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FARM MANAGEMENT RESEARCH IN CENTRAL ZONE OF TANZANIA
- VILLAGE PROFILE

(VOLUME II)

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RESEARCH REPORT 2

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I. INTRODUCTION

This is the second in a series of three research reports on farm management in the Central Zone of Tanzania. Many villages were recently established under the Tanzanian villagization program. To understand the nature of these villages, it will be necessary to identify their basic characteristics. These include the type of activities, unique resources, and the level of development of each village. Information obtained at the village level must be considered for agricultural and rural development plans to be beneficial to the villagers. Therefore, information was collected on environmental, economic, and social factors which affect these villages. This includes information on the extent of communal production activities and the level of services available.

Information for the Farm Management Research Project in the Central Zone was collected in the fall of 1980 for thirty-one randomly selected villages in the districts of Kilosa, Dodoma, and Manyoni.

Objectives

The overall objective of the research project was to identify village characteristics which would be significant in the formulation and implementation of strategies for rual development in the Central Zone of Tanzania. The specific objectives of the study were to: (1) analyze the demographic and socio-economic status of the villages and the extent of available services, (2) identify the types and level of communal production activities of the villages, and (3) evaluate

environmental, economic and non-economic factors affecting the villages.

Research Procedure

A detailed explanation of the research procedure was presented in the first report of the series, entitled "Profile of Farmers in the Central Zone, Tanzania - Descriptive Analysis" (Marhatta, et. al. 1981). Therefore, only a brief explanation of the research procedure is given here.

Along with the farm questionnaire used to collect data for the first report, a separate questionnaire was developed to collect data on the villages. The data were collected in September and October of 1980 by 20 enumerators from the Economics Research Bureau of the University of Dar es Salaam. The enumerators were supervised by faculty members from North Carolina Agricultural and Technical State University and the Economics Research Bureau. The data for the study were obtained by administering the questionnaire in Swahili to the village chairmen and secretaries in their respective villages.

The population sampled was that of villages in the Central Zone of Tanzania. In this zone, 10 districts were identified from which three districts were selected to represent the zone. Villages to be surveyed were selected in each district, with probability of selection being proportional to the estimated number of farmers in each district. Following this procedure, a total of thirty-one villages were selected to be surveyed. The selection included 10 villages in Kilosa, 17 in Dodoma, and 4 in Manyoni (See Table 1).

Table 1. Distribution of Sample Villages by Districts**

DISTRICTS		
Kilosa	Dodoma	Manyoni
Magole Kitete Gongoni Msolwa Luhembe Kitange Ndogomi Mbigiri Magera (Msimba) Virunda (Twatwatwa)	Makanda Nzogole Kisima Chandege Mpalanga Msisi Chipanga B Zejele Msanga Chifukulo *Bahi Sokoni *Bahi Makula Kwahemu (Humekwa) Mundemu (Lamaiti) Mbhamantwa (Nghulugano) Segala (Zagilwa) Muungano (Handali) Ikowa (Mlebe)	Heka/Azimio Gurungu Igwa Madete Saranda
Total Villages (Samples) 10	17	4

*Villages that were in the Rice Production Pilot project and not a part of the original sample villages.

**Villages in parenthesis were villages that replaced sample villages in the study.

II. CHARACTERISTICS OF THE VILLAGES

This section presents some of the major characteristics of villages. Included are status, age, land area, population (including migration), health status, and the type and extent of physical facilities available in the villages.

Tanzania has twenty-five administrative regions. Each region is subdivided into districts. The districts are divided into wards which are composed of several villages. These villages can easily be identified by the registration number recorded with the Prime Minister's Office (PMO) after the Villagization Act of 1974. Registered villages had to conform to the provisions of the 1975 Village Act. Specifically, they should have definite geographical boundaries and a minimum of 250 households (in exceptional circumstances this requirement may be waived by the PMO)[1].

At the village level, the highest decision-making organization is the Village Assembly, which consist of all persons 18 years old and above. This Assembly elects a Village Executive Committee which oversees the day to day affairs of the village. The two most important members of this committee are the chairman and the secretary.

All the villages sampled in the three districts had registration numbers and an elected Executive Committee with a chairman and a secretary.

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[1] In some instances, several villages may be combined to make one village of 250 households. Furthermore, the program has not reached the 100 percent participation level.

There were other committees in the village which managed various aspects of village affairs. Included were committees for peace and order, government, building and transportation, and production and marketing. With the exception of three villages, all the village committees consisted of five members. Membership to committees was by election, except for two villages that appointed committees. Committee decisions were made by consensus in Kilosa; whereas, they were made by vote in Dodoma and Manyoni.

Other types of committees designed to improve community social life existed in one village in Manyoni and three each in Dodoma and Kilosa. In these villages there were committees for adult education, sports and culture, and energy; and met monthly to carry out their objectives.

Village Age, Radius and Area

Information collected regarding village age indicated that most of the villages were relatively new. Seven villages in Kilosa had an average age of 7.6 years. Two of the villages were 10 and 15 years old respectively. The remaining five were five or six years old, which means they were established after the November 1973 declaration. This declaration made it compulsory for all people to live in villages and required the process of moving people into permanent and demarcated villages to be completed in three years.

Thirteen villages in Dodoma had an average age of 8.4 years. The range was from four to eleven years. Most of these village were probably established in the early 1970's about the time the government and party helped organize Chanwino Ujamaa village, which was intended as a model

for bringing people closer together. This would enable the government to better serve the rural population. It appears that a drought that occurred in 1972 and 1973 encouraged the establishment of some villages. The drought was especially bad in Dodoma and people were advised to live close together in order to facilitate the distribution of food.

Three villages in Manyoni had an average age of 8.3 years. The range was from one to eighteen years old. The age of a fourth village was not given, but was reported as being old.

Based on information gathered from the 23 villages reporting, it appears that about 90 percent of the villages were established in the 1970's. This is probably the case because the Ujamaa Village policy was first endorsed by the government as an instrument of rural transformation in the Second Five Year Plan that was initiated in July 1969. After the Ujamaa Village program was declared party and government policy, every region tried to persuade the rural population to live closer together. Other villages possibly emerged due to the enthusiasm of "Operation Chanwino" a highly publicized village, organized with the approval of President J. K. Nyerere. The villagization policy of 1973 is probably responsible for the recent organization of many villages.

In regard to the distance that residents live from the center of the village where the Chama Cha Mapinduzi (CCM)[2] building is located,

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[2]CCM is the only political party in Tanzania.

the study found that most people lived an average of less than a one hour walk from the CCM building; assuming that the average persons covered about 6.4 kilometers per hour.

Table 2 shows that for the 28 villages reporting, the average distance residents lived from the village center was 3.1 kilometers. In Kilosa, 90 percent of the villagers lived within a one hour walk of the village center. The number increased to 92.9% percent in Dodoma and 100 percent in Manyoni.

Table 2. Household Distance from CCM Building

Distance (Kilometers	FREQUENCY			
	Kilosa	Dodoma	Manyoni	Total
0 - 2.0	4	5	3	12
2.1 - 4.0	3	7	1	11
4.1 - 6.0	-	1	-	1
6.1 - 8.0	3	-	-	3
8.1 - 10.0	-	1	-	1
Total	10	14	4	28
Average Distance	3.5	3.1	1.8	3.1

Of the villages surveyed, very few were located on or near all weather roads. This includes the one village in Kilosa located on the Tanzania Zambia Highway. Most of the other villages are assessable only by four-wheel drive vehicles, even during the dry season.

There was a considerable difference in the size of villages within and between districts. For example, the size of the seven villages

reporting in Kilosa ranged from 4,000 hectares to 22,000 hectares. The average size of the-seven villages was 10,343 hecatres (or ha). Likewise in Dodoma the size of nine villages ranged from 160 hectares to 12,800 hectares. The average size was 6,001 hectares. In Manyoni the size range was from 1,516 hectares to 25,600 hectares, for an average size of 12,379 hectares per village.

The average size of villages was smaller in Dodoma (6,0001 ha) than those in Kilosa (10,343 ha) and Mayoni (12,379 ha). This difference in village size from district to district may be attributed to the density of population and the availability of uninhabited land in each district. However, Manyoni had the smallest average land use for production despite its largest average village size. The average land used in the surveyed villages of Manyoni was only about one half that of Dodoma and one-fourth that of Kilosa. Such variations in land use from district to district could be due to differences in soil type, the farming activity pursued, and farm implements used.

Demographic Characteristics

The information on the basic demographic characteristics in the villages surveyed are summarized in Table 3. The figures on total population and its distribution according to sex seem fairly accurate given the village organization and registration. As each of the villages had to furnish this information for registration, one can safely assume that at least by the time of registration these data were fairly correct.

Table 3: Distribution of Population by Age group and Sex in Three Districts of Tanzania

District	MALE				FEMALE				TOTAL				ADULT WORK FORCE	
	Adult	Youngsters	Children	Total	Adult	Youngsters	Children	Total	Adult	Youngsters	Children	Total	Number	% of total Population
Kilosa	3742	2380	1953	8075	4203	2521	2097	8821	7945	4901	4050	16,896	6799	40
%	22.2	14.1	11.5	47.8	24.9	14.90	12.4	52.2	47.0	29.0	24.0	100	-	-
Dodoma	7110	5563	2250	14923	9695	5519	2983	18197	16805	11082	5233	33,120	15678	47
%	21.4	16.8	6.8	45.0	29.3	16.7	9.0	55.0	50.7	33.5	15.8	100	-	-
Manyoni	1962	973	275	3192	2016	819	301	3136	3978	1792	558	6328	3794	60
%	31.0	15.4	4.1	50.4	31.9	12.9	4.8	49.6	62.9	28.3	8.8	100	-	-

However, it is not certain if the villages have regularly updated this information to take care of the changes due to births, deaths, immigration and so on.

While most leaders were able to state at least the total number of inhabitants in the village, some were not able to provide an estimate of the area covered by their village. Every village may have definite physical boundaries but not all villages have this area officially recorded in the Village Register. On the basis of responses from seven villages in Kilosa district nine in Dodoma and four in Manyoni, the population density per square kilometer in three districts was found to be 23, 63 and 13 people respectively. These rough estimates were based on estimates of total area covered by each village and information provided by the officials interviewed.

Table 3 shows the distribution of population by sex and by three age categories - children under 14 years of age, youngsters 14 to 18 years old and adults (above 18 years old). However, these classification are somewhat arbitrary because without written records such as birth certificates it is difficult to determine age of the people. (See National Demographic Survey of Tanzania, 1973 for detail explanation on this problem.

Females outnumber males in both Kilosa and Dodoma districts.

The ratio of females to males is 1.1 to 1.0 and 1.2 to 1.0 in Kilosa and Dodoma respectively. In Manyoni, the ratio is almost one to one with males outnumbering females very slightly. However, with only four villages from Manyoni in our sample, comparison with the other two districts may be less meaningful.

The work force (WF) or labor force is a crucial variable in planning and programming rural development projects in Less Developing Countries (LDC). Shortage of capital is particularly acute in rural Tanzania, a common phenomenon in most LDCs except for the oil producing countries. Under these circumstances there is a limitation for factor substitution and labor can easily become the major constraint to greater output. Therefore, in making an inventory of the resources available for production in a rural situation of a given LDC, it is of utmost importance to arrive at a fairly accurate estimation of the WF.

Some idea of the relative magnitude of the WF emerges from looking at the population data in Table 3. If we assume that children below the age of 14 do not contribute significantly to work force in rural households, we can exclude them altogether and the WF would then be 76.0, 84.2 and 91.2 percent of the total population respectively in Kilosa, Dodoma and Manyoni. Such exclusion would be more valid when full implementation of Universal Primary Education (UPE) takes place and all the children are required to attend schools

In some rural areas of Tanzania such as the pastoral and semi-pastoral areas including Dodoma and Manyoni and part of Kilosa, children enter elementary school at a relatively late age - sometimes at 10. By

the time they finish seven years of elementary school they are already 14 and fall in the category of youngsters and may therefore be out of the WF. This may explain why many of the officials (interviewee) could not tell exactly how many youngsters were in the village work force. However, in cases where they could not furnish, the estimates of WF have been calculated to be 90% of the adults based on the ratio of WF to the total adult population in the remaining village. Similar computation with regard to the youngsters in the WF was not possible. But such information can be estimated from the other report - Profile of Farmers (Marhatta, et. al., 1981).

a. Village Family Migration

The problem of migration is included in this survey in order to evaluate the degree of permanence of rural families in areas with relatively similar ecological zones but with different cultural adherences and economic opportunities. At the same time, it was intended to gather some information on the causes which lead to such movements.

Inward-Outward Village Migration: The study observed the inflow and outflow of village residents during the 1979 calenda year as well as the frequency of seasonal migration. Some form of migration has occurred in all villages (Table 4). Using a conversion ratio of 4.59 persons per household it is estimated that in Kilosa about 189 persons moved out of the villages. Slightly more than 20 percent crossed the borders to Dodoma and Morogoro. On the average, 19 persons moved out of each village in 1979. The inflow was basically within the district; and between villages, wards, or divisions. About 193 persons moved into the villages, making a net inflow of about 4 persons. Since the average

Table 4. Destination of Village Migrants in the Three Districts of Tanzania

Destination and Origin	Kilosa		Dodoma		Manyoni	
	No.	Percent	No.	Percent	No.	Percent
Emigrants:	189	100.0	681	100.0	138	100.0
To villages within the district	179	94.7	653	95.9	138	100.0
To villages outside the district	10	5.3	28	4.1	-	-
To urban - Centers	-	-	-	-	-	-
Average emigrants/village as % of total village population	19		45		35	
Imigrants:	193	100.0	408	100.0	101	100.0
From villages within the district	152	78.8	403	98.8	73	72.3
From villages outside the district	41	21.2	5	1.2	28	27.7
From urban - centers						
Average immirgrants/village	19		27		25	

inflow per village was also about 19 persons, there was no net change of population.

In Dodoma, the movement of people outside the villages was much more pronounced. During the calendar year 1979 alone, approximately 681 persons emigrated from their villages. This gives an average of 45 emigrants per village. The data also reveals that about 4 percent of the migrants moved to the neighboring districts of Manyoni and Mpwapwa. The rest continued to pursue village rural life by joining other villages within the district. Similarly, there was a total inflow of 408 people or 27 per village. Each village surbeyed had a net outflow of about 18 persons. Over 95 percent of the inward village migrants came from within the district.

The disproportion of village migration was also visible in the district of Manyoni. According to the data, about 35 persons left from each of the sample villages for another village. All of the village emigrants settled within the district. The inflow data showed that about 25 persons moved into the village in 1979. Out of the total 101 persons, almost one-fourth came from the neighboring district of Singida. The proportion of emigrants to immigrants, stands at approximately 14 to 10, with a net outflow of about 100 persons per village.

The discussion above presents some interesting observations. In an area like Kilosa, where the climate is fairly favorable, and land is suitable for agriculture, there is a low or balanced inward-outward movement of the villagers. In areas with semi-arid climate such as Dodoma and Ma-yoni, the frequency of the movement of people from village to village was relatively high. This situation is more accentuated by the shortage of suitable land for agriculture. The data also reveals that

that the migration was from one village to another village instead of the more classical trend whereby rural people gravitate towards urban centers (see also Tabah, L. 1977) This migration pattern needs further study. It is believed by some experts (see AID, 1980) that people are moving into this central zone. Village results here indicate outmigration. One explanation is the immigrants are moving into the towns and cities instead of rural areas. Certainly future census will be important in resolving this issue.

The Seasonality of Migration: Seasonality in this study refers to the migration frequency - in and out of the village - within a period of three months. In Kilosa district only four villages reported outflow. The information given revealed that about 6 persons emigrated from the village. With the exception ofone village, all of the emmigrants of the three villages moved to other villages within the district. Only two villages reported an inflow of about 5 persons. Again even in this case the movement took place between villages of the same district.

In Dodoma seven villages had a total outward migration of about 109 persons or 16 persons per village. The migrants settled in other villages within the district. Four villages had a total of 151 new residents or 38 new residents per village in a three months period.

The Manyoni district, which shares borders with Dodoma on the western side, recorded a movement in one of the sample villages. The study found that about 23 persons moved out of the village and 14 persons moved into the village in a period of three months of the calendar year 1979. On the basis of the village sample size, Manyoni is in the forefront as regards to the immigration problem, followed by Dodoma.

The data in Table 5 reveals that the lack of farm related opportunities, keeps the villagers constantly on the move. Factors such as soil fertility, limited farming area, and arid pasture for grazing animals, floods, famine, clean water and transportation all contributed to the reduced opportunities. The migration in the villages also resulted because people came to join their relatives or parents or to look for their relatives. Apart from these two major reasons, there were other reasons accounting for the unsettled life of some village families. Included were reasons such as the village operation, which a nationwide policy of settling rural people in permanent villages; the desire of the villagers to stay together; preference for a different village; and the need for change of environment; and local superstitutions.

Permanent rural settlements are imperative for the improvements of economic well-being of the rural population. Frequent migration tends to undermine the potential ecological wealth; at least unknowingly. The ultimate end effect is the disruption of the rural agricultural economy and the recycling of poverty. To prevent this an indentification of suitable settlement areas is necessary. Such identification of land area should observe factors like the fertility of the soil, water capacity, the man land ratio and animal land ratio for grazing purposes. Furthermore the desire for close families to stay together should be appreciated. However, prior clarification of this issue before the registration of village members might minimize the problem.

Table 5. Reasons for Migration in the Typical Semi-arid Zone of Tanzania, 1979

Reasons for Migration	Kilosa		Dodoma		Manyoni		Total	
	In	Out	In	Out	In	Out	In	Out
Farm related opportunities (soil fertility, water, transportation)	-	2	5	4	2	-	7	6
To find or to join relatives	2	2	4	3	-	-	6	5
Other	1	1	4	-	1	2	6	3

b. The Village Health Status

At the time of independence in 1961, diseases, ignorance and poverty were declared as major problems of the nation. Since then all development efforts have been geared towards liberating the nation from those three hinderances. The achivements of the set goals, have from time to time been measured and compared, for the purpose of correction and improvements. This study also attempted to evaluate the health situation in the villages using the birth and death numbers as indicators of health development.

Table 6 shows that the numbers of births and deaths vary widely from village to village. However, the average birth rate in all three districts is very close to the national average of 48 per thousand in 1978 (see World Bank, 1980). Kilosa's birth rate of 50.5 per thousand was slightly higher than that of 49.7 per thousand for Manyoni and 49.3 per thousand for Dodoma.

Table 6. Births and Deaths in the Villages, 1979

Village	Total Population	Number of Births	Number of Deaths	Crude birth Rate /1000	Crude Death Rate/1000
Dodoma:					
Kisima Chandege	2793	365	730	130	261
Lamaiti	1002	99	10	98	98
Mpalanga	2832	30	10	11	4
Msanga	1528	12	15	8	5
Msisi	2568	169	-	66	-
Nghulugano	4263	120	-	28	-
Zajilwa	2353	100	50	43	18
Humekwa	1024	10	3	10	10
Average				49.3	66.0
Manyoni:					
Gurungu	843	80	10	95	12
Heka/Azimio	2639	112	-	42	-
Igwa Madete	1321	12	8	9	6
Saranda	1525	-	5	-	3
Average				49.7	7.0
Kilosa:					
Kitete	1592	-	8	-	5
Luhembe	1922	160	15	83	8
Magole	3900	-	6	-	2
Mbigiri	1504	15	10	10	7
Msimba	1215	-	12	-	10
Msolua	486	28	3	58	6
Twatwatwa	593	-	6	-	10
Average				50.5	6.9
National Average (per thousand)				48.0	16.0

So far as the death rate is concerned both Kilosa and Manyoni had about 7 per thousand while Dodoma had a staggering rate of 66 per thousand mainly due to high incidence of death in Kisima Chandege and Lamaiti villages. The average crude death rates for the six villages in Dodoma were more than four times higher than the national average of 1978. In contrast both Manyoni and Kilosa had substantially lower death rates.

The observations made here do correspond to the general trend of the whole nation; whereby the national crude birth rate has slightly increased from 47 per thousand in 1960 to 48 per thousand in 1978. The crude birth rate decreased from 22 per thousand in 1960 to 16 per thousand in 1978.

Typical causes of death in the villages were not identified but many could be associated with malnutrition, poor sanitation and inadequate health facilities. Despite all the achievements in the country, Tanzania still does not have adequate number of health service facilities, especially in the rural areas. Except for some clinic or church sponsored medical services many villages do not have any health facilities. Also because of this, preventive health services are nonexistent and when people get sick they cannot obtain necessary medical cares.

Physical and Other Service Facilities

As part of an attempt to get a socio-economic profile of each village, an attempt was made to draw up an inventory of socio-economic

facilities and services available in each village. The interviewees were asked to identify the facilities or services available in their villages. In other cases it was a question of assessing the quality of the services provided, e.g., roads, frequency of bus services etc. For ease of presentation we grouped the facilities and services into the following categories:

A. Production and Commercial:

1. Godown
2. Maize Mill
3a. Market (open)
3b. Market (with roof and stands)
4. Piggery
5. Village Shop (Duka)

B. Water and Energy:

6. Charcoal making
7. Electricity
8a. Shallow well
8b. Piped water

C. Housing:

9a. More than 10 privately owned buildings with bati (aluminium sheets) roofs.
9b. More than 10 privately owned buildings made of cement/bricks.
10a. Any building with bati roof.
10b. Any building with cement/brick wall
10c. Any building with glass windows

D. Construction and Repair:

11. Carpenter
12. Mason
13. Brick making

E. Health and Education:

14. Dispensary/Clinic
15. Primary School
16. Secondary School
17. Dip
18. Veterinary Center

F. Transportation and Communication:

19. Post Office
20. Telephone
21a. Roads (dirt)
21b. Roads (all weather)
21c. Road (Tarmac)
22a. Bus Service (Daily)
22b. Bus Service (Weekly)

G. Food and Beverages:

23. Butcher
24. Beer Bar
25. Baker
26. Hotel (Tea Room)
27. Pombe Shope (local beer)

H. Administrative:

28. Police Post
29. Village Manager
30. UWT (women's organization)
31. TYL (Youth organization)
32. CCM Branch

I. Extension - Bwana Shamba (Extension Agent):

33a. Lives in village
33b. Visits village at least once a week
33c. Visits village once a month
33d. Rarely visits or does not visit

J. Religious:

34. Church/Mosque

K. Sports:

35. Football Field

Table 7 summarizes the number of villages that have the facilities or services listed. It is difficult to make comparison across districts especially because the sample had only four villages from Manyoni. However, Dodoma district appears to be in a more favorable situation with regard to the availability of these services and facilities - 13 villages (87 per cent) have more than 10 facilities each and only 2 (13 percent) have less than 10 facilities each. Table 8 presents detailed information on services available in each village.

A. Production and Commercial Facility: This category is important for the marketing and processing of agricultural products. The construction of godowns is particularly important in areas with surplus agricultural produce. Given the bad conditions of the roads and shortage of vehicles and fuel, marketing agencies generally cannot get to villages to collect

crops immediately after harvest; therefore, availability of storage facilities in the village is necessary to protect harvested crops from hazards such as rain and pests. Kilosa seems to have relatively more godowns than the other two districts.

Village markets are an indication of the degree of commercialization. Villages near roads are likely to have better and bigger markets. Most villages in Kilosa and Dodoma had simple marketplaces without roofs or stalls and this showed that there was a lower degree of commercialization.

Table 7. Distribution of Physical and Other Service Facilities Among Three Districts

Number of Facilities & Services	NUMBER OF VILLAGES							
	Kilosa		Dodoma		Manyoni		Total	
	Number	%	Number	%	Number	%	Number	%
Less than 10	3	30	2	13	-	-	5	17
10-25	5	50	9	60	4	100	18	100
26-41	1	10	3	20	-	-	4	14
Over 41	1	10	1	7	-	-	2	7
Total Number of Villages	10	100	15	100	4	100	29	100

Table 8. Availability of Physical and Other Service Facilities

Facilities	DISTRICTS					
	Kilosa		Dodoma		Manyoni	
	No	%	No	%	No	%
A1. Godown	7	70	8	53	1	20
2 Maize Mill	2	20	11	73	2	50
3a Market (open)	2	20	2	13	–	–
3b Market (other)	1	10	2	13	–	–
4 Piggery	1	10	–	–	–	–
5 Village Shop	10	100	14	93	4	100
B6. Charcoal making	–	–	1	7	–	–
7. Electricity	2	20	3	20	–	–
8a Shallow well	3	30	10	67	3	75
8b Piped water	2	20	9	60	2	50
C9a Buildings (Bati roof)	5	50	4	27	1	25
9b Buildings (cement)	2	20	2	13	–	–
10a Any bldg. (Bati roof)	6	60	12	80	3	75
10b Any bldg. (cement/brick)	7	70	13	87	4	100
13c Any bldg. (glass/window)	4	40	7	47	2	50
D11 Carpenter	2	20	5	20	1	25
12 Mason	3	30	6	40	–	–
13 Brick making	4	40	6	40	1	25
E14 Dispensary/clinic	4	40	9	60	1	25
15 Primary school	8	80	15	100	4	100
16 Secondary school	1	10	–	–	–	–
17 Dip	3	30	5	33	2	50
18 Vet Center	1	10	1	7	1	25

Facilities	DISTRICTS					
	Kilosa		Dodoma		Manyoni	
	No	%	No	%	No	%
F19 Post Office	3	30	2	13	1	25
20 Telephone	1	10	1	7	–	–
21a Roads (dirt)	7	70	7	47	1	25
21b Roads (allweather)	3	30	11	73	4	100
21c Roads (Tarmac)	3	30	1	7	–	–
22a Bus (daily)	3	30	4	27	–	–
22b Bus (weekly)	2	20	6	40	1	25
G23 Butcher	2	20	7	47	1	25
24 Beer Bar	3	30	2	13	1	25
25 Baker	1	10	1	7	–	–
26 Hotel (Tea Room)	3	30	3	20	–	–
27 Pombe Shop	2	20	8	53	–	–
H28 Police Post	1	10	1	7	–	–
29 Village mgr.	5	50	6	40	2	50
30 UWT	5	50	12	80	1	25
31 TLY	5	50	10	67	2	50
32 CCM Branch	6	60	9	60	3	75
I33a Ext. Agent (Lives in the village)	3	30	4	27	1	25
33b Ext. Agent (visits once/week)	2	20	2	13	1	25
33c Ext. Agent (visits once/month)	1	10	1	7	1	25
33d Ext. Agent (does not visit)	2	20	4	27	1	25
J. Church/Mosque	7	70	4	27	2	50
K. Football field	9	90	14	93	4	100

Pig-raising was popular only in some villages in Kilosa district, hence the absence of piggeries in the other two districts. The other important facility in this category is the duka (the village shop). These shops were created under the campaign of "Operation Maduka" whereby the government attempted to close privately owned shops after each village had established these village shops. This policy seems to have succeeded as almost all of the villages had village shops.

B. Water and Energy Facility: Except in some areas, charcoal making was not extensive because trees were scare. Only one village in Dodoma indicated any charcoal making activity. Electricity was not in use in any village except those near some church missions and semi-urban settlements. It was observed during the interviews that electricity was not used for any purpose in any of the villages surveyed. Electricity transmission lines do pass some villages and some interviewers in Kilosa and Dodoma must have taken these to indicate "presence" of electricity in the villages.

Since the provision of clear water is one of the basic needs for a healthy community, the survey attempted to identify the nature and existence of the water facilities. Villages could obtain their water supply either from an improved source such as dug up but covered wells, piped water, wells with pumps, etc. for obtaining clean drinking water or from unimproved sources such as rivers, lakes, ponds and natural wells which are often hazardous and contaminated and used for nondrinking uses. The questionnaire was not specific enough to distinguish between drinking water and water used for other purposes. Therefore, shallow wells have been referred to as either man made or natural sources unprotected from

contamination and piped water include covered wells with pumps.

More than 50 percent of the reporting villages in Manyoni and Dodoma while only about a third of the villages in Kilosa reported having both sources. Clean water was available to a large extent in Dodoma and Manyoni as nearly 60 percent of the villages in Dodoma and 50 percent in Manyoni reported having piped water as compared to only 20 percent in Kilosa.

There seems to have been a greater effort in Dodoma to provide the villages with clean and reliable supply of water. Since this area had experienced constance shortage of water for drinking and cooking especially during the hot and dry seasons, such improvement was good but it still did not have a reliable supply.

C. Housing Facility: Under this category, only private houses are included. Some buildings are put up collectively by the villages as a whole or they may be built with the help of outside agencies (with or without contribution from the village). These buildings are likely to be of better quality than private buildings because more resources are put into them. Public buildings built in villages included school buildings, dispensaries and housing for teachers and paramedical functionaries, built by government agencies (including the village government).

Buildings put up by the village typically included the CCM office (which also serves as the administrative office for the village), the village duka and sometimes the godown. Buildings with glass windows in many parts of the country represent more advanced edifices beyond the reach of individual households but may be found in public buildings even in the poorest villages. In some villages, however, individuals have

begun to put up such buildings. In the villages, during the time of survey, it seemed that most villages had at least one building made of cement and/or bricks with an aluminum sheet roof. However, there were very few structures with glass windows.

In villages no private buildings are used exclusively for commerical purposes - resources are too scarce for that. Bati (aluminum sheet) roofing represents an improvement over grass thatching or in the case of Dodoma tembe roofs (mud plastered roofs) due to the shortage of trees and grass. In Kilosa 5 villages had at least 10 private buildings with bati roofs - a much greater percentage than in the other two districts. Very few villages had private buildings made of bricks or cement blocks - 2 in Kilosa and 2 in Dodoma, none in Manyoni.

D. Construction and Repair Facility: This category includes the availability of skilled workers to construct and improve buildings, doors, walls etc., and to do necessary repairs. Only 8 villages out of the 29 surveyed had the service of a carpenter, and only 9 from Dodoma and Kilosa had the services of a masonry. Forty percent of the villages in both Kilosa and Dodoma while only one out of four villages in Manyoni had brick-making facilities.

E. Health and Education Facility: The dispensary and or maternity/child clinic was the only health care facility available to rural households in Tanzania. They were also called the "rural medical aids" manned by elementary school graduates with a year or two of rudimentary professional training. These facilities could only administer first-aid and dispense drugs for minor ailments. Serious cases had to be referred to district hospitals or higher up to regional hospitals and consulting

hospitals. At present, all districts (except those set up recently) have district hospitals, all regional centers have regional hospitals and there are three consultancy hospitals in the whole country. Results of the survey indicated that not all villages had dispensaries. Dodoma seemed to be ahead of the other two districts with 9 villages having such dispensaries. In contrast only 4 and 1 villages in Kilosa and Manyoni respectively had such facilities.

The provision of elementary school education had reached a more satisfactory level - all the villages in Dodoma and Manyoni had elementary (primary) schools. In Kilosa 8 villages (80 percent) had a primary school. Secondary school education was provided only to satisfy high level manpower needs and were rare in rural Tanzania. A few that could be found served to satisfy the needs of a number of districts and even regions.

The last two facilities in this group related to animal health and were more common in pastoral and semi-pastoral areas. There was a heavier concentration of cattle in Dodoma and hence this district had more dips (small ponds). Veterinary centers generally served several villages and not all villages had such facilities. However, at least one village in each of three districts had a veterinary center.

F. Transportation and Communication Facility: Tanzania is a fairly large country. If people and goods cannot be moved from one part of the country to another many development projects will be adversely affected. While much has been done to provide social services (schools, dispensaries), a lot more needs to be done to provide the rural people with better roads and other transportation and communication services.

This was clearly illustrated by the findings of this survey. Only 6 villages in the entire survey had postal services. None of the four villages in Manyoni had a telephone and only one village each in Kilosa and Dodoma had access to telephone services.

In Dodoma, only one village was situated close to a tarmac road while 11 and 7 villages indicated access to all weather roads and dirt roads respectively. Three villages in Kilosa were situated close to tarmac roads and each of the 3 villages had both all weather and dirt roads. On the other hand, Manyoni had no tarmac road even though one village reported having dirt road and all 4 villages with all weather roads. However, it seems these estimates were exaggerated because these villages having been accustomed to bad roads, overestimated the quality of roads.

Bus services were more frequent on the better roads. Dodoma seemed to have more bus services compared to the other districts. This may be because most of the district is covered by flat terrain with little or no forests, and rivers that are dry most of the time. During the dry season most of the villages in Dodoma district can be reached easily by road.

G. Food and Beverage Facility: This category shows the level of development of the villages in terms of increased services. Shops such as bakery and butcher indicates the commercialization and transfer of activities hitherto done at home, to the market. On the other hand, beer bar, pombe shop (local beer shop) as well as hotel to some extent provide a place of entertainment, socializing center and a hub of leisure activities.

On that basis Manyoni is surely on the lower scale of development as it had only one butcher shop and one beer bar. Kilosa had a better situation as it had at least 5 beer bars and local beer shops, 2 butcher shop, one bakery and 3 hotels. In contrast to both Manyoni and Kilosa, Dodoma had 10 beer bars and local beer shops. It also had 3 hotels, 7 butcher shop and one bakery.

H. Administrative Facilities: Most of the administration at the village level is done by the village itself. The chairman and the secretary do the day-to-day administration assisted by members of the executive committee and specialized committees on planning, finance, security, justice etc. If something needs the attention of higher authorities it is referred to the ward secretary (Katibu Kata) and if need be the matter may move onwards to the division secretary (Katibu Tarafa) and the district authorities. The Chairman and Secretary also hold the same position in CCM (Chama Cha Mapinduzi which is the only political party in Tanzania).

Although not all villages indicated the presence of a party branch, in fact all villages did have a party branch. What was indicated may have been the presence of a CCM building which also acts as the administrative center for the village. Over 60 percent of all villages had put up such buildings. The CCM had under it specialized affiliates, notably the Women's Organization (UWT) and the Youth Organization (TYL). Several of the village CCM had set up these specialized organizations.

The government had planned to place a civil servant called a village manager in every village in order to help the village to plan and communicate with higher authorities quicker and more effectively.

Some villages managers were university graduates. The managers were not supposed to impose their plans on the villages but rather to advise the chairman and secretary and various committees. Fifty percent of the villages in both Kilosa and Manyoni had village managers while only 40 percent of the villages in Dodoma had one.

In addition to police, law enforcement was carried out by the village authorities especially through the people's militiamen. These militiamen were given ideological orientation and trained in the use of weapons. They were authorized to arrests and then hand over suspects to the police who were often located many miles away. The police were called upon only when complicated cases arose. Kilosa and Dodoma each had one village with 'police posts' (small police stations) while Manyoni had none. These were no doubt intended to serve a number of villages around.

I. Extension Services: In addition to placing a manager in each village, the government had intended to provide each village with an agricultural extension agent. The village extension agent was normally a secondary school graduate with two years professional training in agriculture and until recently he was known as the agro-vet because his training from MATIs (Ministry of Agriculture Training Institutes) included both crop and animal husbandry. Current plans include phasing out the agro-vet and to change each MATI into either a livestock training institute or an agricultural crop training institute. This is likely to delay the time when each village can have an extension agent of its own.

At the time of the survey slightly over a quarter of all villages had an extension agent living in the village. Fewer than 25 percent of

the villages were visited weekly by an agent in Kilosa and Dodoma. In Manyoni 25 percent of the villages reported such weekly visits. One village each in three districts was visited by the Bwana Shamba (the extension agent) only once a month and about 20 percent of the villages were either rarely or not visited at all. On the other hand, there might have been some livestock extension agent (bwana mifugo) that were excluded because the questionnaire referred only to Bwana Shamba.

J. Religious Facility: Seventy percent of the villages in Kilosa reported having a church/mosque for worshipping while 50 percent of the villages in Manyoni and 27 percent in Dodoma had such facilities. However, churches connected with missions offered religious services as well as socio-economic facilities to villages, e.g., school, dispensary, and supply of clean water.

K. Sports Facility: Almost all villages had a football (soccer) field. This is no doubt a result of the villagization program - once people live closely together, the need to provide recreational facilities, like playing fields, became greater.

III. VILLAGE CROP AND LIVESTOCK PRODUCTION

Under the new political structure, the villages were not only made local political units but also were the owners and operators of village land (Ujamaa Shamba) or often called communal plots. One of the basic purposes for the establishment of Ujamaa villages and such Ujamaa Shamba "was the belief that agricultural production could be increased more rapidly under communal cultivation with greater equity. This increased production would occur because of the introduction of new cash crops and new technologies - improved inputs, extension services, and greater mechanization." (Due, 1980).

Therefore the establishment of Ujamaa Villages made the village leaders responsible for farming the communal plots using the labor from the village residents. The village leaders were also responsible for being a catalyst in introducing modern farm practices and increasing the yield from farming.

The Village Agricultural Area and Farm Production

This section broadly observes the utilization of the available village farming area. In addition, it discusses the crops grown, the area of each crop as well as the village farm output, both in terms of volume and value. Wherever necessary, discussion on individual farms has been handled. The analysis of the data showed that the area suitable for agriculture varied from village to village and from district to district. Kilosa district had a relatively more conducive and stable climate for agriculture than either Dodoma or Manyoni. Table 9 shows

the area cultivated in the village Shamba (farm) in Kilosa. It showed a great variation in both the area available and the size of the village farms. The area available for cultivation ranged from as low as 10 hectares and as high as 6,000 hectares per village. On the other hand, the area cultivated in the six villages ranged from 6 hectares to 320 hectares. Two-thirds of the villages had both cultivatable areas and village farms below average size.

Table 9. Agricultural Area of Village Farms in Kilosa District, 1979-80

Village	Total Work Force	Total Area Available	Total Area Cultivated	% of Area Cultivated to area Available	Area Cultivated Per Farmer
		(Hectares)	(Hectares)		(Hectares)
Kitete	1112.0	200.0	16.0	8.0	0.014
Luhembe	1128.0	5200.0	150.0	2.9	0.133
Magole	1070.0	40.0	16.0	40.0	0.015
Mbigiri	554.0	6000.0	320.0	5.3	0.578
Msimba	446.0	28.0	6.4	22.9	0.014
Ndogomi	544.0	10.0	8.0	80.0	0.015
Average	809.0	1013.0	86.1	5.0	0.128

The table also revealed that nearly 95 percent of the cultivatable land was left fallow and only 5 percent was put under cultivation. This was above the recommended agronomical standards, as only one-third of the cultivatable area was regarded as optimum for fallow land. It was possible that villages, with livestock as the predominant source of income, used fallow land for grazing purposes and that the amount of labor time invested in communal farms was still minimal. This was confirmed by the

fact that more than 85 percent of the reporting villages had an average hectareage per work force which is almost 25 percent of the national average. The national average hectareage per farmer is about 0.5 hectare (see also Mudge, et. el., 1980).

As regards to crops grown in the village shamba, nine villages responded showing that a total of about 10 crops were grown. With the exception of one village, the other eight villages produced two or more crops and the production of food crops dominated the village farm economy. The most common food crops in order of their importance were corn, sorghum, rice, beans, including soya beans, bananas and cassava. Corn appeared to be more widely grown than any other crop. In contrast, cash crops were grown only on some village farms. The survey data showed that six villages out of nine grew one or more crops, primarily for market purposes. The cash crops in order of their importance were sunflower, cotton, sugar cane, simsim (sesame), and castor. The production of sunflower and other related oil seeds could be expanded in order to supply the Morogoro vegetable oil mill, which uses oil seeds as its raw material. Average hectareage of some of the crops grown in the surveyed villages appear in Table 10. The figures which appear in parentheses indicate the number of the reporting villages.

From the table it can be seen that corn was the dominant food crop in terms of hectareage for both village and individual farms. The second crop was rice even though sorghum was ranked as the second important crop in the village. In terms of hectareage, sorghum equals beans on the village farms, and rice was the second predominant crop on the individual farms. The mixed crop was not ranked because the crop

proportions were not known. As regards to cash crops, the order was different. Sugar cane appeared first on both village farms and individual farms, followed by cotton. Further, the data showed that less than one-tenth of the total cultivated land was in village farms; an indication that private farm holdings were still the key crop producing areas.

Table 10. Size of Crop Farms in the Villages of Kilosa District

Crop	Average Size		Total (ha/crop)
	Village Fram (ha/crop)	Individual Farm (ha/crop)	
Corn	32.0 (1)	342.2 (4)	1400.8 (5)
Mixed Crop (corn and rice)	310.0 (1)	-	310.0 (1)
Sorghum	3.2 (1)	122.9 (4)	371.1 (4)
Beans	3.2 (1)	143.2 (2)	289.6 (2)
Rice	-	313.3 (3)	939.9 (3)
Bananas	-	244.2 (4)	976.8 (4)
Cassava	-	46.1 (3)	138.3 (3)
Sugar Cane	150.0 (1)	400.0 (1)	550.0 (1)
Cotton	16.0 (1)	109.3 (4)	453.2 (4)
Simsim	-	72.0 (1)	72.0 (1)
Tobacco	-	16.0 (1)	16.0 (1)
Other	-	320.0 (1)	320.0 (1)
Total ha. cultivated	514.4 (5)	5323.3 (5)	5837.7 (6)
% Farm Hectareage to total	8.8	91.2	100.0

In Dodoma, only fourteen villages were studied insted of fifteen because of incomplete information. The data showed that the area available for agricultural purposes in the fourteen villages ranged between 24 hectares and 320 hectares (Table 11). Ther average land available per village was found to be about 175 hectares. The smallest land

Table 11. Agricultural Area of Villages in Dodoma District, 1979-80

Village	Total Work Force	Total Area Available (Hectares)	Total Area Cultivated (Hectares)	% of Area Cultivated To Area Available	Area Cultivated Per Farmer (Hectares)
Humekwa	371.0	24.0	24.0	100.0	0.065
Handali	1498.0	80.0	80.0	100.0	0.053
Nghulugano	2586.0	122.0	122.0	100.0	0.047
Chapanga (B)	616.0	123.0	73.2	59.2	0.119
Chefukulo	478.0	132.0	80.0	60.6	0.167
Makanda	1441.0	152.0	152.0	100.0	0.105
Kisima Chandege	1060.0	160.0	122.4	76.5	0.115
Msisi	817.0	160.0	60.0	37.5	0.073
Lamaiti	707.0	197.0	170.8	86.7	0.242
Zajilsua	870.0	200.0	32.0	16.0	0.037
Mlebe	696.0	220.0	220.0	100.0	0.316
Mpalanga	1293.0	240.0	200.0	83.3	0.155
Msanga	569.0	320.0	160.0	50.0	0.281
Zejele	1476.0	320.0	202.0	63.1	0.137
Average	1034.1	175.0	121.3	73.8	0.137

area cultivated by a village was 24 hectares and the largest was 220 hectares. The average size of a village farm in this sample was about 121 hectares. This means, that over two-thirds or about 70 percent of the area available was under cultivation, and the remaining portion was left fallow. Although less than one-third of the available land area

was technically agreeable with the agronomical standards of leaving land fallow, some precaution should be observed as some villages had no land reserved for fallow. The average area cultivated by each farmer was about one-fourth of the national average.

The most important farm products were food crops. The major ones in order of their importance were: bulrush millet and corn (Table 12). Peanuts were grown for both home consumption and for market. Grapes and castor seeds were also grown in certain villages. Grapes, though not widely grown in all the reporting villages, was a cash crop and flourished well and could be encouraged if the infrastrusture was developed and improved.

Table 12. Size of Crop Farms in the Villages of Dodoma

Crop	Average Size: Village Farm (ha/crop)	Average Size: Individual Farm (ha/crop)	Total (ha/crop)
Corn	200.0 (1)	52.0 (2)	304.0 (2)
Sorghum	125.4 (7)	423.3 (6)	3418.2 (7)
Millet	-	173.7 (3)	521.1 (3)
Simsim	-	30.0 (2)	60.0 (2)
Cassava	-	0.8 (1)	0.8 (1)
Peanuts	-	167.0 (4)	668.0 (4)
Grapes	3.4 (2)	1.4 (2)	9.6 (2)
Castor seeds	-	120.0 (1)	120.0 (1)
Total ha. cultivated	1084.6 (7)	4017.1 (6)	5101.7 (7)
% Farm hectareage to Total	21.3	78.7	100.0

The data in Table 12 also shows that village farms in Dodoma accounted for almost one-fifth of the total area cultivated and concentrated more on corn and less in sorghum. This was the opposite of

the individual farms, where sorghum and millet were prominent. Corn was in third place. In regards to cash crop, grapes appeared to be the only crop grown in the village farms. On the individual farms, peanuts were the major crop followed by castor and grapes, which were pure cash crops (See Rigby, 1969). Peanuts (including bambara nuts = Njugu in Swahili), had a dual role to play. They were consumed at home and also sold for cash earnings.

In Manyoni all the villages reported their agricultural land areas and Table 13 shows that on the average, about one-third of the available area was under cultivation. The average area cultivated by each farmer on the village shamba was very small. It is possible that most of the labor time was utilized on the individual farms.

Table 13. Agricultural Area of Villages in Manyoni District, 1979-80

Village	Total Work Force	Total Area Available	Total Area Cultivated	% of Area Cultivated to Area Available	Area Cultivated Per Farmer
		(Hectares)	(Hectares)		(Hectares)
Gurungu	432.0	40.0	24.0	60.0	0.056
Heka/ Azimio	1766.0	40.0	20.0	50.0	0.011
Igwa Madete	753.0	80.0	20.0	25.0	0.027
Saranda	843.0	40.0	2.0	0.5	0.002
Average	948.5	50.0	16.5	33.9	0.024

Table 14 shows that bulrush millet, followed by sorghum were the predominant crops grown in the district. Both crops share the characteristics of famine produce. Cassava was the most frequently gorwn crop on the village shambas, followed by sorghum. More peanuts were grown than cotton. On the side of cash crops, peanuts registered as the major crop grown. Furthermore, slightly over one-fourth of the total village agricultural area was cultivated communally. Thus, individual farming is still the major occupation.

Table 14. Size of Crop Farms in the Villages of Manyoni District

Crop	Average Size		Total (ha/crop)
	Village Farm (ha/crop)	Individual Farm (ha/crop)	
Sorghum	21.4 (2)	200.0 (1)	242.8 (2)
Millet	-	680.0 (1)	680.0 (1)
Cassava	76.0 (1)	-	76.0 (1)
Peanuts	194.0 (1)	-	194.0 (1)
Cotton	9.2 (1)	-	9.2 (1)
Total ha. cultivated	322.0 (2)	880.0 (1)	1202.0 (2)
% Farm hectareage to Total	26.8	73.2	100.0

Input Use

Use of inputs indicates the level of agricultural development. As agriculture develops, more and more uses of off-farm inputs occur. Furthermore, greater intensity of input use combined with improved cultural practices results in higher output while less input use, lower quality seeds and poor cultural practices all contribute to low levels of output.

(a) Seed - Generally, farmers relied on themselves for seed. After harvest, they first selected the best seed for next season's planting purpose and used the rest for marketing. Lack of commerical seed

farms and inadequate and poor source of seed have forced them to rely on themselves for timely availability and assurance of an adequate supply of seeds.

So far as the sources of seed are concerned, nearly 40 percent of the twenty-eight villages used last year's crop for current year seed (Table 15). Slightly more than one-third of the villages depended on parastatal sources such as the Cotton Authority, the National Milling Corporation, the Tanzania Rural Development Bank, and the District Agricultural Office of the Ministry of Agriculture, in obtaining seeds. About 18 percent depended upon their own supply as well as on the parastatals. Only about 7 percent relied heavily on seed bought from farmers either in the same village or from other villages.

Table 15. Sources of Seed

District	Last Year's Crop Only		Parastatal only		Parastatal only		Other		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Kilosa	6	67	2	22	1	11	-	-	9	100
Dodoma	3	20	6	40	4	27	2	13	15	100
Manyoni	2	50	2	50	-	-	-	-	4	100
Total	11	39%	10	36%	5	18%	2	7%	28	100%

In Kilosa, two-thirds of the villages relied on their own seed and the remaining villages used parastatals only, or a combination of both sources. In Manyoni, two villages each depended upon their own crop and parastatals. Farmers in Dodoma used several sources - 40 percent obtained their seeds from parastaltals, 20 percent relied on their own

crops, 27 percent used both those sources. The remaining 13 percent bought seeds from others in the village and outside the village.

(b) Fertilizer Use - None of the sampled villages had used any chemical fertilizers. Farm manure was the only fertilizer that was applied for sorghums, millet, corn and sunflower. The village reported that the use of such manure fertilizer was for the purpose of obtaining greater output and was sometimes applied on the basis of Bwana Shamba's advice. The manure for the farms were obtained either from the farmer's own farmyard or others in the village.

Nearly all of the villages reporting regarded the supply of manure fertilizer adequate to meet the need. Only two villages out of 11 in Dodoma and only one of eleven villages in Kilosa felt that the supply was inadequate.

Availability of fertilizer on time is equally significant, as it will have less value if applied too late. Nearly 22 percent of the villages in Dodoma and Manyoni felt that the manure was not available at the right time. All three villages in Manyoni and seven out of ten villages in Dodoma reported that the manure supply was on time. Since the supply was coming from the collection of manure from village farms or nearby farms, the timeliness would surely depend more on the farmers own effort in locating and picking it up than any other market forces.

Those villages that did not use fertilizer indicated that either it was not available or cost too much or that it would not increase the output.

(c) Irrigation - In dry land irrigation becomes more important for increased output. However, the actual use will depend upon the

availability of the irrigation water, cost and preferences of the users. The traditional system is to rely heavily on nature, as this is an easier and cheaper source.

Irrigation in Tanzania is not common except perhaps on some large scale commercialized farming. But in this survey, none of the villages reported of having irrigated their land.

Lack of a suitable source of irrigation water was the main reason for not using irrigation for 75 percent of the 16 villages reporting (Table 16). None of them had a lack of interest while one village in Kilosa indicated a lack of knowledge as the main factor for not irrigating. Three villages did not irrigate because the cost of irrigation was to high.

In Kilosa, two of the four villages had no suitable source, one lacked the knowledge and the remaining one regarded irrigation as too costly . Inadequate water supply was the major factor for not irrigating land in all eight villages in Dodoma. While in Manyoni, two villages lacked an adequate water supply and two other villages did not irrigate because of the high cost of obtaining water.

Table 16. Reason for Not Using Irrigation

District	Lack of Suitable Source		Lack of Interest	Lack of Knowledge		Higher Cost		Total	
	No.	%	No	No.	%	No.	%	No.	%
Kilosa	2	50	-	1	25	1	25	4	100
Dodoma	8	100	-	-	-	-	-	8	100
Manyoni	2	50	-	-	-	2	50	4	100
Total	12	75	-	1	6	3	19	16	100

The limited use of irrigation in all the villages could be accounted for by the lack of rivers or other water sources. In the Bahi Swamp area, flood water was used in growing rice, however, most of the leaders pointed out that the areas were dry and there was no water, especially during the dry season.

(d) Insecticides - Loss of crops because of disease, insects, birds, rats, and other animals has always been a major problem to all farmers. They have used bird and animal scaring devices until the science developed chemical protective devices as fungicides, insecticides and so on. Several of the villages reported using insecticides to control pests in cotton, grapes, and sorghum crops. Nearly 50 percent of the villages used DDT as the main insect repellant (Table 17). Many villages used a combination of chemicals such as didimac, spersual, cooper sandoz, keuskin, peronox, killpest, M-45 dimecon, alandum, enlosulfon and Thiodan.

Table 17. Use and Frequency of Insecticides in Crops by Village

District	Insecticides				Crops					Frequency	
	DDT	Didimac	Other	Total	Cotton	Grape	Sorghum	Other	Total	1-4	6-8
Kilosa	3	-	1	4	4	-	-	-	-	-	4
Dodoma	1	1	10	12	-	4	4	3	11	5	1
Manyoni	2	1	-	3	-	-	2	3	5	3	-
Total	6	2	11	19	4	4	6	6	20	8	5

Out of the twelve villages reporting, six villages used insecticides on sorghum and four villages each on cotton and grapes. Six of the villages used insecticides for corn, millet, cowpeas in addition to either sorghum or grapes.

Frequency of sprays per season varied between two for sorghum, corn, and millet to eight for cotton. In Kilosa, three of the four villages used DDT and remaining one used Thiodan, spraying six to eight times per season on cotton only. In Manyoni two villages used DDT and one used didimac, spraying two times per season on sorghums, corn, millet, and cowpeas. Several types of insecticides were used in five villages in Dodoma in addition to DDT and didimac. Generally, they used four sprays or less per season on grapes, sorghums, millet, corn and other grain crops.

The decision to spray insectides was based upon the advice from Bwana Shamba and the farmer's own judgement. There seemed to be no consistency in application as insecticides were applied when insects were noticed or flowers bloomed or when plants were 2 to 5 inches tall or when plants were one week old to 4 months old.

The reasons for applying insecticides were basically to destroy insects or to prevent plant damages from insects, and to increase the production. The insecticides were supplied by the District Agricultural Center in all three villages in Manyoni, four villages in Dodoma, and one in Kilosa. The Cotton Authority supplied in three villages in Kilosa and the Tanzania Rural Development Bank in one village in Dodoma. The only two alternate sources reported in Dodoma were the Agricultural Department and the Regional Trading Company.

Supplies of spraying equipment were from the same sources that supplied insecticides. Except for two villages, one each in Dodoma and Manyoni, all of the four villages in Kilosa, six villages in Dodoma and two villages in Manyoni considered that the quantity of insecticides available to be adequate (Table 18). Likewise all villages, except for one in Manyoni, felt that insecticides were available on time.

Table 18. Adequacy and Timeliness of the Availability of Insecticides and Spray

District	Insecticides				Sprayers		Spares, Batteries	
	Availability		Timeliness				Timeliness	
	Adequate	Inadequate	Yes	No	Adequate	Inadequate	Yes	No
Kilosa	4	-	4	-	3	1	3	1
Dodoma	6	1	7	-	3	2	2	3
Manyoni	2	1	2	1	2	1	2	1
Total	12	2	13	1	8	4	7	5

So far as the adequacy of spraying equipment is concerned, only four out of the twelve villages, i.e., 33 percent, felt it inadequate, whereas, four-fifths of the villages felt that spraying equipment was available on time.

Among the factors that farmers were somewhat concerned with were the high cost of insecticides, lack of knowledge in proper use and the poisonous nature of chemicals used as insecticides.

(e) Weed Control - Manual labor is prevalent in controlling weed for all crops as 80 percent of the villages in all three districts did not use animal or tractor driven equipment. Only 5 villages in Kilosa and Dodoma used some form of animal and tractor drawn equipment for

weed control.

Except for two villages, one each in Kilosa and Dodoma, all nineteen villages - six in Kilosa, ten in Dodoma, and three in Manyoni - used no herbicide on any of the crops. Those who did use herbicides, it was for controlling weeds in grapes.

Farmers decisions to weed depended largely on the need more than on any specific pattern, when it came time to weed the field.

(f) Other Crop Protection System - (i) Fungicide. Except for using insecticides none of the villages used fungicide to protect the crop. Use of many of the modern inputs to protect crop was still limited due to lack of availability, and the lack of knowledge and also because of the higher costs of obtaining the materials. (ii) Use of Bird Scaring Devices. Indigenous methods of crop protection, howsoever crude they may be, are still predominant as these devices are reasonably effective - very cheap and easier to use. Table 19 shows that 17 of the 21 villages, i.e., 81 percent used bird scarring device for portecting sorghum crops followed by millet, rice, grapes, sunflower and peanuts. (iii) Use of Animal Scaring Devices. Farms located especially near the bush and forest face damages from animals in addition to other sources. Monkeys, rats, wild pigs, and elephants were the major threats to farmers' crops. To reduce the destruction by these animals farmers either guarded the crops or used some other deterrants such as setting up traps or even using guns. Table 20 presents the use of these devices for protecting the crops in all three districts.

Table 19. Number of Villages Using Bird Scaring Devices for Protecting Crops*

District	Sorghums	Millet	Rice	Others
Kilosa	5	1	4	1
Dodoma	10	5	-	3
Manyoni	2	2	-	1
Total	17	8	4	5

*Exceeds 21 because of multiple selection.

Table 20. Number of Villages Using Animal Scaring Devices for Protecting Crops*

District	Sorghum	Corn	Rice	Cassava	Others
Kilosa	3	5	4	2	2
Dodoma	3	4	-	2	7
Manyoni	-	2	-	2	4
Total	6	11	4	6	13

*Exceeds 17 because of multiple selection.

Animal scaring devices were used in eleven (11) villages out of 17 for protecting corn, six villages used these devices for both sorghum and cassava, and only 4 villages in Kilosa used them for protecting rice (Table 20). Other crops protected were grapes, sugar cane, cotton, millet, peanuts and sweet potatoes.

Land Use

Most of the villages did not report their communal land use; thus it is not easy to generalize. In Kilosa, village farms grew sorghum,

sugar cane, corn, rice, cassava, beans, cotton and peanuts. Except sugar cane, the average hectares planted for six major crops amounted to 785 (See Table 21).

Table 21. Land Use by Crop

District	Number of Villages	Crop	Planted Area
			(Hectares)
Kilosa	2	Sorghum	62.8
	1	Surgar cane	-
	2	Corn	407.9
	2	Rice	45.6
		Cassava	101.2
		Beans	20.3
	3	Cotton	134.4
		Average	128.8
Dodoma	10	Sorghum	127.2
		Millet	-
	1	Corn	202.4
	1	Cotton	133.6
	1	Peanuts	8.1
	3	Grapes	5.7
		Average	95.6
Manyoni		Sorghum	14.2
	1	Millet	2.0
		Corn	-
	1	Cotton	9.3
	1	Peanuts	
		Average	8.5

In Dodoma, sorghum, millet, corn, cotton, peanuts and grapes were grown on the village farm. The average hectarage planted was about 96 hectares. While in Manyoni sorghum millet, corn, cotton and peanuts were grown in smaller amounts. Average size for three of the crops reported amounted to 9 hectares. Both sorghum and corn were grown, but

corn was the most important crop in all three districts.

Several factors affect the usage of land the growing of crops. These factors are climate, soil condition, customs, the price of crops and the dietary preference of the people. In general, farmers followed the mixed cropping pattern as "it is rare to see any considerable part of a clearing planted with a single crop (for) it enables the maximum returns to be obtained for the minimum effort" (Webster and Wilson, 1968). However, the village farms in all three districts did not follow this practice. Most of the farmers grew crops separately, as only 26 percent of the 27 villages had intercropping or mixed farming.

Farming Equipment

The type and nature of farming equipment indicate the use of capital in modernizing the farming operation. Traditional agriculture is characterized by the use of hand operated tools and low productivity. In contrast in advanced agriculture, like that of the U.S., farmers own large number of tractors and almost all mechanized tools and machinery. Many of these mechanized tools are labor saving devices and assit farmers in managing large operation and in increasing productivity. However, in Tanzania agriculture is to a large extent operated on a small scale basis and is characterized by intensive use of labor. Capital is scare and capital equipment is sparse.

There are basically three types of equipment used in agriculture:

(a) Small tools and equipment such as spades, sickles, axes, hoes etc. which are manually operated and restrict farmers to cultivating no more than a few hectares because of the requirement of most physical effort.

(b) Animal drawn equipment such as horses - or bullock-drawn hoe, bullock-cart, etc., are better than manually operated equipment since they

enable farmers to increase cultivation and relieve them from some of the hard work of farming.

(c) Mechanical equipment such as tractors, combines, harvestors, and so on are powered by internal combustion engines, are automated and require very little physical effort. This equipment allows farmers to operate more hectares and free himself from most physical effort.

Farmers use equipment in land preparation, planting, weeding, harvesting of crops as well as for transportation.

The majority of the village farms in Tanzania still depend heavily on small tools and equipment despite some improvements in mechanization. There were 16 tractors in seven villages, compared to two years back when there were 13 tractors (Table 22). Dodoma had 63 percent of the tractor followed by Manyoni with 3 percent and Kilosa with only 6 percent. However, most of these tractors could be on a few large plantations.

Table 22. Number of Tractors Available with Plow

Districts	No. of Village	Currently	Average	Two Yrs. Ago	Average
Kilosa	1	1	1	-	-
Dodoma	4	10	2.5	8	2
Manyoni	2	5	2.5	5	2.5
Total	7	16	2.3	13	1.9

There was very little mechanization in any of the farming activities such as land preparation, planting, cultivation and crop harvesting. Therefore, the major source of power for all of the village farming

activities was manual labor using small equipment and tools. Of those village attempting to increase the degree of mechanization, tractor and oxen powered equipment were used basically for plowing purpose only. None were used in crop harvesting.

In land preparation, use of tractors and oxen was not as significant as use of manual labor despite 32 percent of the reporting 25 villages used tractors or oxen or a combination of both (Table 23). Twelve percent of the villages used only tractors and the same percent used oxen only. About 8 percent of the village used a combination of tractor and oxen.

In Kilosa, only one village used a combination of both oxen and tractors to plow land for sorghum, corn, millet and peanuts. In Manyoni only one village used a combination of both oxen and tractors to plow land for sorghum, corn, millet, and peanuts. Three villages in Dodoma used oxen only. Two of the villages used only tractors, and one used a combination of tractors and oxen for sorghums and corn.

Therefore, manual labor is the predominant source of power in all districts for plowing, harrowing, sowing, disking, and ridging of all crops.

Table 23. Use of Tractors and Oxen for Land Preparation

District	Tractor only		Tractor & Oxen		Oxen Only		Hand Only		Total
	No.	%	No.	%	No.	%	No.	%	
Kilosa	1	11	-	-	-	-	8	31	9
Dodoma	2	17	1	8	3	25	6	50	12
Manyoni	2	-	1	25	-	-	3	75	4
Total	3	12	2	8	3	12	17	68	25

The use of animals as a source of power is not widespred in the Central Zone of Tanzania. Oxen and cattle are used little other than as a source milk and a store of wealth. None of the villages in Kilosa reported any use of animals (most did not have animals) and no animal drawn equipment. Limited use of animals was found in Dodoma and Manyoni. Most of the animals used in work were donkeys - primarily for hauling and transporting goods. Four villages reported the presence of carts in Dodoma, and five reported plows. With one exception, all of these items were owned by the village (Table 24). Although there was an increase of carts and plows during the two-year period, all of the increase occurred in one village.

Two village in Manyoni reported having carts, and one village reported having plows. However, a larger proportion were privately owned as compared to Dodoma. The number of carts and plows has remained virtually stable over the two year period.

Table 24. Animal Drawn Farm Implements by District

Type of Implementing	DISTRICTS						Total
	Kilosa		Dodoma		Manyoni		
	No.	%	No.	%	No.	%	
a) carts:	-	-	16	57	12	43	28
Private	-	-	-	-	5	100	5
Village	-	-	16	70	7	30	23
around 2 yrs ago	-	-	6	50	6	50	12
b) Ploughs:	-	-	51	84	9	16	61
Private	-	-	50	91	5	9	55
around 2 yrs ago	-	-	41	82	9	18	50

No other animal drawn equipment was reported in the three districts. Most of the farm activities are carried out by hand, using hoes, axes, and other hand tools.

The use of other equipment is extremely limited. Only one villages in the survey reported having a combine harvester - that village was in Kilosa. However, they reported 2,200, a very unlikely number, and should be disregarded.

Equipment is not manufactured locally. Only one village (in Manyoni) reported the manufacture of hand tools - axes, hatches, and bushknives, and hoes. Most are purchased through privately owned shops or the Regional Trading Corporation.

All of the equipment listed above and others, e.g. corrugated iron sheets, were usually purchased through the Regional Trading Corporation (RTC). The primary problem with the RTC appeared to be a shortage of equipment, as nine of twelve villages reported the tools were rarely available, or not easily obtained. Two of the villages reported problems in distribution (which may relate to supply), and one reported a lack of money. One implication is that there exists sufficient money to buy a simple hand tools if a source was available. Credit programs for hand tools appeared to be unnecessary. Whether or not there was enough funds for the purchase of other inputs could not be determined from this survey.

Other machinery (shellers, mills, oil presses, etc.) were not present in Kilosa and Manyoni. Only two villages in Dodoma reported one sheller, and one mill (other than maize) each. There was one village in Dodoma which reported a water machine. Therefore, virtually all harvesting, thrasing, shelling, and grading had to be done by hand in all villages.

Facilities that were needed to maintain the existing implements were very inadequate. Only two villages surveyed, one each in Dodoma and Manyoni, reported adequate facilities. Three villages reported that repairs could be made in nearby villages.

Eleven villages reported that there were no local repair facilities or nearby repair facilities. Thus in some villages when equipment may have been available, it could not be used because of the lack of maintenance. Clearly, a program involving the adoption of machinery will have to include provision for spare parts as well as maintenance.

Sources of Information

Improvement in farming practices requires that farmers use better inputs and improved cultural practices. This is possible if farmers are well educated and willing to adopt new technology. Otherwise outside forces will have to convince the farmers through demonstration, extension education and regular assistance.

The extension service handles most of these activities and in many cases is the only source of information for farmers who are either less educated or who cannot keep up with develpments in agriculture. Extension agents provide advice, assist farmers in introducing new varities of crops and educate farmers.

In general, extension agents from parastalals as well as Bwana Shamba agents visited about 5.6 times per year in the three districts to give technical advice, to educate farmers, encourage agricultural production, to demonstrate grape propogation, to assess purchasing programs and to report on the time of sales. Manyoni had the highest visit ratio of 12.25 times per year ranging between one to 36 visits per

village. Immediately following it was Dodoma with 2.33 visits. Such visits varied between one to 5 per village. In Kilosa, visits ranged between 0.5 to 4 with an average of 2.25 visits per year. None of the villages reported any visits by ward division Bwana Shamba. The overall evaluation of visits by extenson agents indicated that the majority of the farmers were receiving good advice. Out of 20 villages reporting, 60 percent evaluated visits by extension agents as helpful and receiving good advice. Fifteen percent each felt the advice was either sometimes useful or seldom useful. Two villages reported not receiving any advice and none of the villages regarded advice not being useful.

Many times extension agents give verbal advice, combined illustration using brochures, and even demonstrations. What form of service they used would determine how effectively their advices was implemented. Verbal advice has a low rate of retention and may be useful for curing small problems. Complex problems and preventive practices require more than just verbal advice.

Nearly two-thirds of the villages received only verbal advice (Table 25). The remaining 5 villages received verbal advice with leaflets and 3 villages received written information together with verbal advice.

Table 25. Methods of Advisement

District	Verbal Only		Verbal and Leaflets		Verbal and Written Information		Total
	No.	%	No.	%	No.	%	
Kilosa	4	57	3	43	-	-	7
Dodoma	8	80	1	10	1	10	10
Manyoni	1	25	1	25	2	50	4
Total	13	62	5	24	3	14	21

The villages in Dodoma received mostly verbal advice. Only two villages received verbal advice combined with leaflets and written information. Manyoni had a better situation as 2 villages received verbal as well as written information while one village received verbal advice only and the other one received both verbal advice and leaflets. No villages in Kilosa reported receiving any written information with verbal advice. There, four villages received only verbal advice and the remaining three received leaflets as well.

Evaluation of leaflets and written information indicated that out of nine villages, five felt it was helpful; two thought that the information related only to crops grown in the village and the remaining villages felt that it related to other than the crops they were interested in growing.

In addition to the advice of extension agents, eight villages reported receiving information from other sources. Three villages in Kilosa obtained information from district meetings. In Dodoma, three villages indicated the village and district meetings were sources of information. Only one village in Manyoni got information from radio programs and another got it through the Ministry of Agriculture.

Marketing

This section looks at the marketing of crops produced by the villages. First it looks at the marketing organizations involved in moving goods to the consumer. Next, the marketing functions are evaluated, followed by the estimation of actual sales and income of the village farms.

a) Marketing Organizations. The institutions and organizations that were involved in moving goods to the market could be grouped as -

(i) Village: The village organization that was reponsibile for managing the communal plots was also responsible for marketing of the produce. Such selling occurred in the open market and often times the village had to transport the goods to those markets.

(ii) Parastatals: Agencies such as the Regional Trading Corporation, the National Milling Corporation, the Cotton Authority of Tanzania and others engaged in buying produce from the village farms. These agencies are semi-government or autonomous, but publicly funded and are responsible for nationally marketing goods. Because of their large resources, equipment and manpower, these agencies can collect produce from scattered production areas and transport it to either the processing centers or the main markets.

In general, most of the perishables and a small proportion of those produce that do not need processing was sold in the open market.

Of the four major crops sold, parastatals accounted for nearly 58 percent of the sales. All the sorghum crop in Manyoni was sold to parastatals while only 41 percent of the sorghum was sold to them in Kilosa (Table 26). Dodoma sold 40 percent of its sorghum output to parastatals and the rest in the open market.

Table 26. Sales In Open Market and to Parastatals (in Percentage)

District	Sorghum		Corn		Millet		Grapes	
	Open Market	Para-statal	Open Market	Para-statal	Open Market	Para-statal	Open Market	Para-statal
Kilosa	58.7	41.3	68.3	31.7	100.0	-	100.0	-
Dodoma	60.0	40.0	100.0	-	100.0	-	17.0	83.0
Manyoni	-	100.0	50.0	50.0	50.0	50.0	100.0	-
Average	40	60	73	27	83	17	72	28

In Manyoni, both corn and millet crops were sold equally in the open market and to parastatals. Kilosa farmers sold 31 percent of their corn to parastatals. About 83 percent of grapes in Dodoma was sold to parastatals, most of which was used in wine production. Other crops sold to parastatals were beans, peanuts, sunflower, sim sims, black khaki, ranging from 37 percent to 100 percent of the crops.

b) Marketing Functions include all of the activities that are involved in moving goods from the production area to the final market.

(i) Exchange Functions: Buying selling and price determination constitute the exchange function. In general, farm produce is either brought to the market to sell to the consumers or taken to some central location for further processing and consolidation to larger load. And price is determined based upon the demand for and supply of the commodity.

In evaluating this function in the marketing of village production it was observed that buying and selling occurred at two distinct places. First was the open market where produce was sold in stalls located

in the center of town. Second was the central collection points for selling to parastatals. Here village produce was brought in and sold on credit. These parastatals then trucked the produce to their plants for further processing.

Pricing in Tanzania is regulated by the government and the parastatals pay the announced price. However, the price in the open market is uncontrolled and left up to the seller.

It has been pointed out that high support prices generally encouarge excess production and farmers have less incentive to increase production if the support prices are low. Similarly, high prices in the open market encourage farmers to increase production and vice versa. Village leaders were asked to indicate if the prices they were receiving were excessive or low and if they were satisfied. Evaluation of the prices received at the open market was equally divided between those who were satisfied and those who were not. However, nearly nine-tenths of the 26 villages reporting, regard the prices paid by parastatals as being lower than what they should be (Table 27). Only one village in Dodoma felt prices were high and two villages, one each in Dodoma and Manyoni, considered the prices as normal.

Table 27. Level of Prices Paid by Parastatals & Evaluation of the System

	Prices Paid by Parastatals			Satisfied with the Price				
District	Too High	Normal	Too Low	Yes	%	No	%	Total
Kilosa	-	-	7	1	14	6	86	7
Dodoma	1	1	13	5	33	10	67	15
Manyoni	-	1	3	2	50	2	50	4
Total	1	2	23	8		18		26
Percentage	4	8	88		31		69	100

In regard to farmer's evaluation of prices received 70 percent of the villages are dissatisfied with what they are getting (See Table 27). Six out of seven villages in Kilosa were not satisfied with the prices paid to them. Likewise 10 out of 15 villages in Dodoma were dissatisfied while only 2 out of 4 in Manyoni were unhappy with prices received for their crops.

In a less developed economy cash sales are more common than credit sales. In Tanzania, 78 percent of the 27 villages sold on cash basis only and the remainder on credit primarly to parastatals (Table 28). In Manyoni all of the farmers sold on cash basis, while in Kilosa half sold on credit and the other half on a cash basis only! In Dodoma 13 out of the 15 villages reported using cash as the method of payment.

Table 28. Methods of Payment and Timeless of Payment

	Methods of Payment		Timeliness					
District	Cash	Credit	Yes	%	No	%	Total	%
Kilosa	4	4	1	12	7	88	8	30
Dodoma	13	2	11	73	4	27	15	56
Manyoni	4	-	3	75	1	25	4	15
Total	21	6	15		12		27	
Percentage	78	22		56		44		100

Slightly over half of the 27 villages indicated that payment by the parastatals was timely. Most of the villages in Kilosa did not find the payment timely, while 3 of 4 in Manyoni found it on time. In Dodoma only 4 out of 11 regarded the payment not timely.

Credit sales may not be appealing to farmers, as the payment is slow, sometimes taking as long as a year.

(ii) Physical Functions: constitute transportation, storage and processing of produce. Each of the e activities is essential to increase the utility of produce by making it available at the right place, the right time and the right form.

Transportation is a very critical factor to farmers as moving goods from the farm to the market becomes the hardest activity once the produce is harvested. Farmers have to carry their produce either to the market or to some collection points. For those who sold in the open market, produce had to be taken to the market and the distance as well as means of transportation were critically important. The average distance for the nearest market was about 2.8 kilometers and for the farthest market 12.2 kilometers. Of the four villages reporting in Kilosa, average distance was 2.9 kilometers and 10.4 kilometers for the nearest and farthest market respectfully. In Manyoni, none of the villages reported the distance to the nearest market but one village indicated 9.6 kilometers as being the farthest market. In Dodoma, four villages reported the distance amounting to 2.8 kilometers as to the nearest market and 15.5 kilometers as the farthest market.

Over a third of the 11 villages used heads in carrying their goods to the market (Table 29). Three villages each used either truck or a combination of bicycles and head to carry produce in the market.

Table 29. Methods of Transporting Goods to the Market

District	Carrying on Head		Carrying on Head & On Bicycle		Truck		Carrying on Head & On Animal		Total
	No	%	No	%	No	%	No	%	
Kilosa	2	33	3	50	1	17	-	-	6
Dodoma	1	25	-	-	2	50	1	25	4
Manyoni	1	100	-	-	-	-	-	-	1
Total	4	36	3	27	3	27	1	9	11

In Tanzania, parastatals also collected produce from the farmers. But the farmer had to take the produce to the buying or collection points. The average distance to these points was 17.4 kilometers. Farmers in Kilosa had the longest trip, 36.6 kilometers with a range of 2 to 88 kilometers. In Dodoma the average distance to parastatals was about 11.9 kilometers ranging from a low of 0.4 kilometer to a high of 52 kilometers. The distance ranged between 0.8 to 19.2 kilometers in Manyoni with an average distance of 6.9 kilometers.

Four-fifths of the 20 villages reporting felt the collection by parastatals were timely (Table 30). In Manyoni all three villages reported that parastatals collected produce on time. While in Dodoma 8 out of 11, and in Kilosa 5 out of 6 felt the same.

Table 30. Timeliness of Crop Collection

District	Yes		No		Total
	Number	%	Number	%	
Kilosa	5	83	1	17	6
Dodoma	8	73	3	27	11
Manyoni	3	100	-	-	3
Total	16	80	4	20	20

Traditionally storage of crops has been a serious problem in many developing countries and Tanzania is no exception. Lack of adequate storage facilities forces farmers to sell most of their output immediately after harvest. However, farmers could store some nonperishable items, like grains, on their own farm or in village storage facilities. In Tanzania, it seems grains were stored at farms as well as in the villages.

The average storage capacity at the farm level in all three districts totaled 388 bags and that of villages amounted to 3,827 bags (Table 31).

In Manyoni only two villages reported having farm storage, a capacity of between 6 to 15 bags, and the same two villages had village storage capacity of about 175 bags.

In Kilosa, farm storage capacity ranging from 10 to 1000 bags were reported by five villages with an average capacity of 214 bags. The village average capacity was 1,012 for two villages with a range of 25 to 2000 bags. In contrast, five villages in Dodoma reported having a 2,640 bags capacity with a range of 50 to 2000 bags. The average farm capacity was only 163 bags for four villages with a range between 50 to 350 bags.

Table 31. Average Storage Capacity at Farms and Villages

District	At Farms	No. of village Reporting	In Villages	No. of village Reporting
	(Bags)		(Bags)	
Kilosa	214	5	1,012	2
Dodoma	163	4	2,640	5
Manyoni	11	2	175	2
Total	388	11	3,827	9
Ave./per village	35.27 bags		425.22 bags	

Most of the villages did not report the distance to the nearest storage place if village storage was not available. The three that reported indicated a distance of between one and 6.4 kilometers from their farms.

Lack of adequate storage facility was mainly due to the problems in construction. Basic materials for construction were hard to obtain and when available were expensive. The majority of the farmers in all villages obtained wood from the forest to build their storage house, however some got assistance from the cooperative societies and the Regional Trading Corporation. Lack of cement was cited by one village leader as the problem in construction. In addition to the high cost of cement, corrugated iron sheets used for roofing materials were hard to find and very expensive. The cost of building farm storage facilities was as high as 300 shillings while the village storage ran between 3,800 to 8,000 shillings. Finally the protection of crops during storage was very minimal as only six of the villages in the three districts utilized insecticides, i.e., DDT, to spray the storage bins to control pests. The remaining village did not fumigate the storage bins.

(iii) Facilitative Functions: Grading, financing, risk bearing and market information constitute the facilitative functions. The questionnaire did not specifically address any of these functions, however a general observation is presented here.

There was no standardization of produce. Very little credit had been used by the village farms. The Tanzania Rural Development Bank did provide loans to increase the production, but widespread use has not occurred. Likewise, except for the extension agents' advice, no market

information was provided to the farmers.

Finally, risk was borne solely by the village farmers until sold, either to the final consumer or to the parastatals. In this connection, however, farmers felt facing greater risks because of long distance to the market, the high cost of transportation, the delays in collection and transportation, also delays in the delivery to the parastatals (long waiting until purchasing officer weighed and accepted the produce), poor storage facility, and the lack of verification of the delivered quantity (farmers were excluded when produce was weighed).

c) Sales and Income: In regards to sales, most of the crops marketed were food crops (see Tables 32 and 34). Sales values have been computed for those villages which did not give the cash earnings from crops sold. The government announced prices have been used for calculations (See URT: Price Policy, 1982-82).

Table 32. Crop Sales from Vilage Farms of Dodoma District, 1979-80

Crop	Total Volume ('000 Tons)	Total Sales ('000 Tons)	Price per Ton (U.S.$)
Sorghum	361.8	994.0	339.19
Bulrush-millet	25.2	28.0	137.17
Corn	14.4	26.0	222.91
Peanuts	24.0	41.0	210.90
Grapes	31.0	147.7	588.21

Table 32 shows that in Dodoma sorghum was important for both food and market purposes. As a crop which flourishes all over Dodoma, more emphasis on sorghum could guarantee the supply of food grains

to this frequently drought stricken region. However, grapes seemed to be the most lucrative crop. Village farms which produced grapes received about four times the prices received for bulrush millet, two and a half times that of corn and peanuts and more than one and a half times that of sorghum. At the time of this report, it was not yet certain why villagers earned less per ton of peanuts when the official price of peanuts was higher than that of grapes. A more detailed study of the ecological patterns found in different villages could determine villages which are more suitable for the production of grapes. The crop could easily turn into a lucrative enterprise for many farmers. This observation is supported by examining incomes of the villages (see Table 33).

Table 33. Village Farm Incomes in Dodoma District, 1979-80

Name of Village	Work Force	Value of Sales (U.S.$)	Cash Income per Farmer (US $)
Chifukulo	478.0	725.93	1.52
Handali	1,498.0	88,135.19	58.84
Kesima Chandege	1,060.0	2,932.10	2.77
Lamaiti	707.0	17,082.59	24.16
Mlebe	696.0	18,876.54	27.06
Mpalanga	1,293.0	755.56	0.58
Msanga	569.0	5,111.11	8.99
Msisi	817.0	10,444.44	12.78
Nahulugamo	2,586.0	10,740.74	4.15
Zajilsua	870.0	740.74	0.85
Mean	1,057.4	15,554.49	14.17

In Dodoma, two-thirds of the villages sampled sold their produce during the 1979-80 crop season and there was a big variation of returns to these village communal farms. About 70 percent of the villages had incomes below the calculated average (see Table 33 above). However,

farmers in one of the villages managed to earn more than $58.54 or sh. 477[1], which was the average income of the farmers in the central zone, accrued from major food crops (see also AID, Tanzania 1980). The income was earned mainly from sorghum, grapes, millets, peanuts, and corn.

In Kilosa, information on sales was not very satisfactory. However, the most commonly sold crops from village farms were those shown in Table 34.

Table 34. Crop Sales from Village Farms of Kilosa District, 1979-80

Crop	Total Volume ('000 Tons)	Total Sales ('000 Tons	Price Per Ton (US $)
Corn	50.0	50.0	123.46
Beans	48.6	170.0	431.85
Rice	0.7	1.0	176.42
Sugar Cane	1,500.0	126.0	10.37
Cotton	37.3	112.1	741.36

It shows that the production of beans as a food crop appeared to be more lucrative than that of rice and corn. This crop, which was among the most important crops in the district, could be encouraged to serve both as a source of protein and farmers' cash incomes. Such an emphasis would help to minimize the plague of malnutrition and low incomes in rural ares. On the other hand, farmers' earnings from a ton of cotton was 35 times higher than that of sugar cane. Depending on the village location, ecology, and weather, there is a potential for growing cotton in the villages.

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[1] Exchange rate at the time was US$1 = shillings 8.1.

Table 35 reveals that farmers' incomes from communal farms varied greatly. Nevertheless, this did not present the absolute economic situation of the villagers. It was possible, that some of the villagers, who earned less from the village farms were compensated by the earnings from the individual farms.

In Manyoni, information on village sales was inadequate. Only one village reported a sale of 0.45 tons of sorghum and 0.9 tons of peanuts valued at $44.44 and $147.78 respectively for the two crops. This amounted to a very low cash income of $0.23 per farmer.

Table 35. Village Farm Incomes in Kilosa District, 1979-80

Name of Village	Work Force	Value of Sales (US $)	Cash Income Per Farmer (US $)
Kitange	840.0	617.04	0.73
Luhembe	1,128.0	15,555.56	13.79
Magole	1,070.0	120.99	0.11
Mbigiri	554.0	125.06	0.22
Msoluia	503.0	40,268.52	80.06
Mean	819.0	11,343.60	18.99

Livestock Management

Vaccination

Vaccines were used on animals in many of the village, primarily for disease control. Most of the vaccination were made twice a year - in January and February, and August and September. Only two villages in Kilosa reported vaccination of cattle, one reported vaccination of goats. No pigs or chickens were reported to be vaccinated. Although only a few villages reported these practices, the result was not surprising since very few villages hold livestock in Kilosa.

Six of the villages in Dodoma reported vaccination of cattle, sheep and goats. One of the villages reported annual vaccinations. The other villages reported bi-annual vaccinations. Chickens were not vaccinated. All of the villages in Manyoni reported vaccinations of cattle, three reported vaccination of sheep and goats, while two reported-vaccinations of chickens. One village reported monthly vaccinations, the other were bi-annual; generally in January and February, and August and September.

The use of vaccinations was an encouraging sign in these villages. This showed that villages are concerned about health of their animals and are taking steps to ensure that minimal protection is given.

Animal Disease and Parasites

There were many diseases that affected animals in the central zone. The ones most prevalent in Kilosa were east coast fever, anthroax, foot and mouth disease, bruccellosis, black quartes fever, typanosomiasis, and liver disease. These same diseases were reported in the other two

districts in addition to rabies. Some villages also reported worms and ticks as a problem. In addition to vaccination for control of disease, one village in Manyoni reported burying dead animal to control ticks and disease.

Cattle dips (small ponds) in Kilosa and Manyoni were very reasonably close - about three to five kilometers from the villages. None of the villages in these two districts reported dips exceeding eight kilometers, more than twice the distance of the other districts. Three of eight villages reported distances of thirteen to twenty-four kilometers, the other five reported distance of eight kilometers or less. As might be expected the frequency of use was inversely related to the distance. Farmers in Kilosa and Manyoni used the dips weekly while in Dodoma they used dips two to three times per month.

Problems in using the dips also varied by district. Farmers in Kilosa and Manyoni felt the dip was not open enough days. Farmers in Dodoma were more concerned about the shortage of water and the distances to the dips. In all but one village, no charges or fees were paid for the use of dips.

Many of the villages used a veterinarian center for treatment of livestock as well as for vaccination. The Vet Centers were located in about the same distance as dips from the villages in Kilosa and Manyoni but three kilometers further in Dodoma. Problems of the centers included long distance from village, and inadequate medicines. Apparently, during disease outbreaks there were delays in investigations and identifying the seriousness of the disease, as well as shortages in medical supplies. The center did charge for its services. Those villages that reported fees, listed them as U.S. $0.10 to $0.25 (or shilling 0.80 to 2.00) per head

of animal.

Wild Life

Widlife in the districts affected villagers in three ways (1) damage to crops, (2) transmission of disease to domesticated animals, and (3) competition for grazing land. Most of the concern was over wild pigs, elephants and baboons, from December to May. Lions affected the villages throughout the year. All of the districts were affected; however, Dodoma and Manyoni reported damage by birds, hyena, and monkeys as well as the animals mentioned above. The animals transmit both disease and parasites. Most contribute to rabies, liver fever, typanosomiasis, ticks, anthroax and tsetse fly.

Grazing Conditions

Grazing of animals in the Central Zone followed a traditional method - grazing on existing local variety grasses and tree leaves. The general pattern was to graze on land near the village during the rainy season, and graze on farther fields after harvest. In many areas, grasses that have dried during the dry season was burned so that new growth could occur when the rains began. No improved pasture was reported in any villages.

There appeared to be differences in the way the villages react to the dry season. One village in each district reported that the entire village moved. The norm appears to be that those with cattle moved with their cattle in search of grass and water. The villages in Dodoma used a variety of methods. Some searched for water and grass, while other villages reported bringing water and grass to the cattle. A few reported digging wells for water.

A few of the villages practiced slash and burn cultivation technique. Most reported annual burning also. The amount of land involved was large, 567 hectares per village in Dodoma, over 810 in Kilosa and 152 hectares in Manyoni. One must be careful in interpreting these numbers because only a few village reported the hectares thus it may not be representative of the districts.

Four villages in Kilosa reported land under follow. The average amount was 117 hectares. Only one village in Dodoma and one village in Manyoni reported land in fallow.

IV. GENERAL OUTLOOK ON ENVIRONMENTAL, ECONOMIC AND NONECONOMIC FACTORS

This section analyzes the village leaders' evaluation of environmental factors that affect agriculture, level of services at the villages that affect the quality of living, role of women and finally, their outlook of the future and the constraints for development.

Environmental Factors

The soil and climatic conditions are important to farmers. Given the nature of the Central Zone, one would expect farmers to cite problems of low fertility, erosion and water as being major constraints. Indeed, this occurred quite often especially in the Dodoma district. Eight of ten villages in Dodoma reported soil erosion as a moderate or severe restraint to production (Table 36). While only two of six villages in Kilosa and two of four in Manyoni reported erosion as a moderate or severe restraint to production. The effect on crops and livestock was of concern in each district. However, only in Dodoma did village leaders feel that soil erosion had become more severe in the last two to five years. All other felt that there had been no change.

The problem of soil fertility was viewed almost in the same manner as the problem of erosion for each district. However, two of the six villages in Kilosa reported low fertility to be a slight restraint, and three villages in Manyoni reported it to be a moderate to severe constraint. A large number of villages in Dodoma reported that soil fertility affected crops and only one village reported that it affected pasture. One village each in Kilosa and Manyoni reported that the problem of erosion had become less severe in the last two to five years.

The lack of rain was reported to be a constraint to production by all districts. Only one village in Kilosa reported that it was no restraint, two (one each in Dodoma and Manyoni) reported only a slight restraint. All others reported a moderate or major restraint to production. In the view of most village leaders, lack of rain affected most agricultural crops.

Table 36. Influence of Environment by District

Factor by District	Influence*							Trend*		
	A	B	C	D	E	F	G	H	I	J
1) Soil erosion										
Kilosa	1	1	-	4	2	-	-	-	-	-
Dodoma	3	5	-	2	3	4	-	5	-	3
Manyoni	2	-	1	1	1	1	-	-	-	2
2) Low Soil Fertility										
Kilosa	1	1	2	2	1	-	-	-	1	-
Dodoma	6	2	-	2	6	1	-	4	-	3
Manyoni	1	2	-	1	2	-	1	-	1	1
4) Lack of Rain										
Kilosa	3	2	-	1	4	1	1	-	1	1
Dodoma	4	3	1	-	7	2	-	1	1	6
Manyoni	2	1	1	-	2	-	1	1	-	2
4) Lack of irrigation										
Kilosa	3	-	-	2	3	-	1	1	-	1
Dodoma	3	-	1	2	5	-	-	-	-	4
Manyoni	1	2	1	-	2	-	1	-	-	2
5) Destructive flooding										
Kilosa	3	-	1	2	3	1	1	1	1	1
Dodoma	1	-	1	2	2	1	-	-	-	2
Manyoni	1	-	1	1	1	-	1	1	-	2

*Code:
A=severe restraint to production
B=moderate restraint to production
C=slight restraint to production
D=no restraint to production
E=affects agricultural crops
F=affects pasture
G=affects other
H=became more severe last 3-5 yrs.
I=became less severe last 3-5 yrs.
J=no change

Only three villages in the survey reported an effect on pasture and two indicated other effects. Even though there is a lack of rain, most leaders felt that there was little change in the last two to five years. This result was very surprising since Tanzania has undergone two consecutive years of drought. Perhaps periodic droughts are expected in the Central Zone; therefore, was no different than any normal cyclical event.

The response concerning lack of irrigation was similar to that for lack of rain. Most leaders viewed it as a moderate or major restraint to production. Furthermore, the effect was primarily on agricultural crops. In nearly every village; however, they reported no change in the last two to five years. This result was expected since very little emphasis has been placed on irrigation for development purposes. Only in the last few years has irrigation possibilities been explored. Surveys are being made to determine if water existed in underground basins in sufficient quantity to support an irrigation program.

Flooding appeared to be a major concern only in Kilosa. Half of those village leaders reported it to be a major restraint to production. All villages did report that flooding would affect agricultural crops. Dodoma and Manyoni villages reported no change over time while more mixed results were reported in Kilosa which is located in the Eastern portion of the Central Zone. Much of the district has characteristics that do not fit the Central Zone. Concerns of flooding may be more important in this portion of the zone than any other zones.

Level of Services

Many services exist for the villages, but in limited quantities. This section is intended to analyze some of the more important ones in greater detail than at the beginning of the paper.

a) Transport: Nearly all of the villages had access to bus services, although it was not so convenient. Several villages reported no bus service within a reasonable distance. One village reported that the bus was thirty-five kilometers from the village. (This may well have been overstated because none of the survey team observed a village this remote.) In Kilosa, there was a daily bus service and the average distance from the bus station was eleven kilometers. Three villages did not report distance or frequency.

The villages in Dodoma were nearer the bus lines than those in Kilosa, about eight kilometers. The frequency of bus service in most villages was every six days rather than seven. One of the villages reported no bus service. Three villages reported the distance in time, two were five hours and one was two hours away. Five of the villages failed to respond to the question. All the villages in Manyoni had daily bus service and were near bus lines except for one. That village was eight kilometers away.

Roads have a great deal to do with access to buses. All of the roads in this survey were unpaved. Most of the villages in Kilosa and Dodoma reported that roads were inadequate. Only eight of the twenty villages in these districts thought that roads were adequate. In Manyoni, the roads were reported to be much better. Only one of four villages reported inadequate roads.

The adequacy of roads is a relative concept. For Tanzanian villages, any road that serves the village may be viewed as adequate in comparison to other villages. Personal observations of roads led to the conclusion that roads are in poor condition. The major roads were unpaved, and poorly maintained. Many are not passable during the rainy season. Some villages stated that the buses and/or vehicles serving the area stopped during the rains.

Poor road conditions are reflected in the transportation of public goods or freight. Nineteen of 24 villages who responded said that freight transport was inadequate. Inadequacy of transportation leads to problems in delivery of inputs and in selling surpluses. Considerable dissatisfaction with performance of this sector was referred to earlier. Poor roads certainly contribute to the cause.

b) Education: Much of the efforts of the Tanzanian government in recent years have been devoted to improving the level of education for adults as well as for children. Their efforts have met with limited success. Adults have participated in Adult Basic Education Programs in order to learn to read at the primay level. The successes have largely been in this area. Most villages report that the adult literacy program was adequate. Only one village in Kilosa reported an inadequate adult literacy program. Several stated that there problems of low attendance. Likewise only one village in Manyoni reported having inadequate adult program.

More of the villages in Dodoma as compared to either Kilosa or Manyoni reported inadequate adult literacy programs. However, eight of fourteen villages in Dodoma, reported the program to be adequate.

Education of youth was of greater concern. Generally, there was a lack of teachers, a shortage of classrooms, and a lack of classroom material. These deficiencies existed in all three districts. Further, most villages did not have secondary schools, and students had to go to other places for secondary training.

Only two villages in Kilosa, four in Dodoma, and one in Manyoni felt they had an adequate number of teachers in the village. Thirteen felt that the number of teachers were inadequate. Nearly the same was true of classrooms and classroom materials. Nine of the villages had adequate classrooms, and seven had adequate classroom materials.

Despite the shortage of classrooms, teachers, and materials, most of the villages in Dodoma and Kilosa felt that the primary schooling was adequate for the village. Only four villages each in Kilosa and Dodoma reported that more than primary school education was needed. This differed from Manyoni where only one of four villages felt that primary schools were adequate.

Some other problems were also detected. Shortages of books and equipment such as desks, blackboards, etc., were common in all districts. Further, there was a need for additional supplies. In a few villages, lack of eyeglasses (for adults) was a major problem. The quality of education, poor teaching and large classes, were also cited as problems.

It was apparent that serious deficiencies in education existed in the villages. Although significant gains had been made, there remained much work to be done in raising the level of education.

c) Health Services: The health services in the villages were woefully inadequate. Most villages did not have an adequate hospital,

or clinic, or a dispensary nor an adequate supply of first aid kits. Even though the quality was not as high as needed, 20 of 22 villages reported an adequate number of dispensaries. Three of 22 villages reported having a clinic, and a hospital in one village. None of these were in Manyoni. Only one village reported having an adequate supply of first aid kits, and only one village in Dodoma considered its clinic adequate to treat people. The other health services were reported adequate only in Kilosa. As might be expected, all villages reported the quality of health services as being fair to poor.

Nevertheless, major diseases were reported. Malaria and diarrhea were prevalent in all districts while lung problems were found in Kilosa and Dodoma. Eye diseases and leprosy were also cited as major diseases in Dodoma and Manyoni. Other problems reported were stomach, tuberclosis, parasitic pneumonia, measles, and malnutrition.

Several villages pointed out that dirty water was the main cause for many of the diseases. Interestingly, while cholera has been a problem in Tanzania, none of the villages surveyed reported it as a problem.

d) Water: One of the greatest concerns in all villages has been the inadequate supply of clean water. They obtained their water from shallow wells, streams/rivers, deep wells, and in some cases from dams. The water supply and quality was not adequate for most of the villages. Many had to walk considerable distances for water - from two to six kilometers.

Most reported that water was dirty and therefore not satisfactory. The source of water was somewhat related to the cleanliness. Among the villages having deep wells, about half of them considered that their

water supply was reasonably clean or satisfactory and the other half found the water dirty or of poor quality. None of the villages that used streams and rivers considered their water supply as clean or satisfactory.

The villages recognized the urgent need for a reliable source of clean water to improve the health of the inhabitants and to reduce the incidence of disease resulting from lack of clean water. However, given the plight of the villages, they felt there is little they could do at the present.

e) Fuel: Inquiry was made into the type and source of fuel for cooking. Nearly all villages reported that they used firewood. Two villages in Kilosa used charcoal, and two in Dodoma reported using dried dung. Most of the villages made their own charcoal from the wood obtained from nearby forests. In Kilosa, the average distance needed to reach the forest was five kilometers; in Dodoma, four kilometers; and in Manyoni, three kilometers.

Gathering firewood was considered to be the "women's" job. Eighteen villages reported that women were the only ones who gathered wood while four villages reported either the children or women and children doing the same. Only three villages reported men were expected to gather firewood.

Role of Women

Women in Tanzanian villages contributed to nearly all aspects of village life. They farmed, marketed goods, served in village administration, as well as traditional "household" activities. There appeared to be no difference in women's roles between villages nor between

districts. Their household activities included sewing, cleaning fetching or drawing water, gathering firewood, cooking, and caring for children. The smaller children, especially girls, assisted their mothers in many of these activities. Considerable time was devoted to these activities as women spent an average of seven hours per day on these activities in all districts.

Women were also expected to spend considerable time in the fields during the growing season. They assisted in cultivation, weeding, and harvesting of the crops. About four hours were devoted daily to this activity.

We wanted to determine some of the other activities in which women participated. In all villages, women participated in marketing, operation of shops, village administration, and in carrying out cultural and religious activities. None of these activities were considered as exclusively female activities, however, cultural activities seemed to involve more heavily women than do the other activities.

Other activities in which women worked and which were not considered to be exclusively women's were brewing beer, basketmaking, and pottery.

Development Activities and the Future Outlook

The fact that the central zone is a neglected area is reflected by the lack of development projects in many of the villages. Only two villages in all of the three districts reported having any project. One village in Kilosa had a project sponsored by Holland in 1975 on maternal child health care. However, the project costing $12,000 never got underway because the lack of cement halted the construction of the clinic.

The second village was in Dodoma. It had two development projects--one in shop development and the other in family farm assistance. The shop project began in 1974 at a cost of $100 to provide shopping services to the village community. It had several distribution problems and as such, was not completely effective. On the other hand, the family farm project with an investment of about $350 was launched in 1972 in order to provide insecticides to farmers.

There were no development activities planned for the immediate future. In reality, the development to these villages will occur only when the basic necessities are provided free or at a minimal cost. But they have more problems than resources and this forces them to rely wholly on the central government.

Despite this, village leaders have better ideas of what their villages need most and what problems or constraints they would face in this effort. Therefore, village leaders were asked to identify the major constraints and problems for the development of villages. Although the degree of importance of problems varied in all villages, they were what many observers would have expected--problems in providing the basic necessities and in improving the quality of life.

As might be expected, water was one of the most frequently reported problems facing villages, except in Manyoni. Hospitals and health services were often common constraints in all districts. Lack of adequate roads, schools, and immigration, mostly in Dodoma, were also reported as constraints.

Problems in agriculture were regarded as serious factors affecting the future survival of all districts. The lack of adequate grazing

and forestry practices were reaching major proportions. All of Dodoma villages had a problem with soil erosion including overgrazing. Many villages in the other two districts also faced the same problem. A few villages in Manyoni and Dodoma reported the lack of a trained technical and extension staff as problems for agricultural development. Other frequently cited problems were a lack of storage facilities, lack of milling machines, and lack of modern equipment (tractors). However, only one of the villages considered housing as a major constraint to village development.

Finally, many of the village leaders pointed out their own limitations--inadequate training and experience. Even though many of the villages had a definite management plan and made every attempt to carry out the Ujamaa plan, most of the villages in Kilosa and Dodoma felt that training programs for village leadership were inadequate. Only one village in Kilosa and three in Dodoma though that training was adequate. This was not true in Manyoni where three of four villages reported training to be adequate.

Therefore, given these aforementioned problems faced by many villages, these village leaders did not expect events to change very fast to bring them better days. They felt that because of the current economic situation of the nation, they would find it very hard to obtain necessary inputs and implements for agricultural development. Further, they felt credit for housing construction would be limited. And they expected continued problems of malnutrition, deterioration in health services, and excessive deforestation.

V. SUMMARY AND CONCLUSION

The major purpose of this paper was to present significant features of the villages in the Central Zone of Tanzania. Specifically the objectives were to: (1) analyze the basic characteristics of the village, (2) identify the types and levels of village production activities and (3) identify the general outlook on environmental, economic and noneconomic factors affecting the village. The findings were based on results of a survey conducted in September and October of 1980. These results would be useful in formulating and implementing strategies for rural development.

The data were collected from a sample of 31 villages--10 in Kilosa, 17 in Dodoma and 4 in Manyoni. The results showed that most of the villages were relatively new--no more than an average of 8.4 years old, with an average village size of 6,000 hectares in Dodoma, 10,543 hectares in Kilosa and 12,379 hectares in Manyoni. Dodoma had the largest number of people followed by Kilosa and Manyoni. All of the three districts had an average birth rate of 5 percent, close to the national average of 4.8 percent while the death rate was 6.6 percent in Dodoma as compared to only 0.7 per cent in Manyoni and Kilosa.

So far as the availability of physical and service facilities were concerned, Dodoma appeared to have the most with Kilosa ranking second and Manyoni third.

In terms of village production, most village farms were relatively small. Communal farming was not well developed. Food crop production was found to be the main activity carried out on the village farms, with corn being the major food crop grown in villages receiving enough

rainfall. In typical arid areas of Dodoma and Manyoni, sorghum and bulrush millet were the most important food crops grown. Growing of cash crops was centered around oil seeds, grapes and cotton, and as a result, village farm incomes were generally low.

Women in Tanzania villages contributed to nearly all aspects of village life. They farmed, marketed goods, served in village administration, as well as carried the traditional household activities of sewing, cleaning, fetching water, gathering firewood, cooking and caring for children.

Based on the findings, the villages appeared to be eager to adopt appropriate technology and to make improvement, provided they are convinced that it will improve their well-being. Most of the leaders were aware of problems of overgrazing, erosion, and overcutting of trees. It appears that the villages simply do not know where to go from here. There must be efforts to improve services to the villages, including health, education, water, and agriculture. Prompt delivery of seeds, fertilizers, and other inputs will be important if villages are to improve agricultural production. There will also need to be prompt pick up of produce at harvest. The villages appear to be ready for change, if it comes in the proper mode.

The central arid area, however, was not a zone of dire misery and helplessness; with proper planning and utilization of the available natural resources the region could be turned into one of the strongholds of the nation's economy.

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APPENDIX I

Tanzania Producer Prices for Selected crops of the Survey Region 1979-80

Crop	Price Per Kilogram (Shillings)
Maize	1.00
Paddy	1.50
Sorghum	1.00
Bulrush millet	1.00
Cassava, Gr. I.	0.65
Cassava, Gr. II.	0.50
Sunflower (Jupiter)	1.60
Sesame (Simsim)	4.00
Peanuts	4.20
Grapes	4.00
Beans, Gr. I.	3.50
Beans, Gr. II.	2.75
Cotton - AR	3.00
Cotton - BR	1.30
Tobacco - Flue	8.80
Tobacco - Fire	6.25
Tobacco - burley	6.50
Castorseed	1.00

Source: United Republic of Tanzania URT): Price Policy Recommendations for 1981-82. Agricultural Price Review; Summary and Proposals. Ministry of Agriculture, Marketing Developing Bureau (MDB); Dar es Salaam; September 1980; Appendix 6 and 8.