawn Plows		
	Quantities Ordered	Quantities Supplied	Quantity Supplied as a Percentage of Quantity Ordered (%)	Quantities Supplied	Quantities Supplied	Quantity Supplied as a Percentage of Quantity Ordered (%)
1977						
Mbeya	50,440	28,200	56	2,000	700	35
Tanzania	1,886,343	1,823,400	97	7,977	5,467	69
1978						
Mbeya	61,080	61,080	100	1,515	1,348	89
Tanzania	2,017,145	1,791,854	89	25,165	7,609	30
1979						
Mbeya	30,725	18,110	59	600	296	49
Tanzania	2,046,379	1,668,998	82	15,811	5,882	37
1980						
Mbeya	103,460	69,780	67	1,480	600	41
Tanzania	2,002,854	1,963,509	98	18,380	13,975	76
1981						
Mbeya	116,000	52,944	46	1,000	630	63
Tanzania	1,671,100	1,173,075	70	18,300	5,676	30

Source: Mr. K. Mwasha, Marketing Manager, Ubungo Farm Implements, Ltd.

5.40 In the case of hand tools and ox-drawn plows, it would appear that the chronic shortfall of supply has acted as a drag on demand. 17/ As shown in Table 5.1, the quantity of hand hoes and ox-drawn plows supplied has consistently trailed the quantities ordered in both the Mbeya Region and in Tanzania as a whole. Thus from a marketing standpoint, it would appear that there is a substantial pent-up demand for these items. In this vein, it will be recalled from the analysis of the survey results in Chapter IV that the leading cause on non-use of inputs was not lack of wherewithal, but lack of availability.

5.41 Another consideration behind the recommendation to expand the number of TFA outlets in the Mbeya Region was hinted at in the previous discussion of the crop authorities. The primary role of the latter institutions is and should remain (until the restoration of the cooperatives) the production and marketing of their respective cash crops. Should TRDB withdraw from inputs distribution in the Mbeya Region as is recommended, there might be a substantial number of farmers, outside the purview of the crop authorities, who would have little or no access to inputs unless TFA's network is expanded. 18/

Number and Location of Branches

5.42 In view of the lack of data, and given the time constraints, it was not possible to conduct a thorough marketing study upon which to base recommendations for the number and location of new branches. With TFA's criteria in mind, however, one is able by process of elimination to determine the appropriate locations for expansion. Neither Chunya nor Ileje Districts would appear to be readily accessible to the existing TFA Branches in Mbeya Town and Tukuyu. Thus the only remaining choices are Kyela and Mbozi, both of which have been designated as priority areas by the Mbeya RDD. 19/

5.43 While not ruling out a branch in Mbozi, the management of TFA nevertheless expressed a clear preference for Kyela, primarily on the grounds that Mbozi is "adequately" served by its Mbeya Branch. While there is obviously considerable room for debate over what constitutes adequate service, it is interesting to note that farmers themselves apparently feel better served (or perhaps less poorly served) in Mbozi than in Kyela. Thus as shown in Table 5.2 and 5.3, with regard to nearly every input, farmers in Kyela overwhelmingly cite non-availability does not in general rank higher as a cause of non-use than in Mbeya Region as a whole.

17/ This line of thinking was also expressed by Mr. K. Mwasha, Marketing Manager, Ubungo Farm Implements, Ltd.

18/ Unfortunately the sample survey was unable to shed much light on the identification of distribution agents by area. In most cases, survey respondents indicated their source of inputs supply to be simply "the village", regardless of the utlimate source.

19/ Per statement by Mr. Nyitambe, Mbeya RDD, during a consultants' briefing, June 14, 1982.

Table 5.2 - Weighted rankings of reasons given for not using purchased inputs. a/

Input/Zone	Reasons Given for Non-Use of Inputs								Total
	Not Available	Too Expensive	Doesn't Improve Yield	Requires Other Inputs	Not Used in my Area	No Money	No Insect	Other	Number of Respondants
Fertilizer									
- Zone 4 c/	58%	49%	40%	19%	NA b/	23%	NA	10%	29
- Zone 13 d/	91%	15%	11%	5%	NA	6%	NA	8%	48
- Total Region	74%	34%	19%	8%	NA	8%	NA	11%	233
Improved Seed									
- Zone 4	77%	40%	6%	4%	15%	10%	NA b/	6%	48
- Zone 13	100%	11%	13%	2%	3%	-	NA	3%	49
- Total Region	30%	27%	14%	11%	10%	6%	NA	8%	285
Insecticide									
- Zone 4	63%	38%	13%	NA b/	NA	20%	3%	18%	30
- Zone 13	98%	10%	9%	NA	NA	3%	-	3%	52
- Total Region	78%	25%	9%	NA	NA	7%	5%	8%	258

Sources: Tables H.18, H.16, and H.20.

a/ Since households gave multiple responses, it was necessary to standarize the rankings by arbitrarily assigning a weight of 10 to a ranking of 1, a weight of 9 to a ranking of 2, etc. These values were then totaled and subsequently divided by the number of respondents. The results were then expressed as percentage.

b/ NA = Not applicable.

c/ Zone 4 = Mbozi, Isuto Ndola and Illindi Plateau.

d/ Zone 13 = Kyela District

Table 5.3 - Weighted rankings of reasons for not having ox-drawn implements. a/

Zone	Reasons Given for Not Having Ox-Drawn Equipment								Total Number of Respondents
	Not Available	Price Too High	No Animals	Implements Available, But Too Far Away	No Money	No Spare Parts	Poor Quality	Don't Know How to Use	
4	72%	47%	41%	20%	11%	6%	5%	-	41
13	93%	23%	17%	12%	2%	9%	6%	-	47
Total Region	77%	40%	31%	16%	7%	6%	4%	1%	212

a/ Since households gave multiple responses, it was necessary to standarize the rankings by arbitrarily assigning a weight of 10 to a ranking of 1, a weight of 9 to a ranking of 2, etc.. These values were totaled and subsequently divided by the number of respondents. The results were then expressed as percentages.

Source: Table H.14

5.44 With the information presently available, it is not possible to state definitively that a branch in Mbozi would not be redundant from a marketing standpoint. In this regard, it should be noted that further detailed analysis of the data from the survey conducted for the present study could shed additional light on this matter. 20/

Funding Considerations

5.45 While the actual loan amount for a given branch would depend upon a number of location-specific factors, TFA has indicated that the opening of a new branch would require as investment of approximately T. sh 2.0 million. This amount would be necessary for the construction of a store with an attached office, a go-down, and a residence for the branch manager.

5.46 In order for TRDB credit to be a financially viable proposition for its operations, TFA indicated that the loan application process would have to be streamlined. In this regard, it should be pointed out that TFA currently operates under a letter of credit from the National Bank of Commerce. Thus by consulting with NBC, it would seem that TRDB could expedite the application process without any added risk of default, should TFA ultimately seek TRDB credit for expansion purposes.

Provision of Foreign Exchange for UFI

5.47 According to UFI, the annual demand for hand hoes is approximately 2 million pieces per year, while that of plows is approximately 20,000 per year. 21/ When these figures are compared with the quantities distributed in 1981 (Table 5.1), there would appear to be an annual supply gap of approximately 500,000 hoes and approximately 13,000 ox-drawn plows.

5.48 Equally serious is the dramatic decrease in the production of plow shares in recent years - - - from 235,023 pieces in 1976 to nil in 1981 (Table 5.4). In the face of erratic production levels, it is difficult to determine what should constitute normal production; but based on the data in Table 5.4, it would appear that a minimum of 100,000 - 150,000 should be produced annually to avoid serious shortages.

20/ The survey results in code form are presently on file with the Planning Advisor, Mr. David Eding, at TRDB Headquarters in Dar es Salaam.

21/ By contrast, Haule and Mbena (Haule and Mbena, op.cit., Table 9) have estimated a current annual demand of 4.6 million hoes, with projections of 5.1 million in 1986. Current demand for plows is estimated by them to be 75,000, with projected demand in 1988 at 109,000. No information regarding the basis for these estimates was provided by these authors.

Table 5.4 - UFI production of plow shares, 1976-81.

Year	Plow shares Produced
1981	nil
1980	100,821
1979	32,852
1978	102,007
1977	166,596
1976	235,023
Aug. 76-80	127,460

Source: Mr. K. Mwasha, Marketing Manager, UFI

5.49 In principle, the Zana Za Kilimo 22/ factory due to open within the near future in Mbeya should be able to fill the aforementioned supply gap. To date, however, not all of the necessary machinery has been installed; and for the existing machinery, there is sufficient electrical power to permit only rudimentary production at apparently an extremely high per-unit cost. Thus in the near term, it would appear that Zana Za Kilimo will make only a negligible contribution to the supply of hand tools and ox-drawn implements.

5.50 In keeping with the notion that TRDB should be relieved ultimately from its role as a distributor of seasonal inputs, there similarly would seem to be no reason for TRDB's involvement in distribution of the farm implements to be manufactured by UFI, as foreseen in the Resources for Village Production and Income Project Paper. 23/ To provide relatevely inexpensive credit under present circumstances for the purchase of ox-drawn equipment would only widen the current gap between supply and demand. Moreover, in view of the apparent existence of a substantial cash market for these implements (see Annex H-9) provision of such credit would appear to be unnecessary at this time. In the end, the rural populace will be served better by a policy which distributes implements indifferently to those who pay cash than one which distributes only to the handful of villages in the Mbeya Region which are currently deemed credit-worthy by TRDB.

22/ It is worth noting that Zana Za Kilimo is a member of the National Development Corporation Group, as is UFI. The Consultants were told that to date no decisions have been made by NDC regarding the relationship between what would appear to be two competing companies under the same roof.

23/ USAID, op. cit., Vol. I, p.43.

TRDB Lending for Additional TFC Warehouse Capacity 24/

5.51 Despite the general principle that rail transportation is the least costly form of land transportation for bulky commodities, such as fertilizer, the troublesome fact is that for practical reasons TFC often finds it cheaper to ship by truck. Aside from the various problems with TAZARA itself (lack of a sufficient number of wagons, insufficient locomotive power, etc.) there are two major storage problems which add and substantially to rail shipment costs:

(1) Due to the lack of go-down capacity of the TAZARA railheads in the Regions. TFC must incur substantial demeurage charges on rail cars waiting to be unloaded.

(2) Also related to the lack of go-down capacity is a serious problem of theft, as the rail cars on sidings are particularly vunerable.

5.52 To overcome the foregoing problems, TFC wants to build a transshipment shed somewhere in the Mbeya Region. To date no firm plans have been made, however, due to the lack of available financing. Thus it is recommended that TRDB provide the financing for this facility and/or other similar facilities which are needed to reduce rail shipment costs. Obviously, the provision of credit need not be provided to TFC. Any interested third party who is credit-worthy might build the structure and make it available to TFC under a long-term lease arrangement.

5.53 As a final note on this matter, the construction of additional warehouse capacity is no panacea. There is still another reason, unrelated to the storage issue, that TFC in some instances finds it more economical to ship via truck than rail. In general, inter-regional truck rates, which are tendered by TFC, are substantially cheaper than the various intra-regional rates. Thus, depending upon the final destination, TFC finds it is cheaper to send a truck directly from Tanga to the regional center, rather than pay rail charges plus loading/unloading at the railhead plus additional trucking charges at relatively higher intra-regional rates.

Long-Term Strategy: The Cooperative Union

5.54 In a previous section of this chapter it was concluded that the reformed cooperatives represent the most logical long-term choice as the institutional base for an inputs distribution system. It is this system which could best house the much-debated farm service centers (FSC's). In effect, each cooperative society, consisting of a group of villages, would operate its own FSC, with the scope of goods and services provided to be

---

24/ All information in this section regarding TFC wss providid by Mr. Mollel, Marketing Manager for TFC in a discussion held at Dar es Salaam Headquarters, July 2, 1982.

determined by its own members. Over time, depending upon the scale and financial viability of the operation, a given FSC could also operate depots in the constituent villages .... again according to the needs of the society's members.

5.55 Once the choice has been made to house the farm service centers within the cooperative system, a further decision is necessary regarding the configuration of the cooperative union. Within Mbeya Region two alternative models suggest themselves: (1) a district-based model, whereby a cooperative union is located in each district center, or at least in the centers of the most agriculturally important districts; or (2) a unitary regionally based cooperative union. The advantages and disadvantages of each model are discussed below.

The District-Based Model

5.56 The fully developed district-based model in the Mbeya Region would be a three-tiered structure, with four district unions, 25/ with two tiers under each district. The first sub-district tier would consist of the cooperative societies (a group of villages), while the second sub-district tier would be at the village level.

Advantages

5.57 Being housed at the district level, the headquarters of the cooperative union would be physically closer to its constituent cooperative societies, and thus presumably more accessible. Further, in view of the fact that agriculture in the Mbeya Region is somewhat district-specific, the officials of a district-based union should, at least in principle, be keenly aware of the special needs of its agricultural producers vis-a-vis inputs and marketing.

Disadvantages

5.58 There are two primary disadvantages to this model. First on the premise that a limited pool of executive talent exists in the Region, then the staffing of four distinct union headquarters staff would perhaps exceed the capacity of this pool. Secondly, by basing the cooperatives in the district centers, such that the member cooperative societies would be organized largely along district lines, the operation of the unions might have a tendency to be guided by district political currents rather than by commercial considerations.

The Regional Model

5.59 The fully developed regional model would also have three tiers, the first tier being the regional union itself, the second and third tiers being the cooperative societies and the villages, respectively.

25/ This number of district-based unions has been suggested by Mbeya Regional Officials.

Advantages

5.60 The advantages of the regional model are the converse of the disadvantages of the district-based model. First, by centralizing the headquarters into one office, the need for executive (as opposed to mid-level) talent is minimized. Moreover, since district centers are absent from this model, cooperative societies could evolve on any jurisdictional lines.

Disadvantages

5.61 There are two key disadvantages to this model. First, the effective functioning of a regional cooperative union presupposes the existence of a well developed transport and communications network, neither of which currently exist in the Mbeya Region. A more serious disadvantage lies in the area of crop marketing. While regionally centralized procurement for inputs is feasible, the ability of one agency to procure and process the variety of crops grown in the Mbeya Region is highly doubtful.

Guidelines vis-a-vis the Configuration of Cooperative Unions

5.62 In the absence of any knowledge of the extent to which the cooperative unions will absorb the marketing note of the existing crop authorities, it is not possible to make any concrete recommendations. With this consideration in mind, the following general guidelines are offered:

(1) If the cooperative unions will be responsible solely for inputs distribution, then a regionally based cooperative union would be preferable. To overcome the difficulties imposed by the present state of the communication and transportation networks, the regional union might staff several 1 - 2 person offices at key transport and/or commercial modes throughout the Region.

(2) If the cooperative unions will be responsible for crop procurement for collection and re-sale to the crop authorities, as well as inputs distribution; a regionally based cooperative union, perhaps organized internally along crop-specific lines, would still appear to be feasible.

(3) If the cooperative unions will be responsible for procurement, processing, and marketing of the crops, as well as inputs distribution, then a regionally based model would definitely not be feasible. The procurement and distribution of inputs, although a key part of the agricultural production process, is nonetheless not so highly specialized as is crop processing and marketing. Thus, ultimately, the configuration of the cooperative unions should be a function of their intended marketing role.

The Long Term Role of TFA

5.63 In light of the recommendation that the cooperative system should ultimately be responsible for the distribution of inputs, one might question the future role of TFA. To solicit its view on the matter, this question was put to the General Manager of TFA by the Consultants. In reply, he indicated that TFA would have no difficulty in surviving alongside the cooperative - based system.

5.64 From the public point of view the involvement of both TFA and the cooperatives in inputs distribution would appear to have considerable merit. As Lele 26/ has pointed out, cooperatives which are in a monopolistic position have tended to abuse their economic power in the same way as have private entrepreneurs. While the existance of controlled prices (whether by government or by the suppliers themselves) will preclude any serious competition in the area of pricing, it is conceivable that the two systems might compete for customer loyalty in the area of service (free technical advice, quality of products, etc.).

26/ Lele, Uma, Cooperatives and the Poor: A Comparative Perspective. World Bank Reprint Series, No. 169. Washington, D.C: IBRD, P.60.

CHAPTER VI. POSSIBLE PILOT PROJECTS

Rationale

6.0 From Chapter V it will be recalled that the recommendation for early action to facilitate the distribution of inputs in the Mbeya Region envisioned a gradual phase-out of TRDB's role as a distributer. To fill the void left by TRDB's withdrawl, it was proposed that the present distribution role of the crop authorities be augmented, and that financing be provided under TRDB's experimental lending program for the expansion of TFA's operations in Mbeya Region (see paragraph 5.30).

6.1 For the long term, it was further recommended (see paragraph 5.54) that the re-constituted cooperative unions assume the role of distributing all inputs to its constituent members. In effect, each cooperative society would own and operate its farm service center, with procurement and distribution being co-ordinated by the cooperative union.

6.2 The remaining unanswered question with regard to the cooperative unions concerns the timing of their reconstitution. As discussed previously (paragraph 5.19) the SAP states in general terms that the Government expects the pace both of the reconstitution and the actual functioning of the cooperative unions to be determined by local initiatives. A pilot farm service center, provided that it would ultimately be integrated into the cooperative structure, could be a useful first step in triggering such local initiatives in the Mbeya Region.

Configuration

6.3 Since it is envisioned that each cooperative society would operate its own farm service center, and since each cooperative society will consist of a group of villages, 1/ logic would seem to dictate that any proposed pilot center silmilarly have a multi-village configuration. On the other hand, in those instances where a given village is currently acting as a distribution center for surrounding villages, a case could be made for establishing a "uni-village" farm service center. The feasibility of this latter proposition would of course depend upon the demand for inputs within the service area of the proposed center.

Mbeya Farmers' Reaction to Farm Service Centers

Village Discussions

6.4 In the course of conducting the Input Marketing Survey, group discussions were held with farmers and village leaders throughout Mbeya

---

1/ At an informal seminar of Mbeya RIDEP Consultants, Mr. G.V. Ramamurthy, from the Bank of Tnazania, indicated that regional authorities are contemplating the establishment of approximately 100 cooperative societies in Mbeya Region.

Region. A principal objective of the group discussions was to elicit farmers' attitudes concerning the possible establishment of Farm Service Centers, and to determine people's priorities for inputs to be stocked at these centers.

6.5 The villagers were informed that any such FSC would begin as a pilot project which might be implemented initially at the district and/or village levels. It was made clear to the discussion participants that it would be sometime before they could expect the establishment of centers on a widespread basis. However, groups were encouraged to candidly state their views in order to facilitate policy planners in formulating center designs which most reflect people's perceived needs.

Universal Need

6.6 Due to the widespread shortages of almost all farm inputs, the idea of Farm Service Centers was popularly received by nearly all villages sampled throughout the Region. And in spite of Mbaya's agro-economic diversity, there is a consensus expressed by nearly all farmers regarding the need for hand tools. In fact 68% of all respondents indicated that additional hand tools were needed for cultivation (Annex H-6). Throughout the Region, jembes are in exceptionally short supply (Annex H-7). Seasonal inputs of fertilizer, improved seeds and insecticides are also in high demand (Annex H-5), particularly by cash farmers who generally view these inputs as essential to their production.

Local Contributions

6.7 Farmers were asked in group discussions what type of contribution they would be willing to make if their village were selected as a site for a center. Across the Region, most villagers responded that they would be willing to contribute labour and locally made bricks for the construction of a simple store and office. However, villages differed in their willingness to contribute cash toward the purchase of timbers, nails and mabati for the completion of a store. In general, farmers in cash cropping areas, particularly coffee areas, were eager and willing to contribute cash, either individually or from village accounts, in order to purchase essential building materials. In contrast, subsistence farmers, particularly those inhabiting the arid areas, expressed a reluctance, stemming from financial hardship, to make local cash contributions to the building of an FSC. In fact, farmers in these areas often express an opinion that the government should be obligated to render further assistance in the task.

Cash vs. Credit Purchases

6.8 Cash crop farmers stated they would gladly pay cash for inputs if that would insure input availability. Subsistence farmers, having less cash-generating capability, expressed a reluctance to pay cash, and repeatedly pushed their needs for extended credit programs.

Human Resources

Likewise, cash cropping villages, in contrast to subsistence villages, tended to have a greater number of managerial and technical personnel resident within their villages who would be available to run an F.S.C.

Farm Service Center Site Selection Criteria

6.10 The following possible criteria are suggested for the selection of site for a pilot center:

1. The site should be able not only to supply inputs to itself, but also act as distributor to a cluster of surrounding villages. As a pilot project, this would necessarily eliminate villages in the driest and most remote portions of the Region where population densities are low and villages widely dispersed.

2. The site should demonstrate a present high demand for inputs, or at least exhibit a potential for future demand.

3. The site must have reliable transport and have ready access to major supply points.

4. The site should have sufficient pre-existing levels of organization and infrastructure to ensure the proper management of an F.S.C. Similarly, the selected village should draw upon its own human and material resource base, to the extent possible, for the construction and continued operation of the center. An F.S.C. should emerge out of the village, and should not be an alien appendage imposed from without. An F.S.C. should avoid incorporating outside personnel who have little vested interest in the center's success.

5. The site should have existing facilities so that extensive capital costs might be avoided.

The Village F.S.C.: Two contrasting Typologies.

6.11 In the final selection of a site for a pilot project, there are two contrasting sets of considerations which bear important implications for the project's prospects of economic success vs. its potential for greatest impact and anticipated increase in agriculutural productivity. The two contrasting village types which are presented here as suggested F.S.C. candidates for consideration by Regional Officials are Isansa and Ipinda.

6.12 Isansa is located in Zone 4, Isana Ward of Mbozi District. It is 34 kms from Vwawa, the District center, which is located on the TANZAM Highway and the TAZARA Railway and functions as the principal center in the area for supplying inputs through CAT, TFA, RTC and DADO. Isansa is a large Ujamaa village which has repeatedly received acclaim as a model village. Isansa has a large godown and plans to build additional storage. It has two lorries which transport inputs not only to its own farmers but to farmers in six nearby villages. The village has a sound economic

record, and has consistently demonstrated competent management. In effect, Isansa village is already unofficially functioning as a Farm Service Center. If Isansa were chosen as a site for a F.S.C., it would no doubt serve the surrounding area even more effectively. If Isansa is not selected to house an FSC, consideration might be given it as the subject for a FSC study. Since Isansa is already functioning unofficially as an F.S.C., much could be learned from observing its retail operations at the village level and the economic margins necessary for making an FSC financially viable.

6.13 Ipinda village is located in Zone 13 of Kyela District. Ipinda is cited by the DADO Kyela as one of the area's more progressive villages. Ipinda has recently purchased a lorry, and it has a store which would require considerable repairs to make it usable. Kyela is an intensively cultivated area and perhaps is the only district in the Region where adequate rainfall is almost never a constraint to production. Oxenization in Kyela is very popular. 47% of all respondents surveyed (Annex H-13) indicated that they had ox ploughs and there is a high demand for ox-drawn equipment and spares. By all indicators, Kyela should be a major food producing area in Tanzania. However, its productivity is retarded by lack of inputs. Kyela is the only district in the Region which is not serviced by a parastatal, and the nearest TFA is over 50 kms away in Tukuyu. Consequently, most of Kyela's farmers use no purchased inputs.

Preliminary Pilot Proposals

6.14 With the idea that Isansa and/or Ipinda might be suitable candidates for pilot farm service centers, some preliminary proposals were formulated. 2/ It should be noted, however, that time constraints did not permit an exhaustive search for viable candidate villages throughout the Mbeya Region; and thus further investigation might reveal other village equally or better suited for a pilot farm service center.

6.15 It must be emphasized that the proposals as formulated thus far (Annex I) are preliminary in the sense that:

(1) no determination has been made with regard to the interim institutional affiliation of the proposed centers;

(2) no cash-flow analysis has been conducted to determine the financial feasibility of the proposed centers.

6.16 With regard to the issue of institutional affiliation, the Regional Cooperative Officer 3/ for Mbeya has suggested that the existing primary cooperative societies are suitable candidates for housing farm service centers

---

2/ Preliminary pilot proposals for farm service centers in Ipinda and Isansa can be found in Annex I.

3/ Per discussion at the Consultant's final briefing session with the RDD, July 25, 1982.

While this option should not be rejected without further consideration, it nevertheless appears to be inconsistent with the rationale for organizing the cooperative system in hierarchical levels. Primary societies are combined to form secondary cooperative societies precisely because, as individual entities, they are too small to function effectively as distribution or marketing centers. Obviously this question cannot be answered in the abstract. It may well be that some primary societies are of such size and financial vigor that they could operate profitably. Such considerations should be at the heart of any ultimate pilot project proposals.

BIBLIOGRAPHY

Croon, I. Development of the Farming Systems in Mbeya Region. A Report Prepared for the Mbeya RIDEP Office. Mbeya, Tanzania: March 1982.

DANIDA. Report on Village Storage Facilities and Input Supply Pick-Up Service. A Report Prepared by an Exploratory Mission to Tanzania. Dar es Salaam: October 1981.

Haule, T.C., and Mbena, C.M. Tanzania National Paper for the First Regional Consultation on Agricultural Machinery Industry in Africa. AUNIDO Counter Report. Dar es Salaam: 1981.

Hyden, Goran. Beyond Uyamaa in Tanzania: Underdevelopment and Uncaptured Peasantry. Los Angeles: Univeristy of California Press: 1980.

Lele, Uma. Cooperatives and the Poor: A Comparative Perspective. World Bank Reprint Series, No. 169. Washington, D.C.: IBRD.

Marketing Development Bureau. "Cooperative Marketing in Tanzania: Its Cost, Present Situation and Proposals for Improvement." December 1974. Cited in Rananurthy, G.V., "Revival of Cooperative Unions." A Report Prepared by the Bank of Tanzania. Dar es Salaam: 1980.

Ministry of Agriculture. Draft Report on the Establishment of a Farm Service Center at Mbozi Maize Farm. A Report Prepared by the Project Planning and Monitoring Bureau. Dar es Salaam: (undated).

Ministry of Agriculture. Establishment of a Farm Service Center Toward Easy Availability of Fertilizers and Other Inputs Under One Roof. A Draft Report Prepared by the Directorate of Extension and Training Services. Dar es Salaam: (undated).

Ministry of Agriculture. Input Distribution in Tanzania. A report Prepared by the Marketing Development Bureau for FAO/UNDP Project SF TAN 27. Dar es Salaam: December 1977.

Ministry of Agriculture. National Food Strategy: Farm Inputs. A Working Paper Prepared by the Planning Division. Dar es Salaam: (undated).

Ministry of Agriculture. Price Policy Recommendations, 82/83. A Report Prepared by the Marketing Development Bureau. Dar es Salaam: July 1981.

Mwakyusa, G.A. "Safari Report to Arusha From 18th to 22nd January 1982." A Report to the General Manager of TRDB. Dar es Salaam: 1982.

Mwaipyana, H. Indicative Farm Models for the Major Farming Systems in Mbeya Region. A Report Prepared Under the Co-Sponsorship of the Mbeya RIDEP Project and the Marketing Development Bureau of the Ministry of Agriculture - 2 Volumes. Dar es Salaam: February 1982.

Kilimo, Taarifa Ya Mweka, 1981. Annual Report Prepared by the Mbeya Regional Agricultural Development Officer. Mbeya, Tanzania: (undated).

Mwiza, J.E. "Mahitaji Ya Mboka Msimu, 1981/82." Letter From the Mbeya Office of Kilimo to the Mbeya RDD. Mbeya, Tanzania: February 11, 1981.

Singh, B.R. Report on Farm Services and Inputs. A Report Prepared for the Tanzania National Food Strategy Project (GCP/URT/054/DEN). Dar es Salaam: February 1982.

United Republic of Tanzania. Structural Adjustment Programme for Tanzania. A Report Prepared by the Ministry of Planning and Economic Affairs. Dar es Salaam: June 1982.

Uriyo, A.P. and H.O. Mongi. "Development of Fertilizer Use in Tanzania." A Paper Presented at the Seminar on Fertilizer Use Development. Morogoro, Tanzania. Oct. 22-27, 1973.

USAID. Resources for Village Production and Income. A Project Paper Prepared for the AID/Tanzania Mission -- 2 Volumes. Dar es Salaam: June 1980.

ANNEX A

CONSULTANTS' ITINERARY AND LIST OF PERSONS CONTACTED

ANNEX A

CONSULTANTS' ITINERARY AND LIST OF PERSONS CONTACTED

ITINERARY OF E. WEILER

Activity	Person(s) Contacted	Date (1984)
Arrive Dar es Salaam		June 6
Introduction to TRDB Officials	Mr. Mdee, Director of Development and Planning	June 7
	Mr. A. Kibola, Chief Planning and Management	June 7
Data Collection at TRDB Headquarters	Mr. M.K. Itono, Procurement Division Manager	June 8
	Mr. P. Maginga, Project Officer, Procurement	June 8
	Mr. P. Mkulia, Project Officer, Crops	June 8
	Mr. G.A. Assay, Manager Seasonal Inputs	June 8
Courtesy Visit to Ministry of Agriculture	Mr. L. Kasyupa, Deputy Minister of Agriculture	June 9
	Mr. Vincent Mrisho, Director for Planning and Marketing	June 9
Travel via Auto from Dar es Salaam to Mbeya		June 10
Introductory Visits	Mr. Semuguruka, Director, Uyole Agricultural Center	June 11
	Mr. A. Mwambungu, Regional Agricultural Officer	June 11
	Mr. T.R. Komba, Mbeya Regional Manager, TRDB	June 11
	Mr. H.M. Mawji, Regional Manpower Development Officer	June 11
Data Collection at TRDB Regional Office	TRDB Regional Office Staff	June 12

Activity	Person(s) Contacted	Date (1982)
Data Collection at TRDB Regional Office	TRDB Regional Office Staff	June 14-18
Information Tour of Zana Za Kilimo (Mbeya)	Mr. L.P. Mpangalala, Production Engineer	June 18
Data Collection at Mbeya RTC	Mr. A. Lazaro, Agricultural Marketing Manager	June 19
	Mr. M.O. Mambosho, Marketing Officer	June 19
Data Collection at TFA Mbeya	Mr. Matoli, Branch Manger	June 21
Data Collection at CAT Mbeya	Mr. S.J. Mpayo, Zonal Manager, CAT	June 21
Data Collection at TANSEED	Mr. J.D. Mahenge, Acting Depot Manager	June 21
Data Collection at DADO Mbeya	Mr. A. Mwambungu, Regional Agricultural Officer	June 22
Seminar: Mbeya RIDEP Office	Various RIDEP Consultants	June 22
Data Collection at Regional Cooperative Office	Mr. K.B. Mangwaha, Regional Cooperative Officer	June 23
Data Collection at TCA	Mr. S.M. Mhalusike, Area Manager	June 23
	Mr. A.M. Mwakasendo, Operations Manager	June 23
Data Collection at CAT	Mr. C.E. Msaki, Zonal Supplies Officer	June 23
Data Collection at TFA Mbeya	Mr. Y.N. Mwakalebela, Asst. Branch Manager	June 24
Data Collection at Regional Planning Office	Mr. Sangiwa, Regional Planning Officer	June 24
Data Collection at Regional Transport Licensing Authority	Mr. Mkoma, Licensing Officer	June 24
Data Collection at DADO Mbeya	Mr. D.B. Maguru, Asst. to DADO	June 24
Data Collection at RTC Mbeya	Mr. J.L.S. Bushiri, General Manager	June 25
Data Collection at Regional Trade Office	Mr. Mark Bizongwako, Acting Regional Trade Officer	June 26

Activity	Person(s) Contacted	Date (1992)
Data Collection at TTA Tukuyu	Mr. Mussala, Area Manager	June 28
Data Collection at DADO Rungwe	Mr. Jonas Mwakananga, DADO	June 28
Data Collection at TFA Tukuyu	Mr. Siyala, Branch Manager	June 28
Information Tour of Mbozi Economic Development Corp.	Mr. I. Mallenge, General Manager	June 29
Travel Via Auto to Dar es Salaam		June 30
Data Collection at AICCO Headquarters	Mr. T.M. Ngabo, Acting General Manager	July 2
Data Collection at TFC Headquarters	Mr. Mollel, Marketing Manager	July 2
Data Collection at UFI Headquarters	Mr. K. Mwasha, Marketing Manager	July 3
Data Collection at Office of the National Price Commis.	Mr. Mongi, National Price Commissioner	July 6
Travel to Arusha via Airplane		July 6
Data Collection at TFA Headquarters	Mr. Jivraj, Marketing Manager	July 6
	Mr. E.R.K. Mshiu, General Manager	July
Data Collection at TANSEED Headquarters	Mr. Lusewa, General Manger	July 8
	Mr. Matemba, Marketing Manager	July 8
Information Tour of THEMI Farm Implements Co., Ltd.	Mr. Walter Muro, Director of Production	July 9
Return to Dar es Salaam Via Airplane		July 9
Data Collection at FAO	Mr. S. Gangwani, Fertilizer Supply and Credit Expert	July 10
Return to Mbeya Via Auto		July 12
Data Collection at Mbeya RADO	RADO staff	July 13
Data Collection at Mbeya RADO	RADO Staff	July 14
Data Collection at Mbeya DADO	Mr. D.B. Maguru, Asst. to RADO	July 15

Activity	Person(s) Contacted	Date (1[illegible])
Data Collection at Mbeya DADO Go-Down	Ms. T. Kyoka, Stores Manager	July 1[illegible]
Collect data at Mbeya DADO	Mr. D.D. Maguru, Asst. to DADO	July 1[illegible]
Survey Data Analysis	-	July 1[illegible]
Report Write-Up	-	July 1[illegible]
Presentation of Study Results to Local Officials	Mr. Kyitamba, Regional Development Director	July 2[illegible]
Travel to Dar es Salaam Via Auto	-	July 27
Presentation of Study Results to AID Officials	Mr. A. Handly, Mission Director, USAID	July 2[illegible]
Presentation of Study Results to TMB Officials	Mr. F.A. Magani, Chairman and Managing Director, TMB	July 2[illegible]
Presentation of Study Results to Kilimo	Mr. Vincent Mrisho, Director for Planning and Marketing	July 2[illegible]
Depart Dar es Salaam		July 31

BEST AVAILABLE DOCUMENT

ITINERARY OF J.L. MERRYMAN

Activity	Persons Contacted	Date (1982)
Arrive Dar es Salaam		June 6
Introduction to TRDB Officials	Mr. [illegible], Director of Development and Planning	June 7
Formulation of Questions for Survey Questionnaire	Mr. W. Makundi, Chief Research Manager	June 8
Courtesy Visit to Ministry of Agriculture	Mr. L. Kasyupa, Deputy Minister of Agriculture	June 9
	Mr. Vincent Mrisho, Director of Planning and Marketing	
Travel Via Landrover from Dar es Salaam to Mbeya		June 10
Courtesy Calls to Regional Authorities	Mr. Semuguwka, Director, Uyole Agricultural Center	June 11
	Mr. A. Mwambungu, Regional Agricultural Officer	
	Mr. T.N. Komba, Mbeya Regional Manager, TRDB	
	Mr. N.M. Nawji, Regional Manpower Development Officer	
Meeting at RIDEP Office and Enumerator Interviewing	Mr. H. Constable, Mbeya RIDEP Coordinator	June 12
Interviews with and Training of Enumerators RIDEP Office		July 14
Drafting of Pre-Test Questionnaire		July 15
Arranging Survey Pre-Test At Inyala Village	Mr. W. Makundi, met Inyala Village Leaders	
Revisions of Pre-Test Questionnaire	Mr. W. Makundi, TRDB Chief Research Manager	July 16
	Mr. D.F. Eding, TRDB Planning Advisor	

Activity	Person(s) Contacted	Date (1982)
Questionnaire Pre-Test at Inyala	Mr. P. Mkulia, TRDB Project Officer	June 17
	Mr. W. Makundi, TRDB Chief Research Manager	
	Mr. R. Daniels, AID	
	Survey Enumerators	
Questionnaire Revision	Mr. D. Eding	June 17
	Mr. R. Daniels	
	Mr. Mkulia	
Review of Pre-Test with Enumerators, RIDEP Office	Mr. W. Makundi	June 18
	Mr. P. Mkulia	
Planning Survey Itinerary		
Survey Discussion and Enumerator Salary Negotiations, RIDEP Office	Mr. M. Constable RIDEP Coordinator	June 19
Final Preparations for Survey Departure for Rujewa	Mr. P. Mkulia and Survey Enumerators	June 21
Survey of Zone 6: Mbadaga, Ihanga and Igomelo		June 22
Survey of Zone 7: Uhambule, Itambelee, Mwaluma and Muwale		June 22
Survey of Zone 8: Utengule and Itezi		June 24
Survey of Zone 2: Kiwanja and Matundasi		June 25
Survey of Zone 1: Mtanila		June 25
Initial Reports Written at Mbeya. Petrol Purchased		June 26
Survey of Zone 5: Msiah and Malele		June 27

Activity	Persons Contacted	Date (1982)
Survey of Zone 4: Ilembo, Hanseketwa, Isangu and Ilole		June 29
Continued Survey of Zone 4: Isansa, Ipito, Magamba and Itumbi		June 30
Mbozi District Headquarters, Vwana	Meeting with DADO Mbozi, Meeting with the Branch Manager, CAT	June 30
Return to Mbeya, Petrol Purchased, Enumerators Paid, Duplication of Additional Survey Forms		July 1
Survey of Zone 9: Pashunga, Iwowo and Isuto, Survey at Isangati Cancelled Due to Local Funeral		July 2
Survey of Zone 10: Ilenge, Ilinga and Itagata		July 4
Enumerators Contact Villages in Zone 11, Report Writing, Supervisor - Enumerator Meeting.	Mr. P. Mkulia and Enumerators	July 4
Survey of Zone 11: Isange and Kandete. Ipelo cancelled Due to Heavy Rainfall		July 5
Surveyed Zone 12: Itulu and Lubanda		July 6
Meeting with the DADO Rungwe	Mr. Jonas Mwakananga, DADO	July 6
Saba Saba Holiday. Villages in Zone 13 Contacted		July 7
Survey of Zone 13: Itope, Kilasilo, Kasumulu, Ikolo		July 8
Survey Zone 10: Magaya		July 8
Continued Survey of Zone 13: Ipunguti and Talatala		July 9
Meeting with the DADO Kyela		July 9
Completion of Survey, Return to Mbeya		July 10
Report Writing, Mbeya		July 12

Activity	Persons Contacted	Dates (1982)
Survey Coding, Mbeya	Mr. D. Eding Mr. R. Daniels Mr. P. Mkulia Mr. R. Bloom AID	July 13
Survey Coding	Mr. D. Eding Mr. W. Makundi Mr. R. Bloom Mr. R. Daniels	July 14
Survey Coding and Analysis	Mr. D. Eding Mr. R. Bloom Mr. R. Daniels	July 15
Data Analysis	Mr. D. Eding Mr. R. Bloom Mr. E. Weiler	July 16
Data Analysis and Report Writing, Mbeya		July 17
Report Writing and Data Analysis, Mbeya		July 19
Report writing and Data Analysis Mbeya		July 19
"		July 20
"		July 21
"		July 22
"		July 23
Final Briefing of Input Study Results	Mr. Nyitambe, RDD Mr. M. Constable Mr. E. Weiler	July 24
Final Preparations for Departure from Mbeya		July 26
Return to Dar es Salaam		July 27
Final Revisions of Input Study	Mr. E. Weiler, TRDB Consultant	July 28
Presentation of Input Study Findings	Mr. A. Handly, Mission Director, USAID	July 29
Departure for New York		July 30

ANNEX B

Sample Copy of Loan Ledger Card

(TRDB Form 403)

LOAN LEDGER CARD

TRDB 403
7/79

TANZANIA RURAL DEVELOPMENT BANK

P.O. BOX _____ _____ (Town)

TANZANIA, TELEPHONE: _____

Name of Borrower _____

District: _____

Regional Loan Number: _____

Address: _____

Date Loan Approved: _____

Facility and Type of Loan: _____

Project: _____

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Date	Ref	Item Disbursed/Transferred	Unit of Measure	Qty. Disbursed/Transferred	Std. Price	Total Value Disbursed	Total Value of Transfers	Cumulat. Disbursements	Receipts/ Repayments	Other Credits	Net Loan Balance	Remarks

ANNEX C

SAMPLE COPY OF AD HOC FORM USED TO EVALUATE PERFORMANCE OF TRDB REGIONAL OFFICE/MBEYA

TRDB CROP INPUTS

Input_____ Crop_____

Unit of Measure_____

VILLAGE	AMOUNT REQUESTED	DATE OF REQUEST	AMOUNT SUPPLIED	LATEST DATE SUPPLIED	SOURCE OF SHIPMENT

ANNEX D

Sample Copy of Questionnaire Submitted

To TRDB Mbeya Regional Staff

INPUT DISTRIBUTION STUDY

Survey of Mbeya TRDB Regional Office Staff

Name of Staff_____.

1. What is your official job title:_____

2. What is your official job description:
   a. _____
   b. _____
   c. _____
   d. _____

3/ What tasks do you actually perform during the year:
   a. _____
   b. _____
   c. _____
   d. _____

4. Describe your role during each stage of seasonal inputs procurement and distribution:
   (a) Collection of seasonal inputs requirements:
   _____
   _____
   _____

   (b) Ordering of inputs from manufacturers:
   _____
   _____
   _____

   (c) Transportation of seasonal inputs:

   (i) From factories to Mbeya TRDB go-downs_____
   _____
   _____

   (ii) From Mbeya TRDB Go-downs to TRDB clients_____
   _____
   _____

   (d) Payment of all TRDB agents (i.e., transporters and casual laborers who handle/store seasonal inputs)_____
   _____
   _____
   _____

5. What is your estimated % of time spent on seasonal inputs procurement and distribution during the months of:

Jan_____	Feb._____	Mar._____	Apr._____	March_____	April_____
May_____	June_____	July_____	Aug._____	Sept._____	October_____
Nov._____	Dec._____				

ANNEX E

Sample Copy of TANSEED Stockist Contract

TANZANIA SEED COMPANY LIMITED

P.O. Box 939 ARUSHA

PART A SEED STOCKIST CONTRACT CONTRACT NO._____

COVERING JULY 1ST 19___ TO JUNE 30TH 19____ PERIOD

This contract is made between TANZANIA SEED COMPANY LIMITED (Hereinafter called "The Company") whose principal place of business is at P.O. Box 939, Arusha of the one part and _____ of _____.

(hereinafter called the "STOCKIST" which expression shall, where the context so admits, include his/her/its/their/executors, administrators and assignees) of the other part.

LOCATION (AREAS OF OPERATION)_____

BUSINESS LICENSE NO:_____ INSURANCE COVER NO.:_____

I. THE STOCKIST

I have read and fully understand Part B of this contract and I am prepared to accept the conditions laid down therein.

Signature:_____ Witnessed by:

Name:_____ Signature_____

Position:_____ Name:_____

Address and Tel. NO._____ Date:_____

_____

Date:_____

II. THE COMPANY

We, the TANZANIA SEED COMPANY LIMITED undertake to fulfil out obligations as laid down in Part B of this contract.

Signature:_____ Witnessed by:

Name_____ Signature_____

Position_____ Name:_____

Date_____ Date_____

If any dispute shall arise between parties hereto relating to their respective rights and obligations here under, the same shall unless they can agree upon a single arbitrator be referred to the arbitration of two arbitrators one to be selected by each party and such arbitrators before going into the matter in disputs shall appoint an umpire to whom the same shall be referred in the event of their being unable to come to a mutual decision of such arbitrator/arbitrators or umpire as the case may be shall be final and binding upon the parties and all arbitration proceedings hereunder shall be carried out under regulated by the law relating to arbitration for the time being in force in the United Republic of Tanzania.

Tanzania Seed Company Limited

P.O. Box 939 Arusha

Rules and Regulations

1. The stockist must possess a relevant valid business licence. (attach photostat copy of the licence).

2. The stockist shall not carry on business in relation to his contract outside the area specified in Part A of this contract.

3. The stockist shall cooperate with CCM and government officials at village, district and regional levels in order to facilitate smooth running of the business. He should work closely with the District Agricultural Officer in his area of operation.

4. The stockist shall liaise with Kilimo authorities working in the locality in order to familiarize himself with the knowledge of seed varieties and estimated seed requirements.

5. The stockist shall sell seeds at prices set and announced by TANSEED only.

6. The stockist shall issue receipts for seeds sold and a duplicate of the receipt shall be made available to Company staff for inspection. The 'Lot Number' should be quoted on the receipt.

7. The stockist must have a suitable store or warehouse approved by TANSEED's authorized representative.

8. The stockist shall familiarize himself with seed varieties sold by him.

9. Complaints from customers regarding quality of seed, germination, etc., which are beyond the stockists' control should be reported to TANSEED as soon as possible.

10. Transport of seed from Tanseed's Branch/Depot to the stockist's main premises shown in Part A will be undertaken at Tanseed's expense provided the quantity bought or procured is not below 10 tonnes. Stockist will have to provide own transport in case of consignments of less than ten (10) tonnes at any given time.

11. Unsold seeds at the end of selling season will be returned to TANSEED. Haulage of such seed will be the responsibility of TANSEED. Care shall be taken not to order too much seed.

12. Seed damaged/spilled after delivery at the stockist's store will be the stockist's responsibility.

13. Seed damaged/spilled before delivery to the stockist will be the responsibility of the party responsible for transportation of the seed.

14. Stockist shall arrange his/her own insurance cover with the National Insurance Corporation to cover loss of seed due to fire, theft or other hazards. (Attach photostat copy of the insurance cover).

15. The loss of seed due to fire, theft or other reasons shall not absolve the stockist from settling debts with Tanseed in relation to that seed.

16. Stockist shall sell seeds in unopened (sealed) packages/bags of seed supplied by Tanseed. Seeds shall not be sold in smaller/bigger quantities than those supplied or specified by Tanseed. Not withstanding in the contract, the stockist must abide by the Seeds (Regulation of Standards) Act 1973 - No. 29 of 1973).

17. Stockists shall get a 10% (ten percent) commission for every kilogramme which he/she sells subject to the following conditions:

    (a) A limit of 10 tonnes consignments of seed at any given time.

    (b) Such a consignment above will be on credit terms of up to 60 days.

    (c) Non-settlement of the credit terms in 19 section (b) above after the 60 days will be subject to a five percent surcharge per month.

18. Stockist shall receive (twelve and a half percent) 12-1/2% commission for every kilogramme he/she sells provided he pays in cash before delivery effected.

19. Either party (Tanseed or Stockist) can revoke this contract in writing giving reasons for such an action.

ANNEX

THE INPUT MARKETING SURVEY: QUESTIONNAIRE, RESEARCH DESIGN AND SAMPLING STRATEGY

BACKGROUND

1. Enumerator _____ Date _____

2. Zone No. _____ Village _____ Questionnaire No. _____

3. Name of Respondent _____

4. Sex: Male _____ Female _____ Age _____ Education _____

5. Number of adults 15 years or older including respondent _____

6. Number of children 14 years or younger _____ number of children in school _____

B. FARM DATA

1. During this cropping season did you work on your shamba? full time _____ Part time _____ not at all _____

2. During this cropping season how many adults in your household excluding yourself worked on your shamba? No. full time _____ No. part time _____

3. During this cropping season how many of your children worked on your shamba? No. full time _____ No. part time _____

4. Did you assist any of your neighbors during this cropping season on his shamba? full time _____ part time _____ If so, how were you paid _____

5. How many neighbors assisted you on your shamba? None _____ No. full time _____ No. part time _____

6. Were there enough people to do the work on your shamba when you needed them? Yes _____ No _____

7. How many shambas are available to you for your agricultural activities _____

8.

SHAMBA DATA	1	2	3	4	5
(a) Shamba size (acres)					
(b) Number of acres cropped					
(c) Walking time from household					

9. Seed

Crop	Acres	Type	Quantity used	Price	Supplier	Supplier distance	Payment

10. If you used local seed, where did you obtain it? self _____ Neighbor _____ another village _____ distance _____

11. If you used local seed, why did you not use improved seed? (rank) not available ___ too expensive _____ doesn't improve yield _____ requires other inputs _____ not used in my area _____ others _____

12. If you used improved seed, did you obtain the amount you wanted? Yes _____ No ___ if no why? _____

13. Did you obtain your seed in time to carry out your planting when you wanted? Yes _____ No _____ if no, why? _____

14. Fertilizer

Crop	Acres	Type	Quantity used	Price	Supplier	Supplier distance	Payment

15. If you used fertilizer, did you obtain the quantity you wanted? Yes _____ No ___ if no, why? _____

16. If you used fertilizer, did you obtain it in time for effective application? Yes _____ No _____ if no, why? _____

17. If you used fertilizer, why do you not use more? (rank) Using recommended rate not available _____ too expensive _____ no transport _____ others _____

18. If you did not use fertilizer, why? (rank) not available _____ too expensive ___ doesn't improve yield _____ requires other inputs _____ other _____

19. Insecticide

Crop	Acres	Type	Quantity used	Price	Supplier	Supplier distance	Payment

20. If you used insecticide, did you obtain the quantity you wanted? Yes _____ No _____
if no, why? _____

21. If you used insecticide, did you obtain it in time for effective application?
Yes _____ No _____ if no, why? _____

22. If you used insecticide, why do you not use more? Using recommended rate _____
Not available _____ too expensive _____ No transport _____ others _____

23. If you did not use insecticide, why? Not available _____ too expensive _____
doesn't improve yield _____ requires other inputs _____ other _____

24. What other inputs did you use? _____

25. Inventory of hand tools

Tool	Number	Price	CONDITION			AVAILABILITY		
			Good	Fair	Poor	Always	Some	Rarely
Jembes								
Pangas								
Axe								

you have all the necessary hand tools within your household to produce your crops as you would like? Yes _____ No _____

27. What hand tools do you need that you do not have _____

28. Why don't you have the hand tools that you need? Not available _____ price too high _____ poor quality _____ tool available far away _____ don't know how to use _____ others _____

29. Ox Implements

Ox Implement	Number	Price	CONDITION			AVAILABILITY			Price would pay
			Good	Fair	Poor	Always	Some	Rarely	
Plough									
Harrow									
Cart									

30. Have you used ox drawn implements to produce agriculturally? Yes _____ No _____

31. If you have used ox drawn implements do you have all the implements within your household to produce your crops as you would like? Yes _____ No _____

32. What ox drawn implements do you need? _____

33. Do you have the cash to purchase the agricultural implements you need? Yes _____ No _____ if no, where will you get the cash? _____

34. If you need ox-drawn implements why don't you have them? Not available _____ no animals to pull the implements _____ price too high _____ poor quality _____ no spares _____ implements available far away _____ don't know how to use _____ other _____

35. If you have oxen drawn implements, what spares do you need? _____ and are they available? Yes _____ No _____

36. How often are oxen used for agriculture production in your region? All the time _____ most of the time _____ Sometimes _____ Never _____

37. Do you own oxen? Yes _____ No _____ if yes, how many _____

38. If you have no oxen, why? Oxen not in use in my area _____ no pasture _____ too expensive _____ no money _____ have no implements _____ other _____

39. Do you plan to purchase oxen? Yes _____ no _____ if yes, at what price? _____

40. Did you use your oxen for your agriculture production? Yes _____ no _____

41. Were your oxen available when you needed them? Yes _____ too weak _____ too far away _____ being used by neighbors _____ other _____

42. Do you hire out your oxen? Yes _____ no _____ if yes, at what price _____ and for what use? _____

43. Did you hire oxen to prepare your fields? Yes _____ no _____

44. Are oxen available for hire when you need them? Yes _____ no _____

45. If you do not use oxen, why not? _____

46. Did you use a tractor to produce your crops during the last agriculture season? own _____ hired _____ communal _____ other _____ didn't use _____

47. If you did not use a tractor, why? (rank) not available _____ too expensive _____ my fields are too small _____ my fields are too steep _____ tractor use does not pay _____ others _____

48. Yields - during the last cropping season.

Crop	Acres	AMOUNT OF YIELD			Amount received
		Total	For consumption	For sale	

49. How far do you travel to obtain the agriculture inputs you currently use? Less than 5 km _____ 5 - 10 km _____ 10 - 24 km _____ 25 - 49 km _____ 50 or more km _____

50. How do you get your agriculture inputs to your shamba? Carry by hand _____ on cart _____ bicycle _____ bus _____ other transport _____

51. In terms of necessary agriculture inputs, list the input you need most, followed by your second and third choices. (rank).

local seeds _____ improved seed _____ fertilizers _____ insecticides _____
hand tools _____ labour _____ ox plough _____ ox harrow _____
tractor hire _____ (other choices) _____

52. How far would you travel to obtain the inputs you need if they were available?
Less than 5 km _____ 5 - 10 km _____ 10 - 24 km _____ 25 - 49 km _____ 50 or more km _____

53. What implements are you willing to pay in cash the official price if they were available? (rank) _____

54. What is the most important village that you travel too where you obtain necessities _____ and how far away is this village? _____

55. If you received a loan for 10,000/= what would you use the money for?
fertilizer _____ hand tools _____ ox drawn equipment _____ oxen _____ other livestock _____ home improvements _____ dowry _____ other _____

56. How many livestock do you own? Cattle _____ sheep _____ goat _____ poultry _____

57. What type of livestock inputs do you currently use? _____

58. What livestock inputs that are not available would you like to purchase? _____

Respondent's comments:

Enumerator's Evaluation of the interview
Excellent _____ Good _____ Fair _____ Poor _____

Enumerator's Comments:

BEST AVAILABLE DOCUMENT

THE SAMPLE SURVEY

Objectives

F.1 The primary objective of the sample survey was to collect data from farmers throughout Mbeya Region which could be used as a basis for quantifying demand for agricultural inputs necessary for production in the region. The specific approach to the objective was to conduct the survey from a bottom-up perspective which would elicit farmers' felt needs in relation to availability of desired commodities. The entire data gathering exercise was designed to give respondents maximum freedom to state their personal views and to present priorities of perceived need from an individual perspective.

Methodology

F.2 The field study utilized a combination of qualitative and quantitative methods in order to generate the maximum amount of data pertinent to the study in the extremely limited amount of time allotted for it (June 21 to July 10, 1982). The basic methods used in collecting the field data included the following:

(1) The administration of a survey questionnaire to 330 farmers inhabiting 43 villages located in the 13 Regional Development Zones of Mbeya Region.

(2) Open ended group discussions, and

(3) The recording of detailed observations, plus interviews with key informants and area officials.

F.3 The Survey Questionnaire was designed to be administered to small-holder farmers throughout Mbeya Region with a focus on the individual household shamba as the unit of production and input demand. The questionnaire consisted of 50 questions regarding several aspects of utilization of farm inputs. Part one (background) included a number of demographic questions which elicited the age, education and village location of the respondent and his family.

F.4 The demographic section was followed next by questions about farm labor and its availability. The core of the questionnaire was composed of a detailed listing of each respondent's utilization of the following inputs: Seeds, fertilizers, insecticide, hand tools, and ox-drawn implements. Each input was followed by a series of questions regarding the availability of that specific commodity, plus the farmer's attitude toward increased utilization of each input.

F.5 The inputs section was followed by an account of all crop yields harvested during the last cropping season with details regarding household consumption, sales and the amounts received for each crop.

F.6 The final section of the questionnaire elicited the respondents input priorities in an effort to determine what inputs are considered most critical to production from the farmer's perspective.

F.7 Although the survey questionnaire was structured, farmers were not limited to a finite set of pre-selected responses. The survey instrument was designed specifically to give each respondent a considerable latitude of freedom in answering the questions according to the idiosycratic nature of each farmer's specific production context.

F.8 Unpenended discussions were conducted among the farmers and village elders (up to 30 participants per village) in order to gain a fuller more holistic account of problems in agricultural production as perceived by the farmer. A survey questionnaire by itself, administered synchronically at one point in time, is ultimately limited in its ability to finely measure attitudes or to determine directionality of change. The group discussion component of the methodology was designed to augment the questionnaire in order to allow respondents free rein in personal expression to develop and elaborate points not fully covered within the survey. The group discussions also helped to build a composite picture of a village as a group and to ascertain a feeling for group goals and aspirations which have developed over time. Determining input demand entails more than generating numbers in a vacuum from economists' theoretical models. Agricultural production is ultimately geared to the actions, attitudes and decisions of individuals whose economic motivations may have little correlation with those of economic theoreticians who may have little understanding of the multitude of constraints which limit agricultural production. The group discussions provided a depth and richness of qualitative information which proved invaluable in interpreting the quantitative data.

F.9 Observations and Interviews

Travel through most of the Region in the course of the survey afforded an opportunity to experience the physical surroundings in which farmers operate, and it contributed to a better understanding of the diversity of agro-environments which in themselves often act as major constraints to input demand. In addition to valuable first-hand observations, travel throughout the Region made it possible to engage in extended interviews with farmers, village leaders and government officers who, in this study, are the real experts on the problems facing their respective areas.

Sampling Strategy

F.10 Kheya Region defies physical description by generalization. Perhaps the Region as a whole is most singularly typified by its extremes in diversity. A newcomer is first impressed with the wide range of variation in altitudes (approximately 50 to 2000 meters), and ecologies contained within the Region. This extraordinary diversity of physical features has given rise to a broad range of agro-environments from rice, cotton and tobacco in the lowlands to coffee, tea and pyrethrum in the highlands with a wide spectrum of additional crops cultivated in between. It is perhaps less than coincidence that a Region comprised of such extreme agricultural diversity should encounter substantial challenges in meeting the input demands of its farmers whose needs arise from the context of many specific agro-economic niches.

F.11 It is with this diversity in mind that the sampling strategy was created. In order to obtain a sample representative of farmers in all the major agricultural

areas the 13 Regional Development Zones were used as the basic sampling frams.

"The Region has been tentatively divided into 13 areas called Regional Development Zones on the basis of their development opportunities and problems. The zones are thought to be useful for formulating the overall development strategy for the Region." 1/

F.12 It is perhaps best stated here that the survey was designed to gather input data from small holder farmers in the Region only. The scope of the study did not include state farms or large private farms.

F.13 Selection of Villages

Criteria for selection of villages, within each zone was dependent on:

(1) Development priorities previously established by Regional authorities.

(2) The population size, density and known variability within each zone.

(3) Accessibility of villages in relation to a logistically rational plan for routing the entire field study within a 20-day period.

Additionally, many villages are not listed on maps made available to the Consultants. Therefore, for the sake of advance planning, villages sampled were by necessity restricted to those listed on maps used.

F.14 Selection of Respondents. In order to achieve an acceptable level of randomization in the respondent selection process, several sampling procedures were considered. Ideally, the leaders of each village would provide a list of household heads within the village from which respondents could be selected from a table of random numbers. However, before fieldwork was begun, this mode of selection was deemed impractical and was eliminated because in some villages up-to-date lists of villagers do not exist, lists are often locked away or otherwise inaccessible particularly if the village secretary is unavailable, and in some cases, the lists of households is in excess of several hundred. Obviously, this sampling method is extremely cumbersome, and if actually followed, would have involved an inordinate amount of time on the part of village leaders to contact all the respondents selected. Given the restricted amount of time allotted for sampling, some compromises were made for the sake of expediency. In any case, the most important aspect of the respondent selection process was ensuring that a sufficient number of acceptable respondents were available at each village at the time of the survey team's arrival. In order to do this, it was absolutely essential for each village government (Chairman and/or Secretary) to be contacted one day prior to interviewing. If this is not done, then village leaders are forced, on the spur of the moment, to provide only those people who are available in the village during working hours. This will most likely result in an extremely biased selection consisting of children, the elderly, the sick and the unemployed.

F.15 For the sample survey, the village chairman or secretary was asked to provide 10 to 20 respondents for the following day. Villages are subdivided into balozi, or units of 10 households each. Village leaders were asked to provide five farmers from each of three of four balozi whose numbers were selected randomly. This

1/ Croon, I. Development of the Farming Systems in Kbeya Region, Government of Tanzania, FAO, Kbeya RIDEP Project, GCP/URT/off (SEM) March 1982. 100

selection process appears acceptable providing there is no overt pattern of stratification on the basis of wealth or productivity within the villages.

F.16 Sampling technique deserves ample discussion because (1) it can pose significant challenges to the field researcher, and (2) it does have implication for any further replication of the study in other regions of Tanzania. The central point of this issue is that regardless of how finely honed a sampling strategy may be, the researcher ultimately relinquishes some control of the selection process because of the absolute necessity of operating through the village hierarchy for providing respondents. In the case of the actual survey, the team was consistently pleased with the respondents provided by the village leaders. In Zones 11 and 12, the survey team encountered heavy rainfall on two successive days which, in spite of having contacted villages a day in advance, kept villagers from appearing at the scheduled time of the interviews. It was under these kinds of unforeseen exigencies of nature that it was obvious that village leaders were less than stringent in their selection procedures. Likewise, on the day following Saba Saba holiday, villagers were less responsive in reporting for interviews than on other days. On another day, the research team arrived at a pre-selected village in the midst of a funeral, and consequently, interviewing had to be rescheduled at another village.

F.17 However, in spite of these occasional and unavoidable sampling problems, the data indicate a consistency and lack of unexplainable variance to instill confidence in the generally even and representative selection of respondents.

Survey Analysis

F.18 Coding and analysis of data were completed initially in the week following the termination of the survey. Because of the extremely limited time (12 days) to perform analysis and write up of the survey data, all initial tabulation of the data was done by hand on site in Mbeya. The survey has produced a wealth of information on which interpretation has only begun. The 330 original survey questionnaires will remain in Mbeya at the RIPEP office as a resource for further analysis and as a comparative data base for future studies in the Region.

ANNEX G

Derivation of Quantities of Seasonal Inputs Used From Sample Survey Results

TABLE G.0

SURVEY SAMPLE ACREAGE BY CROP BY ZONE FOR CROPS ON WHICH PURCHASED SEASONAL INPUTS WERE REPORTEDLY USED BY SMALL HOLDERS, MBEYA REGION

Zone	Sample Acreage (Acres)								
	Coffee	Tea	Improved Maize	Local Maize	Tobacco	Cotton	Beans	Millet	Rice
1	–	–	130	13.0	17.0	–	1.5	4.5	–
2	–	–	8.5	55.0	–	–	22.3	–	–
3	–	–	10.0	48.0	–	15.3	–	10.0	–
4	120.6	–	102.3	67.0	–	–	30.3	6.5	–
5	62.3	–	48.0	19.5	–	–	20.0	1.0	–
6	–	–	10.0	35.0	–	–	–	2.0	22.0
7	–	–	4.0	33.6	–	–	1.5	–	21.0
8	9.5	–	32.0	8.0	–	–	11.3	3.3	–
9	13.0	–	40.0	12.3	–	–	15.4	0.5	–
10	29.5	16.4	47.0	44.8	–	–	16.3	1.0	–
11	8.0	22.1	40.3	–	–	–	0.8	–	–
12	31.3	26.9	20.5	49.3	–	–	4.5	–	12.5
13	–	–	1.8	45.8	–	–	2.0	3.5	153.3
TOTAL REGION	247.2	65.4		431.3	17.0	15.3	125.9	32.3	208.2

Source: Input Marketing Survey of the Mbeya Region

TABLE G.1

SURVEY SAMPLE ACREAGE AND ESTIMATED ACREAGE FOR CROPS ON WHICH NO PURCHASED INPUTS WERE USED, MBEYA REGION

Crop	Survey Sample Acreage (Acres)	Estimated Regional Acreage[a] (Acres)
Groundnuts	30.2	11,114
Irish Potatoes	2.5	920
Sweet Potatoes	3.8	1,398
Sorghum	51.6	18,989
Sunflowers	3.0	1,104
Peas	3.4	1,251
Wheat	2.5	920
Cashews	10.0	3,680
Pyrethrum	6.5	2,392
Cocoa	16.3	5,998
Bananas	16.0	5,888
Cardamom	1.0	368
Cassava	9.5	3,496

a/ Derivation: Survey sample acreage multiplied by the regional multiplier of 368.

Source: Input Marketing Survey of the Mbeya Region.

BEST AVAILABLE DOCUMENT

TABLE G.2
ESTIMATED ACREAGE BY ZONE BY CROP
FOR SELECTED CROPS, MBEYA REGION

Zone	Multi-plier	Estimated Acreage (Acres)[a]								
		Coffee	Tea	Improved Maize	Local Maize	Tobacco	Cotton	Beans	Millet	Rice
1	229	–	–	2,977	2,977	3,893	–	344	1,031	–
2	372	–	–	3,162	20,460	–	–	8,296	–	–
3	265	–	–	2,650	12,720	–	4,055	–	2,650	–
4	273	32,924	–	27,930	18,291	–	–	8,272	1,775	–
5	158	9,843	–	7,584	3,081	–	–	3,160	158	–
6	511	–	–	5,111	17,885	–	–	–	–	11,242
7	683	–	–	2,732	22,949	–	–	1,025	–	14,343
8	294	2,793	–	9,408	2,352	–	–	3,322	970	–
9	649	8,437	–	25,960	7,983	–	–	9,995	325	–
10	460	13,570	10,644	21,620	20,608	–	–	7,498	460	–
11	706	5,648	15,603	28,452	–	–	–	565	–	–
12	469	14,680	12,616	9,615	23,122	–	–	2,111	–	5,863
13	186	–	–	335	8,519	–	–	372	651	28,514
TOTAL	–	87,905	38,863	153,675	160,947	3,893	4,055	44,960	9,042	59,962

[a] Derivation: Survey sample acreage in Table G.0 multiplied by the appropriate zonal multiplier.

TABLE G. 3

SURVEY SAMPLE QUANTITIES OF FERTILIZER USED BY TYPE

BY CROP, MBEYA REGION

CROP	Fertilizer Use (kgs)								
	NPK	SA	TSP	CAN	NPK/SA	SA/TSA	NPK/TSP	TSP/CAN	TOTAL (All Types)
Coffee	550	1330	1475	8566	–	–	–	–	11,921
Tea	1725	225	350	1200	700/1050	200/150	50/100	–	5,750
Improved Maize	50	1645	5720	2397	–	–	–	300/450	10,562
Local Maize	–	2030	1525	970	–	–	–	–	4,525
Tobacco	3750	–	–	–	–	–	–	–	3,750
Cotton	–	–	–	–	–	–	–	–	–
Beans	–	–	50	–	–	–	–	–	50
Millet	–	–	–	–	–	–	–	–	–
Rice	–	1550	–	–	–	–	–	–	1,550
Total	6075	6,780	9,120	13,133	700/1050	200/150	50/100	300/450	38,108

Source: Input Marketing Survey of the Mbeya Region.

TABLE G. 4

SURVEY SAMPLE ACREAGE ON WHICH FERTILIZER WAS USED BY TYPE AND BY CROP, MBEYA REGION

Crop	Non-Use Acreage	Sample Acreage on Which Fertilizer Was Used by Type (Acres)								Total Estimated Regional Acreage (Acres)
		NPK	SA	TSP	CAN	NPK/SA	SA/TSP	NPK/TSP	TSP/CAN	
Coffee	17,612[a]	6.0	21.5	32.5	142.4	–	–	–	–	67,262[b]
Tea	855	26.5	1.0	4.3	13.0	11.0	3.5	0.6	–	10,163[b]
Improved Maize	47,479	2.0	41.0	140.3	72.5	–	–	–	5.0	153,675
Local Maize	122,959		38.8	47.5	15.5	–	–	–	–	160,947
Tobacco	–	17.0	–	–	–	–	–	–	–	3,893
Cotton	4,055	–	–	–	–	–	–	–	–	4,055
Beans	41,210	–	–	10.5	–	–	–	–	–	44,960
Millet	9,042	–	–	–	–	–	–	–	–	9,042
Rice	46,608	–	46.5	–	–	–	–	–	–	59,962

[a] Derivation: The table entries for a given crop (e.g. coffee) were summed horizontally. Subsequently this sum was taken as a percentage of the given crop (e.g. coffee) total in Table G.0. This result was multiplied by the total estimated regional acreage in this table. Finally, this latter result was subtracted from Total Estimated Acreage to yield the value for Non-Use Acres.

[b] Based upon information independent of the Input Marketing Survey, it was realized that the estimated regional acreage shown in Table G.2 for coffee and tea was substantially over-estimated. It should be noted that the main source of this difficulty lies with the multipliers (see Table G.2) and not with the sample data itself. To correct this problem of over-estimation, data for coffee and tea acreages from the Marketing Development Bureau's 1982/83 Price Policy Recommendations (Annex 9, P.15 and Annex 10, P.5) were used.

Sources: (1) Input Marketing Survey of the Mbeya Region; (2) Table G.2

TABLE G. 5

CALCULATED AVERAGE DOSAGE OF FERTILIZER ON SURVEY SAMPLE ACREAGE, NEBYA REGION

Crop	Calculated Average Dosage of Fertilizer on Sample Acreage[a] (Kg/Acre)							
	NPK	SA	TSP	CAN	NPK/SA	SA/TSP	NPK/TSP	TSP/CAN
Coffee	91.67	61.86	45.39	60.15	–	–	–	–
Tea	65.09	225.00	81.40	92.31	36.36/95.45	57.14/42.86	83.33/166.66	–
Improved Maize	25.00	40.12	40.77	33.06	–	–	–	60.00/90.00
Local Maize	–	52.32	32.11	62.58	–	–	–	–
Tobacco	220.59	–	–	–	–	–	–	–
Cotton	–	–	–	–	–	–	–	–
Beans	–	–	4.76	–	–	–	–	–
Millet	–	–	–	–	–	–	–	–
Rice	–	33.33	–	–	–	–	–	–

a/ Derivation: Each table entry was calculated by dividing the respective sample fertilizer use (Table G.3) by the sample fertilizer acreage (Table G.4).

TABLE G.6
ESTIMATED QUANTITIES OF FERTILIZER SOLD BY TYPE
BY CROP, DELTA REGION

Crop	Tot. Est. Acreage With Use of Fert. (Acres) [b]	Estimated Quantities of Fertilizer Used (Kgs) [a]							
		NPK	SA	TSP	CAN	NPK/SA	SA/TSP	NPK/TSP	TSP/CAN
Coffee	49,650	99,413	240,824	267,113	1,550,949	–	–	–	–
Rice	9,303	245,493	32,023	49,816	170,793	56,924/149,433	28,416/21,350	7,116/14,232	–
Improved Maize	106,196	7,035	462,861	1,609,551	674,446	–	–	–	84,417/126,62
Local Maize	37,980	–	178,883	131,339	85,435	–	–	–	–
Tobacco	3,893	858,757	–	–	–	–	–	–	–
Cotton	–	–	–	–	–	–	–	–	–
Beans	3,750	–	–	1,489	–	–	–	–	–
Millet	–	–	–	–	–	–	–	–	–
Rice	13,354	–	99,122	–	–	–	–	–	–
Total	224,139	1,210,698	1,013,713	2,062,308	2,481,623	56,924/149,433	28,463/21,350	7,116/14,322	84,417/126,625

a/ Derivation: First, the sample acreage for a given crop/fertilizer configuration (Table G.4) was divided by the total sample acreage for that crop (Table G.0). This result was then multiplied by the estimated dosage (Table G. 5) and by the total estimated acreage with fertilizer use for a given crop (Table G. 6). Example for NPK on coffee: 6.0/274.2 = .0218818; .0218818 x 91.67 kg./acre x 49,560 acres = 99,413.

b/ Derivation: Total Estimated Regional Acreage minus Non-Use Acreage (Table G.4).

TABLE G. 7

SURVEY SAMPLE QUANTITIES OF AGRICULTURAL CHEMICALS USED BY TYPED BY CROP, MBEYA REGION

Crop	Agricultural Chemicals Use (Kgs)[a]									Total (All Types)
	DDT	Didi-mac	Thiodan	Dieldrin	Blue Copper	Feni-troth-ion	Gramox one	B.Copper/ Fenitroth-ion	Dieldrin/ B.Copper/Fen-itrothion	
Coffee	–	–	–	78	1,757	65	–	366/31	13/101/18	2,429
Tea	–	–	–	–	–	–	4	–	–	4
Improved Maize	120	3,376	5	–	–	8	–	–	–	3,496
Local Maize	80	74		–	–	–	–	–	–	167
Tobacco	15	–	40	–	–	–	–	–	–	55
Cotton	36	9	–	–	–	–	–	–	–	45
Beans	–	5	–	–	–	–	–	–	–	5
Millet	8	–	–	–	–	–	–	–	–	8
Rice	–	–	–	–	–	1	–	–	–	1
Total	259	3,464	45	78	1,757	74	4	366/31	13/101/18	6,330

a/ All liquid formulations converted to kilograms at assumed standard rate of 1.24 kg per liter. Weights stated in terms of formulated product.

Source: Input Marketing Survey of the Mbeya Region.

TABLE G. 8

SURVEY SAMPLE ACREAGE ON WHICH AGRICULTURAL CHEMICALS WERE USED BY TYPE AND BY CROP, NDEMI REGION

Crop	Non-Use Acreage (Acres) [a]	Sample Acreage on Which Agr. Chemicals Were Used (Acres)									Tot. Est. Regional Acreage (Acres) [b]
		DDT	Didimac	Thiodan	Dieldrin	Blue Copper	Fenitrothion	Gramamone	Blue Copper/ Fenitrothion	Dieldrin/ B.Copper Fenitrothion	
Coffee	11,725	–	–	–	36.5	99.6	29.3	–	17.5	7.0	67,262
Tea	10,101	–	–	–	–	–	–	6.5	–	–	10,163
Improved Maize	85,551	35.5	128.8	1.0	–	–	2.0	–	–	–	153,675
Local Maize	144,154	15.0	40.0	–	–	–	–	–	–	–	160,947
Tobacco	–	3.0	–	14.0	–	–	–	–	–	–	3,893
Cotton	795	10.0	2.3	–	–	–	–	–	–	–	4,055
Beans	41,389	–	10.0	–	–	–	–	–	–	–	44,960
Millet	8,482	2.0	–	–	–	–	–	–	–	–	9,042
Rice	59,388	–	–	–	–	–	2.0	–	–	–	59,962

a/ Derivation: The table entries for a given crop (e.g. coffee) were summed horizontally. Subsequently this sum was taken as a percentage of the given crop (e.g. coffee) total in Table G. 0. This result was multiplied by the total estimated acreage in this table. Finally, this latter result was subtracted from Total Estimated Acreage to yield the value for Non-Use Acres.

b/ From Table G. 4

Source: Input Marketing Survey of the Mbeya Region.

TABLE G. 9

CALCULATED AVERAGE DOSAGE OF AGRICULTURAL CHEMICALS
SURVEY SAMPLE ACREAGE, MEDIA REGION

Crop	Calculated Average Dosage[a] of Agricultural Chemicals (Kg/Acre)[b]								
	DDT	Didimac	Thiodan	Diedrin	Blue Copper	Feni-trothion	Gramox-one	B.Copper/ Fenitrothion	Dieldrin/ Blue Copper/ Fenitrothion
Coffee	–	–	–	2.14	17.64	2.22	–	20.91/1.77	1.86/14.43/2.57
Tea	–	–	–	–	–	–	0.62	–	–
Improved Maize	3.38	26.21	5.00	–	–	4.00	–	–	–
Local Maize	5.33	4.93		–	–	–		–	–
Tobacco	5.00	–	2.86	–	–	–	–	–	–
Cotton	3.60	3.91	–	–	–	–	–	–	–
Beans	–	0.50	–	–	–	–	–	–	–
Millet	4.00	–	–	–	–	–	–	–	–
Rice	–	–	–	–	–	0.50	–	–	–

a/ Derivation: Each table entry was calculated by dividing the respective sample agricultural chemical use (Table G. 7) by the sample agricultural chemical acreage (Table G. 8).

b/ All liquid formulations converted to kilograms at assumed standard rate of 1.25 kg per liter. Weights stated in terms of formulated product.

TABLE G. 10

ESTIMATED QUANTITIES OF AGRICULTURAL CHEMICALS USED BY TYPE BY CROP, NBLY. REGION

Crop	Tot. Est. Acreage With Use of Agr. Chemicals (Acres) [a]	Estimated Quantities [a] of Agr. Chemicals Used (Kgs) [b]								
		DDT	Didimac	Thiodan	Dieldrin	Blue Copper	Feni-trothion	Gra-maxone	Blue Copper/ Fenitrothion	Dieldrin/ Blue Copper/ Fenitrothion
Coffee	55,537	–	–	–	15,821	355,855	13,174	–	74,115/6,274	2,637/20,459/3,644
Tea	62	–	–	–	–	–	–	4	–	–
Improved Maize	68,124	21,659	609,370	903	–	–	1,444	–	–	–
Local Maize	16,793	3,146	7,760	–	–	–	–	–	–	–
Tobacco	3,893	3,435	–	9,169	–	–	–	–	–	–
Cotton	3,260	7,671	1,916	–	–	–	–	–	–	–
Beans	3,571	–	142	–	–	–	–	–	–	–
Millet	560	137	–	–	–	–	–	–	–	–
Rice	574	–	–	–	–	–	3	–	–	–
Total	152,374	35,958	619,188	10,072	15,821	355,855	14,621	4	74,115/6,74	2,637/20,459/3,644

a/ Derivation: First, the sample acreage for a given crop/chemical configuration (Table G.8) was divided by the total sample acreage for that crop (Table G.0). This result was then multiplied by the estimated dosage (Table G.9) and by the total estimated acreage with chemical use for a given crop (Table G. 10) Example for DDT on Improved Maize: 35.5/377.4 = .0940647; .940647 x 3.38 x 68,124 = 21,659 Kgs.

b/ All liquid formulations converted to kilograms at assumed standard rate of 1.25 kg. per liter. Weights stated in terms of normalized product.

c/ Derivation: Total Estimated Regional Acreage minus Non-Use Acreage (Table G.8)

ANNEX H

Input Marketing Survey Results: Tabular Presentation

Table H-1 Percent of Households Planting Varying Acreages, Estimated Acres Planted, Estimated Number of Households, and Acres Planted per Household by Zone

Zones	Acreages - Household Percents			Estimated Acres Planted	Estimated No. of Households	Acres Planted/ Households
	Less than 5	5 to 9.9	10 and over			
Zone 1	44	44	12	11,450	2,065	5.5
Zone 2	56	39	5	36,382	6,695	5.4
Zone 3	45	50	5	28,832	5,298	5.4
Zone 4	39	52	9	95,523	15,542	6.1
Zone 5	17	66	17	24,079	3,628	6.6
Zone 6	58	25	17	42,158	6,129	6.9
Zone 7	76	12	12	44,258	10,936	4.0
Zone 8	72	28	-	21,374	5,291	4.0
Zone 9	76	19	5	60,227	13,620	4.4
Zone 10	61	26	11	90,482	15,639	5.8
Zone 11	60	26	13	50,055	10,593	4.7
Zone 12	77	23	0	89,110	16,419	5.4
Zone 13	65	23	11	46,667	9,681	4.8
Total	57	34	9	640,597	121,536	5.2

Table H 2. % of Households Working Full time and Part Time on their Shambas and % of Households with Labour Constraints

Zone	% Household Heads Working on their Shambas		% Households With Labour Constraint
	Full Time	Part Time	
Zone 1	89	11	22
Zone 2	94	6	22
Zone 3	95	5	40
Zone 4	98	2	37
Zone 5	97	3	30
Zone 6	100	0	25
Zone 7	81	19	50
Zone 8	83	17	33
Zone 9	100	0	24
Zone 10	100	0	23
Zone 11	100	0	13
Zone 12	100	0	17
Zone 13	100	0	23
Total	97	3	28

Table H 3 Percent of Household Heads Assisting Neighbors and Form of Payment Percents by zone

Zone	% Household heads Assisting Neighbors	Form of Payment Percent				
		Free	Food and/ or Beer	Money	Money and Beer	Crops
Zone 1	89	78	11			
Zone 2	56	6	50			
Zone 3	45	25	20			
Zone 4	74	30	35	5	2	2
Zone 5	57	22	31	4		
Zone 6	75	50	8	17		
Zone 7	56	25	31			
Zone 8	67	22	39	6		
Zone 9	81	14	62			5
Zone 10	65	18	44	3		
Zone 11	60	13	40	7		
Zone 12	71	37	34			
Zone 13	66	27	31	8		
Regional Averages	66	28	34	4		1

Table H 4 Number of Shambas held by Households, Households Interviewed and Average Number of Shambas per Household by Zone.

Zone	Number of Shambas held by Households					Household Interviewed	Average No. of Shambas/Household
	1	2	3	4+	Total		
1	2	3	4		20	9	2.2
2	5	6	7		38	18	2.1
3	1	9	5	5	54	20	2.7
4	6	23	24	4	140	57	2.3
5		9	10	4	64	23	2.8
6	7	3	1	1	20	12	1.7
7	8	7	1		25	16	1.6
8	3	4	7	3	44	18	2.4
9	3	8	7	3	54	21	2.6
10	5	12	9	8	90	34	2.6
11	1	5	7	2	41	15	2.7
12	2	17	14	2	86	35	2.5
13	13	21	17	1	110	52	2.1
Totals	56	254	339	135	786	330	2.4

Table H-5 Weighted ranking of agricultural inputs in terms of their importance for agricultural production

Zone	Ranking of Inputs by Degree of Importance										
	Fertilizer	Improved Seed	Insecticides	Ox Plough	Hand tools	Tractor Hire	Ox Harrow	Local Seed	Labor	Spray Pump	Wheel Barrow
1	(1) 90%	(2) 83	(4) 27		(3) 37	(5) 11	(5) 11			(5) 11	
2	(1) 72%	(2) 68	(3) 67		(4) 41	(7) 6		(5) 11	(5) 11		
3	(1) 72%	(3) 55	(2) 59	(5) 14	(4) 40	(5) 14	(7) 5	(8) 4	(7) 5		
4	(1) 90%	(2) 70	(3) 65	(4) 32	(5) 9		(6) 3	(6) 3			
5	(1) 86%	(2) 67	(3) 47	(4) 33	(5) 15	(9) 3	(6) 7	(6) 7	(8) 4		
6	(6) 15%	(2) 70	(7) 13	(1) 76	(3) 38	(7) 13	(4) 32		(5) 21		
7	(2) 68%	(4) 34	(1) 70	(3) 41	(4) 34			(5) 11			
8	(1) 81%	(3) 52	(4) 32	(2) 56	(5) 20		(6) 19		(7) 4		(7) 4
9	(2) 70%	(3) 69	(1) 71	(4) 14	(3) 20		(5) 4		(5) 4		
10	(1) 89%	(2) 75	(3) 60	(5) 13	(4) 25	(6) 8		(7) 3	(8) 2		
11	(1) 79%	(2) 56	(2) 59	(5) 13	(4) 35	(7) 6	(6) 7		(7) 6		
12	(1) 89%	(2) 78	(3) 59	(5) 10	(4) 38	(7) 2		(6) 9	(7) 2	(7) 2	(7)
13	(1) 79%	(2) 63	(3) 67	(4) 32	(6) 8	(5) 15	(7) 2	(7) 2			
Total	(1) 80%	(2) 65	(3) 57	(4) 23	(5) 22	(6) 6	(7) 5	(8) 4	(9) 3	(10) 1	(11) N/A

Table H-6 Households that need Hand Tools and Hand Tools needed as a percentage by zones

Zone	Need Handtools	TYPE OF HAND TOOL NEEDED							Number of Households
		JEMBE	PANGA	AXE	RAKE	SICKLE	SPRAY PUMP	OTHER 1/	
1	56	11	33		22				9
2	67	37	28	28	17				18
3	40	30	25			5			20
4	53	37	23	19	7		2	4	57
5	57	48	26	13	17			4	23
6	25		8	17				8	12
7	69	19	6	25	19				16
8	67	61	28	28	6				18
9	86	57	33				19	5	21
10	88	65	35	15	12	6		6	34
11	93	73	27	20	27				15
12	83	34	23	17		14	9	20	35
13	75	50	40	17	6	6	2	12	52
TOTAL	68	33	28	16	8	3	3	6	330

1/ Other hand tools that are needed in order of importance: Nyengos, slashers, saws, digging forks and wheel barrows.

Table H-7 Condition of Jembes Currently Owned and Perceived Jembe Availability by zone

Zone	Condition of Jembes			No of Jembes	Perceived availability			Number of Households
	Good	Fair	Poor		Always	Some	Rarely	
1	67	33			33	33	34	9
2	22	45	33			22	78	18
3	25	45	30		10	45	45	20
4	42	44	14		5	56	39	57
5	26	48	26		4	48	48	23
6	83	17			75	25		12
7	31	44	19	6	44	44	12	16
8	22	45	33		17	28	55	18
9	24	62	14		14	38	48	21
10	15	32	53		12	35	53	34
11	27	46	27		13	47	40	15
12	29	51	20		8	46	46	35
13	41	44	15		2	35	63	52
Total	33	44	23	N/A	12	41	47	330

TABLE H 8

WEIGHTED RANKINGS OF WHY HOUSEHOLDS THAT NEED HAND TOOLS DON'T HAVE THEM

Zone	Not Available	Far Away	Too Expensive	Poor Quality	No Money	Households Responding
1	80	56				5
2	100		24	15		12
3	97	33	60			6
4	82	40	19	17		23
5	99	52	8	8	8	12
6	67		30	33		3
7	67	30	33	9		9
8	91	15	42			11
9	89	48	14	21		18
10	82	29	28	38		29
11	100	45	8			12
12	90	30	31	12	6	29
13	95	30	14	38		38
TOTAL	89	32	22	20	1	207

TABLE H 9

RESPONDENTS WOULD PAY CASH FOR IMPLEMENTS IF AVAILABLE
LISTED IN PERCENTAGES PER ZONE

	Want Pay Cash	Tools for which Respondents Willing to Pay Cash: Jumbo	Plow	Panga	Axe	Rake	Cart	Harrow	Spray Pump	Other 1/	Number of Households
1	33%	(1) 44%	(5) 11%	(2) 33%	(4) 22%						9
2	6%	(1) 78%	(4) 11%	(3) 33%	(2) 44%		(5) 6%			(5) 6%	18
3		(1) 70%	(3) 35%	(2) 45%	(4) 13%		(4) 15%				20
4	2%	(4) 51%	(2) 46%	(3) 25%	(5) [illegible]%	2%	(4) 7%	(5) 5%		(7) 3%	57
5	4%	(2) 39%	(1) 52%	(4) 13%	(6) 4%		(5) 9%		(6) 4%	(3) 22%	23
6	17%	(2) 17%	(1) 67%	(2) 17%			(5) 8%				12
7	6%	(1) 50%	(2) 38%	(3) 25%	(4) 19%	(5) 13%	(6) 6%		(6) 6%		16
8	6%	(2) 44%	(1) 56%	(6) 6%	(4) 6%		(6) 6%	(3) 11%	(6) 6%		18
9	5%	(1) 79%	(2) 14%	(2) 14%	(3) 10%				(3) 10%	(4) 5%	21
10		(1) 76%	(3) 24%	(2) 29%	(4) 21%	(5) 9%	(8) 3%	(8) 3%	(7) 6%	(6) 12%	34
11	13%	(1) 73%	(3) 13%	(2) 20%	(3) 13%	(2) 20%					15
12	3%	(1) 69%	6%	(3) 23%	(4) 14%		(5) 9%		(5) 9%	(2) 29%	35
13	6%	(1) 58%	(2) 52%	(3) 19%	(5) 7%	(7) 4%	(6) 6%	(4) 12%	(7) 4%	(6) 6%	52
TOTAL	5%	59%	35%	23%	12%	9%	6%	3%	3%	7%	330

1/ Other implements that households are willing to pay cash for in order of importance: Nyengo, Sickle, coffee pulper, tractor hire, digging fork, coffee runner.

TABLE H 10

PERCENTAGES FOR CONDITION OF PANGAS CURRENTLY OWNED AND PERCEIVED PANGA AVAILABILITY BY ZONE

Zone	Condition of Pangas			No Pangas	Perceived availability			Number of Households
	good	fair	Poor		always	some	rarely	
1	33%	22%		45%	22%	11%	67%	9
2	33%	17%	6%	44%		28%	72%	18
3	40%	35%	15%	10%	20%	45%	35%	20
4	44%	26%		30%	16%	51%	33%	57
5	35%	4%	31%	30%	13%	39%	48%	23
6	75%	17%		8%	58%	34%	8%	12
7	50%	25%	19%	6%	44%	37%	19%	16
8	22%	22%	22%	34%	11%	56%	33%	18
9	10%	14%		76%	9%	29%	62%	21
10	35%	26%	18%	21%	24%	38%	38%	34
11	47%	20%	7%	27%	20%	33%	47%	15
12	51%	23%	20%	6%	26%	43%	31%	35
13	42%	13%	8%	37%	15%	27%	58%	52
TOTAL	40%	21%	11%	28%	19%	38%	43%	330

TABLE H-11

PERCENTAGES FOR CONDITION OF AXES CURRENTLY OWNED AND PERCEIVED AXE AVAILABILITY BY ZONE

Zone	Condition of Axes			No Axes	Perceived availability			Number of Households
	good	fair	poor		always	some	rarely	
1	56%	33%		12%	33%		67%	9
2	33%	11%	33%	23%	39%	6%	55%	18
3	35%	20%	25%	20%	25%	45%	30%	20
4	61%	23%	11%	5%	52%	25%	23%	57
5	70%	17%	9%	4%	57%	9%	34%	23
6	84%	8%		8%	67%	33%		12
7	31%	19%	19%	31%	50%	38%	12%	16
8	44%	28%	22%	6%	33%	33%	34%	18
9	52%	24%		24%	57%	19%	24%	21
10	41%	26%	24%	9%	50%	26%	24%	34
11	53%	40%	7%		53%	27%	20%	15
12	51%	29%	9%	11%	40%	40%	20%	35
13	50%	27%	10%	13%	42%	14%	44%	52
TOTAL	51%	24%	13%	12%	46%	24%	30%	330

TABLE H 12
PERCENTAGE OF OTHER HAND TOOLS OWNED
BY HOUSEHOLDS(QUESTION 25)

ZONE	NYENGO	SLASHER	SICKLE	RAKE	SHOVEL	SPRAY PUMPS	KNIFE	COFFEE PRUNER	NO. OF HOUSEHOLDS
1									9
2									18
3									20
4		4							57
5		9							23
6		17							12
7		6							16
8									18
9	29	19	5				5		21
10	15	18	3	6	6				34
11	27	13		7					15
12	20	11	9	3	3	6		3	35
13	19	15	23		4				52
TOTAL	10	9	5	2	2	1	N/A	N/A	330

TABLE H 13

PERCENTAGES FOR CONDITIONS OF PLOUGHS CURRENTLY OWNED AND PERCEIVED PLOUGH AVAILABILITY BY ZONE

Zone	Conditions of Ploughs			No Ploughs	Perceived Availability			Number of Households
	Good	Fair	poor		always	some	rarely	
1				100%		11%	89%	9
2				100%		6%	94%	18
3		5%		95%		10%	90%	20
4	9%	4%	11%	77%	3%	11%	86%	57
5		39%	13%	48%	4%	13%	83%	23
6	8%	8%	8%	76%	16%	42%	42%	12
7	6%	6%		88%	6%	44%	50%	16
8	6%	11%	17%	66%		39%	61%	18
9				100%	5%	10%	85%	21
10				100%			100%	34
11				100%		13%	87%	15
12				100%	3%	9%	88%	35
13	12%	19%	17%	52%	29%	4%	94%	52
TOTAL	4%	8%	7%	81%	3%	12%	85%	330

Table H-14 Ranking of Reasons for not Having Ox Drawn Implement in Percentage by zone

Zone	Not Available	Price too high	No Animals	Implements Available Far Away	No Money	No Spaces	Poor Quality	Don't Know how to use	Total Responses
1		100	85				45		2
2	56	40	57		18	10			9
3	69	46	37	35	17		8		10
4	72	47	41	20	11	6	5		41
5	95	52	21	38	11	10	8		22
6	50	41	24			8			12
7	33	65	32	14	7				12
8	62	59	24	10	16			5	16
9	24	9	22	8	4			4	8
10	100	37	29	28				8	12
11	100	30	30		9				9
12	99	23	30		20		8		12
13	93	23	17	12	2	9	6		47
Total	77	40	31	16	7	6	4	1	212

Table H 15. Spares Needed by Housholds that Own Oxdrawn Implements in Percentage by Zone.

Zone	TYPE OF SPARE							
	Blades	Nuts	Handles	Wheel	Chain	All	Need no Spares	No. of Respondents
1								
2								
3	100							1
4	25	17	17	8	16	17		12
5	55	36					9	11
6	67		33					3
7	50	50						2
8	50	16	17			17		6
9								
10								
11								
12								
13	20	40	12	16	8	4		25
Total	35	30	12	9	7	7		60

Table H 16. Percent Ranking by Zone of Reasons for Not Using Improved Seed.

Zone	Not Available	Too Expensive	Doesn't Improve Yield	Requires Other Inputs	Not Used In my Area	No Money	Other 1/	Total Respondent
1	100%	65%		20%				4
2	71%	42%	16%	11%	15%	6%	10%	18
3	94%	19%	14%	10%	5%		5%	19
4	77%	40%	6%	4%	16%	18%	6%	48
5	91%	32%	16%	16%	25%	5%	11%	17
6	63%		9%		44%		9%	11
7	79%	30%	6%	24%	5%	10%	13%	15
8	33%	46%	20%	25%	19%	11%		15
9	100%	18%	18%	18%	4%	8%	21%	20
10	79%	38%	13%	6%		3%	3%	29
11	75%			48%				4
12	55%	19%	34%	32	3%		3%	29
13	100%	11%	13%	2%	4%		3%	49
Total	80%	27%	14%	11%	10%	6%	8%	285

1/ Other reasons for not using improved seed in order of importance- Ignorance, too far, obtained late, no fertilizer, and vunerable to insects.

Table H 17. Percent of Households by Zone Which Used Sufficient and Insufficient Quantities of Improved Seed.

Zone	Used Sufficient Improved Seed	Used Insufficient Improved Seed				Number of Responses
		Not available	No money	Drought	No Fertilizer	
1	100%					8
2	75%	25%				4
3	84%	8%		8%		13
4	85%	16%				33
5	100%					17
6	100%					2
7	100%					1
8	86%	7%	7%			15
9	88%	6%			6%	16
10	74%	16%	11%			19
11	69%	23%	8%			13
12	94%	6%				18
13	100%					4
Total	86%	10%	2%	1%	1%	163

TABLE H 18
PERCENT RANKINGS BY ZONE OF REASONS FOR
NOT USING FERTILIZER

Zone	Not Available	Too Expensive	Doesn't Improve Yield	No Money	Requires other Inputs	Other[1/]	Total responses
1	89%	27%	33%		30%		2
2	79%	71%	17%	16%		8%	12
3	71%	31%	41%	4%	11%	14%	18
4	58%	49%	40%	23%	19%	10%	29
5	69%	53%	20%	19%	7%	6%	14
6	20%	10%	49%			30%	10
7	68%	55%	6%	18%	6%	14%	14
8	20%	37%	60%		17%		10
9	100%	23%		9%		5%	20
10	80%	27%	13%	3%		19%	30
11	75%	70%			11%		8
12	82%	30%			12%	16%	22
13	91%	15%	11%	6%	5%	8%	48
TOTAL	74%	34%	19%	8%	8%	11%	238

1/ Other reasons for not using fertilizer in order of importance are: Fertile land, used manure, drought, not on time, ignorance, and seedling too young.

TABLE H 19
PERCENT RANKINGS BY ZONE OF WHY FARMERS
WHO USED FERTILIZER DID NOT USE MORE

Zone	Using recommended rate	Not available	Too expensive	No Transport	No Money	Other[1]	Total Responses
1	86%	11%	13%	13%			8
2	13%	49%	48%	13%	13%		8
3	33%		67%			30%	3
4	48%	48%	45%	6%	14%		45
5	33%	51%	73%	35%	14%	4%	18
6		50%	95%				2
7		50%	50%				2
8	33%	31%	65%	6%			15
9	50%	95%	23%				4
10	71%	47%	7%				14
11	44%	80%	8%	16%		7%	11
12	5%	43%	25%	3%			31
13	44%	64%	11%				9
TOTAL	38%	47%	38%	9%	7%	1%	170

1/ Other reasons for not using improved fertilizer.
Drought and too far to travel.

TABLE H 20
PERCENT RANKINGS OF REASONS FOR
NOT USING INSECTICIDES BY ZONE

Zone	Not Available	Too Expensive	Doesn't Improve Yield	No Money	No Insects	Others[1]	Total Responses
1	25%	48%	50%	40%			4
2	71%	59%		6%	13%		15
3	86%	20%	13%	6%		13%	14
4	63%	38%	13%	20%	3%	18%	30
5	74%	39%		23%		8%	12
6	45%	27%			9%	18%	11
7	59%	45%	7%	12%		7%	15
8	42%	23%	25%	7%	25%	8%	12
9	100%	4%	4%				21
10	86%	24%	13%	3%	6%	3%	31
11	100%	27%			7%	22%	13
12	71%	30%	10%		14%	6%	28
13	98%	10%	9%	3%		3%	52
TOTAL	78%	25%	9%	7%	5%	8%	258

1/ Other reasons for not using insecticides in order of importance: requires other inputs, ignorance, no extension, drought, not used in area, resistant seed and transport.

TABLE H 21

PERCENT RANKINGS BY ZONE OF HOUSEHOLDS USING SUFFICIENT AND INSUFFICIENT QUANTITIES OF INSECTICIDE

Zone	Using recommended rate	Not Available	Too Expensive	No Money	Other[1]	Total Responses
1	78%	11%	31%	9%		9
2	50%	25%	48%			4
3	86%	13%			14%	7
4	55%	49%	12%	4%	2%	47
5	41%	56%	22%	20%	9%	17
6	100%					1
7		100%				1
8	56%	14%	29%	19%	14%	14
9	20%	78%	20%			5
10	7%	93%	19%			15
11	86%	40%	11%			7
12	48%	58%	6%			29
13						
TOTAL	50%	49%	16%	6%	4%	156

1/ Other reasons for not using more insecticides in order of importance: no transport, ignorance, and no credit.

TABLE H 22

Methods Used to set Agricultural Inputs to Shambas in percents by zone

	TYPE OF TRANSPORT				
	Carry by Hand	Ox cart	Bicycle	Bus	Motor Vehicle
1	67			33	
2	67			22	11
3	85		10	5	
4	75	7	14	2	7
5	70	4	17		9
6	75	8	9	8	
7	81		6	13	
8	72			28	
9	62			11	
10	50			41	
11	80			17	13
12	49			51	9
13	63	4	6	21	6
TOTAL	67	2	6	19	6

TABLE H 23

Distance Travelled by farmers to procure Inputs listed in percentages

	Distance in Kilometers				
	Less than 5	5-9.9	10-24.9	25-49.9	50 and over
1	67	33			
2	39	33	22		6
3	45	20	25	5	5
4	56	21	5	16	2
5	48	4	39	9	
6	75	17	8		
7	13	56			31
8	17	50	33		
9	52	14		5	29
10	12	65	20		3
11	80			20	
12	28	3	63	3	3
13	33	42	23		2
TOTAL	40	28	21	5	6

TABLE H 24

Percentage Distances Willing to be Travelled from Households to obtain Agricultural Inputs by zone

	Distances (Kms)				
	Less than 5	5-9.9	10-24.9	25-49.9	50 over
1	11				81
2	39	33	22		6
3	15	10	45	10	20
4	39	19	5	19	18
5	17	13	44	4	22
6	50	50			
7	25	19		6	50
8	6	50	33		11
9	21	16	11	21	31
10	15	53	15		17
11	53	7		33	7
12	9	9	65	6	12
13	15	48	33	2	2
TOTAL	23	27	24	9	17

TABLE H 25

Percentage for Condition of Harrows Currently Owned and Received Harrow Availability by zone

zone	Conditions of Harrows			No Harrows	Preceived Availability			Number of Households
	good	fair	poor		always	some	rarely	
1				100%		11%	89%	9
2				100%		6%	94%	18
3				100%			100%	20
4		2%	2%	96%		4%	96%	57
5		4%		96%		9%	91%	23
6	8%			92%	42%		58%	12
7				100%		6%	94%	16
8		6%		94%		11%	89%	18
9				100%			100%	21
10				100%			100%	34
11				100%		13%	87%	15
12				100%		3%	97%	
13				100%			100%	52
TOTAL	N/A	1%	N/A	99%	1%	4%	95%	330

TABLE H 26

Condition of Carts Currently Owned, and Perceived Availability of Carts by Zones, LISTED IN PERCENTAGES

Zone	Conditions of Carts			No Carts	Preceived Availability			Number of House-holds
	good	fair	poor		always	some	rarely	
1				100%		11%	89%	9
2				100%			100%	18
3				100%		15%	85%	20
4		2%		98%	4%	14%	82%	57
5	4%			96%	4%		96%	23
6				100%		42%	58%	12
7				100%	25%	31%	44%	16
8				100%	28%		72%	18
9				100%		14%	86%	21
10				100%	3%	9%	88%	34
11				100%	7%		93%	15
12				100%	6%	9%	85%	35
13				100%		2%	98%	52
TOTAL	N/A	N/A		100%	6%	8%	86%	330

ANNEX I

Preliminary Pilot Proposals

ANNEX I

FARM SERVICE CENTER (FSC) PILOT PROJECT

A. GENERAL BACKGROUND

1. Objectives:

1.1 Long Term Objectives

The Farm Service Center (FSC) Pilot Project falls under the government's new Development of Agricultural Production strategy of establishing FSC's throughout the country with the aim of housing all supply and distribution of farm inputs under one roof and near the farmer. The ultimate aim is to increase productivity for major food and cash/export crops, hence relieving the country for the much needed foreign earnings in the form of increased export earnings from cocoa and coffee and imported food substitutes -- maize and rice. This will be achieved by tapping productivity potentials existing among small farmers using their own development institutions -- the cooperatives.

1.2. Immediate Objectives:

(a) Mbeya Region FSC Pilot Project is one of the few national selected areas for testing the new development of agricultural production strategy before more FSC's are replicated c untry-wi'e. One of two Pilot FSC's in Kyela and Mbozi will will be established at sub-district level location to test the success of the pilot project under different geographical and agro-economic conditions;

(b) Assisting in devising improved means and methodologies whereby agricultural requirements (fertilizers, pesticides/weed killers and farm implements) could economically be supplied and made to meet immediate farmers' needs;

(c) The testing of the new agricultural development strategy on the basis of commercial distribution of the inputs, i.e., FSC's being self-financing as an alternative to the present system of depending on TRDB credit and government subsidies.

2. Criteria:

The two possible areas have been identified as suitable for the Pilot FSC's. One will be in Mbozi District and the second in Kyela District. The criteria used to identify the two locations are:

- Central location with a group of villages to be served, taking into account of the geographical coverages in terms of nearness to the FSC;

- High demand for farm inputs within the area to be served;

- Access to the source of supply: transport by road, rail and availability of lorries;

- FSC which can draw local resources using existing facilities in terms of technical/managerial skills, infrastructure (e.g., go-downs, and/or possible financial and labor contributions from the local people themselves;

- FSC which can emerge from existing institutions within the locality;

- The need/lack of institutional set up for farm input distribution in the area, and;

- General impression of under development in the area.

According to above criteria, two types of FSC have been categorized:

Type A: Having pre-existing facilities: well developed, efficient management and availability of technical skills, high demand for inputs, existing local input distribution institution, means of transport and storage facilities. Isansa Village in Mbozi District qualifies under this type. Its geographical coverage can be within Isansa Ward, serving 7 villages in the Ward: Isansa, Igite, Isambwewe, Itumpi, Lungua, Iwalanje and Magamba.

Type B: Having minimal pre-existing facilities such as storage, means of transport; relatively under developed, lack of outside institutional input distribution facilities, e.g., crop authorities, and showing greater impact of economic development if FSC is set up. Ipinda Village in Kyela District qualifies for this type. The FSC at Ipinda can serve 6 villages of Ipinda Ward: Mbunga, Ikulu, Ipinda, Mgamanga, Kingili and Kisale within a radius of 1[illegible] km.

If funds allow, both FSC's at Isansa and Ipinda could be established at the same time.

B. ISANSA FSC PILOT PROJECT, MBOZI DISTRICT

1. Background

1.1 The area surveyed falls in Msangano lowlands of Mbozi plateau (Zone 4) with an altitude of 955-1,350 meters. Annual rainfall varies from 600 to 900 meters.

Crops: Maize, sorghum and beans form the major food crops mainly for consumption while coffee and finger millet are major cash crops. Marketed surplus as a proportion of harvested production amounts to 4% sorghum, 13% maize and 63% finger millet.

A typical farmer manages around 3 ha. allocated as follows: 1/

Crops	ha.	%
Maize	1.6	54
Finger Millet	0.4	13
Sorghum	0.4	13
Coffee	0.3	10
Beans	0.3	10
Groundnuts	0.01	-
TOTAL	3	100

1/ See H.A. Mwaipyana - Ibid Vol. I and Vol. II.

1.2 Input Usage:

Mbozi District is one of the high input users in the region. The following Table, B-2) indicates some of the inputs which have been distributed to the district through RAMO/SAMC.

Table B-2 - Input Distribution in Mbozi District

		1977/78	1978/79	1979/80	1980/81	1981/82
Fertilizer: (Tons)	CAN	1,386.5	1,693	1,807.5	2,052.1	2,256
	SA	6.3	15.5	24.3	3[illegible].3	39
	TSP	116.3	226.1	321	440.7	520.5
	Total	1,509.1	1,934.6	2,212.8	2,531.1	2,815.5
Hybrid Maize: (Tons)	H614	2.7	10.2	21.9	34.4	51.5
	H632	-	-	-	-	22
	HC302	-	2.8	6.2	10.2	13.7
	UCA	-	-	5.7	1.2	5.1
Total Seed		2.7	13.0	28.8	45.7	90.8
Implements:	Hoes	16,896	16,767	21,714	30,067	34,355
	Harrow	5	-	6	29	8
	Ox Carts	1	13	24	29	20
	Ox Plows	5	-	5	4	7
	Trailer	5	-	6	4	4
	Planter	2	-	-	-	-
TOTAL Implements		16,914	16,780	21,756	30,033	34,394
SBT 5%		-	1.8	4.5	9.81	17.0

Source: RAMO, Mbeya

2.0 USANSA WARD:

2.1 Location and Population

Isansa Ward as the FSC Project area is situated in Mbozi District, Igamba Division. Isansa Village where the FSC is to be located is the Headquarter of Isansa Ward. The village is located some 20 km. north of Vwawa Town connecting the ward with the Tanzania-Zambia highway and the TAZARA.

The villages in the ward are as follows:

Table 6-2 (a) Population in Isansa Ward, 1980-81

Village	Population	Families
Mpito	1,910	
Isambwewe	1,[illegible]15	
Itumpi	1,[illegible]	
Lungwa	1,252	
Iwalange	1,577	
Magamba	2,2[illegible]7	
Isansa	2,945	

Source: Mbeya Water Master Plan and the Establishment of a FSC at Mbozi Maize Farm, KILIMO, 1982.

2.2 Input Distribution. Table 6-2 (b) below shows input distributed by Isansa Village to Isansa village members and the other 7 villages of Isansa Ward.

Other Input Distributed at Isansa village for the Ward in 1981/82 are:

			Source
Maize H632		17,500	TANSEED
Pesticide:	Copper (Kgs)	3,100	CAT
	Grmaxone (liters)	50	RTC
	Thiodan 4% (kgs)	20,000	TRDB

Source: Isansa village

2.3 Implements: Jembes, pangas, axex could not be quantified. But Isansa villag has [illegible]7 ox plows and 195 oxen. The estimate for farm implements for Isansa village alone is as follows:

	Each
Rungwe hoes	2,000
Ox Plows (3 sorts)	1,000
Pangas	1,000
Grass slashers	1,000
Digging forks	1,500
Plow chains	1,500

Source: Isansa Village

Table: B-2(b) Fertilizer Distribution (Bags) for Isansa Ward 1980/81 and 1981/82

VILLAGE	1981/82						1980/81			
	T S P		C A N			S A	T S P		C A N	
	DADO	TRDB	DADO	TRDB	CAT	CAT	DADO	OTHER	DADO	OTHER
Isansa	120 1/	1,500 1/	480 1/	2,060 1/	540	-	200	200	200	300
Mpite	-	-	-	-	450	-	77	-	-	-
Iwalanje	-	-	-	-	445	-	63	-	-	-
Itumbi	-	-	-	-	300	140	260	-	264	-
Isambwewe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nansama	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magamba	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lungwa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	1,860		4,375			140	523	200	464	300

Source: Ministry of Agriculture: The Establishment of FSC at Mbozi Maize Farm, May 1982.

1 / Provided by Isansa Village

NA - Not Available.

2.4 Existing Facilities

Storage: There are 3 go-downs at Isansa village, each storing food grains (maize, beans), coffee and farm inputs respectively. Because of the growing economic activities at the village and the ward in general and their increased assistance to act as agent for distributing inputs to other villages, Isansa village has planned to construct two more go-downs for storage of inputs and shop merchandise, each having an estimated capacity of 103 m^2 (15.[illegible] x 6.7m). Already they have made burnt bricks for the go-downs, but the major constraints are cement and roofing iron sheets.

Shop: Have a comparatively well stocked shop for various domestic items including some pesticides sold on cash. Have planned to construct a bigger shop through which some more inputs can be sold.

Transport: Isansa Village has 2 lorries: 6-ton lorry (9 months old) and 1[illegible]-ton - one (8 year old). Both lorries are used for Isansa village needs and hired on district-wide operations.

Tractorization: Isansa Village has 3 tractors all in working condition. They need 2 tractor plows, 2 harrows, 1 planter and 12 tires for trailers hauled by tractors.

Finance: Isansa village enjoys a yearly turnover of TSh. 12 million from various economic ventures undertaken.

Management: Isansa village has comparatively efficient management and highly organized leadership. The village also has its own trained and employed staff for various fields. The Accounts department has a professional accountant assisted by 4 in-service trained accounts clerks. There are 2 store keepers and plan to train one more. They also have planned to train and employ a procurement officer. There are 4 Kwana Shambas: 2 employed by Isansa village (one for crops and the other for livestock) and 2 employed by CAT.

2.5 Consideration for FSC at Isansa

Isansa village already is informally acting as ' a FSC' by procuring inputs for the use of Isansa village members as well as other farmers of Isansa Ward, especially for food crops - maize. As far as coffee is the major and only export crop in the area, is concerned, CAT takes care of this crop in supplying all the required inputs under Coffee Improvement Development Programme financed by EEC. Isansa, as one of the highly organized and progressive villages in the country, is not a typical representative village in Moshi District for a FSC pilot project. Hence, because most of the managerial problems are already overcome at Isansa, less lessons will be learned on how to overcome constraints in setting up other FSC's in the region/country.

However, reasons in favor of setting up a FSC at Isansa seem to override reasons against. For certain reasons for a successful FSC, Isansa village offers the best location in terms of having an efficient management, pre-existing facilities(go-downs, office, shop, furniture and transport). Minimal financial help may be required to top up the already initiated efforts by the village to serve other villages, and to institutionalize it as a FSC. What has been achieved at Isansa is in line with one

of the objectives of the Mbeya Region Farm Input Marketing Study of evaluating existing institutions involved in the distribution of inputs so as to initiate alternative input distribution strategies.

Furthermore, since the ultimate goal is to hand over FSC's to local institutions -- the cooperatives, Isansa is likely candidate as a future cooperative society because of its economic and financial viability.

Although there has been a considerable increase in maize yield at Isansa village of 16 bags/acre compared to the average of [illegible] bags/acre for Igamba Division into which Isansa falls, there still exists greater potential at Isansa village itself to further raise its yields with additional inputs. Also, other villages in Isansa ward are likely to benefit more by raising the already low yields through increased input usage. Available figures for villages for Isansa ward served by Isansa village reveal comparatively low yields per acre which may indicate that the other villages are not sufficiently served by Isansa village currently. Hence, there is a need for an institutionalized and strengthened FSC at Isansa village as shown by the need for increased supply inputs for the other villages with low yields as revealed in the following table:

Table 5-2 (c) - Area, Production and Yield of Maize by Some Villages in Isansa Ward, 19[illegible]/71

Village	Area (Acres)	Production (Bags)	Yield (Bags)
Isansa	1,[illegible]	21,[illegible]	15
Mpito	9[illegible]2	[illegible]	[illegible]
Itumbi	732	5,[illegible]	[illegible]
Iwalanje	[illegible]3	5,[illegible]1	7

Source: The Establishment of a Farm Service Center at Mbozi Maize Farm, Ministry of Agriculture, May 19[illegible]2.

Comparing NAFCO Mbozi Maize Farm at Nagamba of 2[illegible] bags/acre in 19[illegible]/71 with village performance above, it shows that more room exists for the potential to raise yields if a FSC is set up at Isansa village.

3. Project Description:

Provision of financial assistance to Isansa village for the completion storage facilities with the capacity of 32[illegible] m (i.e., 2 go-downs @ 16 x 1[illegible] m.). This will involve:

		Shs. ('000)
(a)	Purchase of 4[illegible] iron sheets @ TSh. 13[illegible]/=	62.4
(b)	Purchase of timber for go-down roofing	40.0
	TOTAL	102.4

4. Income Benefits: As a result of a FSC, benefits accruing to the farm at family size level and foreign exchange saving (at marketable surplus value) will increase as estimated in the following table:

Table [illegible]-5 - Maize Production, Yield and Income Per Family Size Farm

	0 1/	1	2	3	4	5
% increase in yield	[illegible]	13.3	26.6	37.9	53.2	66.7
Hectarage under maize per family	1.6 2/	1.9	2.2	2.4	2.7	3
Output (bags/ha.)	23.2	26	29	33	37	42
Output (bags/family)	37	49	64	79	100	126
Consumption (bags/family) 3/	32	32	32	32	32	32
Marketable surplus (90 kg. bags)	5	17	32	47	68	94
Price (Sh/kg.) 4/	1.90	1.90	1.90	1.90	1.90	1.90
Value of marketable surplus (Sh.)	855	2907	5472	8037	11628	16074

1/ Figures under this column are based on available data from studies by H. Ibaijyana - Ibid. and KILIMA: The Establishment of a FSC at Mbozi Maize Farm, May 1972.
2/ As the supply of farm implements, which at present are in great shortage, can as more farmers introduce mechanization, it is assumed that hectarage per family will steadily expand from the present 1.6 ha. to 3 ha.
3/ Consumption per family is assumed to remain constant at year 0 level.
4/ Price per kg. is assumed to remain as year 0 (1972/73 prices).

Coffee - Inputs:

Because ast present most of coffee inputs is sufficiently supplied by CAT under Coffee Improvement/Development up to 1980/86, it is suggested that the FSC to be set up at Isansa Village for Isansa Ward should beconcentrate with the distribution of inputs for the other major food crops in particular maize -- until a time when CAT HANDLES OVER THE RESPONSIBILITY OF INPUT DISTRIbution to the future cooperatives.

C. IPINDA (KEYELA DISTRICT) FSC PILOT PROJECT

1. Background

1.1 Location:

Ipinda is a commercial center for Ipinda ward in Kyela District consisting of 5 villages: (1) Mabunga, (2) Ikulu, (3) Ipinda, (4) Ngamanga, (5) Kingili, and (6) Kisala. The area falls under the Kyela Lowland Flat Zone in Ntakela Division having an altitude of [illegible] meters with average rainfall of 2,010 mm p.a. 1/ The area consists of alluvial soils drained by 2 major rivers - Lufilyo and Ghaka.

1.2 Crops: (a) Food Crops: Rice (1st position), bananas (2nd), beans, maize, cassava, groundnuts, citrus fruits. Cash Crops: Cocoa is increasingly acquiring a dominant role as cash/export crop, rice (% of produce), bananas (less than 10%) and citrus (oranges, mangoes, etc.)

1/ See H. Ibaijyana: Indicative Farm Model for the Major Farming System in [illegible] Report, Government of Tanzania/FAO Kagera RIDEP Project and Ministry of Agriculture/Food Marketing Development Bureau, p. 5, [illegible], February 1972.

1.3 Land Availability

Land shortage is a critical constraint and hardly any unused potential arable land exists. Average arable land per family is 1.2[illegible] ha. divided as follows:

Crop	Area (ha)	%
Paddy	0.67	53.0
Cocoa/bananas	0.2[illegible]	22.2
Maize	0.13	10.3
Groundnuts	0.07	5.6
Citrus	0.05	4.1
Cassava	0.05	4.0
TOTAL HA.	1.2	100.0

1.4 Crop Husbandry:

Traditional farming system is still predominant, e.g., intercropping such as cocoa and bananas and frequently with citrus trees. Heavy banana populations per clustered stems is common which party affects both banana yields and cocoa, hence the need for pruning both crops to provide enough sunlight and facilitate cocoa pests and disease control. 2/ Paddy, the main food crop is cultiabed using oxenization and hand jembes. Planting is mainly done by broadcasting while transplanting is rare. Weeding is mosly done by hand and it was reported that weedicides is a new innovation used by few.

1.5 Population:

Figures for the population of Ipinda Ward are shown below:

Name of Village	Population 1980
Nabunga	850
Ikulu	1,335
Ipinda	2,200
Ngamanga	1,279
Kiugili	2,130
Kisale	1,240
TOTAL	9,052

Source: 1980 Population from Water Master Plan and 1982 projected growth rate if from C. Optland, Projections of the Population of Mbeya Region up to 2,000 March 1982.

1.6 Farm Inputs:

Available data on inputs distributed to Kyela District in general and Ipinda Ward in particular indicate that the district/Ipinda Ward is a low user of farm inputs. It was reported that because of lack of an institutional organization with the specific role of input distribution for the major crops: cocoa and paddy such as a crop authority (as to the case with other districts), is [illegible]

one of the major deterrents in increasing input distribution to the area. Hence it was reported that many farmers, whose number was not given, procure their farm inputs from TFA Branch at Tukuyu in Rungwe District about 40 km. from Ipinda - using buses. The volume of inputs purchased from TFA Tukuyu Branch was not available as sales are made on individual basis.

Indicative figures for inputs distribution for Kyela District are shown below:

Table C-1.6 - Agricultural Input Distribution in Kyela District.

Year	Fertilizer SA (Bag @ 50kg/bag)	TSP (Bags @ 50kgs)	Paddy Seed (R 8 Bags)	Ox Plows	Ox Harrows	Ox Carts
1981/82	6,435	370	-	-	-	-
1980/81	7,047	400	20	4,923	-	2
1979/80	-	389	-	-	30	6
1978/79	-	513	-	2	7	6
1977/78	-	4,329	-	-	-	-

The above figures indicate that amounts of inputs distributed to the 65 villages in Kyela District including 6 villages of Ipinda Ward through TFA relatively small.

1.6.1 Fertilizers: Available figures for fertilizer distribution in Ipinda Ward is shown in the following table:

Table C-1.6.1: Fertilizer Distribution by Village in Ipinda Ward:

FERTILIZER:
Fertilizer

Year	77/78	78/79	79/80	80/81	81/82
Type	TSP	...	TSP	SA	SA
Village	(Bags)	(Bags)	(Bags)	(Bags)	(Bags)
Kabunga	-	-	20	2	2
Ikulu	-	-	100 1/	-	70
Ipinda	110	-	-	-	100
Ugamanga	-	-	-	-	-
Kingili	110	-	-	1	100 1/
Kisale	-	-	-	-	-
Total	220	-	120	3	270

Source: RADO - Mbeya

Ipinda Ward leaders indicated that SA and TSP are the major types of fertilizers used mainly for paddy and to a limited extent cocoa and maize. TSP had been used in 1979/80 and before and, according to what farmers have been advised, no more TSP had been used as it lasts for 3-4 years in the soil. In addition, it was reported that fertilizer requirements was 150 bags of kgs. each per village per year. But it was stated that DADO Kyela supplies not more than 100 bags per village. Fertilizers bought on cash by individual farmers could not be quantified.

1.6.2 Pesticides/Weedicides:

Quantities of pesticides/weedicides distributed to Ipinda Ward were not available, but Ward leader expressed that pesticides and weedkillers for cocoa and paddy are used by some farmers buying from TSA Tukuyu Branch. It was also expressed that although many farmers would like to use the pesticides/weedicides they lack the knowledge on how to use them.

1.6.3 Farm Implements:

Oxenization is commonly used for paddy cultivation in the area, hence there exists a great demand of ox-equipment -- plows, harrow, etc. No figures were readily available for all villages in the Ward, but Kingili village had 80 ox-plows from RTC (main suppliers). Lack of ox-plows from RTC was reported to have forced the price from about TSh. 750/= to Tsh. 1,300/= per item in the black market. However, an interview with TFA Tukuyu Branch revealed that in 1980/81, 74 ox plows were sold at this branch. It is believed that most of these ox-plows went into neighboring Kyela District where oxenization is commonly practised (and to a limited extend the lowland area of Rungwe District bordering Kyela) because most of the hilly topography of Rungwe District does not allow Ox-plowing.

Tractorization is neglible. It was reported that DADO has 4 tractors only for hire out, of which 2 are in working condition. Tractors under DADO cater for the whole Kyela District.

Handtools: Jembes, panges, axes and sickles for (paddy harvesting) are commonly used but currently are hardly available in RTC shops. It was estimated that in a family of 6, 3 hoes would be required and replacement is after every two years.

1.6.4 Seed:- Traditional seed, especially for paddy, is commonly used, but some farmers buy improved paddy seed (Kilombero type) mainly for producing surplus for sale while local seed varieties are used and favored for production and domestic consumption because of their good taste. It was estimated that a bag of 70 kilos of paddy seed is enough for 5-6 acres. Quantities of seed purchased by individual farmers were not available. No mention was made on the use of improved seed for cocoa.

1.6.5 Source of Finance of Inputs: Before 1980/81 TRDB provided seasonal credit for inputs but this was stopped due to poor credit recovery. Instead, villages got seasonal credit through NBC and, according to ward leaders, 1980/81 NBC has already been repaid.

2. Factors as disadvantages or in favour of FSC at Ipinda:

2.1 Disadvantages: From available data on quantities of farm inputs which have been distributed to Kyela District in general and to Ipinda Ward in particular, this area appears to be a comparatively low user of farm inputs. But the available figure tend to be understated as some farmers purchase inputs individually especially from TFA Tukuyu Branch.

2.2 In favour for FSC at Ipinda:

There are several reasons in favour for a FSC at Ipinda

(a) Ipinda ward has no crop authority which distributes farm inputs in the district e.g. in Mbozi -CAT, Chunya - TAT and TCA, Rungwe TTA and CAT etc. The only institution service farmers with inputs in Ipinda is [illegible] - Kyela and TFA Tukuyu Branch which is too far from the farmers. Hence establishment of FSC at Ipinda can, to some extent, relieve agricultural extension advice.

(b) There exists a possibility that more inputs can be purchased by the farmers from the FSC since the present transport problem of ferrying inputs from TFA Tukuyu Branch to Ipinda will be eliminated.

(c) Ipinda area is geographically far apart and agro-economically has different conditions from the other FSC to be set up in Mbozi. Hence, a pilot project with the aim of replication regional and countrywide, requires different agricultural conditions to test its success;

(d) Ipinda village is a central commercial center from where farmers from the Ipinda ward buy their items. Hence a FSC to be operated on commercial basis would be preferable;

(e) Ipinda Ward Leaders expressed enthusiasm to have the FSC and indicated that if farmers in the respective villages are involved, they might be willing to contribute in cash for the setting up of the FSC

(f) Already there is a possibility of utilizing the minimal existing facilities, especially the godown formerly owned by Ndamba Cooperative Society which requires reroofing and minor repairs of walls and doors/windows and the newly bought 7 ton lorry by the six villages of Ipinda Ward;

(g) Although there is scanty information on the actual quantities of inputs which has gone into Ipinda to determine the magnitude of demand, it is a known fact that ox implements and hand tools especially jembes are commonly used.

(h) Has an almost all weather feeder road of 10 Km. from Ipinda to Kyela Town, connecting the Mbeya - Kyela Tarmac Road. The second weather road connects Ipinda and the Mbeya - Kyela tarmac road at Tukuyu via Masoko.

(i) On poverty criterion, Kyela District and Ipinda area in particular is one of the poor areas in the region. Cultivatable land has a attained its ceiling of 1.3 ha/family for all crops. Hence with a population growth rate of 2% in the area, increased impoverish is likely to appear in the near future as income (cash and food) per family drops at the existing agricultural technology. The solution either lies with increasing yields/ha. through use of farm inputs or encouraging out migration to distant districts with ample arable land; or a combination of both.

Hence establishment of a FSC at Ipinda is favorable.

3. Area for FSC Pilat Project at Ipinda

In Ipinda ward the furthest village out of the 6 is [illegible] Km (6 miles). Results from the Mbeya Input Marketing study reveal that in Kyela zone, into which Ipinda ward falls, 75% of the farmers prefer to get their farm inputs and domestic requirements within a distance less than 10 Km while the rest, 25% can get beyond 10 Km. Hence it is recommended that the Ipinda FSC Pilot Project should cover an area for the 6 villages in the ward.

4. Major Components

4.1 Repair of the existing godown with the capacity of 3[illegible] x 7 x 7 meters (formerly owned by defucct Ndamba Cooperative Society) involving re-roofing, repar of walls and the replacement of doors and windows of the godown.

4.2 The construction of a shop for marketing agricultural input of the size 70 sq. m. (7 x 10 m) with a small office room for the FSC manager attached to it;

4.3 The construction of 1 house of grade B for FSC manager.

4.4 The provision of furniture and other fixed equipments for the input shop and office.

4.5 The provision of a safe and cash box for FSC shop.

Note: It is assumed that the newly bought 7 ton lorry by Ipinda ward villages will be used to transport the inputs from the sources to the FSC and help distribution to respective villages especially fertilizers on commercial basis. Also based on indication by Ipinda ward leaders that the godown formerly owned by the defunct cooperative could be used for a FSC, it is assumed that this storage facility will be put into use for the FSC.

5. Project Costs:

5.1 Capital Investment Costs:

5.2 Civil Works:

		T.Shs ('000)
1. Staff house: 1 each 80,000/=		80
2. Repair of godown:	(a) 200 aluminum sheets each 130/=	260
	(b) Timber plus nails	50
	(c) Cement 30 bags each 100/=	3
	(d) Doors and windows	2
	(e) Masonry charges	5
	Sub Total	400

5.3 Office/shop Furniture/Equipment

2 tables (1 for shop, 1 for office) each 650/=	1.3
2 tables chairs each 250/=	0.5
Shop shelf	2.5
One safe	8.0
One cash box	1.0
Sub Total	13.3
Total capital costs	413.3

6. Operating Costs

6.1 Staff salaries (per annum)

	T.Shs. ('000)
1 FSC Manager (MSU 4)	14
1 salesman-cum-storekeeper/accounts clerk (MSU33)	12
1 watchman (MSU 3)	7.2
Total salaries	33.2

6.2 Other Administrative Costs

Fuel costs and other transport charges for inputs	70
Office and shop stationary	30
Total other operating costs	100
Total administrative cost	133.2
Total FSC (Capital and Administrative) Costs	533.2
Contingencies (10%)	53.3
Total TSC Costs	586.5

6. Benefits to Farmers and Nation

With improved husbandry resulting from use of fertilizers and disease control measures and availability of farm implements output for paddy and cocoa the major feed and cash crops respectively will increase significally hence benefiting farmers in terms of feed supply and cash income and also relieving the nation from the much needed foreign exchange through increased cocoa exports and imported food substitute (rice).

Over a five year period it is estimated that benefits for both paddy and cocoa production in the area will increase as follows:

Table 6.(a): Paddy yield, output and income benefits per family:

	0 1/	1	2	3	4	5
% increase 2/	0	6.[illegible]	12.8	19.2	25.6	32.0
Crop area ha./family 3/	0.67	0.67	0.67	0.67	0.67	0.67
Yield kg/ha.	2,569	2,73[illegible]	2,89[illegible]	3,062	3,227	3,391
Output kg/family	1,721	1,842	1,942	2,052	2,162	2,272
Sales kg/family 4/	141	251	362	472	582	692
Price Shs./kg	3.00	3.00	3.00	3.00	3.00	3.00
Value of sales	423	753	1,086	1,416	1,746	2,076
Value of Output/ha.	7,707	8,199	8,694	9,186	9,681	10,173

Footnotes:

1/ Figures on this column are based on a study by H.A. Mwaipyana: Indicative Farm Model For Major Farming System in Coast Region Vol. II Appendix I, Ministry of Agriculture/FAO Marketing Development Bureau and Government of Tanzania, Mtwara [illegible] Project Dar es Salaam, February 1982.

2/ Assumed that yield will increase by 12% every 5yr period based on figures provided by Ipinda ward from yield experience when fertilizer is used by small farmers.

3/ Crop area assumed to remain constant as no more room exists in Ipinda for expansion.

4/ Assumed that family consumption will remain as at Year 0 level i.e., 1,580 kgs (171-141 kgs), hence all surplus for subsequent years will be marketed.

Table (b) Cocoa yield, output and cash income benefits per family:

	0	1	2	3	4	5
% of increase	0	17.5	35	52.5	70.0	87.5
Crop area ha./family 1/	0.28	0.28	0.28	0.28	0.28	0.28
Yield kg./ha. 2/	400	470	552	649	763	896
Output Kg./family	112	132	155	182	214	251
Crop sales kg./family	112	132	155	182	214	251
Price of sale Shs./kg. 3/	11.00	11.00	11.00	11.00	11.00	11.00
Value of sales (Shs.)	1,232	1,452	1,705	2,002	2,354	2,761

1 / See H.A. Mwaipyana - ibid. Appendix 1 Vol. II. It is assumed that each family will maintain 0.28 ha. constantly as no arable land exists for expansion.

2 / S. Adeniyi projects that crop yield for cocoa can increase from 400 kg./ha. in Year 0 to 900 by Year 5 and the optimum yield projected is 1,200 kgs. by year 6 which seem to be too high. See "Cocoa Development Project for Mbeya Region, Government of Tanzania/FAO, Project Preparation and Monitoring Bureau, KILIMO and Mbeya RIDEP Project May, 1982, Annex 2, Table 4, p.35.

3 / Taken from government price of Shs. 11/Kg. for 1982/83.

7. Implementation

Taking into account of delay in getting building materials a longer time schedule for implementation has been estimated as shown in the following chart:

IPINDA FSC IMPLEMENTATION TIME SCHEDULE

Phase I	1982/83												1983/84											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Ju
1. Repair of Godown:																								
1.1 Ordering of roofing sheets, cement, nails																								
1.2 Purchase of timber, door, windows																								
1.3 Paper work																								
2. Construction of shop/office + 1 house:																								
2.1 Procurement of cement, roofing materials																								
2.2 Site clearing																								
2.3 Foundation +wall consturction for house and shop																								
2.4 Purchase of timber, door, windows																								
2.5 Roofing																								
2.6 Flooring and wall plastering																								
2.7 Ceiling board Installation																								
2.8 Furniture & shelf fixing																								
3. Ordering Office/shop equipment																								
4. Staff employment																								
5. Ordering of farm inputs/sales																								

D. CONCLUSION

Due to time constraint, the FSC Pilot Preparatory Team could not finalize the projection of the FSC requirements for Isansa and Ipinda. Hence, it hoped that Ibeya Regional Authority/RIDEP Ibeya will carry on from where the preparatory team left and work out the cash flows for the FSC and Pilot Project.

As far as organizational set up is concerned in the long-term the FSC's are expected to come under the Primary Cooperative Societies to be established in the respective areas. But during the interim period, it is proposed that the villages where the FSC;s will be located, i.e., Isansa and Ipinda villages, being registered legal entities, be chosen as the management agents of the FSC on behalf of all villages which consitute the ward.

Sources of funds for the establishment of the two FSC Pilot Projects will also need to be taken into account.