THE IMPACT OF UJAMAA PRODUCTION ON ADOPTION OF NEW FARMING PRACTICES: A CASE STUDY OF MOROGORO DISTRICT UJAMAA VILLAGES

by

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DECLARATION

I DECLARE TO THE SENATE OF THE UNIVERSITY OF DAR ES SALAAM THAT THIS THESIS IS MY ORIGINAL WORK AND HAS NOT BEEN SUBMITTED FOR A DEGREE AWARD IN ANY OTHER UNIVERSITY

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ABSTRACT

Tanzania is an agrarian country which depends mainly on agriculture for its national development. To achieve rapid rural development the government and party decided after gaining independence to embark on a villagization policy which aims at bringing peasant farmers together in villages for co-operative production using modern methods.

The social and economic environment in the villages is expected to make introduction and adoption of improved farming techniques easier. But while the villagization programme is now ten years old, conflicting views exist about its success in introducing new farming practices through communal production. Some people claim that government assistance channelled to villages in the form of agricultural inputs is a waste of resources since it is often not properly utilized. Meanwhile others claim that ujamaa villages have been successful in introducing new innovations on communal farms and that cash inputs and mechanization are in fact over-utilized. This study therefore investigated the extent to which farming practices on individual and communal farms differ and what factors account for this difference or the lack there off.

A case study was made of five villages in Morogoro District by interviewing village leaders, extension workers and randomly sampled farmers. The study specifically examined maize and cotton production practices.

The study found that farming practices on individual and communal plots differ, with ujamaa village groups tending to follow recommended farming practices. Maize production practices widely adopted by ujamaa groups include: use of improved seed, monoculture, planting during the long rains, row planting, thinning, and application of insecticide. However, they failed to plant maize early and to weed plots properly. Cotton production practices followed by ujamaa groups include: correct spacing, thinning, and insecticide spraying. They planted and picked cotton late and failed to weed properly and to spray eight times. Individual farmers planted maize in the early short rains, used Ilonga maize seed, intercropped maize, thinned to three plants or not at all; did not use fertilizers and insecticide, and harvested maize before it had dried properly. Most individual cotton growers planted cotton early, followed correct spacing, thinned and weeded properly, picked cotton early and burnt cotton remains on time. They however failed to spray eight times.

The difference in adoption of farming practices between individual and communal plots was found to be due to: free government assistance to ujamaa groups, labour availability (commitment), felt need of recommendations, group-decision making and village leadership, extension services, and force.

Ujamaa groups adopted recommended practices because of free inputs and to please government officials in order to continue receiving government assistance even

though they were not convinced that the practices were sound. Government assistance is detrimental, leading to loss of self-reliance. The standard blanket recommendations frequently are inappropriate and individual farmers refuse to adopt them because they conflict with traditiona farming systems and the local ecological environment.

Crucial operations such as planting and weeding are neglected on the communal plots because of low commitment by members to communal production, reflecting the small return realized from such undertakings. Members instead concentrate on their individual plots. Dishonest and corrupt leaders at times have demoralized members, leading to their abandoning the communal farm. Incentives for work should be increased on the communal farm and village economic plans and leadership need to be improved.

Force from local leaders has contributed to adoption of recommended cotton practices by individual farmers, and most cotton recommendations have visable benefits. Although the practices which are enforced are technically sound, persuasion is a better policy to get sustained acceptance.

The extension services are geared towards communal plots only, thus neglecting individual farmers. Extension workers rarely visited individual plots except cotton plots grown in blocks. Village leaders and extension workers supervise various operations on the communal plots and practices used on the communal plots are decided by the village agricultural sub-committee whose members must ensure that the recommendations are followed. Meanwhile individual farmers are free to follow any practices they please.

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Figure 1: Morogoro District: Location of Sample Villages

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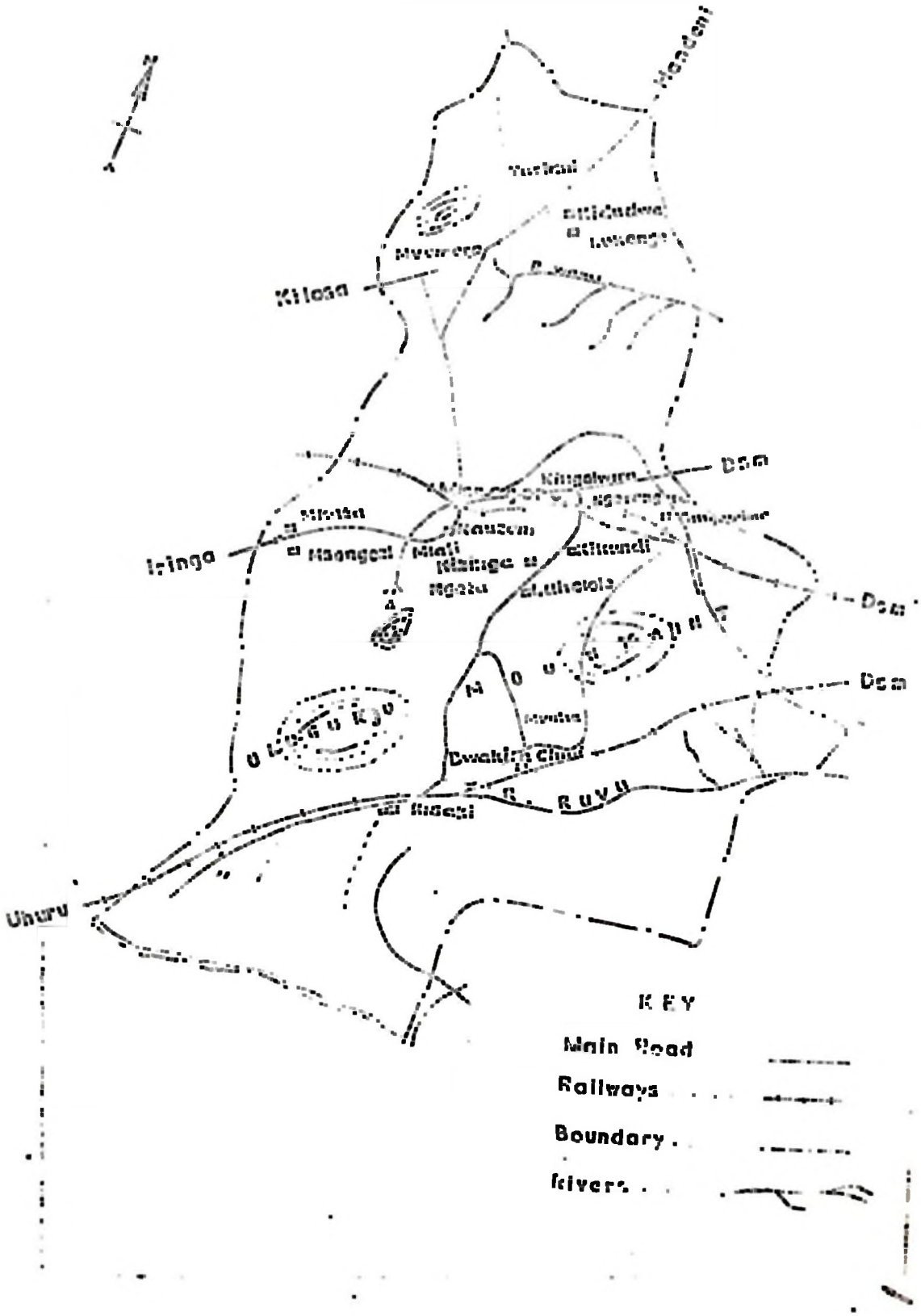

C H A P T E R I

RESEARCH PROBLEM

1.1 BACKGROUND TO THE PROBLEM

Tanzania is an agrarian country and, as recognized in various party and government documents, depends on agriculture for its national development. Half of the Gross Domestic Product (GDP) comes from agriculture and a quarter originates from the subsistence sector; and 95% of the total population live in rural areas of which 90% depend on agriculture for their livelihood (De Vries and Hansel, 1975). The government and the Party have chosen Ujamaa villages as the central institutions for socialist development. Tanzania's policy of villagization aims at bringing peasant producers together in villages for co-operative production using modern methods. President Nyerere (1968) said that Ujamaa production would facilitate acquisition of modern tools, specialization, and thus allow greater production. Bulegi (1975) points out that before development can be brought to the majority of the rural people it is necessary first of all to make it possible for them to live in villages. Ujamaa villages are believed to provide an ideal situation to revolutionalize the peasantry and establish a socialist production system capable of large-scale production methods with the possibilities of using modern innovations.

To raise the standard of living of rural people farm productivity must be increased. Tanzania believes this can be achieved by organizing people in ujamaa villages where modern farming methods may be more easily taught by agricultural extension workers and other government workers and also more readily put into practice. The ujamaa village approach can be a strategy for rapid rural development in the following ways (Ludakila, 1975; De Vries and Hansel, 1975; Hilman, 1969):

- Decision-making in large communities may tend to be more rational and goal directed and adoption of agricultural innovation may thus be enhanced.
- Economies of scale may be realized through low spending per unit of production in large communal enterprises.
- Farmers in ujamaa villages can pool their resources to take risks of innovations which a small farmer can't do. This is facilitated through communal ownership of means of production.
- Productivity of agricultural extension workers may also be improved in large communities. Ujamaa villages create an environment within which extension services can operate more efficiently.

- Government assistance in the form of inputs or credit can be provided more readily to ujamaa villages to improve communal agricultural production.
- Labour productivity may be increased, that is, people may work harder, longer, and more efficiently in groups.

Since in most parts of the country farmers did not live in nucleated villages but in isolated homesteads much of the extension worker's time was spent in travelling from farmer to farmer. It was also difficult to supervise and discipline the extension workers, thus tendingto reduce their effectiveness. With villagization it is easier to supervise and to check on the activities of extension workers. Extension workers, now stationed in villages, are controlled by village and party leaders (the Ward Secretary) at the grass roots level as well as their district supervisors. Individual peasant farmers were also unwilling to adopt new techniques which would mark them out as different from their neighbours. As Ellman (1969) points out, a community of farmers at least partly removed from their traditional conservative environment would be expected to show less resistance to adoption of innovations than individual farmers on their own existing holdings. Ujamaa villages allow the exercise of modern agricultural techniques based on high productivity which then would justify considerable investment capital. Hulls (1971) observes that in a

traditional society any farmer who sees farming methods and wants to change his manner of farming runs the risk of being scorned by his fellows. If the innovation were to be tried out by a group of farmers working together the social pressure felt by the individual would be eliminated and at the same time the chances of a more rapid diffusion through the community would be increased.

The government policy on agriculture has been outlined in the 'Siasa ni Kilimo' (TANU, 1972) which states: "In order to implement modern farming techniques we must have large farms of a co-operative nature. Hence the way to revolutionalize agriculture is to hasten towards and establish ujamaa villages. Farmers in Ujamaa villages must be where modern techniques are applied". Rugumisa (1973) in his study in Bukoba noted that methods and techniques for agricultural improvement failed because they were beyond the reach of an ordinary farmer. So through co-operation within mutual aid groups innovations can be adopted more readily. He found that it is possible to start mutual aid groups as a basis for socialist agricultural development because of the following advantages: rationalization of labour; specialization of labour; pooling of scarce resources which are unproductive (e.g. hoarded money); saving in credit administration and collection expenses; spreading of risk of failure among members; and socio-political ideals. The mutual-aid groups can be a basis for communal production in ujamaa villages.

The need to increase the rate of agricultural development was felt after Independence in 1961 due to the failure of the Improvement approach and Progressive farmer policy adopted during the colonial era. The Improvement Approach, Cliffe (1972) notes, was based on regulations and by-laws which ranged from control and eradication of banana weevils in the West Lake to compulsory tie-ridging and terracing in Sukumaland and the Uluguru and Usambara Mountains respectively. The Progressive Farmer Approach failed because it resulted in social differentiation causing envy and unrest. These efforts never brought the desired rural development. Ellman (1969) attributes the failure of the Improvement Approach to bring feasible economic growth to the fact that farmers were living in isolated small villages, thus impeding easy communication and supervision and disciplining of extension workers. The transformation Approach which followed the early settlement schemes also failed and was stopped in mid-1966 because it did not achieve the objectives laid down. The settlement schemes failed on economic, technical, and social grounds. They were draining substantial resources from the government, and foreign aid used to finance them was cut off (Feldman, 1969). Ellman (1969) attributed the failure of the settlements scheme to poor planning, wrong choice of farmers, shortage of skilled management, emphasis on provision of social facilities rather than

productive enterprise, and the uneconomic nature of mechanization. The settlers were dependent on the government and expected the government to do much of the development for them.

Failure of the colonial progressive and improvement approaches and the post-independence transformation approach of the settlement schemes prompted Tanzania to start Ujamaa villages as instruments of implementing Ujamaa and socialistic ideology. Since then, Bulegi (1975) notes that priority in allocation of resources and other forms of assistance has been given to the villages. The government has been providing free or subsidized agricultural inputs for communal production and Government civil servants and Party officials have provided technical and political advice. Heavy investment in the form of social and physical infrastructure has beenchannelled to ujamaa villages. Extension workers have also directed much attention to them. Fortmann(1976) noted that the extension service in Morogoro and Arusha Regions is instructed to work closely with the Ujamaa shamba, sometimes putting their only effort into it, and most government assistance goes to villages. All these have been deliberate efforts to ensure that the ujamaa villages meet their development objectives.

As De Vries (1976) observes, agricultural extension prior to the Ujamaa strategy was known to favour the richer, more progressive farmers and as such was a force for increased rural differentiation. It was believed

that through working with ujamaa villages and the use of a group extension approach this problem would be eliminated.

While the ujamaa villages programme is now ten years old, conflicting views exist about their success and role as instruments of introducing new farming practices. The performance of the villages leaves much to be desired. Komanya (1975) regrets that, although the majority of the people now live in ujamaa villages, the present situation for them is not encouraging: proper development plans are lacking; technical and professional personnel are inadequate; plans are not properly implemented; agricultural inputs are difficult to get; farm productivity is low, and most people in the villages are poor. De Vries and Hansel (1975) note that the villages have not become self-reliant but instead have developed a growing dependency on government. The free agricultural inputs provided have at times been carelessly used, and there is an overadoption of innovations which are not economic under the existing cost-price conditions. Communal agricultural production and communal ownership have not increased.

Raikes (1973) also observed that in Rufiji, ambitious plans for communal cultivation failed for lack of weeding labour, and in the subsequent years emphasis shifted towards private production. He further noted

that the ujamaa policy in Tanzania instead of generating a surplus is absorbing it. Despite the alleged advantages of communal farming, Freyhold (1973) found in Tanga that few Bwana Shambas (Local extension workers) had achieved better thinning and better spacing on the communal plots. She further noted that extension workers still preached the same kind of cropping techniques as they did during colonial days. No effort had been made to grow crops other than the most common ones of the area on the ujamaa shamba. For instance in Handeni she found that all communal farms were mainly planted with maize, a crop responsible for the recurrent famine in this area. Most ujamaa shambas were enlarged copies of private plots in the methods used. Some innovations were conflicting such as ox-ploughing versus tractor ploughing, sometimes the extension workers were unable to provide sound recommendations because of a lack of experience with the local economic and ecological conditions, and certain proposed innovationswere not in line with economic and ecological requirements. Sumra (1975) also noted in Handeni that the ujamaa shambas still produce the same crops, with work habits that have changed little. He further observed that work attendance on the communal plots was poor with the result that important operations like weeding were not properly done so that yields on communal plots are much lower than on individual plots.

The extension staff complain that farmers don't adopt the recommended farming practices on either the communal or their own individual shambas. De Vries (1975) in his study in Iringa observed that several good farming practices recommended by researchers have not been adopted by farmers. According to my own experience (1972 - 1974) in some cases villages which were given inputs either misused them or carelessly stored them so as to be destroyed by weather conditions. And in most cases, farmers work more on their individual plots and tend to neglect the communal farms. At times ujamaa villages have sown a communal shamba, but then left it unweeded or unharvested. Other communal shambas have been left unsown after being ploughed by government or hired tractors.[1] The communal agricultural production enterprises and other activities which were expected to increase have remained too small to serve as examples of the ujamaa spirit, and some villages have had no communal enterprises. Many communal plots suffer from poor attendance. Matelo (1975) noted in Njombe, Mufindi and Kungwe Districts in the 1974/75 season that ujamaa

[1] The author worked as an agricultural extension officer in Shinyanga, Mwanza, Mara and Morogoro Districts during 1972/75. As such he has personal experience in ujamaa village activities.

village groups failed to achieve targets due to poor work attendance by wajamaa (members) on the communal shamba and that the wajamaa worked few hours on the communal plots but worked longer hours on individual plots. It was also found in Morogoro during the Pilot Evaluation Survey of the National Maize Project (NMP) that recommendations requiring added labour such as proper spacing and weeding were followed less often by ujamaa village groups than by individuals and that the ujamaa weeding record was poor (USAID, 1975). De Vries and Fortmann (1974) found in Iringa that members were unwilling to invest effort and other personal resources in ujamaa enterprises and that commitment to the ujamaa way of life was low. In brief, farmers are reluctant to participate actively in communal production. The reason for their reluctance are not yet well known.

Lutrell (1971) is of the opinion that the Tanzanian ujamaa village strategy of rural development by co-operative production had no immediate practical effect. He observes that the Ujamaa village policy in rural areas is unwise given the country's ecological and social diversity and that the policy is not in the interest of the majority of the peasants. He observes that in most cases ujamaa villages are either ecologically unsound or impossible because of dense population and lack of surficient cultivable land. Socialist revolution leading to increased agricultural production, he argues,

cannot be done solely or even mainly through ujamaa villages and a universal emphasis on communal crop production. Rigby (1966) also finds ujamaa villages not appropriate to the existing socio-economic organization in the specific case of the Gogo. He argues that ujamaa villages should be confined to areas with fertile soils and adequate rainfall, e.g. in Kilombero and the Pangani/Wami basins (Lutrell, 1971). Rugumisa (1973) in his case study in Bukoba concluded that it is difficult to initiate ujamaa villages in high population density areas and to step-up agricultural development because all capable land is already used. In such areas he found that mutual-aid groups are better as a basis for socialist agricultural development.

Feldman and Feldman (1969) in Iringa found that there are particular crops and activities which are more suited to co-operative work than others. For instance tobacco growing is suitable because farmers need to co-operate to obtain resources: capital, labour, expertise, machinery, grading sheds, and curing barns. These are difficult to get on an individual basis. They also found successful co-operative farming based on sisal in Mbambara Ujamaa villages in Handeni because most operations are amiable to economies of scale.

Meanwhile, Ellman (1969) notes fruitful lines of development in ujamaa villages: building of new houses, clearing of new land, improved infrastructure,

adoption of new agricultural innovations such as use of hybrid seeds, early planting, burning of cotton stalks, land contouring, etc. Fortmann(1976) found in Morogoro Region that all four ujamaa villages which grew maize communally used improved maize seed (Ilonga Composite) and followed the weeding and spacing recommendations; one village used fertilizer and another used insecticide. In Arusha she found that all ujamaa groups used improved seed, fertilizers, and insecticides, but two did not follow the weeding and spacing recommendation. In Iringa De Vries and Fortmann(1974) observed that ujamaa village groups followed modern farming practices on communal plots because of free government assistance and for fear of going against the government policy. They noted that the communal plots were characterized as "modern" by farming methods used: use of improved seed, planting in rows, growing pure stands, using fertilizer and insecticides and cultivating with tractors. Research by Hulls (1971) in Sukumaland, Western Tanzania, where he experimented in extension work with groups of farmers rather than individuals led him to conclude that for Sukumaland and Tanzania in general, a group approach of some sort is required. But he further found out that the benefits arising from the use of modern agricultural techniques in cotton production in themselves did not provide enough incentives

for farmers to farm co-operatively. De Vries (1976) points out that tractors and cash inputs are more widely used in ujamaa villages than among small farmers especially in the production of food crops. This seems largely a result of provision of credit and free inputs by the government. He contends that ujamaa village policy has been fairly successful in terms of facilitating easier and more economic provision of outside aid. Extension workers find it easier to organize meetings and demonstrations in ujamaa villages because of their organized nature.

In conclusion, this literature review shows that many people, including many social researchers, believe that it should be easier to introduce new farming innovations to groups of people who live together and farm communally because: extension workers may operate more efficiently; labour productivity may increase due to division of labour and specialization; economies of scale may exist in produce marketing and input purchasing; agricultural inputs can be supplied easily on credit or freely; and decision-making may be more rational and goal directed.

1.2 STATEMENT OF THE PROBLEM

The review of literature reveals that conflicting opinions exist about the success of ujamaa villages as institutions for introducing new farming techniques through communal production, despite the several alleged

advantages of co-operative farming outlined above. It has been further noted that resources channelled to villages in the form of inputs are often not properly utilized and that, despite political campaigns and mass technical advice, production techniques on ujamaa farms remain essentially the same as on individual farms. Meanwhile, other sources claim that ujamaa villages have been successful in introducing new innovations on communal farms. Some in fact argue that cash inputs and mechanization are over-utilized in communal production. The success or failure of ujamaa villages as institutions for diffusion and adoption of innovations is not yet well established or explained by previous research work. Passive resistance may be inhibiting the adoption of recommended farming practices and active participation in communal production by ujamaa village members. The question which this study seeks to answer is: to what extent do farming practices on individual and communal farms differ and what factors account for this difference or the lack thereof? This question is important because 13 million people (most of the agricultural population) now live in villages where farming is the major occupation.

For a long time agricultural extension workers have been trying to introduce new farming techniques in ujamaa villages through communal production but without much success. The government has also been experiencing a fall in production in the previous years. As noted by the Prime Minister when addressing the National Planning Commission in Dar es Salaam in April 1977, agricultural production had decreased in the country in the past five years. For instance agricultural sales from Dodoma Region recorded a drop of 53,000 tons from 59,000 tons during the period under review. According to available production figures, a peasant in Tabora region produced an average of 66 kg. of food crops a year between 1969 and 1972 which means that the peasant will require food aid for up to ten months because his own agricultural produce would last him only two months (Daily News, 1977c)
In Morogoro Region, there has been a steady decline in cotton production each season during the 1970's. The government now appears to give little emphasis on communal farming but instead block farming is coming up. In Morogoro region there is more emphasis on cotton block-farming. It is necessary to seek ways of increasing agricultural productivity through application of modern farming techniques. It is increased farm productivity which will raise the standard of living of the majority of people now living in Ujamaa villages. Ways must therefore be sought how to help farmers learn and use better farming practices.

C H A P T E R II

METHODOLOGY

2.1 DATA COLLECTION

The survey for collecting data covered August-October 1976. The author was the sole enumerator. Data for analysis were collected in five villages, namely Msongozi, Kizinga, Mkata, Kidudwe and Luhololo, all in Morogoro District, Morogoro Region.

Information was gathered from a total of 79 people: 24 village leaders; 50 individual farmers (village members) and 5 local agricultural extension workers. The village leaders interviewed included the village Chairman, Secretary, Committee member of the village agricultural sub-committee, and any other two members of the village Council. The extension workers assigned to or residing in the five villages were interviewed.

The survey focused on cotton and maize production techniques because the former is the main cash crop in the Region and the Regional authorities are trying to increase its production for export and to raise people's income. In recent years the Regional authorities have been compaigning hard for increased cotton production through improved farming practices. Maize is the main subsistence crop and staple food in the District, as in

most parts of the country. Experience has shown that more extension services and political efforts have been geared towards increased production of the two crops through good husbandry practices compared to other crops grown in the District. Furthermore, these are the two major crops commonly grown by both individual farmers and ujamaa village groups.

Table 2.1 shows the breakdown of people interviewed. Initially it was proposed to collect information from 50 growers each of cotton and maize but it was difficult to find villages in which both crops were grown. Some villages grew both crops but did not engage in communal activities and so did not qualify to be included in the sample. Moreover, the District Agricultural Office had the wrong information about the villages. For instance, they wrongly believed that Kidudwe and Msongozi villages had communal maize plots. Only three ujamaa villages: Msongozi, Nkata, and Kizinga had both communal and individual cotton plots. Luhololo and Kidudwe villages did not grow cotton either communally or individually. Kidudwe members had no communal maize and the information collected in respect to the communal maize plot relates to the 1973/74 cropping season when they grew maize communally.

Table 2.1. People Interviewed in the Survey.

Type of respondent	Number interviewed	Intended number of respondents
Cotton growers	28	50
Maize growers	50	50
Village leaders	24	25
Extension workers	5	5

2.2 METHOD OF DATA COLLECTION

Factors which were taken into consideration in choosing the sample villages were: (1) accessibility to the village by bus or villages within walking distance from the nearest bus stand or main road; (2) Ujamaa villages growing maize or cotton both communally and individually; (3) the "age" of the village since its creation to assure enough reliable data especially on incomes, produce, problem facing ujamaa villages, farming practices used, etc. Only ujamaa villages which had been in existence over the past five years were taken. The newly-created villages during the villagization programme in 1974 - 76 were not considered.

During data collection I stayed in each village for at least one to one-and-half weeks. Individual farmers were randomly sampled as follows: Names of village members (members participating in communal farming) were each written on a piece of paper. The papers were then mixed and one name drawn from the sample at a time without replacement and the remainder mixed once more

before drawing out another name. This process was repeated until a total of ten farmers (village members) was obtained.

Data were collected by using an interview schedule (standard questionnaires). Three types of interview schedules were used: One each for individual farmers, village leaders, and the local agricultural extension workers. Copies are in Appendix 2.

Before proceeding to the ujamaa villages, a letter of introduction was obtained from the District Ujamaa and Co-operative Development Officer which was presented to the Village Council and village members. The village Chairmen normally explained to the members the purpose of my visit to the village.

Before administering the questionnaires the individual or communal plots were visited by the author to check the actual farming practice used such as spacing, thinning of plants per hole, weeding, and the general state of the shamba as a whole.

The questionnaires were pre-tested in Kauzeni Ujamaa village on five village leaders, ten individual farmers (village members), and one extension worker to check for ambiquities or questions that were not properly understood by farmers and to determine whether any questions resulted in patterned responses. On the basis of this pretest eleven questions were struck from the original leaders'

interview schedule, one question was added, and two questions were reframed. Regarding the individual farmers' interview schedule, eight questions were eliminated while one was reframed. The pretest showed that each questionnaire could be completed in 1½ - 2 hours' time.

In addition the author kept a diary of observations on more subjective matters concerning the communal plot and various events and activities which were taking place during his stay in the village such as duration of work on communal and individual plots, respectively. The author also kept a record of comments and remarks made by village members and leaders during conversation and unstructured interviews. The farmers, village leaders, and extension workers were interviewed one by one either at their home or shamba or in the village office to avoid undue influence from others.

The interviews were supplemented by secondary data and material from the District and Regional Agricultural and Ujamaa and Co-operative offices respectively. The author also held unstructured interviews with the District and Regional Officials of the Ministry of Agriculture (Kilimo), Ujamaa and Co-operative office, Tanzania Cotton Authority (T.C.A.), and the office of District Development Director. Village records were sought on the number of days each member worked on the communal plots and to determine which government and party officials visited the village regularly. The

Agricultural Offices were contacted to obtain the amount of agricultural inputs given to the village in each season as government assistance. Recommended extension farming practices for the District were obtained from the TCA and Agricultural offices. The price of various agricultural inputs were also obtained from the Agriculture Department. The same office was contacted for monthly, quarterly, or annual reports on total crop acreages, etc. The District and Regional Ujamaa and Co-operative Offices, were contacted to obtain the list of villages in the District and a history of villagization in the Morogoro area.

The Faculty Library was the major source of literature review/statistics such as population of the country in urban and rural areas, contribution of agriculture to the National economy, progress of villagization programme in the whole country, early attempts of Co-operative farming, etc.

2.3 DATA COLLECTED

The data collected included:

Time of land preparation, ploughing and planting: The date of various operations was obtained by asking individual farmers and village leaders in terms of the period of the month such as early, mid, late (e.g., January). For the communal plots the date was checked from the attendance register on the communal plot.

Spacing and Plant Population Densities: Spacing was estimated by averaging ten spacings between rows. The plant population density was obtained from the average spacing and average number of plants per hole after thinning.

Fertilizer and Insecticide Application: Information on fertilizer and insecticide was obtained by asking the farmers how much they received and the quantity used. The rate of application was calculated by dividing the quantity used by the acreage treated.

Weeding: Frequency and quality of weeding was checked through informal observation. The farmers were also asked the number of times their shamba was weeded. For the communal plot, the committee men or the village secretary were asked the time of weeding and this was then cross-checked from the village attendance register.

Output and Return per Head: Output from individual plots in the previous cropping season was based on memory. For subsistence crops like maize, sorghum, and paddy, farmers don't measure their harvest. Money return from individual cotton sales was not a problem because this was remembered by the farmers and could be checked from sales' receipts issued by the Co-operative Societies. Returns per head after sharing communal subsistence produce was at times given in terms of local standard units, particularly for cereals, like "Pishi",

"Kibaba", etc. which are not absolutely uniform in size from one place to another, thus introducing some error when converting into equivalents bags or kilograms. Output from current communal plots were obtained from the village secretary or the committee men, but in most cases records referring to previous seasons were not readily available especially when the village leadership had changed. Only Kidudwe Ujamaa Village had up-to-date records.

Work Attendance on the Communal Plots: Original intentions were to tabulate the number of man-days spent on each date allocated for working on the communal plot. But most villages did not have a good recording system. Only Msongozi, Luhololo, and Kauzeni villages had systematic records of man-days but these did not include the total per day. At Mkata village the man-day records were kept by different 10-cell leaders who could not produce the records easily; some said they were lost. At Kizinga village all members were given 12 days work credit regardless of the actual number. Also the man-days at harvest were not recorded. Thus, overall accurate records could not be obtained.

Problems facing villages, Solutions and Benefits of Communal Production: Individual farmers, village leaders, and extension workers were asked to list problems they thought they were facing in communal production and to outline how these could be solved. Farmers were also asked what benefits and what they had learnt from communal production and from being members of Ujamaa villages.

Differences between Individual and Communal Farming: The differences were obtained from the author's informal observations. Farmers, extension workers, and village leaders were asked to list the differences in farming practices they could observe and to suggest reasons or factors which were contributing to the differences.

Extension contact: Farmers were asked whether the local extension worker had visited them on their individual plots during the 1975/76 season and if possible the number of times they had been contacted. In most cases the farmers could not remember the number of visits, especially when it was more than twice. So they simply said several times. The amount of technical advice farmers thought they had received from their local extension workers was given as very much, average, or none.

Adoption and Non-Adoption of Recommended Farming Practices: Farmers were asked why they did not adopt certain farming practices such as correct spacing, thinning, use of fertilizers and insecticide, planting maize in main rains, etc. Village leaders were asked reasons for late planting, poor weeding, late harvesting, etc. of the communal plots.

Government Officials Visiting Villages: Village members were asked to name government or party officials who were visiting their villages regularly and what the officials did. Many members admitted to have seen government and party officials but they did not know their

titles. Furthermore villagers were asked to explain how communal production decision were taken and who had the most influence on the decisions, particularly those relating to farming practices on the communal plots and to formulation of village plans.

2.4 LIMITATION OF DATA AND METHODOLOGY

For maize in a few cases the actual practices could not be observed in the field because the crop had already been harvested. Under such conditions the data were based on the farmers' response.

In Luhelole, Mkata, and Msongozi villages a few farmers (village members) could not remember the dates of various operations on their individual plots, others could name the months of a calendar year only by use of the "Islam Version" and someone had to translate into the calendar year by recalling the month in which the event occurred in the previous season. Meanwhile a few farmers were confusing a calendar year and a cropping season since the latter consists of one half from each of two calendar years. Such farmers were dropped and other knowledgeable farmers were added in this place. It is realized that this tended to bias the sample to some extent. A source of further bias was the desire of some enthusiastic and influencial farmers to be included in the sample for interview. As I had not many extra copies of the questionnaire, I had to include them in the original sample.

2.5 PROCEDURE OF ANALYSIS

Finding a large number of Ujamaa villages growing cotton and maize communally and also meeting the other criteria used to select sample villages was difficult. For this reason a case study approach was adopted. Due to the small number of communal plots studied it was difficult to apply any statistical tool to analyze the results. Furthermore the differences were obvious so that statistical tests were believed to be of minor importance.

The data were therefore analyzed by computing the total responses and mentions and then converting them into percentages to determine the level of adoption on communal and individual plots and also to determine the differences between the two farming systems. Factors contributing to the difference or lack of differences given by farmers, village leaders, and extension workers, were recorded in terms of number of mentions. The relationship between extension contact and adoption of farming practices was recorded in terms of number of farmers per practice, then converted to percentages, and so was the rating of farmers on technical advice given them by local extension workers. Due to multiple responses, the total mentions is sometimes more than the sample size.

C H A P T E R III

UJAMAA VILLAGE DEVELOPMENT IN TANZANIA

3.1 ROLE OF PEASANTRY IN RURAL DEVELOPMENT

In Tanzania the majority of the working population of both sexes are actively engaged in agricultural production. The 1967 census, table 3.1, shows that 5 million people were engaged in agriculture and had to feed themselves and their families plus the families of the 350,000 wage earners of whom 40% were concentrated in urban areas (Msambichaka, 1975).

Table 3.1. Tanzania: Population Distribution and Employment, 1967

Characteristic	Number	
	Million	Percent
Residence:		
Urban	0.6	5
Rural	11.7	95
Employment:		
Agriculture	5.1	41
Urban	.4	4
Unemployed and Children	6.8	55
Total:	12.3	100

Source: Compiled from Egero, B. and R.A. Henin: The Population of Tanzania. An analysis of 1967 Population Census, Vol.VI, and 1967 population Census, Vol.2, Statistics for urban areas.

The 1974 population estimates indicate that the urban population had increased to about 970,000 while the rural population was nearly 13 million (see Appendix Table 1). By May 1976 the villagization programme resulted in more than 8,000 villages with over 12 million people (Economic Survey, 1975-76). By the end of 1976 the present rural population of some 13 million people was expected to be

settled in 7,000 - 8,000 registered ujamaa villages (Subira, 1976) and this goal was essentially reached by mid-1977 (Uhuru, 1977).

The backbone of Tanzania's national economy is the agricultural sector or more specifically the peasantry: about 87% of Tanzania's population of approximately 15 million live in the rural areas and 90% depend on farming for their livelihood. Half of the Gross Domestic Product (GDP) comes from agriculture and one quarter originates in the subsistence sector. Industry and services sectors contribute about 15% and 35% respectively. In 1975/76 of the total GDP increase of shs.412 million, shs.220 million came from the agricultural sector of which shs.190 million was due to subsistence agriculture, mainly food crops (Economic Survey, 1975 - 76). This situation is likely to prevail for some generations to come. (Also see Appendix Table 2.) The export trade also is dominated by agriculture, (table 3.2), which contributes about 80% with more than half of all exports produced by peasants (De Vries and Hansel, 1975).

Table 3.2. Tanzania: Value of Domestic Exports, 1962, 1968 - 1975 (Mil. T. Shs.)

Principal commodities	1962	1968	1969	1970	1971	1972	1973	1974	1975
Coffee, not roasted	132	265	257	312	227	383	495	375	483
Cloves	42	60	152	109	179	240	233	88	321
Sisal	315	159	160	179	134	145	222	363	302
Cotton, raw	148	283	235	247	245	336	333	473	297
Diamonds	105	135	178	161	209	123	165	122	178
Cashewnuts	47	102	119	115	120	150	141	196	177
Petroleum products	0	162	105	111	143	216	87	130	139
Tobacco	2	40	35	45	43	49	56	88	82
Tea	32	45	48	42	49	54	54	69	81
Meat	46	43	47	35	38	42	18	45	14
Other commodities	203	291	331	333	348	289	429	502	474
Total	1,076	1,585	1,667	1,689	1,735	2,028	2,235	2,552	2,549

Source: Economic Survey 1975 - 1976, The United Republic of Tanzania.

As emphasized in "Siasa ni Kilimo" (TANU, 1972)the country's agricultural production must:

- Provide food for farmers.
- Provide food for more than 44% of the population who are 14 years or under and 9% who are over 50 years (these totalled 6.8 million out of 12.3 million in 1967).
- Provide food for adults numbering more than 450,000 who do not farm but work in other places.
- Provide food for 5.3 million children expected between 1967 and 1980 if the present birth rate of 2.5% continues.
- Improve the quality of food-stuffs.
- Produce for the outside world to earn foreign exchange.
- Produce crops (raw materials) for our domestic industry.

This implies that the efficiency of agriculture must increase in order to steer the country towards the desired development objectives.

According to Feldmann(1969), historical evidence demonstrates that the indigenous agricultural system in Tanzania has made considerable contributions to the development of the country's economy. Since 1954 African small-holder production has developed at a faster rate than the estate sector and, except for the two estate crops, tea and sisal, small-holder production and its

growth potential dominates every aspect of agricultural production in Tanzania (Appendix table 3.)

The need for increased agricultural output in normal years to offset shortfalls due to unfavourable weather or other factors is illustrated by developments in 1973-74 when due to widespread drought, Tanzania imported some 600,000 tons of food grains valued at shs.893 million to offset the fall in domestic food production (Africa Magazine, 1977). This state of affairs weakens the country's ability to purchase capital goods like machinery for developmental purposes.

According to Raikes (1973), since the industrial sector is to promote major growth, an investible surplus must be transferred from agriculture to industry and this implies that production and productivity in agriculture must be raised as rapidly as possible and at least initially through methods which do not require major diversion of investment funds to agriculture itself. Since traditional agriculture is not capable of generating surpluses rapidly, development must be concentrated in the rural areas by using intermediate technology.

3.2 EARLY ALTERNATIVE APPROACHES TO AGRICULTURAL DEVELOPMENT

Tanzania, like many other developing countries, decided, on gaining independence in 1961, that the methods used by the colonial government for increasing agricultural production could not achieve a rate of economic growth that was considered desirable and feasible.

The World Bank Mission Report, which had advised on economic development of Tanzania (then Tanganyika) in 1960, distinguished two approaches to agricultural development: the Improvement Approach and the Transformation Approach (Feldman, 1969).

The Improvement Approach: This aimed at the progressive improvement of the then-existing methods of crop and animal husbandry by working with peasant farmers on both psychological and technical planes to induce an increase in high productivity without any radical changes in the traditional social and legal systems. But the Improvement Approach suffered from the following disadvantages: First, the communication of information depended on personal contact between the agricultural extension worker and the individual peasant farmer. Since in most parts of the country farmers did not live in nucleated villages but rather in isolated homesteads, much of the extension workers' time was wasted in travelling from farmer to farmer. Furthermore, supervising and disciplining extension workers was difficult, tending to reduce their effectiveness still further. Second, individual peasant farmers were unwilling to adopt new techniques which would mark them as different from their neighbours. This acted as a psychological barrier to the improvement of agriculture. Third, the improvement approach pre-supposed that an

agricultural system based on small-scale individual peasant holdings could provide the medium for long term economic and social development.

The Transformation Approach: Due to the limitations of the Improvement Approach, the government wanted to gain through the Transformation Approach more immediate solutions to land tenure and agricultural under-employment problems. By concentrating investment of capital and technical manpower on groups of farmers settled in more fertile parts of the country, farming systems based on more intensive and permanent use of the land would be created and a rapid increase in production of priority crops would be obtained from planned farms of economic size. This method would overcome the economic disadvantage of small-scale agriculture and by grouping together the farmers whom the extension officer advises would increase the efficiency of farmer education. Furthermore, a community of farmers at least partly removed from their traditional conservative environment would be expected to show less resistance to adoption of innovations than individual farmers on their own existing holdings (Ellman, 1969). The government would also be better able to supply social services such as schools, dispensaries, and a water supply to farmers living in gathered villages. Finally, this policy would lead hopefully to the creation of co-operative farming villages in which members would

work together on the basis of human equality, and would be the first and essential step towards the development of a socialist country.

The Transformation Approach had as its goal the introduction of technical, social, and legal systems which would allow the exercise of modern agriculture techniques based on high productivity and which consequently would justify considerable investment capital (Feldman, 1969). In effect it meant that the bureaucracy and not the peasantry would become the main decision-making force in determining the path of agricultural change. The ideas behind the Transformation Approach had their roots in the policy pursued by the British Administration prior to independence. The Groundnut scheme might be seen as the first transformation project attempted in Tanzania. Projects started before independence by the Tanganyika Agricultural Corporation also served as models for the proposed transformation under the 1964-69 Five-Year Plan.

The Transformation Approach was chosen by the government as its major form of intervention to encourage development in the agriculture sector. In 1963, the Rural Settlement Commission was established as the policy-making body for the Transformation Approach to agriculture and at the same time the Village Settlement Agency came into being as the executive arm of the Rural Settlement Commission. Plans were made to

start 74 village settlements in the first plan (1964 - 69) period, each of which would consist of 250 families and involve a capital investment of about £150,000 (Feldman, 1969). Irrigation projects were also planned which involved government design and management.

Farmers were chosen from areas of heavy population pressure, and settlements were sited in sparsely occupied land of high potential like river basins. Farmers were assisted to settle in new areas by provision of rations and cash advances until they obtained their first harvest. The settlements were based on sisal, tobacco, cotton, wheat, sugar-cane, livestock, coconuts, cashew-nuts, etc. Farmers had individual plots within a block but whenever possible they were encouraged to work on a co-operative basis. Thus purchasing and marketing was done in bulk and machinery was co-operatively owned and hired out to individuals. Four pilot projects were started in 1963. At the end of 1965, there were 22 village settlement schemes consisting of 15,000 acres of crops and 3,402 families, (Feldman, 1969). Farmers had individual plots on which varying degrees of co-operation between neighbours were practised.

As noted earlier (De Vries and Hansel, 1975; Feldman, 1969; Ellman, 1969; Ministry of foreign Affairs, 1975) expansion of the Transformation programme of the Five-Year Plan was halted in the middle of 1966 because it failed in its objectives of producing rural development because:

(i) Many farmers chosen to join the schemes were far from suitable. Most were urban unemployed with little experience and less interest in farming and joined the schemes for promises of free rations, and other delights rather than for opportunities offered to improve their standard of living.

(ii) No attempt was made to explain to the farmers what the government's intentions were or to involve the farmers in the planning and establishment of their schemes. So farmers did not identify themselves with the development aspects of the schemes but considered themselves as temporary and as employees on government estates.

(iii) The initial planning of many of the schemes was poor, both in terms of the physical planning of the farms and the economic planning of the farming system. In most schemes prime emphasis was attached to provision of social facilities rather than the productive enterprises from which these had to be financed; in almost all cases mechanization was introduced automatically without due regard to whether it was economically justifiable or technically feasible. So the schemes were over-capitalized compared with their capacities to generate economic benefits.

(iv) The settlers expected that the government would do much of the development for them.

(v) There was shortage of skilled managers and accounting staff which constituted a block to efficient operation of the programme.

(vi) Finally, the hoped-for foreign aid which was to be used to finance the programme was cut back.

In fact, the government finally came to realize that the programme was causing a substantial drain on its resources and that it was spending too much on a small part of the rural population. The village settlement programme was therefore abandoned in mid-1966 as a rural development strategy.

3.3 DEVELOPMENT OF UJAMAA VILLAGES

3.3.1 EARLY VILLAGES

The concept of ujamaa villages started when the President of Tanzania addressing Parliament in December 1962 pointed out that before development can be brought to the majority of the people it was necessary first to make it possible for them to live in villages (Bulegi, 1975). The early phases of actual villagization and ujamaa development shortly before and after independence in 1961 saw the creation of some spontaneous settlements all over the country. Most were started on new lands or old sisal estates under the leadership of the TANU Youth League. But many of the initial settlements

were later abandoned because of a lack of basic facilities and harshness of the environment. This resulted in the Transformation Approach towards rural development as discussed previously. The schemes tended to create a dependent spoon-fed class of privileged settlers. The Improvement Approach also resulted in increased differentiation and inequality amongst producers as a result of what is now termed the "Progressive farmer Policy" (De Vries and Hansel, 1975).

3.3.2 THE ARUSHA DECLARATION

Though the villagization policy continued to be advocated by Party and government throughout this time after 1962, the failure of the Improvement and Transformation Approaches resulted in re-thinking the entire policy. This crisis led to the Arusha Declaration early in 1967 which aimed seriously to settle all Tanzanians into villages. This Declaration, which was followed almost immediately by the publication of the 'Paper' on "Socialism and Rural Development", heralded the beginning of another strategy in this area. This new strategy, like the village settlement schemes, took the villages to be pivotal. In this strategy emphasis was placed on improving the existing traditional villages and their different forms of living. The Arusha Declaration as a party and government programme defines the framework for development of

Tanzanian society. Tanzania's main objectives are stated as: the development of an egalitarian society, the achievement of economic independence based on self-reliance, and the best possible use of the country's own resources (De Vries and Hansel, 1975).

The announcement of the Arusha Declaration was followed by a call for an all-out effort to establish ujamaa villages throughout the country's rural areas. As a result of the Declaration, many ujamaa villages sprang up in different parts of the country in response to the President's call, with the majority calling themselves ujamaa when in fact few had any real ujamaa activities (De Vries and Hansel, 1975). Many of these villages were poorly planned and both the farmers and the government officers who were advising them had inadequate understanding of the reasoning behind the policy. In some cases enthusiastic civil servants or politicians tried to push farmers into villages without explaining to them what they should be doing (Ellman, 1969). The setbacks of the early villagization programme were due to the fact that (Subira, 1976):

- The villages lacked clear guidance on how many families should constitute a village. Villages ranged from less than 50 families to over 20,000 people in Ikwiriri villages in the Coast Region.

- Clear guidance of what organs should exist in the villages for smooth implementation of their activities was lacking.
- Villages relied mostly on their own initiative and traditional farm expertise.
- Clear guidance of what steps should be followed for the establishment of their village was lacking.
- Most villages proclaimed themselves ujamaa villages when infact members were not conducting a socialist way of life.

But the biggest problem that faced the early ujamaa villages after the Arusha Declaration was lack of proper economic planning. The State House circular noted: "While a number of our people have readily responded to political mobilisation and have come together to form villages no concrete and practical economic programmes are seen to be following this move (Bulegi, 1975). The circular ordered the establishment of land experts to help improve the ujamaa villages' economic development programme although few such experts were available.

3.4 OBJECTIVES AND ROLE OF UJAMAA VILLAGES IN RURAL DEVELOPMENT

3.4.1 UJAMAA VILLAGES AS ECONOMIC AND SOCIO-POLITICAL INSTITUTIONS

Ujamaa villages were formed to be economic and social communities where people live together and work together co-operatively for the good of all (Raikes, 1973; Sumra, 1975). This envisages changes in the settlement patterns, land tenure and work habits, and means that land should be jointly controlled by all members. According to De Vries and Hansel (1975), Tanzania's policy of rural development through nucleated villages and ujamaa villages include the following inter-related economic and socio-political objectives:

> (i) improving innovativeness, (ii) realizing economies of scale, (iii) increasing labour productivity, (iv) securing equality, (v) raising rural welfare, and (vi) enhancing self-reliance and self-determination.

These objectives can be partially attained in recognized villages but ultimately depend on the formation of ujamaa communities. These objectives are in line with criteria for the decision of agricultural development strategies suggested by Johnston namely to: Contribute to overall economic growth and structural transformation; increase farm output at low cost by encouraging technical innovations most appropriate to

the country's endowment; improve rural welfare on a broad base and facilitate social modernisation (De Vries and Hansel, 1975).

Budakila (1975) outlines the objectives of ujamaa village development as:

> "to build a society in which all members have equal rights and opportunities and in which all members have basic levels of material welfare; to develop new socialist relations of production based on communal land utilization, communal ownership of the means of production and socialist organization of labour; to promote self-reliance in social economic activities".

The ultimate goal of villagization is to establish economically and socially viable and self-reliant communities. This includes provision of health facilities, roads, water, and other infrastructural services. Mdonde (1975) also observes that villages could create the millieu for social and economic development of people in the rural areas. Since the government does not have funds to provide all these facilities to all villages, an alternative would be to mobilize and motivate the peasants for their own self-reliant development. Only when all peasants live together in villages will it be possible to provide them with essential social facilities long denied to them. Economies of scale may be

realized through low spending per unit of production in large communal enterprises. Economies can also be realized in produce marketing and purchasing of inputs. In large communities public funds can be spent more efficiently for desired public services. Labour productivity may also be increased, it was thought, through economies of scale as people work harder, longer, and more efficiently in groups. Major improvement in the productivity of Ujamaa may be brought about by better division of labour and specialization resulting in better and more specific performance of tasks including management and leadership. Similarly, the productivity of public service workers may be improved by specialization and division of labour made possible in large communities (De Vries and Hansel, 1975).

Rural development through progressive farmer policies tend to benefit the large and wealthier farmers most, thereby enhancing socio-economic differentiation. Ujamaa villages allow for political and economic control of extreme inequality while at the same time leaving sufficient room for necessary differentiation and specialization.

Ujamaa means, in effect, the socialist way of production and marketing, utilizing the benefits of scale-economics and division of labour and eliminating

the inequality between men and women. Furthermore, decision-making in large and progressive communities was thought to be more rational and goal directed.

It was hoped that social and political changes would be derived from the process of villagization and political education. Thus the concentration of population in village communities was aimed at increasing the degree of political control and hence make the various programs of political mobilization more effective. The moving of people into new planned communities was aimed at breaking the hold of traditional social institutions and allowing innovatory co-operative organizations to take their place. Democratically controlled and planned producer co-operatives are social organizations which can increase productivity and creativity for the fueling of a socialist transformation. On the other hand, once decisions have been made democratically by the village all members are bound by them and must be disciplined by the village if they contravene them, since discipline is no less necessary in a socialist organization than in a capitalist estate.

Ujamaa villages are instruments for implementation of the ujamaa ideology and their operating objectives should be to become economically viable and self-

reliant. To equip the villages for their new role in the national development efforts, a law has been enacted to enable all villages to be accorded a legal status. According to the Villages and Ujamaa Village Act of 1975 a registered village is a multi-purpose co-operative society involved in various economic and social activities and services with the purpose of improving standards of living in the village. Each village is allowed to form a village council which is under the general direction of its village Assembly (Budakila, 1975; Bulegi, 1975). According to Bulegi (1975), the village Councils are authorized to plan economic and social development for the villages, to initiate and undertake enterprises, to ensure the welfare and well being of the villagers, and to plan and coordinate activities and render assistance and advice to the residents of the village.

3.4.2 UJAMAA VILLAGES AS MODERN FARMING UNITS

The Tanzanian national economy during the colonial period and even after independence can be described as mainly of a subsistence nature characterized by shifting peasant agriculture and low capital formation. Since 1967 the intention within the ujamaa village concept has been to evolve a system combining moderately labour-intensive farming methods with the use of modern

inputs and practices but little capital investment in mechanization and to encourage the type of co-operation practised by the traditional extended family. President Nyerere has emphasized that only when agricultural production itself is organized in a socialist pattern can co-operative marketing societies serve socialism, thus building a society in which members have equal rights and opportunities and in which there is no exploitation of one man by another (Budakila, 1975).

The resources Tanzania believes it possesses in abundance and in unlimited quantities are land, peasants in rural areas, and the people's willingness for concerted and collective efforts. It is stated in "Siasa ni Kilimo" (TANU, 1972): "For many years to come, the majority of citizens will continue to live in villages and earn their livelihood through agriculture. The land is the greatest basis of our people and our country. We have no other basis. ..... Now the pinnacle of Tanzanian socialism must be villages and farmers in villages ..... In order to implement modern farming techniques we must have large farms of co-operative nature. Hence the way to revolutionalize agriculture is to hasten towards and establish ujamaa villages. Farms in Ujamaa villages must be farms where modern techniques are applied". It is believed that social and economic

environment in the villages makes adoption of the new techniques easier and more cheaply effected as well as widening the range of innovations which is appropriate in any particular case. The commonly-accepted agricultural extension aims of better farming, better business, and better living are in line with the overall objectives and goals of villagization such as the improvement of produce marketing, credit, input supply, research, extension, education, planning, etc. (De Vries and Hansel, 1975). Furthermore, according to De Vries and Hansel (1975) it is possible to introduce innovations or enterprises on a co-operative or communal basis which would be beyond the capacity of individual farmers to implement, such as building a dam for a fish pond, irrigation, establishment of a poultry-broiler unit, etc. Village multi-purpose co-operatives could play a large part in direct production including the supply of fertilizers, plant protection, credit, improved seeds, etc. which are necessary for modern farming techniques. For example, economies of scale in giving technical advice, use of modern farming methods, and increased specialization of the labour force was expected to make it easier to attain increased production of cotton in Ujamaa villages than in the traditional farming system in Sukumaland in Western

Tanzania, (Percy, 1975). The ease of communicating ideas to groups and the more receptive and progressive atmosphere in the new villages, it is hoped, will lead to considerable progress in this direction. Bulegi (1975) contends that villages in rural areas provide greater possibilities of revolutionalizing the peasantry all together and establishing socialist production methods with inherent possibilities for modern innovations. Large-scale communal production enables the Ujamaa to act like big farmers who set-aside some of their pooled resources to take the risk of innovations. De Vries and Hansel (1975) argue that less costly intermediate technologies including animal and human powered equipment may be used. Ujamaa can also assist private production through mechanized block farming to reduce labour demand peaks such as ploughing, maintenance and harvesting.

These objectives can be partially attained in recognized villages, but ultimately depend on the formation of ujamaa communities.

3.5 THE FRONTAL APPROACH - OPERATION VIJIJI

Villagization was still slow in the wake of the Arusha Declaration with total numbers of 48 ujamaa villages in Tanzania in 1967, 180 in 1968 and 650 housing 2.5% of the population in 1969 (De Vries and Hansel, 1975). In some areas villages had been

started by force and threats of force. To ensure that this did not happen again the Government and the Party clarified the meaning of Ujamaa and showed how it could be implemented. In "Freedom and Development" the President stressed that successful ujamaa could only be established by the voluntary will of farmers and that all decisions relating to the running of the villages must be taken by the members and not imposed from outside (Hyden, 1969). Presidential circular No.1 also reacted to the use of force by pointing out the basic principles of ujamaa including voluntary membership and self-administration (De Vries and Hansel, 1975). The general official feeling was that villagization was progressing too slowly and that government and Party workers should take a much stronger role, actively encouraging villagization whenever the opportunity arose. So in later times of the villagization programme, the emphasis was shifted towards the "Frontal Approach" in which campaigns were mounted for the ujamaa development of whole districts and later the whole country. At the same time there was a shift in emphasis from co-operative production towards villagization. With the Regional Development Fund to finance village projects, the administrators in addition to exercising pressure were able to promise social services and other government help to any group willing to call itself an ujamaa group and engage in some communal production. In areas

considered troublesome because of special problems, such as flooding or famine, so called Operation Vijiji were launched to resettle the total population in villages. The government now took the initiative in selecting and demarcating sites, choosing the village members, and helping them to move to the new areas by providing transport (Lulogi, 1975). The rate of villagization after the Arusha Declaration and the number of people living in ujamaa villages is shown in tables 3.3 and 3.4.

Table 3.3. Tanzania: Post-Arusha Declaration Villagization.

Year	Ujamaa Villages	Village Population		Proportion of national population in villages
		Average per village	Total	
	No.	No.	1,000	Percent
1967	48	104	5	0.04
1968	180	322	58	.5
1969	809	371	300	2.5
1970	1,956	272	531	4.3
1971	4,484	345	1,545	12
1972	5,556	357	1,981	15
1973	5,628	360	2,028	15
1974	5,008	511	2,560	18
1975	(6,000)	1,500	9,000	60

Source: De Vries, (1976).

Table 3.4. Tanzania: Total Number of villages and Population in villages by Regions, 1970 - date.

Region	Number of villages						Population				
	1970	1971	1972	1973	1974	Jan. 1977	1970	1971	1972	1973	1974
									1,000		
Arusha	25	59	92	95	110	209	5	14	20	20	25
Dar-es-Salaam 1/	-	-	-	-	25	35	-	-	-	-	5
Dodoma	75	246	299	336	354	322	26	239	400	379	505
Iringa	350	651	630	659	619	463	12	216	208	244	245
Kigoma	34	132	129	129	123	165	7	27	114	114	111
Kilimanjaro	9	11	24	24	14	284	3	3	5	5	3
Lindi 1/	-	592	626	589	339	3/	-	203	175	169	219
Mara	174	376	376	271	111	287	85	127	127	108	134
Mbeya	94	493	713	715	554	501	33	64	99	104	86
Morogoro	19	113	116	118	96	363	6	11	24	20	26
Mtwara	750	748	1088	1103	1052	466	244	372	441	466	534
Mwanza	28	127	211	284	153	335	5	19	32	50	41
Pwani	56	121	185	188	238	3/	48	94	112	115	107
Rukwa 1/	-	-	-	-	121	156	-	-	-	-	25
Ruvuma	120	205	205	242	180	253	9	29	29	42	63
Shinyanga	98	150	123	108	134	425	13	12	15	12	18
Singida	16	201	263	263	317	260	7	51	52	59	142
Tabora	52	81	148	174	156	263	17	18	25	29	29
Tanga	37	132	245	249	255	345	8	36	78	78	68
West Lake	22	46	83	85	77	491	6	9	17	13	16
Total	1956	4484	5556	5628	5008 2/		531	1545	1981	2028	2560

1/ Not created until year for which data are first shown. 2/ In 1974 some villages combined thus resulting in a decline of total villages but the population in the villages increased. 3/ Figures for Lindi and Coast Regions were not available.

Source: 1970 - 74: "Vijiji Vya Ujamaa Vilivyoshinda": TANU, Miaka 20. Saba Saba 1974. Published by Prime Minister's Office.
January, 1977: Regional Ujamaa and Co-operative Development Office, Morogoro.
Tanzania Official Gazette File.

The first Operation in Rufiji and Mtwara were launched in 1969 followed by Operation Dodoma later in 1969 and Operations Kigoma, Iringa, and Chunya in 1972. In 1973 Operation Vijiji was launched in many other low-population areas (De Vries and Hansel, 1975).

3.6 OPERATION TANZANIA

The real turn of events in the country's villagization policy came with a resolution passed by the 16th Party Biennual Conference in 1973 which called on every Tanzanian to live in a village by 1976 except those employed in urban centres. At this conference TANU resolved that living in villages was a concern for all regions. Then on 6th November 1973 the President declared that everybody must live in a village by the end of 1976 (De Vries and Hansel, 1975). The result was a large-scale move into villages often called Operation Tanzania. By the middle of 1975 over nine million people or about 60% of the population had moved into over 6,000 villages (De Vries and Hansel, 1975). The last column under number of villages in Table 3.4 shows the total villages by regions as of early 1977. Thereafter the number of villages was expected to grow by about 2.5% annually to keep up with the expanding population (De Vries and Hansel, 1975). According to statistics from the commissioner of Ujamaa and Co-operative Development, by september 1976 a total of 6,152 villages with over 10 million people had been esta-

blished on the mainland since the Villages and Ujamaa villages Act was passed in 1975. The target was to have between 7,000 - 8,000 villages registered by the end of 1976 covering all of the 13 million people who are the present rural population of the country (Subira 1976). By February 1977, there were 6,087 registered villages on mainland Tanzania (Daily News, 1977a), but not all villages are Ujamaa. By mid-1977, over 8000 villages existed (Uhuru, 1977).

However, a number of problems have been experienced. Many villages were poorly planned; some are too large; others are poorly situated in terms of water supply, fertile land, etc. and others have been poorly laid out. Besides, the move has required labour for building houses and clearing land. But all the same most of the progress of this country interms of providing people with essential services is due to the villagization programme which has been going on since independence.

C H A P T E R IV

VILLAGES OF STUDY

4.1 INTRODUCTION TO MOROGORO DISTRICT

Morogoro District covers an estimated area of 19,300 km^2 and lies between longitudes 37° 20' to 38° 20' and between latitudes 6° and 8° South of the Equator. To the North are the Handeni and Bagamoyo Districts; to the East Kisarawe and Rufiji Districts, to the South Ulanga District and to the West is Kilosa District. Most of the District lies between 300 m and 900 m above sea level. However, the Uluguru Mountain Range averages over 1200m above sea level.

The District as a whole has a hot climate with temperatures over 21°C especially during the October-December period. But the crest of the Uluguru Mountain Range, which is 2300m above sea level, is 10°C cooler than Morogoro township. The main climatic factor affecting crop production in the Region is rainfall and its variations. The District has two rainy seasons: November/December and March/May, (See table 4.1). Normally, the two rainy seasons are separated by a short dry spell from January to late February. Although rainfall is concentrated in March to May, amounts vary considerably throughout the area due to topography. The largest inter-annual variations in rainfall occur in the Mvomero area, where the average rainfall varies from 762mm to 1270mm. The mean number of rainfall days

varies between 75 and 100. Rainfall distribution is not even. Maximum mean annual values of over 2,000mm occur in the Nguru and Uluguru Mountains. Rainfall reliability is a problem particularly in the lowland plains where droughts have been experienced in each of the years 1971 to 1975, resulting in crop failures, mainly maize and paddy, leading to famine in some villages. Most of the lowland areas depend on cereals, like maize, sorghum, and paddy, as the major source of food.

Soils are variable, consisting of six main groups: (1) Drab slightly clay soils; (2) red soils with friable clay (alluvial but leached soils); (3) brown red soils with very friable clay; (4) undifferentiated black soils (Red Murram Grey); (5) Alluvial soils; and (6) Soils partly overlaid with alluvium (Mlambiti, 1975). The most suitable soils for agricultural development are those of the alluvial fans in the Mgeta Valley. In general, they are moderately fine textured and well drained. The soils are generally deep, except for the mountainous and hill soils which may be strong and rocky. Recently deposited fine textured soils which are suitable for paddy cultivation occur in the central parts of the alluvial flood plains (Wami, Mgeta) and in depressions. Erosion is a serious problem. Most soils are susceptible to erosion as soon as the vegetational cover is removed. This applies especially to the Uluguru Mountains.

Table 4.1. Morogoro District: Monthly rainfall by days and amounts, 1971 -1976.

Month	Amount						Days					
	1971	1972	1973	1974	1975	1976	1971	1972	1973	1974	1975	1976
	mm						No.					
January	125	109	249	27	104	106	8	8	17	6	9	3
February	38	116	86	12	38	22	5	9	10	3	1	4
March	64	177	41	86	163	118	9	14	9	7	12	13
April	227	166	291	279	198	157	24	18	24	21	19	16
May	59	153	77	102	103	42	10	17	8	13	13	11
June	22	Tr	15	23	25	54	7	0	4	3	8	5
July	22	26	10	14	2	8	5	7	2	4	1	1
August	0	14	9	4	0	4	0	1	1	2	0	1
September	4	23	4	4	11	29	2	6	1	2	3	3
October	6	83	18	25	22	8	1	7	3	3	3	1
November	4	71	48	1	30	9	1	8	5	0	3	2
December	35	107	126	10	78	62	6	6	8	1	6	4
Total	589	820	972	588	772	618	78	101	92	65	78	64

Source: University Metereological Station, Morogoro. Registration No.96.3776.

The natural vegetation consists of forests which occur on the high altitudes and occupy a reasonably large area. Woodland covered by the Miombo is predominant. Wooded grasslands (grasses and herbs with scattered trees) occur in the Wami and Mikumi areas and other areas previously cleared for cereal crop production.

Bush land and thickets prevail in semi-arid areas like the Mkata ranch, and Doma. Along the hillslopes where the soils are rather infertile species of Hyperrhenia rufa and Hyperrhenia colina occur. Panicum species elephant grass (Penisetum purpureum) is common along river banks. Other grasses common in the District are Chloris species, Sporobolus species, Cynodon species, Eragrostis species and many others, sometimes found with many scattered deciduous trees.

Population figures are shown in table 4.2. The population in the District is highly concentrated in the Uluguru Mountains. By 1967 the average density was 16.4 persons per km^2 in Morogoro District but it is now estimated to be 18.8 persons (United Republic of Tanzania, 1970; Ministry of Foreign Affairs, 1975).

Table 4.2. Morogoro Region: Population in selected areas

Area	Actual 1967	Projected 1977 1/
	.....1,000	
Rural areas by District:		
Morogoro	291	375
Kilosa	194	250
Ulanga	175	226
Morogoro town	25	45
Total	685	896

1/ Based on 2½% per annum growth rate in rural areas and 5% for Morogoro town.

Source: Statistical Abstract 1970. The United Republic of Tanzania.

4.2 AGRO-ECONOMIC SETTING OF THE DISTRICT

4.2.1 AGRO ECONOMIC ZONES:

According to SRALUP (1971), the District is divided into four zones (see also Figure 1):

Nguru Mountains: This zone includes the Kibati Sub-divion and a small highland part of Turiani Sub-division. It is mountainous with a heavy rainfall and low or very low population density. Communications are difficult because of relief. Main crops are maize, beans, and cassava, mainly grown for subsistence purposes. Coffee, the chief cash crop, is grown by a small proportion of farmers. Tribes are the Nguru, with a few Luguru, Zigua, and Kaguru.

Uluguru Mountains: It comprises north eastern Mgeta, eastern Mlali, Tawa, Western Mkuyuni, Western Matombo, Bwakira Juu, Eastern Mkuyuni, and Eastern Matombo Sub-divisions . The zone is mountainous with high rainfall and dense population. Shortage of land, soil erosion,

and poor communication are problems in most parts. The altitude varies from 500 m to 200m. The soils are mainly dark red or reddish brown sandy loams. The average annual rainfall varies from 1000 to 3000 mm. Maize is grown throughout the zone as the main food crop together with some cassava and beans. Chief cash crops are coffee, vegetables, and citrus fruits. The natural vegetation is upland moist forest on the higher and wetter slopes and Brachystegia woodland on the lower slopes. The main tribe is the Luguru.

Northern Plains: It consists of Mvomero, most of Turiani, Kingolwira, Ngerengere, and Northern Mlali Sub-divisions. It is mainly undulating lowland which includes the valleys of the Wami and Ngerengere rivers. However the land becomes hillier in the South-east and flatter in the West. Soils are mainly clay loams or sandy clay loams varying in colour from dark greyish brown to red. The average annual rainfall varies from 700mm in the South-West to over 1000mm in the East. The natural vegetation is a mixture of Brachystegia and Acacia woodland. Crop production is the main activity; most farms are large, with many large sisal estates. Main crops in addition to sisal are maize, sorghum, pulses, oilseeds (mainly sesame), and, in valleys, paddy, together with cotton and bananas. A few large herds of cattle are mainly owned by semi-nomadic pastoralists (Masai, Kwavi, and Gogo). The population density generally is low but becomes denser around Morogoro town

and very low in the North-east.

Ukutu Plains: This includes the subdivision of Mvuha, and most of Bwakira Chini. This zone consists of flat plains of the Ruvu and Mgeta Rivers. It is isolated and sparsely populated. Most settlements are concentrated in the Upper parts of the valley at the foot of the Uluguru Mountains, while the remainder is almost uninhabited tse tse-infested woodland. The main subsistence crops are sorghum, maize, and paddy, together with some pulses and cassava. This zone is almost flat with broad drainage ways which flood in the wet season. Soils vary from dark grey to brown sandy loams and loamy sands. The average annual rainfall varies from 900 - 1200mm and the natural vegetation is mainly Terminalia woodland with seasonal-flooded grassland in the valleys. Most of the zone is affected by tse-tse flies. Animal husbandry is of negligible importance but most people keep poultry. The main tribes are the Kutu, with a few Luguru, Pogoro and Ngindo.

Table 4.3 lists the generalized agro-economic zones found in the District and the major crops grown in each.

Table 4.3 Morogoro District: Agro-Economic Zones together with major crops grown in each

	Main crops	
	Food	Cash
Mountain highlands	Maize	Vegetables, Coffee
Escarpments and foothills	Maize, Upland rice	Maize, oil crops
Plains and valleys	Paddy, Maize	Cotton, Kapok Sugarcane

Source: Ministry of Foreign Affairs, 1975.

4.2.2 FARMING SYSTEMS

Smallholder Farming: Smallholder farming to date has been practiced chiefly on individual holdings. But since 1970 some groups of farmers have engaged in collective (communal) farming in some villages. In 1970 Morogoro District had some 2,200 Km^2 under small holder cultivation and the whole Region was estimated to have 38,800 km^2 under smallholder cultivation (United Republic of Tanzania, 1970). The number of smallholdings in the District is not known but the whole Region is estimated to have 200,000, each with an average of one ha of land under cultivation (Ministry of Foreign Affairs, 1975). Farm management practices are traditional, based mainly on shifting or semi-permanent cultivation with long fallow periods. Permanent croping is practised near the homestead and consists of tree crops, vegetables, and safety crops (such as cassava, bananas, peas, and green grams). Normally vegetable growing is carried out in highlands under smallholder traditional irrigation. The principal input is labour, mainly supplied

by household members. Little use is made of fertilizer, mechanized land preparation; or animal-drawn implements. The principal tool is the hoe.

Main food crops are maize, paddy, sorghum, cassava, and bananas. These crops are produced for subsistence, but surpluses are marketed. Main cash crops include cotton, sunflowers, simsim, and castor beans, while trees crops include coffee, mango, and citrus. Minor crops are peppers, egg-plant, tomatoes, and leafy vegetables.

Collective Farming: Since 1970 certain farmers in Ujamaa villages have participated in collective (Ujamaa farming)in addition to cropping their own lands. The main communal crops are maize, cotton, sorghum, paddy, and sugarcane. The total acreage cultivated collectively is small and during a recent cropping season (1975/76) was estimated to amount to less than a thousand ha for all crops grown communally. Table 4.4 shows total communal acreage under various crops as compared to total acreage in the District in the 1975/76 cropping season, while Appendix table 4.1 shows communal acreage cultivated in the sample villages in the 1973/74 - 1974/75 seasons.

Table 4.4. Morogoro District: Communal and total acreage by major crops, 1975/76 season

Communal crops by villages 1/	Maize	Cotton	Paddy	Sorghum
	.....	.....	Acres	.....
Bwakira Chini	154	0	50	119
Kauzeni	28	15	45	9
Kikundi	4	2	24	0
Kizinga	60	20	0	40
Kisaki	0	0	0	40
Kidudwe	0	0	0	0
Lahololo	11	0	4	9
Lukobe	15	0	0	0
Mkata	24	24	0	36
Msongozi	10	25	0	0
Total 2/	307	86	123	253
Estimated District total for all farmers	96,000	6,000	43,000	25,000

1/ Assumed to be zero for the remaining villages in the District.

2/ The communal acreage is most likely exaggerated since figures at the District Agricultural office are often above the actual figures.

Source: District Agricultural Office, Morogoro. June 1976 Monthly Report, File No.A/MR/MD and own investigation.

Participating ujamaa villages often receive free government assistance in the form of improved seeds, fertilizers, insecticides, and mechanized (tractor) land preparation. Analysis of communal farming to date in the District and Region indicates that the per hectare returns for crops cultivated collectively are below the level achieved by individual farmers in spite of the higher level of inputs (survey results; Ministry of Foreign Affairs, 1975). Table 4.4 shows that few of the many existing villages engage in communal farming.

Estate Farming: The District is estimated to have 1,600 km^2 (2.2%) under large-scale agriculture while the whole Region has 5,850 km^2 (0.7%) (United Republic of Tanzania, 1970). Estate farming includes government and private operations. Several sisal and one sugar estate at Ntibwa in Turiani sub-division exist. Estate farming is carried out by prisons at Wami and Kingolwira and the Faculty of Agriculture near Morogoro town. Private estates consist of sisal, sugar-cane, and the Wami/Magole group of Asian farmers who cultivate cereals (sorghum, maize) and oil crops (Sunflower and Sesame).

Estate farming is characterized by a well-trained managerial and technical staff working with a large and relatively unskilled labour force; the use of extensive capital investment; a high level of inputs; modern techniques suitable for large-scale production, and relatively high levels of efficiency.

4.3 VILLAGIZATION PROGRAMME IN MOROGORO

4.3.1 PRESENT SITUATION

As noted earlier, the results of the Ujamaa village campaign after the Arusha Declaration were not altogether satisfactory. In 1972 only 4,446 ujamaa villages existed in the country, covering 15% of the total population. These villages were concentrated principally in the poorest regions. Morogoro Region had 118 such villages by March 1973 with a population of about 20,000 people or less than 3% of its rural population.

By 1974, only five of these villages had attained the final ujamaa status (Ministry of Foreign Affairs, 1975).

In August 1974 the policy of Ujamaa was changed to that of "Mandatory villagization". This means that the Ujamaa idea was temporarily receiving less emphasis, with first priority given to bringing people together in villages as the basis for further development. In only a few months 406 new or amplified old villages (average size 1,850 people) emerged in Morogoro Region (Ministry of Foreign Affairs, 1975).

Like other districts in the Region, "Operation Vijiji" in Morogoro District started in the last quarter of 1974 and was almost completed by early 1977. According to the District Authorities the rural population has been mobilized and settled in some 217 villages, thus marking the end of phase I in establishing and identifying villages. The District has moved towards Phase II which involves registration of villages. Up to September 1976, 168 villages had been registered, with more recent additions. The target is 215 (Ujamaa and Co-operative Regional office, 1976).

Table 4.5 shows the status of the villagization programme in Morogoro Region as of January 1977.

Although most of the rural population has been settled in definite villages, the District authorities contend that not a single village qualifies to be called "Ujamaa" as defined by the new village registration law, because a high proportion of the activities

are still carried out on an individual basis, the economy is not yet stable, and the villages are still dependent on government assistance.[2] Only social services are communally "owned". In fact some villages are really just arbitrary collections of homesteads.

Table 4.5. Morogoro Region: Ujamaa villages by District, January 1977.

District	Registered villages		Village population	Proportion of District population in villages
	Actual	Target		
	No.	No.	1.000	Percent
Morogoro	168	215	212	57
Kilosa	108	121	130	52
Mahenge	59	61	50	44
Kilombero	28	50	50	
Total	363	447	441 1/	49

1/ Based on unrounded data.

Source: Ujamaa and Co-operative Development, Regional Office, Morogoro.

N.B. During the villagization programme of 1975/76 only 363 villages were registered but the total number of established villages in the Region (including those not yet registered) is higher.

4.3.2 PHYSICAL AND SOCIAL INFRASTRUCTURE

Most villages in the District have access to one or more of the basic social amenities as shown in table 4.6. The social services are either present in the village or nearby for sharing with other villages.

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2 Personal communication with the District Planning Officer, Morogoro and Regional Ujamaa & Co-operative Officer Morogoro.

Table 4.6. Morogoro District: Number of villages with specified social facilities 1/

Item	School	Water 2/	Dispensary	Road	Flour mill 3/	God-own	First aid	Clinic
Number	97	80	26	18	17	4	4	3
Percent	45	37	12	8	8	2	2	1

1/ Estimated.
2/ Tap-water or from borehole or river-water.
3/ Mostly privately owned.

4.3.3 VILLAGE MEMBERSHIP

Most members of the sample villages are Waluguru, with a few from other tribes. Tribe composition is shown in table 4.7. The fact that villages are mainly composed of one major tribe creates a favourable atmosphere for living together harmoniously because they have a similar cultural background including language, customs, norms and values. But homogeneity in composition of village may also enhance localiteness and ethnocentrism which act contrary to modernising influences by limiting opportunities for contact change. (Rogers and Shoemaker, 1971).

Table 4.7. Sample Villages: Tribal composition

Village	Tribe	
	Major	Minor
Kidudwe	Wapare	Chagga, Gogo
Kizinga	Waluguru	-
Luhololo	Waluguru	-
Mkata	Waluguru	Zaramo, Ngoro
Msongozi	Waluguru	-

Source: Own investigation.

4.3.4 ATTITUDES OF WAJAMAA MEMBERS TOWARDS UJAMAA

Wajamaa have mixed feelings towards the ujamaa way of life. Most members were not willing to engage in

communal production[3]. Over half preferred Block farming to Ujamaa farming. Table 4.8 lists reasons why people prefer Block Farming. Many are committed to block farming because they know that all the produce they get is theirs and can be used any way they want without seeking consent from the village leadership. The majority of farmers did not understand why they were living in Ujamaa villages. About half implied they came to the villages due to government pressure. Table 4.9 summarizes reasons why members joined the villages.

Table 4.8. Sample villages: Reasons why farmers prefer Block Farming to Ujamaa Farming

Reason	Farmers (N=27)	%
The produce is mine and I can use it as I wish	12	44
People will work hard due to more commitment	10	37
It is easy to guard the shamba against vermin animals	9	33
Lazy people can be exposed and may be motivated to work hard	5	19
Farmers can learn good farming practices from each other	2	7
Other:	3	12

Source: Own Investigation.

Table 4.9. Sample villages: Reasons why farmers joined Ujamaa Villages.

Reason	Farmers (N=47)	%
People responded to government call	20	43
I was living in this village before villagization	16	34
People followed their relatives, and friends	6	13
This was the nearest village I could find	5	11

Source: Own investigation.

[3] All members of the ujamaa groups are supposed to do communal farming but due to low commitment to Ujamaa, some members do not attend on communal farm regularly.

Most farmers (24%) admitted that they had benefited in at least one way from being members of Ujamaa villages. Table 4.10 lists these ways, while table 4.11 shows what village leaders have gained or learned from communal production.

Table 4.10. Farmers: How they think they have benefited from Ujamaa village membership

Benefit	Farmers (N=42)	%
Free government assistance	42	100
Planting maize and cotton according to recommended spacing	33	79
Use of fertiliser and use of insecticide on maize	28	67
Social services	24	57
Thinning maize to 1 plant per hole	22	52
Cotton spraying	21	50
Thinning cotton to 1 - 2 plants	17	40
Co-operative shop	8	19
Other material benefits and farming practices 1/	40	95

Source: Own investigation.
1/ No single item was more than 10%

Table 4.11. Village leaders: Items they think they gained or learned from communal production

Item learned or gained	Leaders (N = 23)	%
Planting maize and cotton in rows	15	65
Application of fertiliser and insecticide on maize	7	30
Cotton insecticide spraying	6	27
Free government assistance	4	17
Co-operative shop	4	17
Regular extension services from Kwana Chamba	4	17
Thinning maize to 1 - 2 plants per hole	3	13
Use of Gesaprim (chemical weed killer) in maize	3	13
Other 1/	8	35

Source: Own investigation
1/ No single item was more than 10%

On the other hand 16% of the farmers said they had not benefited in any way from being members of Ujamaa villages. In fact members have benefited from the various social services now available in a good number of villages. But incomewise many members have not gained much because incomes from communal production are low. Though many farmers claimed to have learned various farming practices from communal farming, they did not necessarily follow these techniques on their own plots.

4.3.5. BACKGROUND OF THE SAMPLE VILLAGES

Kidudwe Village: The village lies on the Wami flood plains adjacent to the Mtibwa Sugar-estate. It started in 1971 and the members are exclusively of the Wapare tribe who were expelled from Kabuku, Handeni, where they were growing Sisal on a block farming basis. The ujamaa village enclave has a population of 515 with 156 abled-bodied members.

Kizinga Village: The village lies 7 km from the Morogoro-Dar es Salaam - Tanzam Highway. It started as an ujamaa village in August 1970 and has 182 families, with 800 people of which 362 are able-bodied. The

majority have resigned their Ujamaa membership. At the time of the survey, only 27 families were Ujamaa members.

The land available for cultivation is 2700 acres. During the 1974/75 cropping season, the village failed to weed the communal cotton farms because many people resigned. In 1975/76 the communal maize shamba did not produce anything due to drought. The village runs a small co-operative shop. Social facilities include: School, tap-water, godown, flour mill, and a road.

Luhololo Village: This is an old village which became an Ujamaa village in 1971. It lies along the Morogoro-Matombo road. It has 311 families totalling to 1,398 people with 781 able-bodied. The vajamaa members total 102 with 54 able-bodied.

The village has 8,770 acres of land available for cultivation. During 1975/76 cropping season, harvest from the communal plots of maize, sorghum, and paddy was poor due to drought. Besides communal farming, the village has a poultry unit with 200 layers. A primary school is the only social service available.

Mkata Village: The Village lies in the plains adjoining the Mikumi National Park five km from the Tanzam Highway. It started as a settlement scheme in 1964

with the majority of the first settlers coming from Dar es Salaam and Morogoro towns. The village turned Ujamaa in October 1971.

The village has 129 families totaling 500 people with 228 able-bodied. Only 128 people are Wajamaa. Available land for cultivation is 2,893 acres. The village has been a victim of drought in the previous several years leading to recurrent crop failure. The District authorities have advised the village members to move to other places where weather is better because the government has been spending a large amount of famine relief for the past three years.

Communal activities run by the village consist of: Co-operative shop, beer store, flour mill, and bottle shop. Social facilities include tap-water, primary school, dispensary, Sub-police station, and a community hall.

Msongozi Village: This village lies in the plains at the foot of the Uluguru Mountains adjoining Mikumi National Park. This is an old village which became Ujamaa in 1972. The village has 480 families and 744 people, of which 680, are able-bodied. Only 153 are members of the Ujamaa village enclave, with 55 able-bodied.

Besides communal farming, the village runs the following communal enterprises: Co-operative shop; beer shop; and poultry unit. But since villagers are there chiefly occupied on communal production, the Ujamaa have never shared money from any of their communal activities. During the 1974/75 cropping season, communal cotton sales amounting to Shs.2,950 was allegedly stolen from the village treasurer.

Social service facilities available in the village include: School, godown, flour mill; and a mission dispensary. Location of the villages is shown in Figure 1.

4.3.6 PRODUCTION ACTIVITIES

The major occupation of the villagers is farming, mostly on smallholdings on an individual basis. The total acreage cultivated collectively is negligible in spite of the mass political campaigns and injection of government assistance to promote large communal farms. The communal plots (Table 4.4) are too small to give reasonable returns based on economies of scale (see also appendix table 4). Some other enterprises are on a communal basis but on a small scale such as co-operative shop, poultry unit, milk cows, bar, pombe brewing, etc.

4.3.7 PARTICIPATION IN DECISION MAKING

According to the Villages and Ujamaa Villages Act of 1975, all registered villages are governed by a village Council ~~appointed~~ elected by the Village Assembly. Each of the sample villages has a village Council which

consists of 25 committee members assigned to the following committees:

1. Planning and Finance
2. Production and Marketing
3. Education, Culture, and Social Welfare
4. Construction (Building) and Transport
5. Security and Defence.

Sub-committees are charged with related duties. The village agricultural sub-committee oversees and plans operations on the communal shamba. It is very active when it makes decisions, in consultation with the extension workers, regarding land preparation, planting time, weeding, etc. and also checks the quality of the work done by each members.

Decisions made by the village are also influenced by government and party leaders. The village leaders considered the Ward Executive Secretary, extension workers, and the Ujamaa and Co-operative Officer as the most important people with the strongest influence on decision-making. The Ward Secretary has political authority to press the villagers to implement certain directives, while the local extension worker and the Ujamaa and Co-operative Officer can influence members through technical advice. Table 4.12 shows who? villagers considered to have the most influence on decision-making related to agriculture in the villages. Most suggested the village agricultural sub-committee, the Chairman and the extension worker. Decision

regarding communal activities must however be sanctioned by all village members before implementation.

Table 4.12. Sample villages: Farmers' views on people with most influence in decision-making

Individual or group	Farmers (N = 50)	%
Village Agricultural Sub-committee	27	54
The Village Chairman	21	42
The local agricultural extension worker	18	36
The village Secretary	8	16
All village members	2	4

Source: Own investigation.

The village council meets at least twice a month to discuss various issues concerning the village while general village meetings are held at least twice a year, especially when formulating development plans or discussing the performance of the village. An emergency general meeting may be called at any time. The functions of the village council were discussed in Chapter III.

Only a few committeemen besides the Village Chairman and Village Secretary were clear about their duties. The majority had a vague notion that they were charged with responsibility for preparing development plans for the village. Throughout the survey nothing was heard about the activities of the Committees on Security and Defence; Education, Culture, and Social Welfare; or Construction and Transport.

Village Plans: Since all villages in the Region are basically farming units, each had prepared a plan for the 1976/77 season. The planning process follows this sequence: The Village Planning Committee in consulta-

tion with the local technical and party workers formulates agricultural plan proposals which are then forwarded to the Village Council to be discussed. Once the village council approves the plans, they are forwarded to the Village General Meeting to be discussed and scrutinized by all members. At the Village General Meeting each member is free to give his opinion about the proposals. The Village General Meeting is the last sitting in the village to approve the plans before they are sent to the Rural Development Council (RDC). Table 4.13 shows village plans and their implementations in 1975/76 and plan proposals for the 1976/77 season.

As Mabole (1975) has observed, the problem of village plans seems to be economic viability. He noted that plans are not costed and many targets are based on wishes but are not formulated on the basis of village resources namely, land, labour, machinery, and financial assets. (Ellman, 1970) has also observed that a problem encountered in many ujamaa villages is poor planning of their economic enterprises (or no planning at all).

Table 4.13. Sample villages: Implementation of Village plans for 1975/76 and proposals for 1976/77

Activity	Kidudwe			Kizinga			Luholole			Mata			Isongoni		
	1975/76		76/77	1975/76		76/77	1975/76		76/77	1975/76		76/77	1975/76		76/77
	Target	Actual	Target	Target	Actual	Target	Target	Actual	Target	Target	Actual	Target	Target	Actual	Target
	..... Acres														
Crops:															
Cotton	0	0	0	30	20	360	0	0	0	150	24	160	30	25	20
Maize	310	0	310	50	60	360	30	10	30	150	24	60	15	10	20
Paddy	0	0	0	0	0	0	50	8	8	0	0	0	10	0	10
Sorgum	0	0	0	50	40	360	50	8	50	150	35	150	0	0	10
Sugarcane	150	70	56	0	0	0	0	0	0	0	0	0	0	0	0
Sunflowers	0	0	0	0	0	360	0	0	0	0	0	20	10	0	10
Soyabeans	0	0	0	0	0	0	5	5	50	0	0	20	0	0	5
Sisal	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0
Legumes	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0
Vegetables	0	0	0	0	0	0	2	0	5	1	1	5	0	0	0
							Numbers								
Other:															
Cows	11	7	0	0	0	0	0	0	0	10	0	0	0	0	0
Layers	100	78	0	0	0	0	0	0	300	200	0	0	0	0	0
Shop	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0
Flour mill	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Bakery	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

Source: Own investigation.

When formulating agricultural development plans members did not base their targets on important factors like labour availability, capital, performance during the previous season, weather, etc. When village leaders were asked what factors they took into account when formulating plans none was able to identify any factor (criteria). Most plans were formulated with the aim of getting government assistance, especially tractor-ploughing services. As such the plans were based on mere wishes and guesses without following any economic criteria. This could be the reason for the large discrepancy between targets and the actual implementation as shown in table 4.13.

unrealistic targets resulted in many inputs being left unused. In all villages insecticides and fertilizers for 1974/75 were left over. At Mauzeni village the agro-chemicals have been lying idle in the godown since the early 1970's. Factors identified by village leaders as leading to failure to achieve targets are shown in table 4.14.

Mahele (1975) found that in Mufindi, Njombe and Kungu Districts during the 1974/75 season villages did not fulfil their targets because of poor and inadequate planning at the village level, poor work attendance by Wajamaa on communal plots, adverse weather conditions, non-availability or late-arrival of promised government assistance, and misunderstanding among members leading

Table 4.14. Sample Villages: Leaders' views on factors which led to failure to achieve targets in the 1975/76 season.

Factor	Leaders (N = 24)	%
Shortage of labour	8	33
Late arrival of tractor service for ploughing	7	29
Lack of fertilizer	7	29
Lack of promised government assistance	3	13
Late arrival of inputs	2	8
People spent most time cooking food for family	2	8
Other	2	8

Source: Own investigation.

to area of them abandoning communal production. Weather failure has been frequent in the District and so the planning should consider drought-resistant crops and/or introduce livestock which are ignored by many villages though it has great potential in parts of the area not infested with tsetse flies. Poor work attendance is symptomatic of lack of ideological conviction in Ujamaa on the part of the village members. All these suggest that the District authorities have not educated and politicised the villagers on how to make good development plans and on Ujamaa.

During plan formulation local government and Party leaders advised farmers on preparing plan targets. In theory the following government and party officials should be involved in preparing such plans: the Ward TDC Secretary; the Ujamaa and Co-operative Officer; the local agricultural extension worker, the Branch TDC Chairman, and other local technical workers. However, the survey revealed that in only two of the

five Ujamaa villages were local government and party officials involved with the members in formulating village plans. The absence of technical government workers during plan formulation likely contributed to the failure to make good economic plans. As noted earlier, the plans were mere shopping lists which failed to take into account priorities or available resources.

While regional planning has now moved to the regions and districts, its effectiveness is still questionable for the same reasons as outlined above.

4.3.2 WORK ORGANIZATION

All villages have a more or less similar labour organization. Three days in a week Ujamaa village members work on the communal plots or on self-help projects like road construction, building a school, or dispensary, etc. Two days are set aside for members to work on their individual plots throughout the day. But even on days meant for working on communal plots members work on their own plots in the afternoons. Work on the communal farm is normally supposed to start early in the morning and end at noon but in the sample villages, this routine was not observed. For instance, at Kizinga village during cotton picking members had not yet turned up on the communal shamba by nine O'clock in the morning. In the same village some farmers retired from the communal plot at noon while others continued to work until two O'clock in the afternoon.

Little division of labour, if any, is practised in the villages. At Luholole village two old men were assigned to the poultry unit because they were too old to work on the communal farm. At Mkata and Kidudwe some members were assigned to run the co-operative shops, water pump, flour mill, and grazing cattle, respectively. Similarily at Kauzeni some members were assigned to run the co-operative shop and to care for the village cows. Members assigned special duties are exempted from working on the communal shamba but get a day's credit.

Division of labour in most villages may bring few benefits because the scale of various communal activities is too small to warrant specialisation.

The system of working on communal shambas in the villages varies from piece-work to a semi-block type. At Mzongozi and Mkata members worked on communal farms in relation to sub-plots assigned to their 10-Cell leaders. Each leader managed his own people. But at Kisinga each member was allocated one acre of cotton, maize, and sorghum on the communal shamba, while at Luholole village, members worked collectively. At Kidudwe village, the piece-work system was in use. The system of working in sub-plots with each member assigned a specific area increases efficiency because of competition among members and exposure of sluggish or lazy members. In this way, each member is motivated to do his work properly and promptly.

The quality of the work performed is checked by committee and group leaders at the end of each day's work. A member may be required to repeat his work if not properly done.

A general weakness in most villages is the lack of social measures to deal with members who deliberately abstain from communal chamba work. The survey showed that the villages lack effective punishment for defaulters other than warning the regular absentees. Although village leaders claimed to have punishments such as a fine of 2/= per day missed or losing one extra day's work for each day missed, the punishments were not properly enforced. Throughout the survey no member had actually been fined for having missed a day's work on the communal plot. Although the constitution of most villages stipulates that a member may be expelled from the village or may have his village membership terminated, no such examples were found.

On the whole work attendance on the communal chamba by members is poor, resulting in a small communal acreage and poor maintenance of the communal plot. The overall result of poor work attendance is a low return (dividend) per head. Table 4.15 shows the number of days members of Nsongozi village attended the communal cotton plot from land preparation till last weeding.

Table 4.15. Isongoni Village: Frequency distribution for days worked by members on the communal cotton plot during 1975/76 growing season[1]

Number of days worked	Farmers (N = 55)	%
6 or less	10	18
7 - 12	27	49
13 - 18	7	13
19 or more	11	20

1/ This is the only village where work attendance by members was recorded. The growing season is about 6 months long.

Source: Own investigation.

4.3.9 [illegible]

On the whole income and produce realised by villagers from communal production are low mainly due to the small scale of activities relative to the village population. As a result, the return per head (dividend) from sales of communal produce are low compared to returns from individual enterprises. Table 4.16 shows that incomes obtained from communal production are too small to support the members with their families. During the 1974/75 season the return for a day's work from the communal sugar-cane at Miduwe for example, was only 39 cents; while at Luholole it was 1/25 in 1975/76.

Table 4.16. Kenyir Village: Total income from communal properties in 1974/75

Village	Total income	Distribution of income			Level	Invested
		Total	Average per household	Range		
	M$					
Kidwine	31,742	25,742	170	1 - 450	0	5,000
Kizinga	2,070	1,170	52	20 - 120	900	0
Ambelito	8,745	3,745	11	40 - 62	5,000	0
Ulam	12,350	10,000	44	25 - 50	2,400	0
Upon ond	2,998 1/	0	0	0	0	0

1/ Income not distributed.
Source: Own investigations.

Table 4.17 shows remarks made by farmers in this connection. The remarks show that farmers have become disillusioned as to their understanding of raising their standard of living by working together. Over half said they were not satisfied with returns from communal production, the low expected return likely is a major reason why members don't want to invest effort in communal enterprises. De Vries and Horlemann (1974) found in Kenya an unwillingness to invest effort and other personal resources in ujamaa enterprises because of a low expected return.

Table 4.17. Sample Villages: Farmers views on returns from communal production

Remark	Farmers (N = 23)	%
Too little to sustain my family	15	65
Too little return after working the whole year	11	29
Output was small	6	26
Poor weather, so yield was poor	6	21
Too many members compared to the communal resource	1	4

Source: Own investigation.

4.3.10 Official Visits and Contact Farmers

Both government and party officials are supposed to visit villages to offer assistance or guidance to the members. Some officials visit villages often and as such are well known by the villagers, but others rarely visit villages and are therefore less known by villagers. When village members were asked to name party and government officials who visit

their villages the Ward CCM Secretary received the highest score (table 4.18).

Table 4.18. Sample Village: Party and Government officials seen in village by members.

Official	Farmers (n = 50)	%
Ward CCM Secretary	24	48
District CCM Chairman	15	30
Ujamaa and Co-operative Officer	14	28
Local extension worker	10	20
Divisional CCM Secretary	9	18
Don't know their titles	8	16
Other officials	8	16

The party officials in most cases go to the villages to explain certain policy matters or to inspect various communal activities and development projects. During their visits they address members and encourage them to work co-operatively. On the other hand, government officials, mainly technical officers, advise members on various technical matters. Though Party and Government officials are supposed to visit villages regularly, some rarely do so and some villages tend to get more visits than others. De Vries and Mortman (1974) found in Iringa that government officials tended to visit more-developed villages more frequently and ignored the less-developed villages. The Visitors' Book of Luhololo, one of the less accessible villages, showed that government and Party leaders rarely visited the village. The Area Commissioner, the District Development Director, and the Ward Secretary had not visited the village in the whole of the 1975/76 cropping season. The local Ujamaa Chumba was said to have

come to the village only to collect data for compiling his monthly reports. In the same example given the local extension worker, who lived only some four miles from Tuwani Village, visited the village only once.

Most nonmonetary recommendations for the Ministry's extension service come from the Ilonga Research Institute in Kilosa and from SUAMI in Morogoro. The only institution carrying out research work in the District is the Faculty of Agriculture at Morogoro.

At the time of the survey the District Extension service consisted of 15 Field Assistants (F.A.'s, Intermediate courses), 13 Assistant Field Officers (A.F.O.'s, Agriculture Certificate holders), 2 Field Officers (F.O.'s, Diplomates) and one Agricultural Officer (A.O., Graduate). Normally the F.A's and A.F.O.'s are the cadres in daily contact with the farmers in villages, while the Field Officers and Agricultural Officers chiefly carry out administrative duties or other desk work. The extension workers have many extra duties which make it difficult for them to perform their primary duties in the villages. They are supposed to be in the office, attend party functions, distribute agricultural supplies, advise farmers, and engage in other functions such as the "Kwa ni Nya" literacy campaign, etc. In some areas extension staff were required to help demarcate the village and move people to new villages during the villagisation programme. Fortun (1976) also noted in Morogoro and

Kwadu Kajome that the Iwana Chumbus had a range of duties to perform. All these extra duties add to the extension workers'dilemma and limit their effectiveness at the village level. This is one of the reasons why the Iwana Chumbus could not visit some villages regularly.

4.3.11 Problems facing Ujamaa Villages

In the early stages of development Ujamaa villages face numerous problems which affect their development. As relatively new economic units, they are still grappling with organizational and management problems. Members, village leaders, and extension workers were asked to mention problems they felt were facing communal production (table 4.19). Low enrolment resulting in low turn-out for communal farm work was the most serious obstacle mentioned. This problem was also found by de Vries and Mortman (1974) in Iringa.

Table 4.19. Sample Villages: Problems of Communal farming as seen by farmers, leaders and extension workers.

Problem	Farmers (N=67)		Leaders (N=24)		Extension workers (N=5)		Total (N=96)	
	No.	%	No.	%	No.	%	No.	%
Low commitment to Ujamaa production	17	26	8	33	3	60	25	26
Low turn-out for communal farm work	9	13	8	33	3	60	19	20
Lack of good farming implements	12	18	3	13	0	0	15	16
Late arrival of tractor ploughing service	8	12	1	4	2	40	11	11
Other	0	0	6	25	1	20	7	7

Source: Own investigation.

As noted earlier, most villages consist of Ujamaa members and non-members. The non-members tend to influence, through persuasion, the members to withdraw from their Ujamaa activities. This creates confusion and leads to poor performance on communal plots.

Some village members don't understand the idea of the ujamaa way of life partly due to lack of political education and partly due to being forced to live in villages. Poor village leadership and occasional theft results in misunderstanding and distrust of ujamaa village leaders by members. This may explain the passive resistance among farmers to full participation in communal production.

Most ujamaa villages use the traditional hoe as the major farming implement. As a result the expected economies of scale have not materialised. While TANU and President Nyerere thought people would work harder on communal plots, the opposite seems to be the case.

Village members, leaders, and extension workers suggested a number of solutions to problems currently facing communal farming in ujamaa village. Table 4.20 lists alternatives which could be adopted to overcome the problems.

Table 4.20. Sample Villages: Views of farmers, leaders and extension workers on how to overcome problems in communal production

Proposed solution	Farmers (N=47)		Leaders (N=10)		Extension workers (N=5)		Total (N=62)	
	No.	%	No.	%	No.	%	No.	%
The village should have its own tractor	13	28	2	8	2	40	17	22
Government assistance should be provided on time	5	11	2	8	1	20	8	11
Political education	4	9	3	13	1	20	8	11
Reduction of individual acreage	4	9	0	0	2	40	6	8
Market high of dealing with middlemen	3	6	2	8	0	0	5	7
Increase incentives in communal production	3	6	2	8	0	0	5	7
Mixed-farming	0	0	3	13	0	0	3	4
Other	5	11	5	21	2	40	12	16

Source: Own investigation.

C H A P T E R V

FARMING PRACTICES IN UGANDA VILLAGES

5.1 INTRODUCTION

This chapter looks at maize and cotton production recommendations in the District as provided by two local agricultural extension workers in relation to the actual farming practices employed on both individual and communal maize and cotton plots. Major findings of the research study are presented, with emphasis on a detailed examination of the level of adoption of recommended farming practices on the individual and communal plots respectively. Possible factors responsible for differences or lack of differences in farming practices between the two farming systems are then discussed.

5.2 LEVEL OF ADOPTION OF RECOMMENDED FARMING PRACTICES

An objective of the study is to investigate farming practices used on communal maize and cotton plots. More specifically the study tests two null hypotheses: H_1 - that recommended farming practices are not applied on communal maize and cotton plots and H_2 - that there are no differences in farming practices between communal and individual plots. To test H_1 and H_2, views of farmers and village leaders were sought to supplement the author's own informal observations.

5.2.1 Maize [illegible] Production

Table 5.1 shows the level of adoption of recommended practices on individual and communal maize plots, respectively.

Land Preparation: Land should be prepared early so that sowing can be done at the onset of rains. Land ploughing may start as early as September particularly on individual plots. The survey shows that 40 individual farmers (80%) had their individual maize plots ploughed between September and January while three communal plots were ploughed between January and February and the fourth, in March.

Traditionally the majority of farmers plough their fields with the hoe, but ujamaa village groups use tractors instead. Forty seven farmers (94%) ploughed their individual maize plots with a hoe while the other three employed tractor ploughing. Meanwhile all communal plots were ploughed by a tractor.

Table 5.1. Maize: Adoption of Recommended Practices on Individual and Communal Plots

Practice	Farmers (N=50)		Ujamaa Plots (N=4)	
	No.	%	No.	%
Early ploughing	40	80	3	75
Growing pure stand	27	54	4	100
Improved seed	32	64	4	100
Early planting	23	46	2	50
Correct spacing	0	0	3	75
Thinning to 1 or 2 plants	23	46	4	100
Weeding x 3	10	20	1	25
Fertilizer application	11	22	2	50
DDT or insecticide dust application	11	22	4	100
Average adoption rate per practice	39		-	75

Source: Own investigation.

Maize Seed: According to extension recommendations, the lowland plains and valleys are suitable for the Ilonga composite variety while Kilimanjaro is advised for lowlands with dubious rainfall. For high elevation areas like Igeta, hybrid maize is ideal. Farmers in the lowland plains grow mainly Ilonga composite while a few farmers plant Kilimanjaro. In remote areas of the District like Kwakira Ward are plant a local maize variety as they have no easy access to improved seed. Farmers in the mountainous area of Igeta plant hybrid maize. Similarly Ujamaa village groups sow Ilonga composite or other improved varieties. Maize seed other than hybrids are normally selected from the previous seasons harvest, or fresh supplies may be bought or obtained free of charge from the District Agricultural Office.

Thirty two farmers (6%) used improved seed given them by the village. But in actual fact most farmers planted improved Ilonga Composite. In previous years this seed was distributed to farmers in most parts of the district, especially in the 1974/75 season during the "Kilimo cha Kufa na Mapera" campaigns when improved seed was given to farmers free of charge in an effort to increase food production. Unfortunately, farmers did not know that the seed selected from the previous harvest for planting in subsequent seasons was still Ilonga composite. Instead, they thought they had planted a local variety, because to them improved seed

seed both supplied by the Ujamaa Office each season. In each village one seed plot for communal production was distributed to village members to plant on their own individual plots. All four Ujamaa village groups planted Ilonga composite which was either selected from the previous harvest or was sent to the villages by the Ujamaa office as free government assistance.

Planting Date: Farmers in lowland plains are advised to concentrate sowing of maize (Ilonga composite) at the onset of the main (long) rains in late February to early March, locally known as the "Kuanza rains", as these are more reliable for early watermelons generally affects yields. Planting of hybrid maize in the mountainous areas should be done during the early short rains in November to early January. Traditionally, most farmers prefer sowing maize on individual plots during the early short rains, locally known as "Vuli rains", while others swagger planting to the long rains. The Ujamaa village groups sow maize during the long rains.

According to the survey, about half of the farmers (46%) planned maize during the early rains between November and early January. Twenty three farmers (46%) planted maize during the main rains between late February and early March.[3] Although all Ujamaa village

[3] In actual fact it is impossible to know what to do because rain may fall for a few days and the weather then be dry for 2 - 3 weeks, and short and long rains in some years (as in 1977) are hard to distinguish.

early planted maize during the recommended long rains, only two planted at the onset of the main rains as recommended. The rest planted their communal plots towards the end of the rainy season. Consequently, the communal plots were severely hit by drought at these villages and nothing was harvested. Maize crops had been saved the communal plot at Isongosi village.

Spacing and Thinning (Individual): To achieve the optimum population of 15,000 - 16,000 plants per acre, a spacing of 3' x 1' is recommended, with later thinning to 1 or 2 plants per hole. Thinning should be done one month or so after emergence. Individual farmers pay little attention to the correct spacing. Traditionally maize is randomly scattered with wide gaps of about 4' x 3' resulting in a population of 10,000 plants or less per acre. Thinning is minimal; farmers prefer leaving two to four plants per hole after thinning, or may do no thinning on individual plots. Maize on communal plots is sown in rows of 3' x 1' to 3' x 2' which is close to the lower end of the recommended range.

Forty farmers (80%) thinned their individual maize but only 23 (46)percent thinned to one or two plants per hole while most of the rest maintained over two plants per hole with the result that some plants were feeble due to over crowding in that limited area and either produced weak, small cobs or failed to produce any cobs at all. But all the Ujamaa village groups

thinned to one or two plants per hole so that plants were strong with big cobs.

Maize Intercrop Versus Monoculture: Farmers are encouraged by extension workers to grow maize as a pure crop. Traditionally individual farmers intercrop maize with various legume crops, such as cowpeas, other peas, or green grams, and with sorghum, simsim, and paddy.[4] Normally all the different seeds are sown in the same hole. Ujamaa village groups grow pure maize stands. The survey showed that 27 farmers (54%) grew pure stands of maize while the remainder intercropped maize with the crops noted above.

Weeding: Two or three weedings are necessary to get a good stand because weed growth is vigorous in the fertile lowland plains and valleys, but the exact number needed depends on the intensity of the weed crop. Although weeding is a crucial husbandry practice, it is not properly done. Communal plots are poorly weeded, with one or two weedings generally and sometimes none in certain sub-plots, leaving the crop choked by weeds. On the whole, individual maize plots are fairly-well weeded.

Forty farmers (80%) weeded their individual plots twice while the balance completed three weedings.

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[4] Work at the Faculty of Agriculture, Morogoro, on intercropping suggests that farmers are right to intercrop and extension workers are wrong in relation to this recommendation when based on hand operations. Extension workers regard intercropping as a bad traditional farming practice.

The communal maize plot at Kizinga village was weeded twice but very poorly, with some weeds left uncut. By harvest, the grass weeds had outgrown the maize crop. The communal plot at Mkata village was also weeded only twice. At Luhololo, the communal maize plot was properly weeded. At Kauzeni Village, the communal plot was full of weeds with more than half of the maize crop completely "swallowed" by them.

Fertilizer Application: According to the blanket recommendations, 100 Kg of Triple Super Phosphate per ha should be applied before planting and 150 kg per ha of Sulphate of Ammonia should be applied either at planting or during weeding (one week after emergence) and at tasseling. Farmers rarely use fertilizer or manure on their individual plots unless they obtain it free of charge from the ujamaa villages. But communal maize plots are normally treated with fertilizers supplied to the village for this purpose as free government assistance. Any fertilizers left over may either be kept for the following season or distributed to village members for use on their private plots.

According to the survey, only 11 farmers (22%) applied fertilizers on their individual plots. But not a single one applied it at the correct rate. The quantities supplied were far less than recommended. Seven farmers used 123 kg of Calcium Ammonium Nitrate per ha while the other 4 used a combination of Triple Super Phosphate, Sulphate of Ammonia, or Calcium Ammonium

Nitrate with the amount totaling 118 - 185 kg per ha. The fertilizer used by individual farmers had been sent to the village for communal production but all could not be used because the communal acreage was small. Only Kizinga village applied fertilizers on the communal maize plot and this was left over from the 1974/75 season. The rate of application was 123 kg of Triple Super Phosphate and 123 kg of Sulphate of Ammonium per ha. Both fertilizers were mixed and then broadcast before planting.

Insecticide Application. In case of maize stalk-borer infestation DDT 5% dust at a rate of 12 kg per ha may be used. Normally this should be applied about a month or so after emergence. However, stalk-borer infestation is not serious in the District. Occasional outbreaks of army worms may be dealt with by DDT 25% liquid. Only 11 farmers (22%) applied DDT 5% insecticide dust on their individual maize, and only 3 out of this group applied it at the right time. The others used it much later during tasseling. Three Ujamaa groups (Mkata, Kizinga, and Luholole villages) applied the insecticide on communal maize, but at Mkata and Kizinga villages the insecticide was applied at tasseling.

Harvesting: Maize should be harvested after drying to the maximum moisture content for safe storage. Twenty nine farmers (58%) harvested maize 4 - 5 months after planting while 13 (26%) harvested 5 - 7 months after

planting. Four months is too short a period to have cotton dry to a moisture content low enough for safe storage without weevil infestation. However many individual farmers complete the depi-pressing by use of smoke from cooking fires in their houses to check no problems arise. They prefer early picking to avoid losses by thefts, birds, or animals and to get food quickly. During the survey in September (about six months after planting), communal cotton had not been harvested at Kamoni village, whereas communal cotton was harvested in July-August, seven months after planting.

5.2.2. Other Individual Practices

Table 5.2 shows the level of adoption of recommended practices on individual and communal cotton plots, respectively.

Table 5.2. Cotton: Adoption of Recommended Planting Practices on Individual and Communal Plots

Practice	Farmers (N=28)		Ujamaa plots (N=3)	
	no.	%	no.	%
Planting during Dec.-Feb.	27	96	2	67
Planting before mid-February	19	67	1	33
Correct spacing: 30x1'	21	75	2	67
Thinning to 1 or 2 plants per hole	21	75	2	67
Weeding x 3	22	78	1	33
Spraying with DDT 75% super x 8	10	35	1	33
Average adoption rate per practice	-	71	-	50

Source: Own investigation.

Planting Date: Cotton planting should be done before the long rains start, with the optimum period in the first two weeks of February. Nineteen farmers (67%) sowed their individual plots between late January and mid-February. However, only Mkata village completed sowing the communal plot before mid-February. The Kizinga ujamaa plot was sown between 18 and 25 March. The Msongozi village communal plot was planted from mid-February to early April. As a result some plots in the communal area had poor stands with stunted plants. At Kauzeni village planting took place during 3 to 16 March.

Spacing and Thinning: Optimum population is achieved by maintaining a spacing of 3' x 1' and then thinning to one plant per hole to obtain a density of 14,500 plants per acre.

According to the survey, 21 farmers (75%) were close to the correct spacing and all three village groups did so on at least most of the communal plot. Some sub-plots at Kizinga had a wider spacing ranging between 3' x 4' to 4' x 2'.

Twenty one farmers (75%) thinned to one plant per hole as recommended, while the balance left two plants per hole. The three ujamaa groups thinned their communal cotton to one plant per hole, but at Kizinga certain sub-plots were thinned to two plants per hole.

Weeding: Three weedings are necessary to get a good stand as cotton cannot compete with weeds effectively. The survey showed that 20 farmers (78%) completed the three recommended weedings, while the rest did two weedings. All communal cotton plots were nearly weeded.

Spraying: To get good yields of Grade A cotton, spraying with DDT 75% Rogor insecticide is essential. Spraying should be done eight times at 1-week intervals starting at flowering stage. The survey revealed that 25 farmers (89%) sprayed their cotton but only 10 completed the recommended eight rounds. Mkata village sprayed their communal cotton eight times, while Kizinga sprayed four times, and Msongozi sprayed six times. Communal cotton at Kauzeni[5] village was not sprayed at all, with the result that the plants developed small bolls of lint.

Cotton picking and destruction of plant Residue: Cotton should be picked as soon as the bools open to avoid deterioration and contamination of the lint. When cotton picking is completed the plant residues must be uprooted and burnt immediately. The latest date of destroying cotton stalks is 30 October to give a closed season of three months to control cotton pink bollworm. This is a government law which must be complied with by all cotton growers.

[5] Kauzeni village was not included in the sample but observations were made during pretesting the questionnaire.

Individual farmers are, on the whole, punctual in cotton planting and grade it quickly. Harvesting on communal plots is generally slow in periodicity and the lint may droop in the field for a long time thus deteriorating in quality. When the cotton buying season starts, communal cotton may still be in the field. Usually, both individual farmers and ujamaa village groups uproot and destroy cotton before the deadline. In some cases this may be completed as early as August or September.

5.2.3 [illegible]

The foregoing analysis based on tables 5.1 and 5.2 show the extent to which recommended farming practices are followed on communal maize and cotton plots. For communal maize production the level of adoption was high in respect to use of improved seed, thinning, growing a pure stand, and insecticide application. A good level of adoption was also recorded with respect to fertilizer application and correct spacing. Adoption was poor in respect to timely planting and proper weeding. For cotton, adoption was high for early ploughing, correct spacing, and thinning, while it was low for proper planting date, weeding, and insecticide spraying.

Although it is difficult to apply a statistical test to this small sample of only 5 communal cotton

plots and 4 communal maize plots, the null hypothesis (H_0) that recommended farming practices are not applied on communal maize and cotton plots is assumed to be rejected[6].

5.2.4 DO INDIVIDUAL AND COMMUNAL PLOTS DIFFER IN FARMING METHODS?

The results summarized in tables 5.1 and 5.2 and the author's own informal observation and experience reveal that major differences exist in farming practices between individual and communal cotton and maize plots.

Regarding maize production, the differences in farming practices between the two systems were also pointed out by 43 farmers (86%), 23 village leaders (96%), and all 5 extension workers as shown in table 5.3 thus reinforcing the view that the two farming systems differ and showing that differences exist in respect to almost all agronomic practices. Differences are negligible for type of seed and amount of weeding. For some items, like tractor versus hoe ploughing, differences were nearly universal and interviewees so may have felt no need to comment on them.

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[6] The smallest sample for which confidence intervals for attributes are tabulated in standard textbooks is 10 (Snedecor and Cochrane, 1967, pp.5-8). Based on a sample of 10, any percentage above about 15 differs significantly from zero at P=0.05. By interpolation, it seems likely that for 3-4 villages, adoption by 2 or more would differ significantly from zero.

Table 5.3. Minor View of farmers, village leaders, and extension workers on differences in farming practices between individual and communal plots

Differences in farming practices		Farmers (n=55)		Leaders (n=25)		Extension workers (n=5)		Total (n=71)	
Communal plots	Individual plots	No.	%	No.	%	No.	%	No.	%
Tractor ploughed	Not ploughed	5	12	3	13	2	40	10	14
Improved maize seed	Local or improved seed	0	0	0	0	4	80	4	6
Row planting	Haphazard planting; with wide spacing	23	59	17	74	5	100	45	63
Planted in main rains	Planted in early shortening	12	28	5	22	1	20	18	25
Pure stand	Intercropped	22	56	17	74	3	60	42	59
Thinned to 1 or 2 plants	Thinned to over 2 plants	23	59	17	74	2	40	42	59
Poorly weeded	Fairly weeded x 2 or x 3	0	0	4	17	3	60	7	10
Fertilizer applied	No fertilization	15	38	8	35	2	40	25	35
Dusted with DDT	No dusting	10	25	5	22	3	60	18	25
Harvested after drying	Harvested before drying	4	10	3	13	4	80	11	15
Total Minimum differences		44	113	24	103	5	100	71	100

Source: Own investigation.

Table 5.4. Cotton: Views of farmers, village leaders, and extension workers on differences in farming practices between individual and communal plots

Difference in farming practices		Farmers (N=20)		Leaders (N=13)		Extension workers (N=3)		Total (N=41)	
Communal plots	Individual plots	No.	%	No.	%	No.	%	No.	%
Sown at different dates	Uniformly sown	0	0	1	8	0	0	1	2
Use correct spacing	Don't use correct spacing	2	10	0	0	1	20	3	7
Poorly weeded	Better weeded	3	15	1	8	0	0	4	10
Late weeded	Timely weeded	1	5	0	0	0	0	1	2
Timely weeded	Sometimes not weeded	0	0	0	0	1	20	1	2
Insecticide sprayed	May not be sprayed	1	5	0	0	1	20	2	5
Timely sprayed	Late sprayed	1	5	0	0	1	20	2	5
Late sprayed	Early sprayed	1	5	0	0	0	0	1	2
Late picked	Early picked	1	5	0	0	0	0	1	2
Early picked	Late picked	1	5	0	0	2	40	3	7
Early graded	Late graded	1	5	0	0	0	0	1	2
Late graded	Early graded	0	0	0	0	1	20	1	2

Source: Own investigation.

On cotton production, 23 farmers (7%) and 13 village leaders (9%) said there were little or no differences between the two systems, while all extension workers felt the differences were significant. Minor observation and careful questioning revealed that while differences were minor in respect to spacing and thinning (plant population), insecticide spraying, and construction of cotton sticks, differences were significant in respect to planting date, frequency and quality of weeding, and time of picking the land (see Table 5.4).

On the basis of these results the null hypothesis that there are no differences in farming practices between communal and individual cotton and maize plots respectively (H_2) is rejected for all of the listed agronomic practices for maize and for a few items for cotton.[7]

5.3 Factors Contributing to Differences in Yields between Communal and Individual Plots

Government assistance, extension services, group decisions, and commitment were believed to have an impact on the adoption of recommended farming practices

[7] Assumed numbers who must indicate differences for the result to differ significantly from zero at α=0.05 are shown below:

Farmers	Leaders	Extension workers	Total
3	2	2	3

on communal plots. The study therefore investigated these and other factors in relation to the observed differences in level of adoption of farming techniques between individual and communal plots.

5.3.1 MAIZE PRODUCTION PRACTICES

Table 5.5 shows the views of farmers, village leaders, and extension workers on factors contributing to differences in farming practices between individual and communal maize plots.

SEEDBED PREPARATION (CULTIVATION)

Communal plots were ploughed by tractors from the District Agricultural Office which maintains a fleet for such use. During 1974/75 season ploughing services were free, but in 1975/76 they were available at a subsidized rate of shs 45 per acre. Meanwhile tractor services for ploughing individual plots cost some shs 100 or more per acre. Fortmann (1976) found in Morogoro and Arusha Regions that villages which grew maize communally all used tractors rented either from the government or from private individuals for ploughing. Individual farmers do not have easy access to tractor services because the demand for tractors is high given the small number of tractors in the District. Also many individual farmers do not have money to pay for tractor ploughing. The majority of farmers (94%)

Table 5.5. Index: Views of farmers, village leaders, and extension workers on factors contributing to differences between communal and individual plots

Factor contributing to difference	Farmers (n=42)		Leaders (n=25)		Extension workers (n=5)		Total (n=71)	
	No.	%	No.	%	No.	%	No.	%
A. Free government assistance for communal plots								
Fertilizer	15	36	9	36	3	60	30	42
More extension services	14	33	8	32	3	60	25	35
Insecticide	8	19	9	36	0	0	17	24
Other	5	12	2	8	2	40	9	13
Sub-total	42		28		12		82	115
B. Group decision making								
Individual farmers are free to decide on practices	5	12	12	48	1	20	18	25
Other	9	21	4	16	4	80	17	24
Sub-total	14		16		5		35	49
C. Location and relevancy of recommendations								
Individuals hope for high yield from many plants	8	19	19	76	1	20	28	39
Individual maize is smoke-dried	3	7	5	20	1	20	9	13
Spacing on individual plots is very wide	11	26	0	0	0	0	11	15
Fear of risk and uncertainty due to drought	8	19	3	12	2	40	13	18
Other	14	33	5	20	5	100	24	34
Sub-total	34		32		9		75	105
D. Labour availability and commitment								
Enough labour on communal plot for row planting	18	43	14	56	2	40	34	48
Members not committed to upland production	14	33	8	32	3	60	25	35
Early planting enables people to get food quickly	7	17	14	56	0	0	21	30
Other	8	19	0	0	0	0	8	11
Sub-total	47		36		5		88	124
Total number of mentions	137		112		31		280	

Source: Own investigation.

with their plots with the traditional hoe. In short the problem facing the individual farmers in both sectors is one of cost involved.

[illegible]

All Ujama village groups and almost all individual farmers planted Ilonga composite maize.

Government Assistance: To encourage people to work communally the government has been giving free agricultural inputs to ujamaa villages for communal production. Table 5.6 shows the type of assistance to the sample villages in three cropping seasons, namely the 1973/74 and 1974/75 seasons improved Ilonga composite, Kabanyi, and hybrid maize seed was distributed free of charge to both individual farmers and ujamaa village groups, resulting in their widespread adoption especially during the 1974/75 "Kilimo cha Kufa na Kupona" (Agriculture as a matter of life or death) campaign. The government now requires individual farmers and ujamaa village groups to pay for improved seed at a subsidized price of shs.1 per kg of composite seed and shs 1/10 per kg of hybrid seed.

Benefits of Recommendations: The high use of improved maize seed also reflects the fact that the majority of farmers are convinced that the improved seed is superior to the local variety. According to the Pilot Evaluation of the National Maize Project (NMP) (USAID, 1975), most people in Morogoro Region liked the improved seed they had received the previous year.

Table 5.5. Sample villages: Government assistance in three seasons

1972-73		1973-74		1974-75	
Item	Value Rs.	Item	Value Rs.	Item	Value Rs.
DDT 5%, 3 cartons	49	Maize seed, 5bags	1125	Maize seed, 7bags	1575
DDT 25%, 3 cartons	78	C.A.N. fertilizer, 12bags	2100	C.A.N. fertilizer, 55bags	11075
Maize seed, 20 bags	5000	Gesaprim, 2 cartons	60	C.A.N. fertilizer, 15bags	3025
C.A.N. fertilizer, 13 bags	1625	Paddy seed, 5 bags	275		
		Sorghum seed, 2 bags	110		
Total	6752		3670		15675
		Kinta			
		Maize seed 10 bags	2500	Sorghum seed, 6 bags	450
		C.A.N. fertilizer, 25bags	4375	Tractor service:	
		Gesaprim, 2 cartons	60	Kafue, 2½ acres	2400
Nil		Paddy seed, 30 bags	1650	Lusitu, 24 acres	2400
		1 ULV sprayer	140		
		DDT 5%, 10 cartons	150		
		DDT 25%, 24 litres	936		
		Sorghum seed, 5 bags	125		
Total			10336		5250
		Kisinga			
Maize seed, 9 bags	2250	C.A.N. fertilizer, 13 bags	2275	Tractor service:	
C.A.N. fertilizer, 24 bags	3000	D.A.P. fertilizer, 20 bags	4500	Section 20 acres	2000
D.A.P. fertilizer, 5 bags	875	Paddy seed, 5 bags	275	Kafue 10 acres	1000
		1 ULV sprayer	140	Sorghum 10 acres	1000
		10 dry cells	11		
		Maize seed, 3 bags	750		
Total	7125		9951		3000

Table 5.6 (Contd.)

1973-74		1974-75		1975-76	
Item	Value	Item	Value	Item	Value
	Rs.	Maize			Rs.
Maize seed, 12 bags	3000	Maize seed, 10 bags	2500	25%, 40 litres	500
Cobalt fertilizer 30 bags	1875	Cobalt fertilizer 39bags	6825		
Cobalt fertilizer, 12 bags	2100	Gonogrin, 3 cartons	415		
		Zeona, 2 bags	315		
		Cobalt fertilizer, 10 bags	1750		
		Ready seed, 5 bags	525		
		10 day cells	11		
Total	9000		11341		582
		Tamolplo			
		BHC 5%, 4 cartons	65		
		Gonogrin, 1 carton	83		
All		Ready seed, 9 bags	270	All	
		Zeona, 5 bags	787		
Total			1405		

Source: District Agricultural Office, Lohardaga.

On the Matombo site, for example, farmers preferred Katumani to the local seed because of its short growing season. Sperling (1976a), who conducted variety trials in Tanga in 1975, found that the Ilonga Composite variety had a 14% increase in yield over the local variety but the increase was not statistically significant. But when fertilizer was used, Ilonga composite out-yielded the local variety by 19% which was statistically significant. He further observed in Mbeya Region that all improved varieties out-yielded the local variety when fertilizer was applied. In general farmers have been enthusiastic to plant recommended improved varieties.

PLANTING DATE

The majority of individual farmers plant during the early short rains between November and early January while all communal plots were planted during the long rains in late February-March, but towards the end of the rains. The difference in the time of planting for the two farming systems seems due to the following factors:-

Subsistence needs: Maize is mainly grown as a subsistence crop in the District. To get food for the family quickly, farmers sow maize early. Peasant farmers first attempt to ensure that there is sufficient food for home consumption at all times before they embark on other crops. Rotenhan (1968) noted in Sukumaland in 1963 that once family food requirements have been met and additional land and working time are

available, cotton is cultivated and hoeing usual in harvested. The communal rains plots are often looked at as a means of supplementing individual plots but not as a complete substitute for individual plots. Farmers feel more secure when they have their own plots as they cannot depend on communal plots in times of emergency. De Vries and Fortmann(1974) noted in Iringa villages that members merely relied on the communal farm for their subsistence.

The survey confirmed the farmers' food strategy of early planting. Three farmers (7%) and 14 village leaders (61%) pointed out that they prefer planting individual maize in the early short rains to get food quickly for the family. Fortmann(1976) also observed in Morogoro that the traditional practice of planting in the early short rains enables farmers to get a source of food over a longer period and that some farmers said they were running out of food. This shows that an early crop is highly valued by the farmer.

Risk and Uncertainity: Vagaries of weather have been a more or less permanent feature in the District during the past few years as discussed in Chapter II. Planting early gives farmers a chance to replant during the long rains in case of weather failure. The Pilot evaluation of the MVP in Morogoro region found that 72% of the farmers planted maize between December 1 and January 15, that is during the early short rains,

while 19 farmers (28%) planted during February 10-20 (Smith, 1975). Portmann(1976) noted that planting during the early short rains is a strategy for survival and hence a protection against uncertain rainfall. Fear of risk arising from vagaries of weather was mentioned by eight farmers (19%) as the reason why individual farmers plant maize in the early short rains. Since maize has a flexible planting date (November-March) while still capable of producing a good yield, individual farmers prefer to utilize both the main long rains and the early rains in order to spread (reduce) risk. Flexibility in planting date enables farmers to plant communal and individual plots at different times and ensure a supply of food for family consumption for a long period.

Since farmers don't depend on the communal plots for their subsistence, they may be willing to wait (thus increasing risk) for the long rains for planting the communal plots. Freyhold (1973) observed in Tanga that peasants are more willing to take risk on the communal plots than on their own and are therefore more open to try some of the Ujamaa shambas' recommendation.

Risk arising from crop failure due to drought might also have contributed to the unwillingness of individual farmers to pay for tractor ploughing services.

Village leadership and group decision: Decisions pertaining to Ujamaa village communal shambas are taken jointly. The Village agricultural sub-committee takes decisions, in consultation with the local extension worker, regarding activities on the communal shamba. Once decisions are made, villagers gather and informed in a meeting so they can give their views before implementation. Once the decisions are accepted by members then every member must abide by them.

Labour Availability and Commitment: Farmers begin weeding on the communal plots during the long rains after individual plots have been planted. Mwaru (1975) observed in Kondoi that people attended work on the communal plots only after their own plots had been planted. The fact that crops grown on individual plots are the same as those grown on communal plots results in competition for labour between the two plots as Heyhold (1973) observed.

In Morogoro District all the sample village groups planted maize on both Ujamaa and individual plots. One farmer remarked: "We plant in the early short rains so that we can get time to work on the communal plots during the long rains". The communal plot is given low priority during planting because it serves only to attract more tangible benefits for the village from the government such as water supply, school, dispensary, etc. Heyhold (1973) working in

Lunga observed that ujamaa village groups often have communal plots to get government aid.

The recommended time of planting communal maize during the long rains coincides with the time of weeding individual maize planted earlier. The result is a shift of labour towards individual plots for weeding, with little labour available for planting communal plots. As a result communal maize plots tend to be planted late. On the other hand, late ploughing of the communal plots by tractors from Kilimo also contributed to late planting of communal maize at Kizinga village.

Spacing and Thinning (PLANT POPULATION)

Individual maize usually is randomly planted with wide spacing and plants thinned to 3 - 4 per hole or not thinned at all. But communal maize was planted in rows and thinned to one or two plants as recommended, resulting in optimum plant density per acre. The Pilot Evaluation Survey of the MDP in Morogoro found that only one ujamaa group of three and 17 farmers (3%) planted maize in a 3'x1' spacing (Ibid, 1975). The difference in spacing between the two farming systems was probably due to the following factors:-

Labour Availability: Planting maize in rows as recommended is both laborious and time consuming[8].

[8] This is because more time per seed planted is required if in rows than if widely scattered as row planting (correct spacing) involves measuring out distances between and within rows.

According to Rotenhan (1968) maize planting requires 5 man-days per acre. This may be too much for an ordinary family mainly consisting of wife and husband. There are probably enough people to plant maize in rows on the communal plots as they have to be small. To have time for other activities individual farmers resort to planting maize randomly. However, ujamaa village groups could plant maize in close rows for only a few days. Bartlett, Lunday and Riley (1976) observed in Ndolwa village that farmers refused to follow the recommended spacing because this required them to spend a longer period in the farm. Portmann (1976) also noted in Morogoro that farmers frequently remarked that some practices like spacing were time or labour consuming and farmers were unwilling to put more labour into maize. This was confirmed by 18 farmers (42%), 14 village leaders (61%), and 2 extension workers who pointed out that ujamaa village groups could plant maize in close spacing because there are many people to carry out the operation.

In my own view, farmers failed to follow the recommended spacing on their own plots because most maize, as noted earlier, is intercropped. Farmers therefore plant maize at wide spacing to leave room for other crops. Portmann(1976), who carried out a similar study in Morogoro, also points out that the official spacing recommendation conflicts with the traditional practice of intercropping.

Table 5.7. Maize: Reasons for non-adoption of recommended farming practices on individual / plots

Practice recommended	Reason for non-adoption	Farmers	
		No.	%
Improved variety seed n = 13	Lack money to buy	6	46
	Seed arrived late	4	31
Correct spacing n = 90	Planting in too close	23	26
	Too laborious and time consuming	19	22
	Did not plant improved seed	9	10
Thinning to 1 or 2 plants n = 26	To get more yield	20	77
	Fear of risk due to competition from weeds	11	42
	Is unable to hide	11	42
Gapping, pure maize stand n = 27	To get food-stuffs for family use	12	44
	Interweeding, saves time	7	26
Fertilizer application n = 39	No money to buy	10	26
	Did not get free	12	31
	Is poor	8	21
Immediate dusting n = 35	No money to buy	12	34
	Did not get free	10	29
	Is good	4	11

Source: Own investigation

Risk and Uncertainty: Farmers regard thinning maize to one or two plants risky, leading to loss in yield in case of drought or when there is attack by vermin. This view was confirmed by 11 farmers (42%). Farmers argue that if no thinning is done, each plant produces a cob so that yields are higher. Another 11 farmers (42%) noted that their spacing was wide and so thinning would leave few plants per acre leading to poor crop yield.

It is true that the wide spacing of 3'x3' - 3'x4' observed on individual plots would result in low plant population density if thinning to 1 - 2 plants was done. However, farmers could observe, if they would, that regardless of the wide spacing yields would increase with no more than 1-2 plants per hole.

Ujamaa village groups using monoculture are willing to plant in rows close to the recommended spacing and thin to one plant per hole.

Group Decision Making and Image: As noted above decisions regarding the communal shambs are made jointly in consultation with the local extension worker. The village agricultural sub-committee members see to it that village members comply with the practices as required by the extension workers and agreed to by the members. Five farmers (12%), 19 village leaders (83%), and one extension worker pointed out that individual farmers were free to space

and this is not true while this is not possible on the communal plot. One of the objectives for starting ujamaa villages was to introduce new farming practices. These is communal farming. Village members and leaders may be local: the practice did prevail in Anyumbani government and party leaders. In Vidor new Portmann (1974) observed in Iringa that due to government and party stress on the use of modern methods and the close tie between government and farmers one has use of modern methods, whether felt they must be used. Although many farmers did not recognize self-help as a factor contributing to differences in adoption of innovations, five village leaders (2%) and one extension worker pointed out that communal plots are demonstration plots and hence had to be cultivated in modern ways. During the survey one farmer remarked: "We plant maize in rows and thin to one or two plants because the government wants us to use modern farming practices on the communal plots". It is also stated in the "Mwongozo wa Uhuru" that ujamaa plots must use modern farming techniques (T.A.N.U, 1972).

Extension services: Apart from Village leadership supervision, normally communal plots get more extension services through visits during various farm operations. On the other hand, individual farmers are rarely visited by extension workers. According to a survey carried out in Ulanga District in 1974, 53% of the interviewed farmers had never received individual advice from extension officers (Kamili, 1974). Portmann(1976) noted

that ujamaa villages were relatively advantaged in the production of maize because the extension service was instructed to work closely with the ujamaa shamba, sometimes putting their only effort into it, and most government assistance including agricultural assistance went to ujamaa villages. De Vries and Fortmann(1974) received complaints from many farmers in Iringa that the extension workers were only concerned about the ujamaa farms and were never available to help them with their personal problems. My survey revealed that only 17 farmers (9%) of the sample were visited by the local extension worker on their private maize plots in the 1975/76 season, with no farmer being visited in Ilolinga village and only two in Luholole village. Fourteen farmers (9%), six village leaders (20%), and three extension workers (60%) pointed out that communal maize plots were more closely supervised by extension workers and village leaders.

CROPPING PATTERNS AND INTERCROPPING

The majority of farmers grow maize as a mixture, while all ujamaa village groups grow maize as a pure stand. This difference is confirmed by the Pilot Evaluation of the WFI in Morogoro which found that 83% of the maize farmers intercropped maize (USAID, 1975).

While single crop yields are not maximized under intercropping, total yields in terms of value or calories or proteins per hectare and per man-day are

increased. In addition, varied foods can be obtained from intercropping (Finlay 1974). The traditional family system which includes a good amount of intercropping enables the farmer to get foodstuffs for preparing the family dish: legumes, peas, and green grens are used in local diets and provide important protein sources while sorghum is a source of calories and paddy and simsim are sources of income. Bartlett, Handay and Play (1976) found at Nelele village that farmers said they intercropped to augment their food resources and that housewives preferred to include many legumes in the intercrop for household use. This view was supported by 14 farmers (44%) who pointed out that they intercropped maize with other crops in order to get "Vilojo" (Vegetables for preparing side dishes).

Intercropping saves time and allows efficient use of land. According to Bartlett, Handay and Play (1976) at Nelele village, farmers intercropped because they had a small amount of land available and many small plots were hard to manage. Eight farmers (19%) and 19 village leaders (83%) contended that through intercropping they were able to get different crops from the same plot thus saving labour. Portman (1976) also found in Morogoro that intercropping was desirable as it cut down the labour for cultivating large areas and made more intensive use of limited suitable land. Thus, for many individual farmers, monocropping is not a sound recommendation.

[illegible]

The survey has shown that communal [illegible] were poorly tended while individual plots were better tended. The [illegible] evaluation survey of the [illegible](1975) also found that proper weeding was [illegible] allotted land by ujamaa villages groups than by individuals. The difference in the quality of weeding between the two systems may be attributed to commitment.

Poor work attendance on communal plots is a reflection of low commitment to ujamaa production by members. De Vries and Ormsum(1974) reported that low commitment was found to be the most important obstacle to development of ujamaa villages. They observed that Ujamaa villages did not follow proper weeding due to lack of labour. Individual plots compete with communal plots for labour at this time and farmers tend to concentrate on their own private plots leading to poor work attendance on the communal plots. According to my survey 15 farmers (30%) said that the majority of members were not committed to the ujamaa way of life. Low commitment to communal production was also pointed out by 5 village leaders (5%) and 3 extension workers who said it was one of the major problems facing communal production in their villages. Furthermore, twenty seven farmers (54%) revealed that if given free choice they would prefer block farming to ujamaa farming.

Table 5.8 shows average return to the sample farmers from communal and private plots in the 1974/75 season, giving reason enough for not much commitment to communal farming. For more details see Appendix table 5.

Table 5.8. Maize: Total return per family from communal and private plots, 1974/75

Village	Individual	Communal
	..... Bags	
Kizinga	7	2
Luholole	3	0.4
Mkata	0.6	0.2

Source: Own Investigation

FERTILIZER AND INSECTICIDE APPLICATION

The survey has shown that communal maize was fertilized and insecticide dusted to control stalk borers while most individual maize was not so treated. Fortmann (1976) reported that all the sample Ujamaa villages in Arusha used fertilizers and insecticide. The difference can be attributed to free government assistance to ujamaa village groups, benefits (felt need) of the inputs, and self-image of Ujamaa groups.

According to the survey, 18 farmers (42%), 9 village leaders (39%), and 3 extension workers said the difference in the use of fertilizer was due to free supplies to the communal shamba. Also 8 farmers (19%) and 9 village leaders (39%) said that insecticide dust was used on the communal shamba for the same reason. Furthermore, when asked why they did not apply fertilizers and insecticide on their private maize, 12 (31%) and 10 farmers (26%), respectively, said they did not

receive free inputs like the ujamaa groups. Only individual farmers who received the input free of charge applied fertilizers and insecticide on private plots.

It seems as to follow a certain practice they just see a need for it. Johnson; (1958) contends that cultivators are open to innovations when there are to their advantage and that application of fertilizers is accepted only when the increase in return amounts to 2 - 3 times the cost of fertilizers. Mosha (1976a) points out that peasant farmers will not accept a practice unless the increased net benefit is at least 50% of the increased cost of the input.

Ngemela; (1976a) also observed that in low lands not much response to fertilizer has been recorded, illustrating why farmers in lower elevation areas do not use fertilizers while farmers in the Southern highlands readily use it. He recommends use of fertilizers for the Southern highlands but not for the low elevation areas (like Morogoro) except for possibly small amounts for certain restricted areas. On insecticide use he recommends use if damage is more than 5% each in the lower elevations but only if insect damage is occurring. Le Tellier and Portmann(1974) also noted that farmers disputed the use of fertilizers on maize in the lower areas and argued that fertilizer often did not give an economic return due to variable rainfall.

While most farmers felt that fertiliser costs too much, eight farmers (21%) said they did not use fertilisers because they felt their plots were still fertile and another four farmers (10%) contended that they saw no need of DDT 57 dust as there was no problem of stalk borers in their fields. From the author's own experience and observation, serious stalk-borer infestation seldom occurs in the district. Similarly most soils in the lowland plains of Morogoro district are not deficient of nutrients and farmers are able to get a good maize harvest without the application of fertilisers.[9]

HARVESTING

The survey showed that communal maize was harvested after drying properly to low moisture content while individual maize was harvested immediately on reaching maturity before drying properly. When asked why this took place the following reasons were given:

Loss due to theft and vermin attack: If maize is allowed to stay in the field for too long it is liable to either vermin attack or subject to theft. To avoid guarding the shamba day and night, which means extra family labour, individual farmers harvest their maize as soon as it attains maturity. However, communal maize is allowed to stay in the field till it dries properly because farmers can more easily guard the larger plots. This view was confirmed by four farmers

[9] The author was a Regional Agricultural Officer in Morogoro Region and so is familiar with Morogoro District.

(9%), five village leaders (22%), and three extension workers. On the other hand, farmers would not mind too much if they lost the communal maize through vermin attack simply because they get little out of it. Fear of crop loss due to vermin attack is a genuine reason because vermin animals pose a threat in many parts of the District. For example four of the sample villages are surrounded by bushes which harbour vermin animals. Crop theft occurs when there is shortage of food.

Methods of Drying Maize: Traditionally maize is dried over the fire in the farmers' houses. Immediately after harvesting individual farmers "stack" their maize above the fire-place to be smoke-dried. For this reason farmers can afford to harvest maize before drying properly. Communal maize is usually shelled, bagged, and stored in a godown before being sold. This likely is the reason why communal maize is harvested after drying properly.

5.3.2 COTTON PRODUCTION PRACTICES

The survey shows that for cotton production differences exist between individual and communal plots in respect to a few practices while there were slight or no differences in others. Table 5.9 shows views of farmers, village leaders, and extension workers on factors responsible for lack of differences in farming practices. The discussion is confined chiefly to those practices where significant differences appear to exist and for which the reasons differ from those for maize.

[illegible]

Almost all individual cotton plots were ploughed with a hoe while all communal plots were tractor ploughed.

Table 5.9. Cotton-related problems, Village leaders, and extension workers on factors responsible for lack of difference.

Factors involved	Farmers (n=23)		Village leaders (n=13)		Extension workers (n=3)		Total (n=39)	
	No.	%	No.	%	No.	%	No.	%
Late planting	7	30	3	23	1	33	11	27
Irregular supervision	5	22	4	31	0	0	9	23
Stock theft	4	17	1	8	1	33	6	15
Benefits of communalism	2	9	2	15	0	0	4	10
Historical background	1	4	4	31	1	33	6	15
Late 1-hectare season	6	26	1	8	1	33	8	20

Source: Own investigation

Planting Date

The ujamaa cotton plots are generally planted after the members have completed planting their own plots. Since farmers depend chiefly on private production for income, they tend to invest their efforts and time on private plots. Income from communal cotton production is small. For instance the average income from private cotton production at Ruta village during the 1974/75 season was Shs 500 while from communal cotton sales it was only shs 30 per member. In some villages like Kimiliga and Msongozi members have never shared money from communal cotton sales. At Msongozi village during the 1974/75 season earnings of shs 2,500 from cotton sales from the communal plot was allegedly "stolen", thus demoralising members.

late planting of communal plots in some areas proved to be a direct result of late ploughing. Since ujamaa groups didn't get government tractor service for ploughing communal plots, they wait for the promised service while individual farmers rely on the "gorta" for ploughing their plots. But unfortunately, the tractor service frequently arrives in the village late because few tractors are in the district compared to the numerous communal maize and cotton plots.

As Fortman (1976) points out, government aid is often detrimental in that it reinforces the dependency relationship which has grown up between ujamaa villages and the government. The tendency is to expect the government to do something to solve problems rather than to undertake to solve problems by local initiative. The attitude of expecting government tractor service for ploughing communal plots has reduced villagers' initiative to seek alternative means of completing this task.

WEEDING

All communal cotton plots were poorly weeded while individual plots really were properly weeded. As mentioned earlier low commitment by ujamaa to communal production is perhaps the major factor for this difference.

INSECTICIDE SPRAYING

Spraying of cotton with insecticide is a standard husbandry practice to control pests - jassids, aphids, and stainers - for both individual and communal plots.

without insecticide spraying it is not worth growing cotton in Hararghe region and the labour input for spraying is minimum. Kinsky (1975) has shown in experimental trials at Ghaba in the 1973/74 season that without spraying a hectare of cotton yielded only 310 kgs of seed cotton with 3% plant cotton while spraying yielded 1,466 kgs with 6% plant seed cotton. Henzy (1974) showed in 1972/73 in the Northern cotton zone that spraying increased overall mean yield of seed cotton from 945 to 1,161 kgs per ha or 19%.

Table 5.10 shows that by spraying cotton as recommended a farmer can get an increase in Gross Margin (G.M) of Shs 1,662 per ha (1983 - 321) assuming that he follows all other complementary recommendations. It must be borne in mind that farmers buy insecticide at a subsidized rate of Shs 25 per carton of 4% 7% Hagor sufficient to spray one acre. The sprayer is sold to farmers at a subsidized rate of Shs 125 instead of Shs 375.

Table 5.10. Cotton: Gross margins per hectare with and without spraying

	Without		With	
	Without pesticide	Use pesticide	Without pesticide	Use pesticide
	Tsh		Tsh	
Yield:				
1st pick	64	1,275	121	2,271
2nd pick	141	174	120	102
Total	205	1,449	241	2,373
Cost for spraying:				
1/2 kg. Dipel	-	3 packets	-	258
Depreciation of sprayer 4/			-	75
Labour		15 man-days 2/	-	117
Total			-	450
Gross Margin 5/			241	1,923

1/ Value based on 1975/76 prices of 1/75 per kg. cotton and 0/25 per kg. cotton

2/ One acre of cotton needs 1 packet of the 7½ kg. per hectare (2.47 acres) thus 1 sprayer will buy three packets at an unsubsidized price of Shs 86 per packet.

3/ If properly maintained, a sprayer will last 5 years. (Lyimo, 1977)

4/ Non-operating cost of sprayer.

5/ Non-operating cost of seed or any mechanical land preparation.

Source: Own investigation plus yields from Kibby (see Lyimo, 1975)

9 Personal communication with Prof. J.V. Lyimo of the Faculty of Agriculture, Forestry and Veterinary Science, Morogoro, Tanzania.

COTTON HARVESTING

As soon as cotton bolls open properly, farmers rush to pick their individual plots, leaving communal cotton to be picked later. Farmers pick their individual cotton on time so that they can sell it quickly when cotton buying starts in order to meet their financial obligation and other requirements. On the other hand communal cotton even if harvested, graded, and marketed on time won't provide farmers with money immediately. The village leadership has to meet first to decide what to do with the money which usually takes a long time. Farmers therefore realise that the only hope for immediate money is their own plots.

Another factor which prompts farmers to pick their own cotton early is the desire to get the bonus of five cents per kg for cotton delivered for sale in the first two weeks of the buying season; any communal cotton bonus will be shared by all members. As one farmer at Kaunga commented: "When I have problems like death or another emergency I can't get money from communal production". Farmers rely entirely on their plots to meet any unforeseen contingencies and hence have a genuine reason for being more committed to individual production.

UPROOTING AND BURNING COTTON STALKS

Uprooting and destruction of cotton stalks on both individual and communal plots was carried out before the 30th October deadline. The main reason for the

high response was a law which requires cotton farmers to uproot and burn cotton stalks before that date or else face court action. This law has been in force since colonial times.

Ruthenberg (1968) contends that selective pressure is required to introduce a bundle of innovations as achieved in tobacco cultivation at Kyambo, and tea development in the Usambara Mountains. He contends that smallholders invariably tend to fall back on negligent husbandry practices unless some degree of pressure is exerted. According to my survey seven farmers (30%), three village leaders (23%) and one extension worker said that force was the reason for the high compliance of uprooting and burning cotton residue on the two farming systems. The cotton research station at Ukiriguru reported in 1968 that as many as 90% of peasant farmers living in close proximity to the research station failed to burn their cotton stalks by the prescribed date in contrast to nearly 100% compliance when this practice was vigorously enforced by the colonial government (Taylor, 1969). In recent years massive extension and political efforts have been launched by local leaders to have cotton stalks uprooted quickly. This is done through village meetings, rallies and mass media.

C H A P T E R VI

Main Individual Cultural Aspects Of Planning Problems

6.1 Introduction

The foregoing Chapter focused on individual and communal levels of adoption and dealt with factors contributing to differences in farming practices between communal and individual plots based on the views of farmers, village leaders, extension workers, previous research, and the author's own experience and observation. This chapter presents a brief summary of data from the previous chapter and contrasts it with evidence from earlier studies, with emphasis on major factors which affect communal adoption of farming practices as compared to individual adoption.

6.2 [illegible] Government Intervention

6.2.1 Land Title Act and Service

The government has given free assistance to induce people to join ujamaa villages and start communal production in the form of tractor services, agricultural inputs, improved seed, agro-chemicals, credit facilities, extension services, and social services. Ideally, government assistance is provided to induce and encourage the growth of self-reliance. Since ujamaa villages have no resources other than land and their energies to embark on communal production, the government supports them initially with free or subsidized agricultural inputs and services.

[illegible] the government has indirectly made ujamaa groups of a non formal innovations on the communal plots, but the approach has been only partially effective in inducing farmers to join ujamaa groups.

Le Vine and Mortmann(1974) found in Kenya that people followed recommendations on the ujamaa shamba because of free inputs even though they did not believe the Mwalimu shamba's advice. And due to the close tie between government assistance and the use of modern innovations, ujamaa farms are often regarded as places where modern methods must be used even though the women are not convinced of their benefits. Since villagers rely heavily on government assistance there is fear of a cut in the assistance if they don't follow the Mwalimu shamba's recommendations. Mortmann(1976) also observed in Morogoro and Arusha regions that ujamaa village groups often do what the Mwalimu shamba tells them to ensure the continued flow of government support.

My survey revealed that government assistance was responsible for higher levels of adoption of fertilizers, insecticide, tractors for ploughing on communal maize plots and improved maize seed on both communal and individual plots. This is supported by the fact that although ujamaa groups applied fertilizers and insecticides on communal plots, members did not use the

agro-chemicals on their individual plots except those who received the inputs free from the village. Furthermore, the high rate of using improved maize seed by both individual farmers and ujamaa groups was due to the government programme of giving free seed to all farmers in 1974 - 75 during the "Kilimo cha Kufa na Kupona" campaign. Last season (1975/76) the government did not send free fertilizers and insecticides to the villages and they used only those left over from the previous season. Farmers said they did not use fertilizers and insecticide on individual maize plots because they had no money to purchase the inputs. However those who received free fertilizers and insecticides from the village used them on their individual plots. This shows that free supply of inputs to ujamaa villages was a major factor in adoption of what are normally purchased inputs and the use of tractors for ploughing.

While there is nothing wrong per se in providing government assistance as an inducement to join ujamaa villages and to start communal production, the problem as Ndonde (1975) notes is that in the majority of cases these "chips" have not worked to improve the productive forces of the wajamaa but have only created patronage and peasant communities which are dependent on government aid. The communal acreage cultivated by ujamaa village group is small, as discussed in Chapter III, and self-reliance attitudes and self-motivations have

nearly disappeared. Hartmann(1976) observed in Hosapete and Kaduna regions that government aid is detrimental in that it reinforces a dependency relationship which has grown up between ujamaa villages and the government with the tendency of expecting the government to give something to solve problems rather than undertaking to solve the problem by local initiative. She observed that Kuholole ujamaa group had used free herbicide in maize production during 1974/75, but in 1975/76 the village refrained from using the herbicide when told to pay for it. Farmers were not willing to spend money for the practice as the expectation of free inputs had been firmly established in their minds.

Kurwa (1975) observed in Handeni that government help is seen as the duty of the government. This may explain why members of Misinga and Kkata villages kept on waiting for tractor service for ploughing from the District Agricultural Office and as a result the communal plots were ploughed very late when the weeds were almost finished. The village members could have started ploughing with a hoe while waiting for the promised government tractor service, but due to lack of commitment, self-reliance and initiative, members decided to wait for the government service. Obviously, if the District Agricultural Office had not sent the tractor, the communal plots would not have been cultivated at all as happened at Kisiwani village. The village

members cleared a maize plot of about forty acres and expected subsidized tractor service for ploughing. The promised tractor service did not materialize and as a result the group did not grow any communal maize. In short, the government and Party leaders have sometimes taken on to their own shoulders too much of the responsibility for villages such that the farmers do not regard it as their own concern. If things go wrong, they depend on outside authorities to help them decide what to do rather than looking for a solution themselves.

De Vries and Fortmann (1974) further observed that free government assistance increases dependency on outside resources and may in fact lower the internally-generated net income because of the adoption of uneconomic practices. De Vries and Hansel (1975) also see increasing overadoption of innovations such as tractor ploughing and fertilizer application that may not pay under the existing cost-price conditions. Ellman (1970) too observes that government tractor cultivation has sometimes been used where there is no cash crop that can cover the cost of mechanical cultivation and in other cases tractors have been used where there are no alternative employment opportunities for the labour released. Use of fertilizers and insecticide for maize production in Morogoro District and perhaps for most parts of the country is uneconomic and

unnecessary as has been shown in previous studies mentioned in the previous Chapter. Mabole (1975) also notes that free provision of goods and services as the main strategy of persuading peasants to accept ujamaa is not only contrary to the spirit of self-reliance which is an integral part of socialist philosophy but even from the purely economic point of view this strategy is not feasible.

It is true that increased agricultural productivity may entail the use of more modern agricultural inputs. But if in the long run they fail to raise productivity and hence income in ujamaa villages (as is the case now in Morogoro District) by enough to cover true costs they will prove to be a waste of our meagre resources and a discouragement to the wajamaa. Hence, the use of promises of free government aid or provision of social services is also bound to fail unless production rises enough to compensate for these aids.

Even if technical recommendations could lead to agricultural improvement, paradoxically, the practice of giving free inputs and services to ujamaa villages works the wrong way. Schiller has shown that in India government subsidies to co-operative farming and discrimination against individual farmers have detracted from the principle of voluntariness and often proved detrimental to co-operative farms themselves (Ellman, 1970). Continued free inputs foster indifference to economic returns, the farmers feel little

involvement with the process, and are not motivated to expend the extra efforts required to bring to fruition the benefits made possible by the inputs.

[illegible] and [illegible], and [illegible] have not been farming practices require money to purchase the necessary inputs. Farmers need credit as much when they start adopting new methods for which supplies and tools are required. Ireal (1966) contends that credit can be used as a leverage to speed up the adoption of new methods.

Feldman (1969) found in Kenya among tobacco farmers of Kakamega village that farmers responded to new innovations and opportunities because they were given credit to buy seeds, fertilizers, and implements. De Vries (1975b) in his case study of maize-growing practices in Kenya found that recommendations involving high cash expenditure were followed to a higher degree by rich farmers than poor farmers. The Kumani Maize Credit Programme to Ugandan villagers recognized this problem and aimed at increasing maize production through supplying credit for agricultural inputs like fertilizers, improved seed, and insecticides (Kohele, 1975). Kagumisa (1973) noted that the E.C.U. coffee demonstration plots in 1955 in Bukoba deteriorated after being handed over to the farmers because they could not afford fertilizers nor manure. But he observed that town workers with incomes to buy inputs and to employ labour managed successfully to maintain the demonstration plots.

The Pilot Evaluation survey of the ADP in Morogoro found that 25% and 14% of the sample farmers did not use fertilizers and insecticide respectively due to the expenses involved (UDSM, 1975). Lack of access to credit may have contributed to the small number of farmers who applied fertilizers and insecticide dust on their individual maize plots. As pointed out before, 10 farmers of the sample indicated that they did not use fertilizers and insecticide because they had no money to buy the inputs. But credit is only a constraint when the recommendation pays. Under Morogoro conditions where fertilizers seem not to pay it is not certain whether maize farmers can (or should) take fertilizers and insecticide on credit and repay the loan. However, 89% of the cotton farmers and all the Ujamaa groups sprayed cotton with DDT 75% Rogor as they were allowed to get the insecticide on credit. The insecticide is sold at a subsidized price of shs 26 per carton (enough for spraying one acre eight times) and payment is made by deducting the value of the insecticide from cotton sales at time of delivery. Furthermore, all cotton farmers who did not use fertilizers and insecticide dust in individual maize production sprayed cotton with DDT 75% Rogor as they received the insecticide for cotton on credit at a subsidized price but never got credit for purchasing fertilizers and DDT 5% dust for individual maize production. A further factor is that spraying of cotton, even at a non-subsidized

price, would say whereas use of the chemicals on maize for more farmers does not cover the labor costs.

Individual maize growers in Lowajere district likely would not refuse free fertilizers and insecticides but they object to paying for it when little or no financial advantage is evident. The ujamaa village of Mabololo cultivated in 1975/76 from only chemical weed killer (Gramoxin) for communal maize production when they were asked to pay cash for the chemical although they had used it in the previous season when it was free and had appreciated the results. When it came to paying cash the village leadership decided to grow maize without the chemical because, according to the village secretary, the village had no money to purchase the chemical. Whether or not the practice was economical at cost obviously had not been demonstrated or perhaps even considered. Although credit or availability of cash is important in adoption of new farming innovations involving the use of purchased inputs, a successful credit program must be accompanied by a good method of paying it back and proper evaluation of the economics of the inputs or else farmers will not repay the loan. In such cases, it is not seen as credit but as a gift. This has happened in Kindi Region where a total of about shs 450,000 in loans was given to carry out the National Maize Project in 1975/76 but had not been paid back by March 1977 (Daily News, 1977b).

6.3 [illegible]

6.3.1 [illegible] (continued)

Farm innovations are recommended with the hope of increasing farm productivity, thereby giving farmers higher incomes. No peasant is interested in a recommendation for its own sake just because it is said to be a "good" farming practice. Bartlet, Riley and Handley (1973) contend that a farmer normally adopts innovations because they provide benefits to him which exceed their cost. For an innovation to be adopted readily the results of the practice must be clearly obvious. Rogers (1969) states that visibility of results from an innovation is important in affecting its rate of adoption in a less developed society (as well as elsewhere).

Cliffe, Lutrell, and Moore (1969) noted that the Mlalo Rehabilitation scheme in Usambara in 1964, which aimed at introducing soil conservation measures, failed because there was lack of immediate benefits in return for farmers' increased efforts. Hulls (1971) observed in Sukumaland that if an innovation is to be successfully communicated to farmers its benefits need to be obviously visible. He noted that farmers saw no obvious benefits of uprooting and burning cotton residue.

Bartlett (1975) points out that the blanket recommendation for application of fertilizer in cotton production in Sukuma-land did not take into account the cost of obtaining fertilizers which may be high

when local transport cost and uncertainties of supply are taken into consideration. Also costs of extra labour required for picking and sorting the incremental yield and the possible need for more weeding labour had not been counted. De Vries (1976) notes that extension workers may give advice which has no economic justification when seen from the farmers' (or society's) perspective. In his research study in Ethiopia on maize production practices, Le Mare (1975[b]) found that an investment of Sh 130 in fertilizers resulted in only an increase of Sh 190 in the Gross Margin over that for the use of insecticide, herbicide, and proper seed. He thus noted that the net income per man-day was likely to be lower considering the extra labour required for application of the fertilizer and extra weeding and harvesting costs.

According to the Koroyore TDA District cotton Manager, a farmer will get an increase of Sh 500 per acre in Gross Margin for cotton by the use of insecticide, correct spacing, and weeding [10]. In Olenja District, Koroyore Region, the Gross Margin per acre increased from Sh 190 to Sh 590 by use of all recommendations in cotton production (Kahiga, 1974). Meanwhile according to Sperling (1976[b]) and the International Maize and Legumes Research program (U.S.A.I.D, 1975), the use of fertilizers in the production of maize

[10] Personal communication.

in lowland areas like Morogoro does not pay. In Ulanga District it was shown that the Gross Margin could increase from shs 151 to 221, that is an increase of only 70 shs per acre with use of all maize recommendations (KADU, 1974). Considering the labour and cost involved in planting in rows, extra weeding, fertilizer and insecticide application, and extra harvesting, the increase in Gross Margin is not worth the effort.

As noted by Mbwile (1975) farmers in Ismani were reluctant to use fertilizers for maize on credit because the economically-optimum point of fertilizer use was not known. Taylor (1970a) observed that research work seems to concentrate upon output per unit of land and does not always assess whether the additional output will repay the farmer's additional inputs. Mercy (1975) too sees that research recommendations tend to be oriented towards return per unit of land rather than per unit of labour or capital of investment. Bartlett (1975) points out that innovations developed by research may not be useful to the farmer since they do not solve his most pressing problems. The innovations usually implicitly assume that the farmer's goal is profit maximization but no account may be taken of the effect on the security or self-sufficiency of the farmer.

Socio-economic problems like shortage of land due to population pressure may act as a stimulus to changes in farming system, forcing farmers to use intensive

methods which involve modern farming practices. Bartlett (1975) points out that the adoption of innovations has been strongly influenced by resource scarcity and population pressure. Allman (1969) has observed in Kilimanjaro where land is scarce that new innovations have been introduced such as high-grade cattle and planting improved grass leys or legumes in the field. Rounce and Thom found that in Ukara Island cattle manure is widely used because of population density and exhausted soils which make such measures essential for survival (Lacey, 1975). Ludwig (1968) also observed that increasing shortage of land necessitates a transition to new husbandry practices as demonstrated by the example of Nahara, the Luano (Mkoria), and Labro in Kenya. The Nahara use farm-yard manure, a green manure crop and do crop rotation, fodder growing, terracing and ridge cultivation as erosion control measures to preserve soil fertility. In Morogoro District there is no apparent shortage of land and the soils are still fertile, hence providing less incentive for using modern farming techniques.

Frequently a profitable cash crop can serve to break the ice for agro-technical change if the return is high enough to elicit lasting efforts. Manfred (1968) concluded in his study in Usambara that an especially profitable innovation is needed in order to induce a traditional-bound farming community to accept

modern husbandry techniques. He observed that modern principles of farming were being applied in vegetables, such as the use of manure, improved seeds, row cropping, etc. because vegetable growing was more profitable than coffee, cassava, and maize which were still grown according to traditional methods even by the vegetable farmers. Collinson (1966) contends that where the recommendation represents a first attempt to introduce farmers to the use of purchased inputs or where the recommendation involved can only be purchased for cash, returns per unit of outlay may be the more suitable criterion to use for the selection of a level to recommend. Farmers making such changes must be able to cover the risks involved out of their present levels of income. Most likely, this is the reason why farmers grow cotton using modern principles of crop husbandry while the same farmers grow maize in the traditional way in Morogoro District. This means that economic analysis of technical research must be made by those who plan for peasant agriculture to screen out in-appropriate innovations.

The wide use of fertilizers and insecticides in maize production by ujamaa village groups seems to be a result of the extension system responding to political and administrative pressure towards the use of modern farming methods. As de Vries (1967) notes, ujamaas tend to view their communal plot as a modern farm on

which modern practices should be used and thus neglect careful scrutiny of those practices. It was, for instance, observed in Iringa that the village members used fertilizers even though they did not think it was worthwhile because they could not go against the Kwanza Chombo (De Vries and Mortimore, 1974).

Farmers often have good reasons for accepting or rejecting innovations. Coulson (No date) has observed that time and again the technical advice given by staff to peasants was technically wrong due to failure to take account of the conflicting aims of peasant farmers or to try out research station results in local areas before recommending them. He lists the following examples of wrong (inappropriate) technical advice given to farmers:-

- The spacing recommendations for cotton in Sukuma-land were valid only if fertilizer was used.
- Fertilizer was recommended (and forced on farmers) in Uhorewe District where the soil had been used over and over again and had thus gone acidic. The acid prevented the fertilizer from having any effect.
- The advice to plant pure standswas often only valid if insecticides were used.
- Fertilizers have been recommended in dry areas such as Dodoma where in a bad year the crop fails anyway.

In lower altitudes in Ijebu, farmers disputed recommendations such as use of fertilizer, use of 3'x1' spacing, monoculture and weeding three times (de Vries and Hartman 1974). Morey (1975) noted in Mubi land that the use of single super phosphate and sulphate of ammonia fertilizers in cotton production has not yielded desired success. He concluded that when farmers are forced to take fertilizers without being convinced of its value, it is unlikely to be properly used. My survey show that eight farmers (2%) and four farmers (1%), respectively, conceded that they are in need of fertilizers and insecticides use on their private maize plots. This agreement is in agreement with research by Spalding (1976 a). Valeprove and Spalding (1975) also say there is no need for use of phosphorus except in Benue region because the soils in lower elevations (like Lowgore) have high phosphorus-fixing capacities. Furthermore, the Director of Lion Research Station (1974) advised the Lowgore Regional Development Director that research on fertilizer use in Lowgore region revealed that fertilizer need not be used in maize and other cereal production due to poor response and increasing price of the input making fertilizer use uneconomic.

6.3.2 RELEVANCY OF RECOMMENDATIONS

A widely accepted fact is that not all research recommendations are suited to local condition. In the past it has generally been assumed that research

workers are producing the right solutions to the farmers' problems and that the farmer must then be persuaded or forced to accept the improvement offered. But more recently it has been realised that some research recommendations are not good for the farmer's own situation.

De Vries (1975a) found in Iringa that some maize recommendations were more suited to certain areas (zones) than others. Freyhold (1973) noted in Ilonga that some advice given to peasants was contradictory and also not in line with the ecological requirements and that sometimes peasants know that they have been given the wrong advice, although they will nevertheless follow it just to please government officials.

The spacing of 3'x1' for maize is unacceptable to peasant farmers because of the traditional farming system which includes intercropping. Portnum (1976) found in Moro,oro and Arusha Regions that the recommended spacing was not followed by many farmers because it conflicted with the traditional farming system. The spacing recommendation is relevant on communal plots where maize is grown as a pure stand. My survey showed that 14 farmers (28%) did not follow the recommended spacing because they felt it was too close.

Peasants know that the extension advice of growing maize as a pure stand (monoculture) is wrong even though

it is advocated by the majority of extension field workers. The survey revealed that 12 farmers (44%) intercropped to get food-stuffs for family consumption while 7 (26%) contended that intercropping saves time. The Faculty of Agriculture also has demonstrated that intercropping increases overall production. Finlay (1974) says that intercropping is popular among peasants because it maximizes resources on a given area of land; minimizes risks, insures against insects, diseases and weather; controls weeds; gives high yields; and supplies varied foods over a long time. One can therefore see why many farmers in villages grow maize mixtures on individual plots.

Ujamaa village groups went along with recommended farming practices: they used fertilisers and insecticide in maize because they obtained them free and spaced maize in rows of 3'x1' and thinned to 1 or 2 plants per hole because Wajamaa can take risks on communal plots and because they were using pure stands. Ujamaa groups also adopted the recommended practices to get government help. De Vries and Fortman (1974) noted in Iringa that the feeling that the communal enterprises somehow belong to the Party, government or group were very strong and so it was logical that methods recommended by the extension workers should be followed in the communal enterprises even though the wajamaa are not convinced of their benefits. According to my survey farmers felt strongly that the communal

plot belonged to the government and therefore modern farming practices are a part irrespective of their relevancy. One farmer at Mkongosi village remarked: "Hii ni shamba ya Serikali" (The communal plot is a government farm). Planting communal maize in the long rains is another example of a practice which individual farmers see as inappropriate because they feel it is better to plant maize in the early rains to get food quickly and to minimize risks due to drought but ujamaa groups can take risk on the communal plot.

The rejection of the recommendations by individual farmers is an indication that they use different criteria in evaluating the practices from those used by some researchers and most ujamaa groups. Early planting is a strategy for self-sufficiency in food, hence a strategy for survival and a guard against weather failure as in intercropping. Individual farmers are interested in maximising production subject to land and labour constraints. But ujamaa groups are interested in maximising free government handouts, and so do what they think the government wants. Thus, what is assumed to be good for ujamaa production is not necessarily good for private production or for Tanzania as an overall economic entity.

Saylor (1976) contends that recommendations developed in one particular environment may not be suitable in other environments. The recommendations for Morogoro District which emanate from Ilonga and KATRIN or

Ilonga Research Station) tend to be uniform for the entire Morogoro region and even the entire Eastern zone with its very diverse ecological conditions. The blanket recommendations on spacing and fertilizer use ignore soil types. De Vries (1976b) suggests that recommendations should be tried as a demonstration on a small scale to gain local experience before being implemented on a large scale. Agronomic research needs to be adjusted to local conditions because of variations in physical characteristics and also to adjust recommendations to small private farmers.

The creation of ujamaa villages, specializing perhaps on cotton or maize production, may necessitate the formulation of recommendations for more specialized situations. On the other hand, it must be born in mind that Kilimo has traditionally insisted on the spread of simple husbandry practices such as early planting, use of good seed, correct spacing, adequate weeding, proper seedbed preparation, etc. before the adoption of more expensive technologies like use of chemical weeding, and fertilizer and insecticide application. It has been observed by researchers working in farmers' fields that seedbed preparation is crucial for excellent crop production in the lower elevations; unless the soils are well-prepared prior to planting, crop establishment is difficult and yields, will be small (Sperling, 1976b.).

6.3.3 COMPETENCE OF EXTENSION STAFF

The furnishing of inappropriate or wrong recommendations to farmers may also be a result of lack of technical competence among extension workers. Since extension workers are educators they should have technical competence in the field so that they can advise farmers correctly and confidently. This requires properly trained field staff. Freyhold (1975) noted in Kenya that most extension workers were neither better trained nor did they know farming practices other than spacing and thinning and were incapable of communicating with farmers. Fortman (1976) working in Morogoro and Arusha found that some Mwana Shambas were of low technical competence and had no adequate agricultural training: "Of the twenty Mwana Shambas interviewed two could not give spacing recommendation, eight did not know the recommendations for T.S.P. and C.A. fertilizer, five did not know the recommendations for control of stalk borer". De Vries and Fortman (1974) in Iringa also found out that the training received by the Mwana Shamba was inadequate, consisting of seminars lasting a week or less. They further found that the expertise of the special crop extension agents was more up to-date than that of the generalists as the former had slightly more training.

Lack of proper training and technical competence among extension workers was also observed by Saylor (1970). He noted; "The results of the 'Chensha Bongo'

(Best) given to all regional staff in Kwara revealed that most of the Kwara Ibarbas knew virtually nothing about the use of fertilizers. The results showed that over half did not know how much NPK concentrate should be put into a 2-gallon sprayer if either 8 or 12 gallons of water were sprayed per acre although nearly all of them knew when spraying should begin".

According to my survey, of the five extension workers assigned to the five sample villages only one had undergone basic training in agriculture, the rest were hastily recruited without undergoing any formal training other than crash programmes or seminars lasting only a few weeks. Moreover, only one of the five had Secondary School education while the other four had only primary school education. Four of the five extension workers interviewed said their training was inadequate. Given this type of training, extension activities involve little education but rather more informing people of the government prohibition, upcoming government activities, etc. Saylor (1970b), who interviewed a number of Kwara Ibarbas in 18 regions, found that most felt that they had inadequate training and that additional training would permit them to be much more efficient in carrying out their work.

Lack of technical knowledge may also be responsible for failure by extension workers to furnish relevant recommendations to farmers with respect to their local ecological conditions because they cannot interpret

the local environment properly. Aroyhold (1975) contends that extension workers are generally of low technical competence and do not have enough research materials to work with. As a result they are unable to provide farmers with sound technical recommendations in the context of the local areas. Wrong; advice also contributed to adoption of inappropriate innovations by Ujamaa village groups. For instance the Ujamaa groups at Ikuka and Mbinga villages were advised to dust maize with 4% insecticide at tasselling stage but the ideal time for such practice is about a month after emergence because this is the time when stalk borers attack the plant. Lack of technical competence may also explain why extension workers in the district have been insisting on maize production in Mbeya and Ismpoui villages despite the fact that maize has failed for the past three seasons due to frequent drought leading to recurrent famine in the villages. Instead of putting more emphasis on other enterprises such as sorghum, or bullrush millet which are more drought resistant, farmers have been given improved maize seed, fertilizers, insecticide, tractor services, etc. to "increase food production (maize)". As noted above, research carried out in the region has shown that fertilizer application is not worthwhile from an agronomic and economic point of view, particularly when rainfall is erratic.

6.4 LABOUR AVAILABILITY AT CRITICAL

Certain practices such as correct spacing (row planting), insecticide and fertiliser applications, and weeding are labour intensive and time consuming. Mills (1971 observed in Kakamega that it is frustrating trying to persuade farmers to adopt an innovation which demands considerable time and effort while not yielding any substantial benefits. Kajumba (1975) noted in Kabale that peasant farmers failed to maintain the on-the demonstration plots given them by the Kabale Cooperative Union because the plots demanded labour which was beyond the capability of the family. For the same reason the peasant farmers could not manage exotic dairy cattle bought on credit from the D.E.D.

During the pilot evaluation survey of the IDA in Kore,pore, it was found that recommendations requiring extra labour such as proper spacing and weeding were followed less often by Ujamaa village groups (Ubale, 1975). My survey showed that 11 farmers (23%) did not plant individual maize in correct spacing (row planting) because it was time and labour consuming. This may be true because planting time is the most critical operation and so farmers could not afford to plant maize in rows lest they be late in planting other crops. One farmer at Kidudwe remarked: "Planting maize in rows of 3'x1' requires at least four people, two for making rows and another two for sowing". Four people may be beyond a family which consists of husband and

wife as the major source of labour. However, families with grown children managed to plant maize in rows (not necessarily according to recommended spacing) on their individual plots because they could utilize child labour. On the other hand, though labour on communal plots is generally a problem, wajamaa could manage to make room due to the relatively small communal acreage.

Labour is also a constraint during planting and weeding on communal plots. Mabele (1975) found in Mjombo that villages did not fulfil their targets due to poor work attendance by wajamaa. Bomani (1975) noted in Mandoni that people attended work on the communal plots after their own farms had been cleared. As soon as the rains fell the number of members attending communal plots decreased considerably as work on their individual plots increased. Although in most cases individual and communal maize is planted at different times, some individual farmers plant maize in the long rains and also during this time other food crops are either sown or weeded. Throughout the District the main crops grown in 1975/76 on both communal and individual plots were cotton, maize, and sorghum. Each family had an average of three plots of different crops totalling to an average of four acres. During peak labour requirements conflicting demands are invariably resolved in favour of the private shamba. Consequently, communal plots were late planted and poorly weeded. According to my survey 8 farmers (23%) claimed

that labour w... [illegible] and 29 (9%) said this was [illegible] weeding.

De Vries and Norman(1974) found in Nigeria that while fertilizer application on maize might pay in both systems, individuals often failed to follow the procedure because of lack of labour for applying it by hand. But they further found that upland village groups operation did not use fertilizers, proper spacing, proper weeding, and early planting due to lack of labour. Norman(1974) noted in Lesotho and Ashanti Region that farmers were making frequent remarks: "It is time or labour consuming". She further noted that the most critical problem farmers had traditionally was a shortage of labour. All unsatisfactory persons in the 11 villages in her study replied in terms of a labour shortage for planting and weeding. In my survey, 14 farmers and one extension worker pointed out that the major problem facing communal production in their Ojarua village was poor work attendance by members on the communal plots. However, my survey did not find labour bottlenecks in application of fertilizer and insecticide on individual fields as a factor for non-adoption of the inputs. Instead they were not used because they were believed to be uneconomical.

Dewey (1975) observed in Chikunaland that farmers did not be aware of the advantages of early sowing and

weeding and yet not follow these practices due to competition for labour. My survey showed that 19 farmers (34%) knew the reason for using proper spacing, 18 (72%) did so for use of fertilizers in maize, 7 for use of [illegible] 5%, and 2 for growing a pure maize stand. This shows that knowledge of the official recommendations is not a major constraint among individual farmers; the reason that these practices were not followed by individual farmers could partly be a labour bottleneck and mainly lack of conviction.

De Vries and Fortmann(1976) observed in Iringa that low adoption rates were attributed to what farmers saw as poor recommendations. In my survey individual farmers complained that proper spacing demanded too much labour.

Poor work attendance on communal plots during planting and weeding is a result of low commitment by members to communal production. Cliffe and Cunningham (1973) found in the Lavuma Co-operative farming scheme (Ahl) that individual members considered activities on their own holdings as being of prior importance. De Vries and Fortmann(1974) in Iringa found that low commitment was the most important obstacle to development of ujamaa villages. There was an unwillingness of members to invest time, effort, and other personal resources to ujamaa enterprises. My survey showed that lack or low commitment by members to communal production was a major problem pointed out by 14 farmers

(2%), 8 village leaders (7%), and 3 extension workers.

As this and Jordaan(1974) surveys have low commitment to ujamaa is because of a low expected return from these enterprises. They further observe that low commitment to ujamaa production could be a result of the policy adopted by local Party leaders, of forcing workers to cultivate communally. De Vries (1976) points out that the return on inputs of capital and labour have been generally low. Pehrsson and Company reported that annual income per "mjuma" from communal crop production were from shs 0 to 47 in 1973, and he found that when all expenses were charged, returns on labour were only 60 cents per man-day in 1973 and 1/30 in 1974 (De Vries, 1976). Lunza (1975) in Handeni District showed that the income per person after selling communal produce varied from shs 77 to as low as 1 shilling per year.

My survey shows that annual income from communal crop production per member is low compared to income from private production. At Mkata the average return for the farmers interviewed from communal cotton sales in the 1974/75 season was shs 30 while individual average returns from private cotton production was shs 560. The return on communal sugar at Kidudwe village was 50 cents per man-day in 1973/74. At Luholole village the highest annual return on communal soybeans was shs 19 and the lowest was shs 2/40 per

member in 1975/76. (See also Appendix table 5 for more details). This shows that few people derive a substantial portion of their incomes from communal production. The majority are therefore bound to spend their time on individual enterprises which secure the livelihood of their families. Some members at Midudwe village work as paid labourers at Mtibwa Sugar Estate instead of attending communal production. This was also observed at Ikata village.

The reason for the unwillingness to perform co-operative work is easy to grasp. According to Ruthenberg (1968), in small-holder farming the man who tills the land is the owner of his means of production and to this extent the master of his own economic destiny. Co-operative action on the level of production usually lacks the direct relationship between the individual's efforts and the gain to which small-holders are accustomed. Farmers are distrustful people, all the more so if they are in an early stage of commercialization. One always fears that the other one might work less. The participants rarely feel themselves responsible for the success of the co-operative action which has been initiated by outside institutions. The individual's field comes first, and nobody is willing or able to press the participants into working effectively. Hansel and De Vries (1975), observe that new villages often include diverse social groups; members may lack the cohesion and trust required to

engage in communal enterprises; together with the stress on minimum acreage all this has resulted in a decline in communal production and lower commitment to ujamaa. As a result work turn-out for communal activities tends to be low, quality of work poor, and productivity low especially when there is competition for labour with private plots.

Coulson will only develop if people experience that ujamaa production is able to meet their needs for food, cash or security better than alternative modes of production. Party and government leaders in encouraging ujamaa villages production repeatedly promise that government help will be readily available but say little or nothing about possibilities of increased production and self-reliance (de Vries and Mortimer, 1974). In many villages farmers come together with the high hope of improving their standard of living through working together but their efforts do not seem to bring any substantial return and they quickly become disillusioned and discouraged. The small return gained from the ujamaa enterprises makes private activity a must to meet the basic needs of ujamaa. In actual fact overall labour is scarce but what matters here is commitment.

6.5 RISK

Risk is an important factor influencing adoption of farm practices by peasant farmers. Cliffe (1972) noted during the colonial rule that peasants reacted

against certain government agricultural policies, such as cattle destocking in Botswana', because some recommendations hit at the economic and social roots of the people's ways of life thereby challenging the peasants' economic and social security and demeaned hard work of his without his being aware of any benefits. Collinson (1975) points out that the risk felt by a farmer in adopting a practice which involves him in an outlay representing an appreciable proportion of his net cash income is reinforced by uncertainty arising from two sources:

- Ignorance as to what the new practices will mean managerially.
- Imagined and often justified conflicts with the proclivities of his economic environment as manifested in his existing system.

Bartlett, Kiay and Handey (1976) contend that adoption of new practices often subjects the farmer to a degree of risk which the farmer is not prepared to bear. De Vries and Fortmann(1974) contend that while fertiliser application on maize might have paid off under both private and communal farming systems in Iringa, individual farmers often failed to follow the practice because of increased risk, a constraint which often does not apply to the communal farm (particularly if inputs are free), and they attributed the lower adoption of innovations by individuals to

that farmers may an increased risk. A novel outlier provenance are more willing to take risk on the communal plots than on their own plots and so can try some of the Ukiriguru Ukiriguru recommendation.

According to my survey, Ujama village groups thinned communal maize to one or two plants but the majority of individual farmers thinned to three plants or did not thin. Eleven farmers interviewed said they did not thin maize to one plant for fear of risk due to drought or vermin attack. But it noted that farmers refrained from thinning to 1 - 2 plants because of wide spacing, (low population density) on their plots. Likewise, individual farmers harvested their maize quickly on reaching maturity before drying, for fear of theft or vermin attack, but ujama groups allowed maize to remain in the field till dry. However, individual farmers then dried the maize in their houses.

The traditional planting of maize during the early short rains is a protection against uncertain rainfall and it also supplies farmers with a source of food over a longer period. Hartmann(1976) says that a strategy which demonstrates a survival value in an uncertain environment is unlikely to be lightly abandoned. Rotenhan (1968) observed in Lukuuland that people believed the advantage of phased planting outweighs any loss in yield, reflecting the unreliability of the rain in drier parts. People prefer possibly lower but more secure returns instead of a potential maximum yield given

good weather. Bartlett (1975) points out that in assessing intercropping it is implicitly assumed that the farmers' goals in profit maximization without taking account of the effect of the innovation on the security or self-sufficiency of the farmer.

Intercropping maize with sorghum can be used to reduce risk due to drought because sorghum is drought resistant and so likely to survive in case of weather failure which is common in many years of the Sahelet. According to Bishop and Bourmat (1975) through diversification by intercropping, farmers reduce risk and uncertainty. Collinson (1972) points out that a major priority in the existing farming system is a balance of grain and legume crops to allow the preparation of the customary dish. Hurley (1974) contens that intercropping minimises risk against weather and price fluctuations since the system utilizes an ecological balance between a farmer and his environment. Furthermore, the legumes intercropped with maize increase nutritional values of the local diet. The traditional farming system gives a flow of preferred crop combination throughout the season. If an innovation is inconsistent with these needs it must offer a strong enough incentive to displace it. Growing pure maize does not offer any advantage over growing maize as an intercrop when based on hand labour and in fact has a number of disadvantages as noted. A recommendation that jeopardizes the supply of a key family foodstuff could well prove unacceptable.

Although some farmers said they did not use fertilizer and insecticide on individual maize due to lack of money to purchase the inputs, one reason for non-use may be related to risk and uncertainty and a more important one to economics. Bartlett (1975) points out in a study of cotton production in Sukumaland that in calculating returns to the farm from cotton production risk or effect of the use of fertilizer on the variation in yields should be taken into account. He further observes that fertilizer is highly complementary with other improved practices (weeding, correct spacing, spraying, etc.) and the use of fertilizer would probably not be recommended with the level of practices used by the average farmer. He concluded that increasing complexity of a package of innovations reduces its acceptability or makes extension of the package to the farmer more difficult. The standard of husbandry used by the average peasant in the district is poor. The use of agro-chemicals would not result in increased returns since it is complementary with other improved practices and may not increase returns even with the other practices.

Extension workers in the District appear to ignore risk arising from drought leading to crop failure which has been affecting the district in the past several years. Advising farmers to thin maize to one plant, growing pure maize, sowing only in the long rains, and use of fertilizers is risky. Fertilizers would not give

good neighbours in absence of credit, and growing a pure maize crop that might deprive farmers of any harvest in a bad year. On the other hand ujamaa groups accepted the risk on the communal plots in part because risk is minimized by use of free or subsidized inputs and in part because they are not committed to communal plots. Also use of these practices helps insure future free government handouts.

6.6 [illegible]

As Weiss (1973b) points out that in communal production decisions are made collectively and then become binding on an individual. Heiman and Feldman (1969) contend that co-operative organization demands discipline and co-ordination which is not required by individual farmers on their own. In a co-operative organization farmers work in groups at allocated hours and are required to complete tasks within a certain time in order to synchronize with other activities. Saunder (1972) observes that groups take full advantage of the external and internal forces of group-dynamics. Properly stimulated and directed, these forces can lead to changes in practices by large numbers of people. Ellman (1970) contends that a certain prestige is attached to being a member of an ujamaa village which makes it shameful to refuse the advice of a so-called expert.

It has already been mentioned that ujamaa villages are governed by village councils which make important production decisions and that the village agricultural sub-committee in consultation with the local extension worker decides farming practices to be used on the communal plot. Decisions made are discussed and agreed to by all members before implementation. The agricultural sub-committee also checks to see that practices are followed on communal plots by all members. On the other hand, individual farmers are free to decide what practices to follow on their own plots.

Hulls (1971) contends that in a traditional society any farmer who tries improved methods of farming runs the risk of being scorned by his fellows. If the innovation were to be tried by a group of farmers working together, the social pressure felt by the individual would be eliminated and at the same time chances of a more rapid diffusion through the community would be increased. According to Bradfield (1966) group decisions usually carry more weight in a community than the decision of an individual. An individual may be unwilling to adopt a farming practice on his own but if he is part of a group of people who agree to try the new idea he feels happier and has more self-confidence because other people are doing the same thing. Mugumisa (1973) also sees that groups can be a starting point to introduce improved farming practices.

On the other hand, bad village leadership leading to misunderstanding among members results in abandoning or neglecting good farming practices in communal production. As a result, important operations such as timely planting and proper weeding are neglected or are poorly done. At Kizinga village members complained that the village leaders had not told them the total income realized from communal production sales, while at Ikongosi village all money from communal cotton sales in the 1974/75 season was allegedly "stolen". The communal plots at the two villages were poorly weeded and planted late. At Kizinga village scores of members had withdrawn their ujamaa membership, leaving the village with only 27 member families at the time of the survey. Poor village leadership demoralises and discourages members, leading to low commitment to communal production.

Self-image among ujamaa village groups also plays an important role in adoption of farming recommendations on the communal plots by members. De Vries and Fortman (1974) in Iringa reported: ".... the feeling that communal enterprises somehow belong to the Party, government, or group is very strong. As such it is logical that methods recommended by extension workers should be followed in the communal enterprises even though the wajamaa are not convinced of their benefits or don't agree with them .....". At Igagala they noticed that recommendations were followed only in

areas near the road where they were likely to be seen. De Vries (1976) also contends that wajamaa tend to view their ujamaa plot as a modern farm on which modern practices must be used. He observes that wajamaa adopt techniques advised by extension workers in order to please the government and thus obtain government help in the form of free inputs, soft loans, or social services. It was observed in several villages in Iringa that wajamaa were working hard so as to obtain a tractor loan.

Ujamaa village groups follow modern farming methods to please government officials who give them agricultural inputs and other assistance free or as soft loans. This may be the likely reason why ujamaa village groups applied fertilizers and insecticides on communal plots but individual farmers did not. On the other hand, individual farmers have nobody to impress by using modern farming practices since their plots are rarely visited by extension workers or other government and Party officials. For this reason individual farmers don't feel any obligation to adopt inappropriate recommendations like the use of fertilizers and insecticide in maize production. Whether or not they follow the recommended farming practices, they expect nothing from the government or the Bwana Shamba. Besides, as noted earlier, individual farmers are discriminated against in relation to free agricultural inputs. But now that the government has changed policy by requiring even ujamaa village groups to pay for the inputs most have stopped using them.

6.7 [illegible]

Historically the extension services in Tanzania before independence were based on rules and regulations enforced by its staff, sometimes under the strong arm of the law. The colonial British authority imposed [illegible] orders to obtain agricultural improvement. Hill (1972) noted that the orders included: compulsory tie-ridging, terracing, cattle-sheds building, destruction of cotton plants, mulching of coffee, and cattle-dipping. Of late the government through local leaders has introduced minimum measures, especially during the "Kilimo cha Kufa na Kupona" campaign.

Even though legislation is imposed on uprooting and burning cotton residue after picking throughout the country. In Kongwa district cotton farmers are compelled by this law to complete this operation by 30th October. This procedure started during the colonial rule and is still in force. Farmers who fail to comply with the law are liable for prosecution. In matters other cotton production practices such as weeding and thining, the local party and government leaders "force" farmers to follow the practices. The CDO (formerly DALO) Land Secretary is empowered to arrest any farmer and sue him in court if he neglects weeding or thining his private cotton. Seven farmers (50%), three villages leaders (25%), and one extension worker pointed out that people follow the recommended practices for fear of prosecution. The fact that local leaders

cannot arrest and sue ujamaa groups may explain why communal cotton plots were poorly weeded. In addition one farmer, four village leaders, and one extension worker asserted that when cotton production was introduced in the district during the colonial era farmers were forced to follow the recommended husbandry practices, unlike maize production where farmers were not subjected to any form of force. For this reason farmers have become used following recommended husbandry practices in cotton production while maize production practices have remained traditional. Besides, as has been noted earlier, some practices such as cotton spraying and use of improved maize seed are beneficial to the farmer.

Saylor (1969) says that cessation of coercion would result in wide spread rejection of many innovations. He observed that compulsory soil conservation measures such as tie-ridging and destocking which were once vigorously enforced in Tanzania now have a relatively low adoption rate. In Geita farmers appeared to understand the reasons for tie-ridging and had practised it for years, yet one third of the interviewed farmers said tie-ridging was no longer enforced. He further observed that farmers near Ukiriguru Research Station failed to burn their cotton stalks on time in contrast to nearly 100% compliance when the practice was enforced by the colonial government. (However, compliance currently is again near 100%). De Vries and Fortman (1974) observed in Iringa that recommendations

of the Bwana Shamba were followed on the communal plot because the ujamaa groups could not go against the government policy and the Bwana Shamba. It has also been noted in the "Siasa ni Kilimo" that in many parts of the country good crop husbandry practices which were followed in colonial times (due to force) were neglected after Independence such as correct spacing (TANU, 1972). My own experience as an extension worker in four regions has shown that when government and party leaders visit villages they inspect the communal plot. To impress these visitors, ujamaa groups try to employ recommended husbandry practices on the plots. It appears therefore that in many ujamaa villages there is an effort to please the government and party authorities or the Bwana Shamba by adopting "modern" farming practices on the communal plots even though the farmers are not convinced of their value.

Though the practices which are enforced may be technically sound, the sociological implications of the methods used in introducing them through force makes it questionable. Mongi (1975) noted in the case of the settlement schemes that imposition does not change people and does not lead to development. President Nyerere himself pointed out that force is not the answer to development problems since those to whom it is applied are treated as less than human and become alienated and discouraged from growing more or working harder. Coulson (No date) says individual peasant production has no dynamics to transform the economy

and the use of force is therefore bound to fail. Ruthenberg (1968) says pressure is arbitrary and consequently downright dangerous for agricultural development if the controlling agency is not able to effect proper enforcement.

Cliffe (1972) observed that as a result of enforced agricultural improvement policy during the colonial era tribal movement and other associations were formed throughout the country to oppose the government measures and resulted in riots and disturbances:

- The Bukoba Bahaya Association protested and organized opposition to the coffee rules in 1937.
- Sukuma Union voiced opposition about cattle destocking.
- Pare Union was concerned about government anti-erosion measures in the Pare Mountains.
- Opposition to cattle destocking in Sukumaland led to disturbances in 1953 and 1954.
- In 1955 riots broke out in opposition to terracing in the Uluguru Mountains.
- There was opposition to bench-terracing in Usambara.
- Compulsory cattle dipping in Iringa in 1958 was opposed.

In 1965 peasants in Ukerewe District refused the enforced use of fertilizer application in cotton production by boycotting cotton cultivation, and other

farmers used the fertilizer (lime) to white-wash their houses.[11] In fact one can go on indefinitely giving incidents where peasants have reacted violently against enforced improvement measures. Anthony and Uchendu concluded from their study that coersion may elicit an initial response but never the sustained acceptance of innovations that do not meet the farmers' felt need (Saylor, 1969). Force can have some long-term effect when the enforced recommendation is good from the farmers' view point, but is useless otherwise.

It is usually argued that pressure has no place in introducing innovations into smallholder farming and that persistent persuasion is the appropriate method. Force through government directive, orders, and law as used by the colonial administration to implement agricultural policies is contrary to the concept of extension. According to Maunder (1972) the broader function of extension work is to help people solve their own problems through the application of scientific knowledge. Adult farmers cannot be forced to learn new and improved farming practices. Extension workers should therefore rely on convincing peasant farmers about their advice instead of relying on government laws and directives to transform agriculture in the rural areas.

[11] Ukerewe District is the home area of the author. Farmers were forced to take fertilizer and cultivate one acre of cotton. Farmers who boycotted cotton growing and cultivated food crops had their crops uprooted by police at the instruction of the Area Commissioner. In the end farmers grew cotton but did not use the fertilizer though they took it.

6.8 EXTENSION SERVICES

6.8.1 LEVEL OF CONTACT

Extension services can be instrumental in teaching peasants improved farming practices. The success of the extension service to disseminate knowledge to farmers depends on part on contacts between farmers and extension agents. Moris (1975) contends that the level of adoption of farming practices depends on the effectiveness of the extension workers to contact farmers regularly.

Fortmann (1976) observed that ujamaa villages in Morogoro Region were relatively advantaged in the production of maize as the extension service was instructed to work closely with the ujamaa shamba and sometimes put their only effort into it. Farmers in Iringa complained that the extension workers were only concerned about the ujamaa farms and were never available to help them with their personal problems. De Vries (1975b) found in Iringa that maize farmers with a higher degree of extension contactswere more likely to follow extension recommendations.

Although contact between extension workers and farmers is important in any extension system, extension contact with farmers in villages are few. Fortmann (1976) found that in eight villages in Morogoro and Arusha Regions, the Bwana Shamba never or rarely came to the villages and one village had not been visited by a Bwana shamba for one year. In one remote Uluguru Mountain

village the farmers reported that the Bwana shamba never went to the village. My survey revealed that extension workers rarely visited individual maize plots but visited both individual and communal cotton plots and communal maize plots. Eighteen cotton farmers (64%) and 17 maize farmers (34%) claimed to have been visited by the local extension workers on their private plots during the 1975/76 cropping season. But at Kizinga and Luhololo villages no farmer had been visited. Regular and close extension supervision on cotton production may have influenced the high level of adoption of recommended practices on both individual and communal plots.

Table 6.1 shows how much technical advice farmers received from their local extension workers.

Table 6.1. Sample Village: Amount of Extension Advice Received by Farmers

	AMOUNT OF ADVICE (N = 50)			
	MUCH	AVERAGE	LITTLE	NONE
	No. of farmers			
+ Msongozi	7	0	2	1
+ Mkata	7	1	1	1
- Kizinga	0	0	1	9
- Luhololo	0	1	1	8
- Kidudwe	2	2	3	3
Total	16 (32%)	4 (8%)	8 (16%)	22(44%)

+ Villages with resident extension worker.
- Villages without resident extension worker.
Source: Own investigation.

Thirty farmers (60%) had received little or no help from their local extension worker while only 16 farmers (32%) had received much help. The table also shows that there is a relationship between the amount of advice received

by farmers and the residence of the extension workers in the villages. Farmers in Msongozi and Mkata villages which had a resident Bwana Shamba received much more extension advice than farmers in villages without a resident extension worker.

Rwiza and Mosha (1975) contend that extension workers have been ineffective due to their small numbers of one for about 800 families. According to the 5-Year Integrated Rural Development Plan Report for Morogoro Region, the region had 175,000 farming families and for each 10,000 families the agricultural extension services has 7.75 staff consisting of 0.15 degree (A.F.C.), and 3.3 untrained personnel (F.A.). About 5 officers (per 10,000 families) had daily advisory contact with the farmers in the field (Ministry of Foreign Affairs, 1975.) Saylor (1970b), during his survey received complaints from the Bwana Shambas that their areas of work were too big and that their work was being impeded by difficulties of transportation to and from their place of work. Fortmann (1976) found that the extension staff were responsible for 1 - 7 villages apiece. She noted that three villages in Morogoro Region were each as far as 25 miles from where the Bwana Shamba lived and that large areas had to be served on bicycle or foot. My survey revealed that one extension worker had been assigned to 16 villages which were each about 7 km apart. The five extension workers interviewed had to travel by bicycle between villages which were quite

far apart and some had to travel on foot. Lack of transportation thus is a major problem.

On the other hand, the impact of extension contact on adoption of recommended farming practices is hard to ascertain. Hulls (1971) who carried out a study on cotton as part of the Sukumaland interdisciplinary research project found that there was a definite trend for farmers who had received direct advice to plant earlier although not at the recommended time. His data showed a clear relationship between contact with the Bwana shamba and plant population but the trend was in the wrong direction. Farmers who had received no direct advice were closer to the recommended spacing than those who had not. He reported that:

> "Considered overall only 38% of the cotton was planted during the recommended period... Only seven farmers used fertilizers or insecticide, that is 3% of the sample. There is no evidence that contact with the Bwana Shamba has influence on the numbers of farmers who planted at the recommended time ... In short the failure to communicate modern agricultural technology to the vast majority of the farmers in Sukumaland appears to have been almost total".

Percy (1975) also says it is hard to find clear evidence of improvement brought about through extension services.

De Vries and Fortmann(1974) in Iringa also observed that lack of extension services was in itself not an important constraint to ujamaa villages while availability of suitable extension recommendations might be. They noted that the Wajamaa and non-Wajamaa followed essentially the same farming practices even though the former seemed to have significantly more contact with the extension agents. My survey has also shown no relationship between extension contact and adoption of recommended farming practices. For instance the extension workers rarely visited Kizinga, Luhololo, Kidudwe, and Kauzeni villages. Yet the communal plots were planted in rows, and plants thinned to one or two. Msongozi village, with a resident Bwana Shamba, planted the communal cotton plot very late and the plot was poorly weeded. The communal cotton plot at Mkata village was also poorly weeded although the village had a resident extension worker. Kizinga and Kauzeni communal plots were late planted and poorly weeded and these villages had no resident Bwana Shamba. But Luhololo village planted communal maize on time, weeded three times, and thinned to one or two plants although the village had no resident Bwana shamba and was hardly visited by the local extension worker during the cropping season of 197/76. Thus, other factors seem to have been involved.

Table 6.2 shows the relationship between extension contact and adoption of maize production practices.

Table 6.2. Maize: Relationship between Extension Contact and Adoption of practices in sample villages.

Practice	EXTENSION CONTACT			
	DIRECT VISITED (N=17)		NOT VISITED (N=33)	
	Farmers adopting practice		Farmers adopting practice	
	No.	%	No.	%
Thinning to 1 - 2 plants	8	47	15	45
Growing pure maize	12	71	15	45
Weeding x 3	3	18	7	21

Source: Own investigation.

There was no significant difference for thinning or weeding, but a higher percentage of those contacted grew pure maize or possibly extension workers tended to visit those who grew pure stands.

6.8.2 EXTENSION EFFECTIVENESS

Although it was hoped that the Ujamaa village programme would bring the extension worker closer to the peasants, this has not been the case. De Vries (1976) points out that a social distance exists between extension workers and farmers which inhibits open communication between them and prevents a real educational approach to agricultural extension. He says extension workers use instead the "banking" approach by depositing knowledge which they feel they possess in farmers who they see as lacking it, thus resorting to exhorting the peasants to do this or that rather than educating them. Oliech (1975) has observed that the extension workers assigned to ujamaa villages are not

doing well. They use the same techniques and approach of directives as in the past. Sumra (1975) in Handeni observed that although extension workers were concentrated in ujamaa villages, thus narrowing their area of operation, this seemed to have had a limited effect as was evident from the low productivity and small acreage for the communal plots. Ndonde (1975) found that in villages the relationship between the extension worker and villagers was not good and in some places the villagers had completely ignored advice from the extension workers. Hulls (1971) noted in Sukumaland that the Bwana Shamba were ineffective in communicating new techniques and were placing too much emphasis on the cash crop (cotton) alone. Coulson (No date) also observes that government staff (extension workers) have been exceedingly ineffective as a means of teaching farmers better methods as the peasants have not done most things advised by the staff. He further observes that extension workers work few hours, visit few farms, are diverted into a wide range of duties, spend much time on travel, wage payment, reports, and other non-productive activities. Saylor (1970a) found that nearly 70% of the farmers had had no contact with the Bwana shamba.

My survey shows that extension workers in the District appear to be more concerned with collecting data on acreage than with teaching farmers modern husbandry

practices. In all sample villages the extension workers seemed to encourage only on maize production despite the fact that maize has been responsible for the recurrent famine in four of these villages. Even villages with a resident extension worker did not have a large communal acreage nor had they learnt better husbandry practices. This could be because the extension workers do not see themselves as part of those villages as their salaries are guaranteed and their personal welfare ensured. If their incomes were tied to what the communal plot produced they might feel more committed. On the other hand, the apparent inapplicability of many of the official recommendations and lack of dedication on the part of peasants to ujamaa production undoubtedly contributed to the lack of success by extension workers. In effect they may have been working against formidable odds.

Babyegeya (1975) commends demonstration as the best way of teaching peasants because they can comprehend what demonstrations mean. But according to my survey no extension worker in the five villages conducted a demonstration on better farming practices for farmers during the 1975/76 season. Hulls (1971) has attributed the ineffectiveness of the extension services to the fact that most Bwana shambas presume to know better than the farmers themselves.

C H A P T E R VII

SUMMARY AND CONCLUSIONS

7.1 SUMMARY

7.1.1. RESEARCH PROBLEM OBJECTIVES AND METHODOLOGY

The main problem considered by this study is the role of ujamaa villages in introducing new farming practices through communal production and as institutions for rapid rural development through communal ownership and production. Conflicting views exist on the success of the villages as institutions for introducing modern farming techniques despite the alleged advantages of group and co-operative farming: more effective extension services, increased labour productivity, economies of scale in input supply and produce marketing, pooling of resources, and more rational and goal directed decision-making. While some sources claim that villages have been successful in introducing new farming techniques, other claim they have failed and in fact some argue that the policy of villagization is a waste of scarce resources, some say that the two farming systems are essentially the same in terms of farming techniques used and that farmers are not following the recommended practices, an indication that they have not learnt anything.

The main objectives of the study were to investigate the extent to which farming practices on individual and communal farms differ and to find out the factors contributing to the difference or the lack there-of.

The study also investigated the factors affecting adoption of practices under communal production as compared to individual production. Maize and cotton were chosen for detailed investigation.

The study was conducted in five Ujamaa villages in Morogoro District: Kizinga, Msongozi, Kidudwe, Luhololo, and Mkata. Data were collected by use of standard questionnaires based on interviews with 50 individual farmers, 24 village leaders, and 5 extension workers in the chosen villages. Unstructured interviews were also held with government and village leaders. The data were supplemented by secondary materials from government offices and results from previous similar studies.

7.1.2. DEVELOPMENT OF UJAMAA VILLAGES, THEIR ROLE, AND AREA OF STUDY

Tanzania's policy of rural development through ujamaa villages is a result of the failure of the Improvement Approach during the colonial administration and the Transformation Approach tried after independence. Villages were believed to provide an ideal situation for rural development through provision of social services and teaching modern farming techniques. Over 85% of Tanzania's population live in rural areas and so ujamaa villages were chosen as institutions to promote rural development, through modernising agriculture. The concept of ujamaa started in 1962 after independence but the Arusha Declaration in early 1967 marked the beginning of an intensive villagization programme. The real

turn of events in this area came with the 16th Party Biennual Conference in 1973 which called on all Tanzanians to live in villages by the end of 1976. This resulted in a large-scale move into villages often called Operation Tanzania and by September 1976 some 6000 villages with over 10 million people had been registered on the mainland. The target was to have between 7000 - 8000 villages registered by the end of 1976 with essentially all of the 13 million people making up the present rural population. By June, 1977 there were 7,029 registered villages in mainland Tanzania.

The whole rural population in Morogoro District is now settled in an estimated 217 villages. Most villages have access to one or more of the social amenities such as school, water supply, dispensary, etc. Some ujamaa groups are engaged in communal farming but the communal acreage is negligible compared to the total cultivated smallholder acreage in the District. The per hectare returns for crops cultivated communally are far below the level achieved by individual farming. Estate farming is confined to sisal and sugar-cane production. Farm management practices on smallholdings are traditional, while estate farming is characterized by use of modern production techniques. Ujamaa village groups engaged in communal farming use various cash-type inputs and tractor ploughing supplied by the government.

Morogoro District is divided into four zones: Nguru Mountains, Uluguru mountains, the Northern plains and Ukutu plains. The District has an estimated population

of 380,000 consisting primarily of the Waluguru, Wanguru, Wazigua and Wakutu tribes.

A variety of soils occurs in the District: the main groups include drab clays, red clays (alluvial), brown red friable clays; black soils (red, murram, Grey), and alluvial soils. The alluvial fans in Mgeta valley are considered the best for agriculture. The soils generally are deep, except for mountainous and hill soils which may be rocky. Fine textured soils for paddy cultivation occur in the central parts of the alluvial flood plains (Wami, Mgeta). The soils are susceptible to erosion, a serious problem in some parts.

The District has two rainy seasons: November/December and March/May. Normally the two rainy seasons are separated by a short dry spell. The average rainfall of the District varies from 762 - 1270mm with the mean number of rainfall days varying between 75 and 100. Rainfall reliability is a problem particularly in low-land plains where frequent droughts lead to crop failure.

Vegetation consists of forest on high altitudes and woodland intermingled with Miyombo woodland. The wooded grasslands comprise lands with herbs and grasses like Mkata and Doma. Species of Hyperrhenia rufa, H. colina, occurs on infertile hillslope soils. Panicum species is often associated with fertile areas, while elephant grass occurs along river banks. Other grasses common in the District are Chloris, Sporobolus, Cynodon and Eragrostis species. The main subsistence crops are maize, paddy, sorghum, pulses, and vegetables. Several sisal and

one sugar estate are in operation. Other estate farming is carried out by Kingolwira and Wami prisons and by a group of Asians in Wami.

Ujamaa villages are governed by a village council consisting of 25 members. The village councils formulate development plans and are also charged with administration of the village. The village agricultural sub-committee has the responsibility of running the communal plot and ensuring that recommended farming practices are followed. There is little division of labour among ujamaa groups.

Incomes from communal production activities are low due primarily to the small scale of operations. Consequently, members are not committed to ujamaa production. Planning in villages is either minimal or poor due to lack of proper guidance from the centre and non-participation of technical officers in the local planning process. Plans tend to be mere guesses based on wishes and not on the available resources in the villages or other economic criteria.

The villages are faced with numerous problems: members are not interested in communal farming and have been attracted by free social services, agricultural inputs, food rations, etc; low turn-out for communal work; low productivity; poor village leadership, etc. Many members believe that they have not learnt anything from communal farming while others say they have benefited by getting free social services and government assistance but not from improved standard of living as a

result of increased production. A few members believe they have learnt modern farming practices although they don't necessarily follow them on individual plots.

7.1.3 LEVEL OF ADOPTION OF FARMING PRACTICES

The study shows that ujamaa village groups follow recommended farming practices on communal plots. Maize production practices which were widely adopted by ujamaa groups included: use of improved seed, planting during the long rains, row planting, thinning, and application of insecticide dust. However, ujamaa groups failed to plant maize at the onset of the long rains and weed the communal plots properly. Cotton production practices which were followed by ujamaa groups include: correct spacing, thinning, and insecticide spraying. The ujamaa groups failed to plant cotton before mid February as recommended, to carry-out proper weeding, to spray eight times, and to pick cotton lint on time.

Farming practices differ between communal and individual production and also the scale of operation, but there are few differences in types of enterprise. Individual farmers plant maize in the early short rains during November-January randomly with wide spacing; intercropped maize, thinned to three plants or did not thin at all, did not use fertilizers, and harvested maize on reaching maturity before drying. Planting Ilonga composite was the only recommended practice for maize that individual farmers have adopted widely. Individual cotton growers have adopted most of the recommended

practices: planting by mid-February, correct spacing, thinning, proper weeding, early picking, and early destruction of cotton remains. But like ujamaa groups they did not spray cotton the required eight times.

The ujamaa groups adopted the use of fertilizers and insecticide in maize production simply because they were available free-of-charge while individual farmers were required to pay cash for the inputs. In the few caseswhere individual farmers had access to free inputs of agro-chemicals they also used them. Due to the close tie with the government, ujamaa groups use inputs that normally are purchased because they think modern innovations should be used on the communal plots regardless of whether they can be economically justified. Heavy reliance on the government tractor service resulted in late ploughing, leading to late planting of communal maize and cotton plots respectively. The subsidized tractor service was responsible for the wide use of tractor ploughing on communal plots. Free provision of improved maize to both ujamaa groups and individual farmers in previous seasons was responsible for the wide use of Ilonga composite by both types of farmers. Similarly the provision of insecticides on credit to all cotton farmers was responsible for high adoption of cotton spraying.

Some farming recommendations have little or no economic benefits while demanding scarce resources, particularly labour. Fertilizers and insecticide application in maize production normally does not pay in the

district and involves peasants' labour which is committed to subsistence crops. The wajamaa view the use of purchased inputs as a government policy regardless of their pay-off but of course the pay-off is higher if the chemicals are free. However, it pays to spray cotton at least eight times, raising the Gross Margin over unsprayed cotton by about four times. Both individual farmers and ujamaa groups sprayed cotton regularly.

Recommendations requiring significant labour resources like proper weeding were not followed by ujamaa groups because of low commitment to ujamaa production. Work attendance on ujamaa plots by members was poor because members concentrated more on individual plots during planting, weeding, and harvesting. Individual farmers failed to plant maize in rows as a monocrop as recommended due to a desire to intercrop which itself is a labour-saving and risk-reducing practice. Ujamaa groups follow recommendations on spacing and growth of maize in pure stands because of a desire to please Government officials. Low commitment to communal plots is due to low expected returns from communal production compared to individual production. This was why individual cotton plots were planted on time, weeded properly, and harvested early in contrast to communal plots.

Risk has influenced adoption of recommended farming practice. Ujamaa groups are more willing to take risks and try new practices on communal plots than on individual plots. Individual farmers consider thinning maize to one plant per hole unacceptable because of wide spacing

(population already below recommended density) and thinning would reduce the population still lower. Growing a pure maize stand is also unacceptable to them because intercropping produces higher total yields per unit area of land or per man-day, increases nutritional value of local diets by supplying varied foods, and minimizes risk due to weather and other crop-hazards. Keeping maize in the field till it dries risks theft or vermin attack, so individual farmers complete the drying process in the safety of their houses.

Ujamaa villages are governed by Village Councils which make communal production decisions. The village agricultural sub-committee in consultation with the local extension worker decides on operations on communal plots so that farming practices followed are those decided by village leadership and agreed to by all members. Once decisions are made they become binding on every individual. The agricultural sub-committee is supposed to ensure that all members comply with the recommended practices. Individual farmers are free to follow any practice they please. Furthermore, ujamaa groups look at the communal plots as different from their own where modern farming practices should be used whether economically sound or not.

Some farming practices were followed less by individual farmers because they conflicted with the traditional farming system. Growing a pure maize stand and planting maize in close spacing of 3'x1' conflicts with the traditional farming system which includes

intercropping with legumes which are desired by the house wife for preparing the customary diet. The official recommendation of planting maize in the long rains does not coincide with the traditional planting date in the early short rains which ensures an earlier and more constant food supply. Early planting and intercropping maize are strategies for survival and self-sufficiency.

Ujamaa groups follow recommended farming practices on communal plots for fear of going against the government or the Bwana Shamba. This is why they adopt uneconomic and unnecessary innovations like the use of fertilizers, insecticide, and tractor cultivation which may not pay-off under the existing price-cost conditions unless obtained nearly free. Individual cotton farmers are pressed by local government and party leaders at the grass-roots to plant cotton early, use correct spacing, thin, weed, and destroy cotton stalks after harvesting by the prescribed time. Local leaders, especially the Ward Secretary, are empowered to arrest and sue any farmer who neglects his cotton plot. On the other hand the following of present cotton recommendations is due chiefly to their sound nature, except for burning cotton residue where there is sustained force[1]. Though coercion can elicit an initial response, it cannot sustain acceptance of innovations that do not meet the farmers' felt need. Persuasion

[1] This requirement is basically sound but its advantages to individual farmers is not immediately obvious.

normally should be relied on as the best policy.

Extension contact has an impact on adoption of recommended farming practices. Extension workers rarely visit individual farmers on their plots and some villages are not visited at all. Extension workers appear to advise only on maize production by ujamaa groups, but provide advisory services to both individual and ujamaa cotton farmers. The Bwana Shambas seem to supervise various operations on the communal maize plots such as planting in rows, thinning, etc. The massive extension services relating to cotton production through campaigns likely have contributed to high adoption of recommended practices on both individual and communal plots. Although extension services are believed to have an impact on adoption of recommended farming practices, clear evidence is hard to find of direct improvements brought about through such advice. The study could not establish a direct relationship between adoption of farming practices and extension contact.

It is evident that the extension service has been ineffective in teaching farmers recommended farming practices, particularly for maize. The ineffectiveness of the extension workers likely has been due to lack of proper training, lack of technical competence to advise farmers correctly, their small number, lack of transport, the large areas and many farmers each has to cover, and the inappropriate nature of many of the official recommendations in relation to the goals and needs of individual farmers.

7.2 OBSERVATIONS AND CONCLUSIONS

Ujamaa groups seem to adopt recommended farming practices in order to please government and party officials and thus continue receiving government support like free social services, agricultural inputs, and tractor service for ploughing communal plots. Wajamaa often follow modern farming practices on communal plots even though they disagree with them and fail to practise them on their own fields. Government assistance, which may be necessary at the initial stage, is detrimental in that it has been misinterpreted by the recipients. The village members have come to see government assistance as their right and a duty of the government. Ujamaa groups have become too dependent on government aid with the result that self-reliance and self-motivations have disappeared. The government has taken too much responsibility for the villagers such that the farmers do not regard the communal plots as their own concern. If things go wrong they expect outside authorities to solve the problem rather than looking for a solution themselves. The free food rations which have been given to several villages also tend not to encourage self-reliance. Though this likely was necessary as these projects were started, it has sometimes had the result that farmers have not taken much trouble over their food crop because they know that the government in the last resort will continue to feed them if they have no food. Rations should be tied to productivity in some

way and offered for a strictly limited period.

Tractor cultivation has brought similar problems because tractors have been used where there is no cash crop and for small acreages that can not cover the costs of mechanical cultivation.

The use of subsidies is out of place. When an input is uneconomic at the unsubsidized price, there is an economic loss when it is used at a subsidized price because some one must bear the cost. When inputs which have been free or subsidized are later sold at market values, farmers are resentful because they see no reason why they should pay more for it than in the past. This can be resolved by selling the inputs at market value right from the beginning, although they might not be used under such a policy. The strategy of bribing villagers through government aid to induce them to use modern farming practices to farm communally is wrong both from an economic and a socialist point of view. The ujamaa villages should be given full encouragement to develop into profitable production units, self-reliant, and managing their own affairs. The provision of services must be planned in relation to the potential of the village for utilizing them productively. It is essential that non-productive assistance given to villages should be phased-out as quickly as possible. No undue persuasion should be levelled at villages to take inputs on credit; they should rather be convinced that the inputs concerned ca be used profitably. Subsidies should be tied to socio-economic and educational structures to make them serve

the purpose they are meant to serve. Before villages get subsidies their productive potential must be carefully evaluated to screen out uneconomic ventures. Subsidies should be offered for only a limited period particularly at the initial stage of the village to give it a start. Prolonged subsidies will be a strong disincentive in agricultural development as this will enhance dependency on government and will "kill" self reliance and local initiative. Loans should be accompanied by a good system of recovery otherwise people will regard them as free gifts. This will call for political education among the wajamaa and economic consideration of the activities to be funded. If the educational and economic aspects are ignored, repayment will be difficult.

The blanket or standard recommendations are not appropriate for every cropping system or every ecology. There is no point in applying fertilisers and insecticides in villages where it does not pay. Peasant farmers fail to follow maize farming recommendations because they disagree with the recommendations. It is a waste of time and resources to try to introduce a new farming practice to people for whom the recommendation is inappropriate. Research recommendations must be evaluated on the basis of local environments to screen out uneconomic and inappropriate innovations. Recommendations must be re-evaluated on the basis of criteria used by the farmer such as maximum return to labour,

minimum investment of capital, minimum risk, and diverse family needs. Research work frequently does not assess whether the additional output will even repay the farmer for the cost of the additional inputs. Recommendations should be economically evaluated in terms of unsubsidized prices. There is also need to assess the costs and benefits within the farming system of an innovation before it is recommended. Many research produced innovations require fundamental changes in the farming system. Adjustment of recommendations to the existing farming system which includes intercropping; should be undertaken. Researchers and extension workers should keep records so that the most profitable farm enterprises can be identified. Ujamaa villages must be trained in elementary farm management with emphasis on record keeping which is now lacking in the villages. Expansion of communal activities and increased productivity will depend among other things on the utilization of appropriate technology based on research and experimentation under village conditions. So what is most important is not more extension contacts but more research, credit, and marketing facilities aimed at evolving recommendations which are more suitable, thereby increasing the scope for successful extension work. The challenge to research officers is to come up with recommendations acceptable and economically profitable to peasants in the local situation.

The major constraint to ujamaa development is low commitment of wajamaa to communal production. Many innovations which have a high labour demand are not followed by ujamaa groups because of low commitment due to the low expected return. As a result agricultural targets set by villages are not achieved and some plans are not implemented. There is a conflict of labour demand between individual and communal plots. This calls for an integrated approach in planning the farm both for ujamaa and individuals for they form one complete system in terms of how labour resources are deployed in the village. This can be done by emphasizing different crops with different labour requirements for communal enterprises. The major constraint to the improvement of individual farming practices is not lack of knowledge or traditional attitudes but lack of labour.

Low commitment to ujamaa production is a reflection of lack of ideological conviction. Members should be politicized and educated on ujamaa so that they participate fully in communal production activities. Currently members lack political education in ujamaa and regard themselves as having been forced to start communal production. Untill the ujamaa ideology is understood and accepted by the masses, secondary activities such as communal farming tend to be arrested. What is needed too is incentives to do good work on the communal plots. To boost up the morale and hence commitment of members to communal production, arrangements should be made so

that members get cash readily to meet their obligation or unforeseen contigencies instead of having to call for a meeting, a process which takes long. The present practice in villages of sharing money once or twice a year is a financial burden to the members and demoralises them. The return per day's work should be fixed to a certain minimum figure so that members are guaranteed some pay. In this way members won't worry and seek paid employment outside the village. Another possibility of increasing incentive for work is the block system while retaining individual subsistence plots. Under the block farming system government can provide assistance such as credit for purchase of inputs, tractor services, etc. The block farming system tried in the 1960's in Mwanza was popular among farmers. Alternatively people can farm communally on a small group basis and then move to large-scale communal farming after gaining experience. In the early days of a revolution changes must be gradual. After completion of villagization programme it will take time for farmers to change farm practices.

The government should put more emphasis on economic planning. The plans should relate to the village's existing manpower and natural resources, to crop priorities, demand for labour and other inputs of each enterprise, profitability, etc. The present system of leaving villagers to make their own plans is responsible at least in part for the poor plans coming from villages

as they have no guidance nor do they know their priorities or potential. The shopping lists prepared by villages do not take into account scarce resources. The plans are mere wishes and guesses as though resources were unlimited. Villages should be built on a sound economic foundation and contribute fully to development targets. Production targets must be set along with working time-tables by villages, and the agricultural targets scrutinized to avoid overtargeting. Furthermore by-laws should be revived to deal with passive resistance among farmers. To increase the scale of communal activities there must be a limit to individual acreage so that more labour and time is available and devoted to communal plots because at the moment communal plots are competing with individual plots for labour which is scarce. On the other hand limiting individual acreage may be good in theory, but difficult to implement. As an alternative, the Government and Party might decide to rely more heavily on private plots which, at least so far, have proved to be more productive and efficient. It is also possible for ujamaa villages to specialize in enterprises which do not compete for resources with private enterprises. Alternatively individual farmers may be prohibited from growing certain crops like tobacco, sugar, tea, etc. to get economies of scale from communal production. Most important of all, Government and Party leaders must take a strong initiative in educating peasants on communal production using modern farming practices instead of relying on force. Force through by-

laws may work in the short run but it is useless in the long run since it is not educational. Persuasion and education is the best strategy to bring about agricultural development.

Another problem facing ujamaa development is the inability of individual members to purchase their daily necessities from communal resources. They usually receive "payouts" once or twice a year only. The wajamaa therefore depend primarily on friends and private resources for emergencies. Either short-term credit should be provided or cash payments made on a monthly or weekly basis so that wajamaa can meet their financial obligations. This should increase wajamaa's incentives for communal production.

Adoption of new farming practices subjects the farmer to risk which he may not be prepared to bear. The failure by individual farmers to follow research recommendations is due in part to increased risk without any benefits. Risk does not apply on the communal plots because the government can come to the aid of ujamaa village groups in case of failure and this is why they are willing to take risks. Farming recommendations should be designed separately for communal and individual production because of differences in scale of operations and other characteristics between the two systems.

Although farmers are now grouped in villages lack of a strong, competent, and efficient extension force

at the grass roots is a problem. The extension service has been ineffective in part due to lack of skills to advise farmers on appropriate recommendations. Extension workers seem to advise farmers on elementary and basic husbandry practices such as planting date, weeding, etc. which a farmer may already know. Some extension workers are not capable of persuading farmers to adopt official recommendations, although their task would be easier if the recommendations better met the goals and needs of farmers. Although rural development policies have changed, the extension system has not changed accordingly to adjust to the ujamaa village set-up. Furthermore, extension workers are diverted into a wide range of duties, spend much time on travel, and make few visits. Extension workers must be prepared to learn what peasants already know because farmers normally know their local environment. The extension system needs restructuring so that it comes close to the farmer. To alleviate the problem of shortage of extension workers the village can recruit its own experts who will work with government employed extension workers (De Vries, 1976). This is necessary because the government is in no position to provide each village with its own extension worker. Locally recruited extension workers are likely to be more accepted by wajamaa since they have knowledge of the area and the people. Besides, village experts will feel more committed to the village activities because they are also part of the society and hence their future

depends on the success of the village. The village level extension activities should also be closely linked to production of the village and the salary of the extension worker must also be tied to village production. In this way extension workers may see themselves as part of the village. Furthermore, extension workers should not always presume to know better than the farmer himself.

In situations where government leaders are impatient to achieve rapid economic development there is tendency to resort to force. Although the practices which are enforced may be technically sound, force is not the best way to introduce technical innovations. It is contrary to the concept of extension which has a broader function of helping people solve their own problem through persuasion, by application of scientific knowledge.

Villages should rely on hand cultivation (hoe) or ox-ploughs (where the fly situation permits) instead of relying on tractor ploughing from the District Agricultural Office. Tractors are few and expensive to run and are justified for big acreage but uneconomic for the small communal acreage. Ox-ploughs and a team of oxen are cheap to run and have virtually no costs for maintenance or repair. At the same time government and party leaders should refrain from making promises of tractor ploughing to villages as this reduces self-reliance and initiative among members with the overall result of frequent late ploughing of communal plots or sometimes none at all.

The ujamaa villages being relatively new economic units are still grappling with organizational, administrative, leadership, and management problems. Bad leadership resulting from dishonest members causing loss of communal money through theft has crippled some villages. Members have become demoralized and discouraged about communal production. Good leaders who are committed to the ujamaa way of life are needed. The government should also intervene in the affairs of the villages to deal with dishonest and corrupt village leaders instead of merely blaming them. This will help to instill faith in ujamaa on the part of the peasants and commitment to the ujamaa way of life. Indeed in the initial stages, the villages need a massive injection of leadership and management and technical assistance till the management becomes strong and capable.

Although villages offer the best organizational framework for the extension services, the performance of the villages has been poor. Communal plots in villages were supposed to serve as demonstration units from which farmers could learn modern farming practices. It is true that peasants in villages have been exposed to new farming techniques but farmers have failed to learn much from the communal plot. Although farmers have been employing recommended farming practices on the communal plots, they have failed to apply the same techniques on their own plots, an indication that they have not become convinced of their usefulness. The failure

by farmers to follow the recommended practices is in part because the communal plots utilize free or government subsidized inputs while individual farmers must pay the full price, and sometimes the inputs are hard to get or the farmer can't afford them. In some cases the extension workers have been neglecting the individual farmers, but have concentrated their efforts on communal plots. Most important of all, extension workers have been pushing the use of uneconomic and inappropriate technologies which conflict with the traditional farming system and which do not pay off. The farmers in most cases have been aware that some recommendations are inappropriate from an agronomic point of view. The failure of ujamaa plots has also been in part a result of poor leadership, and in part poor planning of communal activities resulting in low return per member. This has resulted in low commitment and disillusionment on the part of the wajamaa.

Before communalization of agricultural production in ujamaa villages, political education of the members is essential. This is necessary so that peasants understand the ideology and philosophy of ujamaa before accepting it. To villagize and to change farm practices are seperate tasks and need not be done simultaneously. In view of this there is a need to have the ideology (ujamaa) understood and accepted. Untill this is done, secondary activities such as communal farming are likely to present problems.

APPENDIX 1. SUPPLEMENTARY TABLES

Table 1. Mainland Tanzania: Population Estimates by sector 1948 - 1974

Year	Rural	Urban	Total 1/
	..... Million		
Census:			
1948	7.3	0.2	7.5
1957	8.4	.4	8.8
1967	11.3	.7	12.0 2/
Mid-year Estimates: 3/			
1967	11.2	0.7	11.9
1968	11.5	0.7	12.2
1969	12.0	0.7	12.6
1970	12.1	0.8	12.9
1971	12.4	0.8	13.2
1972	12.7	0.9	13.6
1973	13.1	0.9	14.0
1974	13.4	1.0	14.4

1/ Based on unrounded figures.
2/ The actual population of Tanzania, including Zanzibar, was 12.3 million.
3/ Revised in the light of the 1967 census.

Source: Quarterly statistical Bulletin: Vol.XXVII, No.2, September 1975. Bureau of Statistics, Ministry of Finance and Planning, Dar es Salaam.

Table 2. Tanzania: Value of principal cash crops marketed, 1969 - 1975

Crop	1969	1970	1971	1972	1973	1974	1975
	.....			mil. T.Sh.		.....	
Coffee	170	266	249	299	360	278	376
Sisal	185	157	143	141	290	514	346
Seed cotton	223	245	211	255	217	314	261
Tobacco	48	49	49	70	66	106	120
Tea 1/	53	49	58	69	67	87	101
Cashewnuts	106	102	115	109	134	123	86
Sugar-cane	40	38	41	34	42	47	49
Pyrethrum	14	9	12	15	12	13	22

1/ At ex-estate price.

Source: The Economic Survey, 1974 - 1975 and 1975 - 1976. The United Republic of Tanzania.

Table 3. Tanzania: Output of Private Agriculture at Constant 1960 Prices

	1960/62	1963	1964	1965	1966 Estimate
	..... Mil. T.Sh.				
Subsistence 1/	913	946	984	911	1,012
Smallholder	437	496	557	612	716
Estate	392	376	432	416	428

1/ Only known within the smallholder sector and is an estimate of the value of output which is consumed on the farm from own production. Based on Gross Product at factor cost, subsistence production for "Agriculture, hunting forestry and fishing" represented 53% of the total for that sector in 1972 - 74 as compared with the implied figure of 49% for 1963-65 shown above. Thus, there is some evidence that subsistence agriculture has increased in relative importance over the past decade or at least has shown no tendency to decline in relative importance.

Source: Background to the Budget Survey, 1967/68. Ministry of Finance and Planning, Dar es Salaam.

Table 4. Sample Villages: Communal Production, 1973/74 and 1974/75 1/

Village	1973/74				1974/75			
	Maize	Cotton	Paddy	Sorghum	Maize	Cotton	Paddy	Sorghum
	..... Acres							
Kauzeni	70	0	45	0	70	10	45	0
Kizinga	0	0	0	0	40	5	0	60
Laholole	13	0	9	0	13	0	9	0
Mkata	43	24	0	36	24	24	0	36
Msomozi	10	7	20	0	0	8	20	5

Source: Own investigation

1/ Omitted villages had none.

Table 5. Returns from communal and Individual Production, 1974/75

Village and Farm number	Maize		Sorghum		Paddy		Cotton	
	Individual	Communal	Individual	Communal	Individual	Communal	Individual	Communal
Kizinga:	Bags						Shs.	
21	3	2	4	2				
22	3	3	4	2				
23	0	3	4	2				
24	20	0.7	0	0.3	None		None	
25	15	1	0	2				
26	3	0.2	4	1				
27	0	0	0	0				
28	8	0	10	3				
29	5	0.7	4	0.3				
210	10	1	6	2				
Mketa:								
31	0.1	0	0	0			170	10
32	1	0	0	0			1200	22
33	0.5	0	0.2	0			60	30
34	0.3	0	0	0			1000	30
35	0	0	0.3	0	None		40	12
36	1	0	0.5	0.03			500	30
37	2	0.3	1	0.6			600	150
38	0.1	0	0.3	0			560	36
39	0	0	0	0			200	30
310	1	0.1	2	0.2			1030	30
Kiduduwe:							Sugar-cane Shs.	
51	30				7			246
52	50				0			280
53	24				3			220
54	44	None	None		10	None	None	100
55	[illegible]				0			250
56	[illegible]				0			380
57	40				16			125
58	0				0			40
59	7				0			180
510	35				0			200
Luholole:							Soyabean 1975/76 Shs.	
41	4	1			4	1		8
42	1	0.3			300	1		12
43	6	1			2	1		14
44	1	0.5	None		5	1	None	0
45	0.5	1			6	0		11
46	[illegible]	0.3			[illegible]	0.2		4
47	[illegible]	0.3			[illegible]	0.3		2
48	[illegible]	0.3			[illegible]	0.3		0
49	4	0.2			6	0.2		10
410	3	0			3	0		12

Source: Own Investigation.

APPENDIX 2. INTERVIEW SCHEDULES

SCHEDULE 1

INTERVIEW SCHEDULE FOR INDIVIDUAL FARMER

1. 1.1 Name of Ujamaa Village? .....
   1.2 How long have you been living in this village? .... Years
   1.3 Where were you living before? ....
   1.4 How old are you .... Years
   1.5 How many members does your family have?..... Children ..... Wife(ves). Other Relations ...
   1.6 What formal education do you have? ....
   1.7 Can you read and write? .....
   1.8 For how long have you been farming communally...

2. What crops did you grow last season?

Crops	Acreage/hectarage
(i)	.....
(ii)	.....
(iii)	.....

   2.1 What other income producing activities are you engaged in?
   (i) ..... (ii) ..... (iii) .....
   (including shops, maize mills etc.)

MAIZE GROWING PRACTICES

3. Now I would like some information about your maize shamba last season.
   3.1 When did you start preparing your shamba? (Tick) (Before rains, during rains, early, late)
   3.2 (IF LATE) Why didn't you prepare the shamba on time as advised) (Tick) (Shortage of labour, on safari, sickness, don't know the right time, engaged on ujamaa shamba, engaged elsewhere (specify; other reasons (specify) .....
   3.3 When did you start cultivating/ploughing your shamba? .....
   3.4 When did you complete cultivating your shamba? .....
   3.5 (IF LATE) Why did you cultivate your shamba late? (Tick) (Shortage of labour, on safari, Sickness, Lack of implements, late rainfall, engaged on ujamaa shamba, engaged in other activities, lack of knowledge, other reasons (specify) ....
   3.6 How did you plough (cultivate) your shamba? (Tick) (Tractor, Ox-plough, Jembe)

4. What variety of maize seeds did you plant? (Tick) (Local, Hybrid, Composite, and others)

Code No.

4.1 (IF DID NOT USE RECOMMENDED SEEDS) Why didn't you plant the recommended maize seeds? (Tick) (Not available, Very expensive; Not better, Not necessary, Lack of knowledge, Other reasons (specify) .....

5. When did you begin planting maize? (Tick) (First rains, onset of first rains, during rains, towards end of rains)

5.1 When did you complete planting? .....

5.2 (IF NOT ON RECOMMENDED DATES) Why didn't you plant on the recommended dates? (Tick) (Shortage of labour, engaged on Ujamaa shamba, sickness, delay of rainfall, not necessary, lack of knowledge of right time, other reasons (specify) .....

6. What spacing did you use? .....

6.1 (IF NOT AS RECOMMENDED) Why didn't you use the recommended spacing? (Tick) (Too laborious, unnecessary, takes too much time, too close/ distant, ours is simple, lack of knowledge of other, other reasons (specify) .....

6.2 Did you grow a pure stand or intercropped?

6.3 (IF INTERCROPPED) Why did you intercrop maize with other crops (specify) (Tick) (To get more output, shortage of land, save time, used to this method, no bad effect, other reasons .....

7. How many times did you weed your shamba? .... times.

7.1 When did you weed the shamba?
1st Weeding .....
2nd Weeding .....

7.2 (IF NOT AS RECOMMENDED) Why didn't you weed the shamba as recommended? (Tick) (Not necessary, shortage of labour, engaged in Ujamaa shamba, sickness, on safari/away, lack of knowledge on weeding, other reasons (specify) .....

8. Did you thin out your maize plants? YES/NO (Tick)

8.1 (IF YES) How many plants did you leave per hole? ..... plants.

8.2 (IF NOT) Why not? (Tick) (Waste of plants, get more yield, not necessary, lack of knowledge, other reasons (specify) .....

9. Did you use fertilizer? YES/NO (Tick)

9.1 (IF YES) What type and rate of fertilizers did you use?
(i) ..... kgs. per acre/hectare
(ii) ..... kgs. per acre/hectare

9.2 When did you apply fertilizers?
(i) ..... (ii) .....

9.3 (IF NOT AS RECOMMENDED) Why didn't you apply the recommended rate? (Tick) (Expensive, not necessary, lack of knowledge, not available, too much work, other reasons (specify) .....

9.4 (IF LATE APPLICATION) Why didn't you apply fertilizers on the recommended time? (Tick) (Sickness, on safari, shortage of labour, lack of knowledge, not necessary, late rains, other reasons (specify)

9.5 (IF NO FERTILIZERS USED) Why didn't you use fertilizers on your shamba? (Tick) (Not available, have no money, no need, lack of rain, lack of knowledge, other reasons (specify) .....

10. Did you use insecticides on maize? (YES/NO (Tick)

10.1 (IF YES) what insecticides and rate did you apply?
(i) ..... per acre/hect. (ii) .... per acre/hect.

10.2 (IF NOT AS RECOMMENDED) Why didn't you apply insecticides as recommended? (Tick) (Lack of knowledge, too expensive, not necessary, shortage of labour; too laborious, other reasons) ..

10.3 When did you apply insecticides? ....

10.4 (IF NOT AT RECOMMEND) Why didn't you apply insecticides on recommended rate (time)? (Tick) (Not necessary, shortage of labour, on safari, lack of knowledge, sickness, other reasons ....

10.5 (IF NO INSECTICIDES USED) Why didn't you apply insecticides on maize? (Tick) (Not available, no money, too expensive, arrived late, lack of knowledge, other reasons (specify) .....

11. When did you harvest maize? .....

11.1 (IF LATE HARVESTED) Why did you harvest your maize late? (Tick) (Shortage of labour, lack of knowledge, early harvesting, not necessary, engaged on ujamaa farm, was sick, on safari, other reasons (specify).....

COTTON GROWING PRACTICES

12. Now I would like information on your cotton shamba last season?

12.1 When did you start land preparation? (Tick (Before rains, during rains, early, late)

12.2 (IF LATE) Why didn't you prepare your shamba early? (Tick) (engaged on ujamaa shamba; lack of knowledge, shortage of labour; sick, other reasons (specify) .....

12.3 When did you start and complete cultivating (ploughing) the shamba? .....

12.4 (IF LATE) Why were you late to cultivate your shamba? (Tick) (Shortage of labour, rain delayed, sickness, on safari, engaged on ujamaa shamba, tractor delayed, other reasons .....

Code No.

12.5 How did you plough the shamba? (Tick) (Hired tractor, own tractor, hand cultivation/jembe, ox-plough)

13. When did you begin planting cotton? (Tick) .... (First rains, long rains, late, before rains started, during rains, at end of rains)
13.1 When did you complete planting? ....
13.2 (IF DATES NOT AS RECOMMENDED) Why didn't you plant on the recommended dates? (Tick) .. (shortage of labour, engaged on ujamaa shamba, rainfall failure, sick, on safari, other reasons (specify) .....

14. What spacing did you use? .....
14.1 (IF NOT AS RECOMMENDED) Why didn't you use the recommended spacing? (Tick) (Not necessary, too close/distant, not better, too laborious, takes much time, shortage of labour, lack knowledge of right spacing, other reasons (specify) .....

15. How many times did you weed your shamba? ..... times
15.1 When did you weed your shamba?
1st weeding .....
2nd weeding .....
3rd weeding .....
15.2 (If NOT AS RECOMMENDED) Why didn't you weed the shamba as recommended? (Tick) (Not necessary, shortage of labour, engaged on other activities (specify), engaged on ujamaa village, sick, on safari, other reasons (specify) ...

16. Did you thin out plants? YES/NO (Tick)
16.1 (If YES) How many plants did you leave per hole? ..... plants.
16.2 (If NO THINNING AS RECOMMENDED) why didn't you thin as recommended? (Tick) (Not necessary, waste of plants, lack of knowledge, other reasons - specify) .....

17. Did you use insecticides? YES/NO (Tick)
17.1 (IF YES) How many times? ..... times.
17.2 (IF NOT AS RECOMMENDED) Why didn't you use the recommended rate? (Tick) (Not necessary, too expensive, not easily available, lack of knowledge, other reasons - specify) .....
17.3 (IF NO INSECTICIDES USED) Why didn't you use insecticides on your cotton farm? (Tick) (Not available, not necessary, too expensive, shortage of labour, lack of knowledge, other reasons - specify) .....

Code No.

18. When did you start picking cotton? .....
18.1 (IF LATELY PICKED) Why didn't you pick cotton early? (Tick) (Shortage of labour, engaged on ujamaa farm, lack of knowledge, not necessary, sick, on safari, other reasons - specify) ...

18.2 Did you uproot and burn cotton residue after picking? YES/NO (Tick)

18.3 (IF YES) When did you burn cotton residue?...
18.4 (IF NO) Why didn't you uproot and burn residue after harvesting? (Tick) (not necessary, shortage of labour, lack of knowledge, other reasons - specify) .....

19. Did you start to follow any of the above practices after joining the ujamaa villages? Yes/NO (Tick)
19.1 (IF YES) What practices and for what reasons did you follow thereafter?

Practices	Reasons
1.	
2.	
3.	
4.	

20. Do you see any differences between the ways you grow cotton and maize on your own shamba and on the ways these crops are grown on communal shamba? YES/NO (Tick)
20.1 (IF YES) How do the practices differ and why?
20.1.1 Maize production

Differences	Reasons (factors responsible for difference)

20.1.2 Cotton Production

Differences	Reasons/factors responsible for differences

20.2 What factors do you think have the strongest influence on how individual maize and cotton are grown as compared to communal production of the same crops? (List the 5 most important in their order of importance):
20.2.1 Maize Production
1.
2.
3.
4.
5.

Code No.

20.2.2 Cotton

1.
2.
3.
4.
5.

(Labour, attitude, aid, political pressure, extension help, village leadership, impact on income, knowledge, education, membership, commitment, age, background, wealth, distribution of farm sales, others - specify) .....

20.3 (If there is little or no difference between private and communal practices of cotton and maize production) why not?:-

20.3.1 Maize production.

20.3.2 Cotton production.

21. Why did you join this Ujamaa village? (Tick) (had no alternative, liked it, other reasons .....)

21.1 If you were given the choice of only one method which one of the followings would you prefer? (a) Block farming (b) Ujamaa farming (c) Individual farming.

21.2 Why would you choose this? .....

22. How many days did you work on the communal shamba last season? ..... days. (This will be checked from the shamba Work Attendance Register kept by the Village Chairman/Secretary/Committee member.

22.1 Why do you attend (to the level he does i.e. faithfull, ever, poor) on communal shamba?
.....

22.2 How much return did you get from the communal shamba in the last 3 years:

	1974	1975	1976
Maize			
Cotton			
Other			

22.3 Do you think these returns deserved your contribution? YES/NO (Tick)

22.4 Why? .....

22.5 How much did you get from your own shamba in the same period of 3 years ago?

	1974	1975	1976
Maize			
Cotton			
Others			

22.6 Are you satisfied with the system of distributing communal farm returns? YES/NO (Tick)

Code No.

22.7 (IF NO) Why? .....
22.8 How do you think the system could be improved?
.....

23. Do you think you have benefited in any way from being a member of the Ujamaa village? YES/NO (Tick)

23.1 (IF YES) What are the benefits and how?
.....
23.2 (IF NO) Why not .....

24. How do you decide on the farming practices to use on communal shamba? .....
24.1 Who would you say has the most influence on the farming practices decisions? (List the 3 most important people and their positions)
1.
2.
3.
24.2 Can any one outside the village change these decisions (YES/NO) (Tick)
24.3 (IF YES) Who and how? .....
24.4 Does the government or party have any influence on what is produced and the methods used? YES/NO (Tick).
24.5 IF YES) Who and how? .....
24.6 Do you agree with the decisions made and the farming practices used? YES/NO (Tick)
24.7 (IF NO) Which decisions don't you agree with and why .....

25. Are there any official or government staff which regularly visit this village? YES/NO (Tick)
25.1 (IF Yes) Who are they (titles) and what is the work they do (specify work done):-

Title	Work done

26. How much advice have you personally received from the local agricultural extension workers? (Tick)
- very much
- average
- very little
- none

26.1 Did the Bwana shamba visit your maize or cotton field during this past season? YES/NO (Tick)
26.2 (IF YES) How often did he visit you? .....
(Once a week, once a fortnight, once a month, after several months).
26.3 When the Bwana Shamba visited your field how much time did he spend? ..... (Tick)
(Several hours, a few minutes, only seconds, a day)

26.4 Have you attended a demonstration of better farming practices of:
Cotton ..... Yes/No (Tick)
Maize ..... Yes/No (Tick)

26.5 (IF YES) What did you learn?
Cotton: .....
Maize: .....

27. Did you employ paid labour last season? YES/NO (Tick)

27.1 (IF YES) When and what number did you employ?
.....

27.2 Is there time when you faced problems of labor? YES/NO (Tick)

27.3 (IF YES) When was this time and which crops required more labour?

Crops	Time

28. How many days do you work on your own shamba per week?
..... days.

28.1 How many hours on the average did you work on your shamba per day?
Cotton Shamba ..... Hours
Maize Shamba ..... Hours

28.2 Did you ever work as a hired labourer outside this village? YES/NO (Tick)

28.3 (IF YES) How many days did you work as a hired labourer ..... days.

29. Do you think there are problems facing communal production in this village? YES/NO (Tick)

29.1 (IF YES) What problems are there?.....

29.2 How can these problems be over-come to improve communal production?

30. Basing on your own experience would you say that you have learnt anything from communal farming? YES/NO (Tick)

30.1 (IF YES) What have you learnt?

30.2 (IF NO) Why not?

Code No.

SCHEDULE 2

UJAMAA VILLAGE LEADER INTERVIEW SCHEDULE

1. 1.1 Name of village .....
1.2 Village leader (position) .....
1.3 How many people live in this village?.....
(i) ..... (ii) ..... (iii) .....
1.4 How many able people (those can work) live in this village? .....
1.5 When did this village start as an ujamaa village? .....
1.6 What are the major tribes living in this village?
(i) ..... (ii) ..... (iii) ..... (iv) ...
1.7 Is this an old village or a new one?.....(New/Old)

2. 2.1 What major crops do you grow in this village?
(i) ..... (ii) ..... (iii) ..... (iv) ....
2.2 What crops do you grow communally?
(i) ..... (ii) ..... (iii) ..... (iv) ....
2.3 What other communal production activities do you run? (i) ..... (ii) ..... (iii) ... (iv) ...

3. 3.1 How much land has been allocated for this village? .....acres/Hectares/Square miles
3.2 How much land have you been farming communally during the last four growing season?

Year	Maize	Cotton	Other crops
1973			
1974			
1975			
1976			

3.4 How much production (bags/kgs./tons) have you been getting during the last four growing seasons?:-

Year	Maize	Cotton	Other crops
1973			
1974			
1975			
1976			

3.5 How much income did you get last season (1974/75) from cotton and maize?
Maize ..... Shs.
Cotton ..... Shs.
3.6 How much did you distribute to members?
- Distributed crop to members .....
- Money paid to members ..... Shs.
3.7 How much did you use for other purposes?

Purpose	Amount
(i)	
(ii)	
(iii)	
(iv)	

Code No.

3.8 How did you decide to do this? .....
3.9 How did you decide how much each person should receive? .....

4. 4.1 How many days in a week do you work on communal shamba? ..... days.
4.2 How long do you work on communal shamba per day? ..... hours.
4.3 How much did members receive last year for each day's work? ..... Shs./shamba.
4.4 What was the highest return a member got last season .....
4.5 And what was the lowest return obtained by a member last season? .....
4.6 What penalty do you have for people who don't attend communal shamba work? .....
4.7 How do you ensure that work assigned to each person is properly done? .....

5. 5.1 What kind of government assistance for communal production did you get in the past 3 years and how did you use it? (include loans)?

5.1.1 In 1974

Item/Assistance	Amount Given	Amount Used	Remarks

5.1.2 In 1975

Item/Assistance	Amount Given	Amount used	Remarks

5.1.3 In 1976

Item/Assistance	Amount Given	Amount Used	Remarks

5.2 How do you get assistance for communal production?
.....

5.3 Is it necessary for your village to get this assistance? YES/NO (tick)

Code No.

5.4 (IF YES) Where do you need assistance?
(i)
(ii)
(iii)
(iv)
(v)

5.5 (IF NO) Why not? .....

5.6 Is this assistance enough for your village?
YES/NO (Tick)

5.7 (IF NO) Where do you need more assistance
(i)
(ii)
(iii)
(iv)
(v)

5.8 Does this assistance create any problems YES/NO (Tick)

5.9 (IF YES) How and what problems arise from goverment assistance? .....

MAIZE GROWING PROBLEMS

6. Now I would like information about your communal maize shamba (particularly last year)

6.1 When did you start preparing your shamba? (Tick) (before rains, during rains, early, late)

6.2 (IF LATE) Why were you late to prepare your shamba? (Tick) (Poor work attendance, engaged in other activities specify, don't know the right time, other reasons specify) .....

6.3 When did you start cultivating/ploughing the shamba? .....

6.4 When did you complete cultivating your shamba? .....

6.5 (IF LATELY CULTIVATED) Why did you cultivate your shamba late? (Tick) (Tractor delayed, Poor work attendance, engaged in other activities (specify), don't know the right time, late rainfall, other reasons (specify) .....

6.6 How did you plough the shamba? (Tick)(Tractor, Ox-plough, Jembe/Hoe)

7. What variety of maize seeds did you plant? (Tick) (Local, Hybrid, Composite).

7.1 (If the farmers did not plant the recommended seeds) Why don't you plant the recommended maize seeds? (Tick) Not available, expensive to get, not better, other reasons (specify)...

8. When did you begin planting maize? (Tick) (First rains, onset of first rains, during the rains, towards end of rains)

8.1 When did you complete planting? .....

8.2 (IF NOT ON RECOMMENDED Time) Why didn't you follow the recommended date (time)? (Tick) (Poor work attendance, late arrival of inputs, other engagements (specify), don't know the right time, not necessary, other reason (specify) .....

9. What spacing did you use? .....
9.1 (If INCONSISTENT WITH RECOMMENDATION) Why didn't you use the recommended spacing (Tick) (Too laborious, unnecessary, don't know the right spacing, sure is simple, too close/distant, other reasons (specify) .....
9.2 Did you plant a mixed crop or intercrop? .....
9.3 (If INTERCROP) Why did you intercrop maize with other crops (specify). (Tick) (To get more output, shortage of land, other reasons (specify) .....

10. How many times did you weed your shamba ..... times.
10.1 When did you weed the shamba?
1st weeding .....
2nd weeding .....
10.2 (If NOT RECOMMENDED) Why didn't you weed the shamba as recommended? (Tick) (Not necessary, poor work attendance, engaged elsewhere (specify), don't know the right times, other reasons (specify) .....

11. Did you use fertilizers? Yes / No (Tick)
11.1 (If Yes) what type and rate of fertilizers did you use?
(i) ..... Kgs/Acre/Hect.
(ii) ..... Kgs/Acre/Hect.
11.2 When did you apply fertilizers?
(i)
(ii)
11.3 (If NOT THE RECOMMENDED RATE) Why didn't you apply the recommended rate? (Tick) (Expensive, not necessary, lack knowledge, not available, too much work, poor work attendance, other reasons (specify) .....
11.4 (IF LATE APPLICATION) Why didn't you apply fertilizer on the recommended time? (Tick) (Poor work attendance, not aware of right time, not necessary, other reasons (specify) .....
11.5 (IF NO FERTILIZER WAS USED) Why didn't you use fertilizers on your shamba? (Tick) (Not available, too expensive, no money, no need, lack of rain, other reasons (specify) .....

12. Did you use insecticides? NO/YES (Tick)
12.1 (IF YES) What insecticides and rate did you use?
(i) ..... Per acre/hect.
(ii) ..... Per acre/hect.
(iii) .....Per acre/hect.
12.2 (IF NOT THE RECOMMENDED RATE) Why didn't you apply the recommended rate? (Tick) (Lack knowledge, too expensive, not necessary, other reasons (specify) .....
12.3 When did you apply insecticides? .....

12.4 (If not in recommended) Why didn't you apply insecticides on recommended date and (times)? (Sick) (Not necessary, poor work performance, lack knowledge, other reasons (specify) .....

12.5 (If not fumigated, grain) Why didn't you use insecticide on your maize grain? (Sick) (Not available, not necessary, unwilling, lack knowledge, other reasons (specify) .....

13. When did you harvest maize? .....

13.1 (If late harvest) Why didn't you harvest early? (Sick) (Poor work attendance, not necessary, lack knowledge, other reasons (specify) .....

COTTON PRODUCTION

14. How I would like [illegible] on your communal cotton [illegible] (last season,

14.1 When did you start [illegible]? .....

14.2 (If late) Why were you late to [illegible] (Sick) (Poor work attendance, engaged elsewhere (specify), don't know [illegible] .....

14.3 How did you start [illegible] cultivating [illegible] .....

14.4 (If late) Why didn't you cultivate your chamba early (Sick) (Poor work attendance, poor work [illegible], [illegible] (specify) .....

14.5 How did you [illegible] (Hand, [illegible], [illegible] cultivation)

15. How did you plant cotton (Sick, (first [illegible], [illegible] [illegible] early, too late)?

15.1 How did you [illegible] .....

15.2 (If [illegible]) Why didn't you plant in the recommended [illegible], (Poor work attendance, Low survival of [illegible], lack of [illegible], not necessary, seed failure, other reasons (specify), other reasons .....

16. How often did you [illegible]? .....

16.1 (If [illegible]) Why didn't you use [illegible] (Not available, [illegible] (Not laborious, unwilling, [illegible], not know the right [illegible], due to [illegible], too close/ [illegible], other reasons (specify) .....

17. How many times did you [illegible] .....

17.1 When did you [illegible]

1st [illegible].....

2nd [illegible].....

3rd [illegible].....

Code No.

17.2 (... ...) why didn't you weed the plants as recommended? (Tick) (Not necessary, ..., lack of knowledge, employed elsewhere (specify), other reasons .. ..

18. ... ... (Yes/No, etc.)

18.1 (... Yes) how many times did you spray? .....
(... ...) why didn't you apply the recommended rate? (Tick) (Lack of knowledge, ..., ..., ... (specify) .....

18.2 ... ... did you apply insecticides? .....

18.4 (IF NO/IS NOT/HAS NOT) why didn't you apply insecticides on recommended time? (Tick) (Not necessary, poor work attendance, lack of knowledge, other reasons (specify) .....

18.5 (IF NO INSECTICIDE N'OT) why didn't you use insecticides on your cotton farm? (Tick) (Not available, not necessary, too expensive, lack of knowledge, other reasons (specify) ..

19. ... ... you plant pigeon peas? .....

19.1 (IF ALREADY PICKED) why didn't you pick cotton early? (Tick) (Poor work attendance, not necessary, lack of knowledge, other reasons (specify) .....

19.2 did you uproot and burn cotton residue after picking? Yes/No (Tick)
(IF YES) when .....

19.3 (IF NO) why didn't you uproot and burn cotton residue after harvesting? (Tick) (Not necessary, poor work attendance, lack of knowledge, other reasons (specify) .....

20. Do you see any differences between the ways the maize and cotton are grown on the communal farm and on most private farms in this village? Yes/No (Tick)

20.1 (IF YES) How do the practices differ and why?:-

20.1.1 Maize production

Differences	Reasons (factors causing difference

20.1.2 Cotton production

Differences	Reasons(factors causing difference)

20.2 What factors do you think have the strongest influence on how communal maize and cotton are grown as compared to private production of the same crops? (List the 5 most important in their order of importance):

Code No.

20.2.1 Maize Production
1.
2.
3.
4.
5.

20.2.1 Cotton Production
1.
2.
3.
4.
5.
(Labour, attitude, aid, political pressure, extent for risk, group decisions, goals of operation, village leadership, impact of labour, credit, uncertainty, commitment, distribution of farm gains vs effort).

20.3 If there is little or no difference between communal and individual practices of cotton and maize production, why not?

20.3.1 Maize production:

20.3.2 Cotton production:

21. Do you have an agricultural extension worker residing in this village? Yes/No (Tick)

21.1 (If No) How far does he live from here ..... (km/miles)

21.2 When the village have its own agricultural event: Yes/No (Tick)

21.3 How often does the extension worker visit this village per month .....
(this can be checked from the visitors book kept by the village chairman/secretary)

21.4 When he visits the village how much time does he usually spend? (Tick) (one day, half a day, several hours, a couple of minutes only, others .....

21.5 Has the Ruano Chuba conducted or established a demonstration in the village over the last season? Yes/No (Tick)

21.6 (If Yes) how many demonstrations and about what? .....

22. Do you hold meetings to discuss agricultural matters? Yes/No (Tick)

22.1 (If Yes) When did you hold the last meeting and what issues did you discuss? Date .....
Topics:-
(i)
(ii)
(iii)
(iv)

23. Has the farm church helped this village in any way? Yes/No (Tick)
23.1 (If Yes) how?

24. [illegible] do you hold general village meeting?
.....
24.1 Do the local extension workers usually attend such meetings? (Yes/No) (Tick)

25. Are there other government civil servants stationed in this village? Yes/No (Tick)
25.1 (If Yes) What government workers are stationed here?

26. Are there any party (KANU) Cadres in this village? Yes/No (Tick)
26.1 (If Yes) what party Cadres and what are their functions?

Party Cadre	Function

27. How I would like information how decisions on communal production are made in this village?
27.1 Does the village have a development plan? Yes/No (Tick)
27.2 (If Yes) what is the plan? (get a copy of the plan if possible)
27.3 What were the production targets (plans) for last season?
27.4 How were these plans formulated? (Describe steps involved)
27.5 What factors were considered in making the plans?

(i)	(ii)
(iii)	(iv)
(v)	(vi)
(vii)	(viii)
(ix)	(x)

(Labour, land, climate, government assistance, farmers preference, village needs, party directives, available capital, availability of inputs, markets, last years performance)

27.6 Which of the above were the most important factors? (List the 3 most important in order of their importance)
1st .....
2nd .....
3rd .....

Code No.

27.7 ...party or government may be involved in formulating the plans? Yes/No (Tick)

27.8 (If Yes) ...and how were they involved?

27.9 Who would you say has the most effect on the decision made? (List the most important people and their positions)

(1)
(2)
(3)
Or one who is not a village member

27.10 Has the government/party ever given a village plans? Yes/No (Tick)

27.11 (If Yes) ...and how?

27.12 Has the government/party changed plans made in the village? Yes/No (Tick)

27.13 (If Yes) Who are in that way?

27.14 (If No) ...not? (...factors ... led to the failure)

(weather, price change, labour, land, input, capital, commitment, work attendance and others).

28. Despite from your own experience do you think you have learnt or gained anything from communal production? Yes/No (Tick)

28.1 (If Yes) What things have you learned or gained as a result of communal production?

(1)
(2)
(3)
(4)
(5)
Others .....

29. Are there any problems facing communal production in your village? Yes/No (Tick)

29.1 (If Yes) What are the problems)

29.2 Do you think communal production can be improved? Yes/No (Tick)

29.3 (If Yes) in what ways can it be improved?

29.4 (If No) Why not?

Code No.

SCHEDULE 3

QUESTIONNAIRE FOR EXTENSION STAFF

1. 1.1 What is your official designation? .....
1.2 How old are you? ..... Years.
1.3 When did you become a Bwana Shamba? .....
1.4 How many years of agricultural training have you received? .....
1.5 When did you complete your basic agricultural training? .....
1.6 Have you received any agricultural/job related training since then? YES/NO (Tick)
1.7 (IF YES) When did you complete this training? .....
1.8 What special training in agriculture did you receive among the following? .....
(a) General Agriculture Certificate
(b) Special training in crop production (name crop)
(c) Crash programme course
(d) Any others (specify) .....
(e) For how long .....
1.9 What is the highest standard of formal school did you attain? .....

2. Do you think your training on the major crops/problems is: (a) Less than desirable (b) Just about the right amount (c) More than necessary.
2.2 If less than required explain: .....

3. Do you advise both Ujamaa groups and individual farmers? YES/NO (Tick)
3.1 (IF YES) Where do you spend most of your time? .....
3.2 About how many individual farmers do you advise per week?
3.3 How many Ujamaa villages are you assigned to advise? .....
3.4 How far is the most distant village? ..... Miles
3.5 What is the average distance between them? .... Miles.
3.6 How often do you visit the villages ..... times per month.
3.7 How long do you spend when visiting the villages? .... (a day, one hour, few hours, a few minutes)
3.8 How do you travel when contacting farmers? .... (on bicycle, on foot, by bus, motor cycle)

4. What are the differences between communal and individual farming practices on maize and cotton shambas in this village and why do they differ?

4.1 Maize Practices

Practices	Reasons for Difference

4.2 Cotton Practices

Practices	Reasons/Factors for difference

5. If there is little or no differences what are the reasons?
   5.1 Maize Practices

   5.2 Cotton Practices

6. How do you think we could improve the adoption of recommended practices by individual farmers?

7. How do you think we could improve the adoption of recommended practices by Ujamaa villages?

8. Do you, as a Bwana Shamba, have any control over the practices used on Ujamaa Shamba? YES/NO (Tick)
   8.1 (IF YES) How?
   8.2 (IF NO) Why not?

9. Does any other government official have any control over practices used on Ujamaa Shamba? YES/NO (Tick)
   9.1 (IF YES) Who and How?
   9.2 (IF NO) Why not?

10. Do you, as a Bwana Shamba, have any control over the practices on individual shambas? YES/NO (Tick)
    10.1 (IF YES) How?
    10.2 (IF NO) Why not?

11. Does any other government official have control over the practices on individual shambas? YES/NO (Tick)
    11.1 (IF YES) Who and how?
    11.2 (IF NO) Why not?

12. Are there any problems related to communal production which face this village (.....)? YES/NO (Tick)
    12.1 (IF YES) What problems are there?
    12.2 How can these problems be overcome to improve communal production?

REFERENCES

Africa Magazine. 1977.
Tanzania's economy: Full circle from Arusha. No.66, February 1977. Africa Journal Ltd. London.

Attems, H. 1968.
Permanent cropping in the Usambara Mountains: The relevancy of the minimum benefit thesis. In: Hans Ruthenberg (Ed.): Smallholder farming and smallholder development in Tanzania. C. Hurst & Co. London, pp. 139 - 170.

Babyegeya, W. 1975.
Extension methods in Ujamaa village and the role of farmer training centres. In: Hansel, H., J. De Vries, and P.C. Ndedya: Agricultural extension in ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September 1975, pp. 181 - 183.

Bartlett, C.D.S. 1975.
A proposal for orienting technical research by resource scarcities and population pressures. Eastern Africa Agricultural Economic Society, Kampala Conference, May 1975.

Bartlett, C.D.S., E.A. Monday and G.I. May. 1976.
Assessment of innovations in inter-cropping systems. Symposium on inter-cropping for semi-arid areas, Morogoro, 10 - 12 May 1976.

Bishop, C.E. and W.D. Tousant, 1968.
Introduction to agricultural economic analysis. John Wiley & Sons, Inc. New York and London.

Bradfield, D.J. 1976.
Guide to extension training.
Food and Agricultural Organization of the United Nations. Rome, Italy. Government of Malawi.

[illegible]. 1971.
Agro-economic zones of Coast and Morogoro regions. Report paper No.48, October 1971. University of Dar es Salaam, 1971.

Dudakila, J.T. 1975.
The role of Co-operatives in rural development. In: Hansel, H., J. De Vries, and P.C. Ndedya: Agricultural Extension in ujamaa village development: Papers and proceedings of a workshop held at the University of Dar es Salaam, Faculty of Agriculture and Forestry Morogoro, Tanzania, 22 - 27 September, 1975, pp.70 - 75.

Bulegi, S. 1975.
The role of villages as multi-purpose producer co-operatives in rural development. In: Hansel, H., J. De Vries, and P.C. Ndedya: Agricultural extension in ujamaa village development: Papers and proceedings of a workshop held at the University of Dar es Salaam Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975 pp. 19 - 27.

Buxton, J.H. 1975.
Work carried out by L.A. Kirkby at Mkata. Cotton research report, Tanzania, 1973 - 74 (Final Report). Cotton Research Corporation, London. L.C. Hughes.

Cliffe, L. 1972.
Nationalism and reaction to enforced agricultural change in Tanganyika during the colonial period. In: Cliffe, L., and John S. Saul (Ed.): Socialism in Tanzania. Volume 1 politics. East African Publishing House, Dar es Salaam, 1972, pp. 17 - 24.

Cliffe, L. and G.L. Cunningham, 1973.
Ideology, organization and the settlement experience. In: Cliffe, L., and J.S. Saul (Ed.): Socialism in Tanzania. Volume 2, East African Publishing House, Dar es Salaam, pp. 131 - 140.

Cliffe, L., W.L. Lutrell, and J.E. Moore. 1969.
Socialist transformation in rural Tanzania: A strategy for Western Usambara. Economic Research Bureau Paper 69.24, University of Dar es Salaam.

Collinson, M.P. 1968.
The evaluation of innovations for peasant farming. Eastern African Journal of Rural Development, 2: 50 - 60. July 1968.

Coulson, A.C. (No date).
The evolution of rural policies in Tanzania or Can a government bureaucracy bring about development? Mimeo. Department of Economics, University of Dar es Salaam.

Daily News. Newspaper, Dar es Salaam.
February 24, 1977a
March 25, 1977b
April 30, 1977c

De Vries, J. 1975a.
Has extension failed? A case study of maize growing practices in Iringa. Rural Economy Research paper No.1 Department of Rural Economy Faculty of Agriculture, Forestry and Veterinary Science, University of Dar es Salaam, Morogoro, Tanzania.

De Vries, J. 1975b.
Extension methods in the ujamaa setting. In: Hansel, H., J. De Vries, and P.C. Ndedya: Agricultural extension in Ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 184 - 190.

De Vries, J. 1976.
Agricultural extension and development of ujamaa villages in Tanzania: Problems of institutional change. International Conference on adult education and development, Dar es Salaam, June 21 - 26, 1976. Rural Economy Research Paper No.4. Department of Rural Economy, Faculty of Agriculture, Forestry and Veterinary Science, University of Dar es Salaam, Morogoro, Tanzania.

De Vries, J. and H. Hansel, 1975.
Ujamaa as a strategy for rural development in Tanzania. In: Hansel, H., J. De Vries, and P.C. Ndedya: Agricultural extension in ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 28 - 57.

De Vries, J. and L.P. Fortman, 1974.
A study of Ujamaa villages in Iringa Region. Prepared for the UNDP/FAO planning team for the Iringa 3rd 5-year Plan.

Ellman, A.O. 1969.
Agricultural improvement through co-operative farming in Tanzania. Economic Research Bureau paper 69.23, University of Dar es Salaam.

Ellman, A.O. 1970.
Progress, problems, and prospects in ujamaa development in Tanzania. Economic Research Bureau paper 70.18, University of Dar es Salaam.

Feldman, D. 1969.
An assessment of alternative policy strategies in the agricultural development of Tanzania and their application to tobacco farming in Iringa. Economic Research Paper 69.2, University of Dar es Salaam.

Feldman, D. and R. Feldman, 1969.
Co-operation and the production environment. Some exploration among social and economic factors affecting agricultural co-operatives. Economic Research Bureau Paper 69.12, University of Dar es Salaam.

Finlay, R.C. 1974.
Intercropping research and the small farmer in Tanzania. IDRC Field staff symposium, Morogoro 19 - 22 November, 1974.

Fortmann, L.P. 1976.
An evaluation of the progress of the National Maize Project at the end of one cropping season in Morogoro and Arusha. USAID/Tanzania.

Freyhold, M.V. 1973.
Government staff and ujamaa villages (the Ranga experience). Annual Social Science Conference of East African Universities, 18 - 20 December, 1973, Volume 1, University of Dar es Salaam.

Freyhold, M.V. 1975.
The role of agricultural extension in Ujamaa village development. In: Mansel, H., J. De Vries, and F.C. Ndedya: Agricultural extension in Ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 242 - 261.

Hulls, R.R. 1971.
An assessment of agricultural extension in Sukumaland, Western Tanzania. Economic Research Bureau Paper 71.7, University of Dar es Salaam.

Ulanga Research Institute Director. 1974.
Letter No.1/FER, dated 13/2/74 to the Regional Development Director, Morogoro. File No.1/FER, Regional Agricultural Office, Morogoro.

[illegible]. 1974.
Cotton production in Ulanga District. Preliminary Report. Post-Graduate Training Centre for Agricultural Development, Institute of Socio-economic studies of Agricultural Development Technical University Berlin. KATRIN, Ifakara, July 1974.

Ludwing, H.D. 1968.
Permanent farming on Ukara: The impact of land shortage on husbandry practices. In: Rutherberg Hans (Ed.): Smallholder farming and smallholder development in Tanzania. C. Hurst & Co., London, pp. 91 - 132.

Luttrell, W.L. 1971.
Villagization, co-operative production and rural cadres. Strategies and tactics in Tanzania socialist rural development. Economic Research Bureau Paper 71.11, University of Dar es Salaam.

Mabele, R.B. 1975.
Extension program development and agricultural production planning. In: Mansel, H., J. De Vries, and P.C. Mdedya: Agricultural extension in ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 107 - 126.

Maunder, A.H. 1972.
Agricultural extension: A reference manual. FAO, Rome.

Mbakile, E.R.P. 1975.
Evaluation to strengthen the extension system. In: Mansel, H., J. De Vries and P.C. Mdedya: Agricultural extension in ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 263 - 269.

Ministry of Foreign Affairs. 1975.
Integrated rural development plan for Morogoro Region. General Report. The Hague.

Mlambiti, M.E. 1975.
Structural patterns in the marketing of selected fruits and vegetables in Morogoro district. Department of Rural Economy and Extension, Morogoro, University of Dar es Salaam.

Mohele, A.L. 1975.
The Ismani Maize credit programme. Economic Research Bureau Paper 75.2, University of Dar es Salaam.

Mongi, L. 1975.
New trends in training extension cadres. In: Mansel, H. J. De Vries, and P.C. Mdedya: Agricultural extension in ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 211 - 216.

Moris, J.R. 1975.
The improvement of extension performance. Staff and farmer training. In: Hansel, H., J. De Vries, and P.C. Ndedya: Agricultural extension in ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 221 - 237.

Mosha, A.C. and E.J. Rwiza. 1975.
Training extension staff for ujamaa villages. In: Hansel, H., J. De Vries, and P.C. Ndedya: Agricultural extension in ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 196 - 207.

Msambichaka, L.A. 1975.
Agricultural mechanization in ujamaa villages: Prospects and problems. Economic Research Bureau Paper 75.7, University of Dar es Salaam.

Mwanausao, E.C.E. 1976.
Introduction and expansion of smallholder cotton in Rasulu. A thesis submitted for Master of Arts degree, University of Dar es Salaam.

Ndonde, E.C. 1975.
Educational methods for self-reliance development. In: Hansel, H., J. De Vries and P.C. Ndedya: Agricultural extension in ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 164 - 175.

Nsereko, J. 1975.
Methods of extension programme development. In: Hansel, H., J. De Vries, and P.C. Ndedya: Agricultural extension in ujamaa village developmennt: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 151 - 158.

Nyerere, J.K. 1968.
Socialism and rural development. Ujamaa essays on socialism: Freedom and socialism, Dar es Salaam. Oxford University Press, 1968.

Glicch, K.C. 1975.
Comprehensive integrated village planning and the role of adult education. In: Hansel, K., J. de Vries, and P.C. Ededya: Agricultural extension in Ujamaa village development: Papers and proceedings of a workshop held at University of Dar es Salaam, Faculty of Agriculture and Forestry, Morogoro, Tanzania, 22 - 27 September, 1975, pp. 142 - 150.

Haul, A. 1966.
Credit's role in improving agriculture. In: Mosher, A.T.: Selected readings to accompany Getting Agriculture Moving, Volume 1: Essentials for development and modernization. Agricultural Development Council, New York, pp. 412 - 416.

Pearcy, C. 1974.
Entomology. Cotton Research Reports, Tanzania, 1973 - 74. Cotton Research Corporation, London.

Pearcy, C. 1975.
Factors affecting cotton production in western Tanzania. Cotton Growing Review, 52: 4.

Raikes, P. 1973.
Ujamaa vijijini and rural socialist development. Annual social science conference of East African Universities, 18 - 20 December, 1973, proceedings volume 1, University of Dar es Salaam.

Rigby, P. 1966.
Cattle and kinship among the Gogo. A semi-pastoral society of central Tanzania. Cornell University Press (Ithaca). Quoted in: Lutrell, W.L. Villagization, co-operative productions and rural Cadres. Strategies and tactics in Tanzania socialist rural development. Economic Research Bureau Paper 71.11. University of Dar es Salaam.

Rogers, E.M. 1969.
Diffusion of innovations. The free Press, New York.

Rogers, E.M. and Shoemaker, F.F. 1971.
Communications of innovations. A cross-cultural approach.

Rotenhan, D.V. 1968.
Cotton farming in Sukumaland. In: Mittelsenberg Hans (Ed.): Smallholder farming and smallholder development in Tanzania. C. Hurst & Co. London, pp. 57 - 85.

Ruguniza, S. 1973.
Mutual aid groups and their role for agricultural development in Bukoba district. Annual Social Science Conference of East African Universities, 18 - 20 December, 1973, proceedings Volume 2, University of Dar es Salaam.

Ruthenberg, H. 1968.
Some characteristics of smallholder farming in Tanzania. In: Ruthernberg Hans (Ld.): smallholder farming and smallholder development in Tanzania. C. Hurst & Co. London, pp. 327 - 353.

Saylor, R.G. 1969.
The administration of innovations. Economic Research Bureau Paper 69.18, University of Dar es Salaam.

Saylor, R.G. 1970a.
Variations in Sukumaland cotton yields and the extension service. Economic Research Bureau Paper 70.5, University of Dar es Salaam.

Saylor, R.G. 1970b.
An opinion survey of mwana shamba in Tanzania. Economic Research Bureau Paper 70.15, University of Dar es Salaam.

Snedecor, G.W. and W.G. Cochran, 1967.
Statistical methods, 6th ed. Iowa State University Press.

Sperling, D.W. 1976a.
Village trial experience of Tanzanian maize research programme. Sixth East African Cereals Conference, May 1976.

Sperling, D.W. 1976.
Village maize trials. Conference on Off-station Research Work, Ifakara, 7 - 9 October, 1976b.

Sperling, D.W., and M. Colegrove. 1975.
Background of the current maize programme. National Crop Research Planning Committee Meeting, 14 - 17 October, 1975.

Subira, K. 1976.
Villagization. Daily News, December 9, 1976. Newspaper, Dar es Salaam.

Sumra, S. 1975.
Problems of agricultural production in ujamaa villages in Handeni district. Economic Research Bureau Paper 75.3, University of Dar es Salaam.

TANU. 1972.
Siasa ni Kilimo. Iringa.

Uhuru, June, 8 1977. Newspaper, Dar es Salaam.

Ujamaa and Co-operative Regional Office, 1976.
"Vijiji Vya Ujamaa". File No.UCM/36, Regional Ujamaa and Co-operative Development Office, Morogoro.

United Republic of Tanzania. 1970.
Statistical Abstract, 1970. Central statistical Bureau, Ministry of Economic Affairs and Development Planning. Government Printer, Dar es Salaam.

United Republic of Tanzania (No date).
The Economic Survey, 1974 - 75 and 1975 - 76. Printpak Tanzania Limited, Dar es Salaam.

USAID. 1975.
National Maize Project. Evaluation of Morogoro regional operations: Pilot evaluation.