

United Republic of Tanzania
Tanzania Special Programme for Food Security
(SPFS)

AfDB/SPFS Local Exploratory Mission Report

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REPORT OF THE EXPLORATORY MISSION TO ADB/SPFS POTENTIAL AREAS IN TANZANIA – 15 December 1998 – 6 January 1999

1. INTRODUCTION

Following a consistently participatory approach of planning and implementing the Pilot Phase of the Special Programme for Food Security in Tanzania for the past three years, the SPFS in Morogoro and Dodoma regions successfully conducted a significant number of rice and maize farm demonstrations under crop intensification, Water Control and Diversification components. Constraints limiting farmers from increasing food production and productivity were also analysed.

Based on these positive results, the Ministry of Agriculture and Cooperatives of the United Republic of Tanzania, mid November 1998 requested for a grant of US\$ 1 million from AfDB for supporting SPFS Pilot activities geared towards increasing food production and productivity in other agriculturally potential areas of the country.

An Exploratory Mission comprising of FAO and staff from the Ministry of Agriculture and Cooperatives was formed to visit and make profiles of the identified potential areas. The Mission comprised of Mr. Justus Kabyemera from FAO Representation as a team leader, Mr. Abel Mero, Field Management Officer SPFS and Mr. Philip Assenga, Irrigation Engineer in the Ministry of Agriculture and Cooperatives. The Mission commenced its work on the 16th December 1998 up to 6th January 1999. (Annex 2). The Mission visited a total of seven regions and twelve districts across the country.

2. OBJECTIVE OF THE EXPLORATORY MISSION

The main objectives of the Mission, were to (i) visit and identify potential areas suitable for sustainably increasing food production and productivity by using the available recommended production technologies and solicit support for SPFS initiatives from the regional, district, local authorities and the beneficiaries of the village level. (ii) to collect essential data as per Term of Reference given by the FAO Investment Centre ahead of the Formulation Mission.

3. TERMS OF REFERENCE

The National Exploratory Mission ADB/SPFS Team will gather base information on various potential sites prior to the formulation mission planned for mid-January 1999. This information should include:

- i) Basic social and socio-economic data (population, family characteristics, incomes, food security/nutrition, groups off-farm employment)
- ii) Agricultural services provision (inputs, credit, extension)
- iii) Farming systems, present and proposed
- iv) Markets and prices for current and proposed output
- v) Technical/engineering information on irrigation improvement
- vi) An assessment of technical assistance requirements
- vii) Assessment of the commitment of the district authorities

4. METHODOLOGY

The Exploratory Mission started-off by reviewing various documents on agricultural development in Tanzania, with particular focus on irrigated agriculture potential. The Mission held some discussions with relevant officials at the Ministry of Agriculture and Cooperatives to solicit their views on the potential sites for the ADB/SPFS project. After reviewing the documents and consultations with Ministry officials, seven regions were earmarked as being potential sites for the pilot project. The seven regions are; Tanga, Kilimanjaro, Arusha, Morogoro, Iringa, Mbeya and Mwanza.

Similarly, the Mission combined physical field visits to potential sites with personal interviews/discussions with the regional, district and village authorities as well as farmers. The Mission also collected and utilized secondary data from the respective regional and district offices which enabled it to assess various situations and come up with the recommendations.

Below are the profiles of the visited regions:

A. TANGA REGION

Introduction

Tanga region is divided into six administrative districts (I) Tanga urban (ii) Pangani (iii) Muheza (iv) Korogwe (v) Lushoto and (vi) Handeni. The region had a population of 1,283,592 (1988 census) and with a growth rate of 2.1% the population is expected to reach 1,644,849 people. Most parts of the region are well served by good roads and a railway line which connect the farmers with the potential markets of Dar Es Salaam, Moshi and Arusha. Similarly the region is also connected to the external world through the Tanga port.

Agricultural potential

The region is characterized by variable landforms which are suitable for various land uses. The mountainous areas are famous for tea, coffee, various types of temperate fruits and horticultural crops. The lowlands are famous for sisal as a cash crop, while maize, paddy and legumes are important food crops for the majority of farmers. Most of the food crops especially maize and beans are produced under rainfed ecosystem while most of the rice is produced under irrigation.

Climate

There are marked climatical differences between the highlands and lowlands which have dictated the land use patterns. The rainfall distribution ranges from 850 – 1400 mm in the flat low lands while the highlands receive more than 2000 mm per annum. Temperatures vary from between 20 - 32°C.

Irrigation Potential

The topographical area suitable for irrigation can be categorised into:-

- (i) Lowland irrigable topography facilitated by Pangani and Lwengera river.
- (ii) The Mountainous irrigable topography facilitated by streams and rivers flowing from the mountains especially in the Western and Eastern Usambara at an elevation of up to 240m above sea level. According to the 1970 Tanga Water Master Plan, the region has a potential of 42,000 ha of irrigable land in the following distribution:-

(i)	Lower Mkomazi Valley	-	11,000 ha
(ii)	Lwengera Valley	-	8,000 ha
(iii)	Lower Pangani Valley (Pangani district)	-	5,000 ha
(iv)	Msangazi Valley (Handeni district)	-	6,000 ha
(v)	Usambara Networks and Uмба basin (Lushoto district)	-	<u>12,000 ha</u>
	Total		<u>42,000 ha</u>

Out of this potential, only 7,000 ha (17%) is being exploited for the production of paddy, fruits, vegetables and beans. The underutilization of the potential could be attributed to the following major reasons (i) poor or broken canals and headworks (ii) salinity (iii) poor management and maintenance of the irrigation schemes.

After discussions with the regional and district authorities, the exploratory mission was advised to visit the irrigable areas in Korogwe and Lushoto districts which are not covered by the Pangani River Basin Water Master Plan

Korogwe District

Korogwe district has about 45 per cent of the total irrigable land in Tanga region. After discussions with the district authorities, the following four potential areas were selected and visited:

(a) Kwamazandu Irrigation Scheme

Kwamazandu village has a population of 1,742 farm families with an estimated population of 8,710 people. Almost 95% of the population is engaged in agriculture which is their main source of food and income. The rest (5%) own small shops and some are engaged in furniture and brick making as off-farm income generating activities. Kwamazandu Irrigation Scheme has a total land area of 500 ha of which 100 ha are under cultivation. The major food crops grown in the area are paddy, maize and vegetables. Yields for the primary crops are very low (rice 1.5 – 2.0 tons/ha and maize 0.6 – 1.5 tons/ha).

Source of Water

The main source of water for irrigation is Lwengera river.

Climate

Kwamazandu Irrigation Scheme receives a mean annual rainfall of 600mm of rainfall and temperatures vary between 20 - 25°C.

Soils

The predominant soils are sandy clay and alluvial soils which are of moderate fertility.

Agriculture Support Services

There are no private input traders at Kwamazandu village therefore most farmers get their input supplies from Korogwe which is 50 km away. However, the beneficiaries of Kwamazandu Irrigation project have formed a cooperative society – Kwamazandu Cooperative Society which has 200 members (135 men and 65 women). The Society has a bank account with T.Shs. 350,000 and is responsible for the purchasing of production inputs for its members.

Extension Services

There are three village extension officers and one irrigation technician at the scheme. All are well trained. Similarly, they have received short training courses on rice production and water management at the Kilimanjaro Agriculture Training Centre (KATC) Moshi. A good number of farmers from the scheme have also had short training at KATC.

Marketing

There are no organised marketing centres at the village. Most farmers sell the products to private traders from Korogwe, and as far as Dar Es Salaam. Farm gate prices vary according to the season ranging from T.Shs. 7,000 – 10,000/= per 80 kg bag of paddy. For the foreseeable future the market outlets for any proposed increased production in maize and rice are likely to be the local population Korogwe, Dar Es Salaam and Tanga.

Technical requirements

The beneficiaries need to be equipped with knowledge and skills on appropriate water management, farm/scheme management, simple business planning including the formation of strong Savings and Credit Association.

Commitment of the district authorities

During the discussions with both the beneficiaries and the district authorities, they showed a very

high level of commitment with regard to their participation in removing some of the constraints that limit farmers from increasing production and productivity of rice in the area.

(b) Kwa Mngumi Scheme

This scheme is 20 km South East of Korogwe with an irrigation potential of 500 ha of which 100 ha are already under irrigation. A total of 250 farmers from the nearby two villages i.e. Kilole and Manundu have been allocated parcels of land. The beneficiaries are mainly engaged in paddy production, producing 1.5 – 2 tons per hectare. The low production levels are due to poor agronomic practices which include broadcasting of seeds instead of nursery drilling, use of low yielding local rice varieties and minimum use of fertilizer.

Source of water

The scheme is supplied with water throughout the year via Pangani river.

Climate

The mean annual rainfall at the scheme is 600mm while temperature range between 20 - 25°C.

Soils

The predominant soil is clay loam. These soils are of low fertility because majority of the beneficiaries have for a long time practiced mining agriculture, growing crops by depending 100% on the natural soil fertility.

Farmer groups

There are no formal farmer groups in the area. However, the district and local authorities are in the process of forming a Water Users Association to manage the scheme.

Off farm income generating activities

Only women are engaged in mat and basket making as an off-farm employment and no specific off-farm income generating activity.

Agriculture Support Services

The main sources of production inputs are the five private stockists who are based in Korogwe town which is 20 km from Kwamgumi. If the beneficiaries are encouraged to use improved technologies such as HYV for rice and maize, fertilizers, the Water Users Association being formed could be the best institution to support the members in terms of purchases.

Extension Services

There is one extension officer serving the two villages. The beneficiaries also get regular

technical backstopping from the irrigation technicians who are based at the district headquarters. Similarly, as an effort to equip the rice growers with improved rice production practices, seven members have also attended short practical courses at the Kilimanjaro Agriculture Training Centre.

Marketing

With regard to marketing of agricultural produce, farmers sell paddy to individual private buyers who move from house to house. Producer prices are very low during the harvesting period with one bag of paddy (estimated at 50 kg) selling T.Shs. 7,000/= . However as stocks get depleted the prices may reach 10,000 – 15,000 T.Shs.

Commitment of the district authorities

There is a significant commitment of the district leaders and decision makers with regard to their support to the project. They promised to participate in the mobilization of the beneficiaries with regard to the formation of a strong Water Users' Association which would spearhead effective water control and management.

(c) Chekelei Scheme

Chekelei valley has a potential of 550 ha of irrigable land. However at the moment only 320 ha are cultivated by 300 farmers who originate from Chekelei, Chipete, Maduma and Mombo. The four villages have 1000 farm families with an estimated population 4000 people by 1988 census. Majority of the farmers over 80% are engaged in agriculture growing maize – from March – May, beans June to September and rice December – May.

Although most of the crops are grown on mono-culture farming systems. However, most farmers use local seeds which have very low yield potential, do not follow the recommended agronomic practices. As a result of poor farming practices, yields for maize are 750 kg per ha and paddy 1.5 – 3.6 tons per ha. With regard to beans, no correct yield data was available because sometimes the beans are harvested while green and no proper record kept.

Source of water

The main source of water is Vuruni river which is perennial.

Climate

As in many parts of Korogwe district, the average annual rainfall at the scheme is 600mm and mean annual temperatures range between 20 - 25°C.

Soils

The predominant soil types are clay loam and alluvial soils which are fairly fertile.

Agriculture support Services

Agricultural inputs available from private traders in Mombo town which is about 15 km from Chekelei.

Extension

The beneficiaries at the Chekelei Scheme are well supported by irrigation technicians based at Korogwe district and village extension workers in the 4 villages. Similarly, some of the rice growers and the Village Extension Officers have attended short practical courses on improved rice production practices at the Kilimanjaro Agriculture Training Centre.

Market Outlets

There are no organised market channels for most of the farm produce but there is a potential for organising the farmers into a Savings and Credit Association whose one of its major activities would be marketing of the members products for better prices possibly in Dar Es Salaam, Tanga, Morogoro or Moshi. All these potential market centres are linked with all weather roads and railway network. Lack of market centres at the Scheme where farmers and traders could meet has resulted into very low producer prices at harvesting time. I.e. T.Shs. 5,000.00 per 80 kg to T.Shs. 12,000.00 during the off-season.

Technical requirements

The beneficiaries would require technical assistance in the following areas – water control and management, business planning, production of common seed and consolidation of the Water Users Association including the formation of a viable Savings and Credit Association.

Commitment of the district and local authorities

From the discussions conducted between the members of the exploratory team, the district authorities and village local leaders, there is great support towards efforts for increasing food production and productivity at Chekelei. Similarly, some of the farmers at the scheme showed some keen interest towards the formation of a Savings and Credit Association which is likely to solve the problems of lack of adequate working capital for the members and farmers from the surrounding four villages.

Lushoto District

(a) Kitivo Irrigation Scheme

While in Tanga region members of the mission held discussions with district, technical staff of Kitivo irrigation scheme, and leaders of Kitivo Water Users Association with regard to the AfDB intentions to support Food Production for Food Security in Tanzania and the strategies for

achieving the goals. As a result of time constraint, bad roads due to El-Nino rains, members of the team, visited only one area – Kitivo irrigation scheme which was considered by both the regional, and district decisions makers to be the most potential for increasing food production – mainly rice under irrigation, maize and beans under rainfed production ecosystem.

Kivito Irrigation Scheme has a potential of 640 ha of irrigable land. Out of this potential, a total of 288 ha are being exploited for rice production. There are a total of 1,100 (750 men and 350 women) active rice farmers in the scheme who are also members of the Kitivo Irrigation Farmers' Cooperative Union. Most of these farmers do not reside at the scheme but shuttle from six villages – Mngaro, Mlalo, Kifulio, Mhelo, Nyasa and Kihitu.

Majority of the farmers use local rice varieties such as super, kula na bwana which have very low yield potential 1.2 – 1.5 tons/ha. However there has been some gradual introduction of HYV such as IR54, TXD 220 and with farmers adopting improved cultural practices, yields have increased up to 4.4 tons/ha. Most of the rice is planted between December – January.

On the uplands farmers grow maize and beans under rainfed eco-system as supplementary agricultural activities.

Support Services

The source of agricultural inputs for the farmers is from private companies such as Tanganyika Farmers' Association and Shell Craft which are based in Tanga Municipality.

Extension Services

There are three Village Extension Officers and a qualified Scheme Manager who are based at the scheme, and a Resident Engineer. The staff also serve adjacent schemes such as Mnazi/Kwemkwaza Luguza and Kivingo. Similarly, some of the rice growers have had short training courses at KATC.

Cooperative Society

Members at the scheme have formed a Cooperative Society – Kitivo Irrigation Scheme Farmers Cooperative Society and have opened bank account with the Cooperative and Rural Development Bank (CRDB). The African Development Bank AfDB provided a total of T.Shs. 52m as Seed money. However, although this is a revolving fund, the rate of production input loan recovery from the farmers is very low.

Market outlets

There are no organised market outlets in place and most of the farmers sell their produce to private buyers who travel to Kitivo from around Tanga region and Zanzibar-producer prices range from 5000 – 12,000 per 80 kg bag of paddy.

Constraints

Weak leadership and poor management of the Kitivo Irrigation Scheme Farmers Cooperative Society has led to low morale among the members. There is little contribution towards maintenance of the scheme canals. A large part of the main canal was severely damaged by the El-Nino rains and would require substantial investment for its rehabilitation. Similarly, there is a seasonal road which is likely to become impassable during the rainy season.

Commitment of district authorities

There is some degree of commitment by the district authorities. However their main request is on the rehabilitation of the main canal and completion of other unfinished civil works in the adjacent irrigation schemes.

B IRINGA REGION

Introduction

Iringa region is one of the big four southern highland regions which comprise the grain basket of the Nation. Maize is the dominant crop in most smallholder farming systems. Between 70 and 80 per cent of the total cultivated area is under maize production. The other important food crops include wheat, potatoes, cassava, beans and peas. Tea, pyrethrum and to a lesser extent coffee are important cash crops.

The total irrigation potential of Iringa region is estimated at 18,989 ha out of which 6,162 have been developed and under production of different crops such as rice, maize, onions, beans, tomatoes, sugar cane, bananas and vegetables etc. However, most of the irrigation schemes are traditional and were started by farmers under their own initiatives.

Climate

Climate varies from semi-arid, warm tropical and tropical cool high altitude. The rainfall pattern is unimodal with rains falling between November – May. The driest areas are in the north of the region at an altitude of around 500 m above sea level. In these areas the average rainfall is 550 mm with a pattern of high annual variance. Conversely, at altitudes of between 2000 to 2500 m above sea level, rainfall is as high as 1600 mm. The rainfall in the intermediate altitude falls between these extremes.

Temperature varies with altitude, with the hottest temperatures obtaining in the lowlands to the north of region. Mean monthly temperature is 28°C in November and frosts occur in the mountainous areas above 1800 m between July and August. It is during the dry season that maximum daily temperature variations occur.

Administration

Iringa region is divided into six administrative districts (from north to south) (i) Iringa rural, Iringa urban, Mufindi, Njombe and Ludewa.

Identification of potential areas

During the discussions between members of the exploratory team, and regional and district authorities, two sites were considered potential for increasing food production and productivity (I) Mbuyuni Irrigation Scheme in Iringa Rural District and Igomaa in Mufindi district. Similarly members of the team with regional district technical staff made field visits to the two sites and held discussions with village local authorities with regard to the SPFS approaches and strategies.

Iringa Rural District

(a) Mbuyuni Scheme

Population

Ruaha Mbuyuni village has a population of 2003 people 888 males and 1115 females. Out of the entire population a total of 450 farmers are actively involved in different agricultural activities within Mbuyuni irrigation scheme.

Location

The Mbuyuni Irrigation Scheme is located some 100 km north of Iringa town along the Dar Es Salaam Zambia highway.

Mbuyuni irrigation scheme has a potential of 903 ha of irrigable land out of which 243 ha are under cultivation producing paddy, maize, onions, tomatoes and sweet pepper as main crops. However due to poor cultural practices, use of local seeds, and low levels of fertilizers, yields per unit area are very low for all the major crops produced in the scheme.

With regard to rice production, farmers use local low yielding varieties such as supa india and 66% of the farmers raise seedlings in nurseries and transplant without following the recommended practices while 33% of the farmers broadcast the seeds. The average yields range between 2.00 – 3.00 tons while with improved farming practices the yields could be doubled. With maize farmers have started using improved seeds such as TMV1 but without fertilizer and the average production per unit area is 1.750 tons per ha. With farmers following improved practices production could reach 4.00 tons/ha. Onions production, mean yields are 6.0 tons/ha, tomatoes 1000 kg per ha. For all these crops, the production and productivity could be doubled with the introduction of improved farming technologies.

Source of water

The main source of water for irrigation is Lukosi river which is perennial.

Climate

Ruaha Mbuyuni village receives a mean annual rainfall of 500 mm. Mean monthly temperatures are 25°C.

Soils

The predominant soils are sandy clay loam and alluvial soils which are fairly fertile.

Off-farm income generation activities

More than 95 percent of the entire population depend on agriculture for their livelihood. While the rest depend on small retail trade setting basic domestic supplies. Women are engaged in making local brew as an off-farm income generation activity.

Agriculture Support services

◆ Extension services

There are two extension workers at the scheme supported by a very experienced irrigation technician. The extension workers have received adequate training under the IFAD Supported Southern Highland Extension and Rural Finance Project.

◆ Input Supply

Currently, the beneficiaries and other farmers obtain their production inputs especially improved seed and pesticides from private input suppliers who are based in Iringa.

◆ Market outlets

There are no market constraints for rice and maize although prices are fairly low at the time of harvest between T.Shs. 5,000 – 12,000/= per 100 kg and tend to raise with time reaching 24,000 T.Shs. for both crops. With regards to onions and tomatoes which are perishable, the average price range between T.Shs. 3,000 – 8,000/= per 100 kg.

Farmer Organizations

The 450 beneficiaries have formed a Water Users Association but not yet registered and rather weak. The Members of the Association need to be equipped knowledge and skills on leadership and participatory approaches to scheme management.

Rehabilitation

For the beneficiaries to maximize production within the scheme, there is need to increase the efficiency of water supply. This could be achieved through lining of the main canal about 1 km and repair of some of the tertiary canals. Members and the local leaders are prepared to mobilize stones and sand for all the necessary civil works.

Commitment of the District Authorities

There is a strong commitment of the district authorities, the village leaders and the Scheme members towards the planned SPFS intentions.

Mufindi district

(b) Igomaa Irrigation Scheme

Igomaa Irrigation Scheme is 55 km north-West of Mafinga town. The available potential is 80 ha. However only 20 ha of the available potential are being exploited by 218 irrigators each owning about 200 sq. m for growing maize. Most of the maize is eaten green and yield levels were not available. There are 392 farm families with a total population of 1960 people in Igomaa village who are totally engaged in agriculture producing maize under rainfed conditions. Production levels under rainfed conditions range from 0.6 – 1.5 tons per ha.

Source of water

The main source of water for the Scheme is river Ndembela. However, both the weir and main canals need repairs in order to minimize water losses especially in those areas which are connected by using bamboo pipes.

Climate

The mean annual rainfall is 800 mm while the mean annual temperature range between 19° to 25°C.

Soils

The predominant soils are sandy clay soils which are relatively poor. However, production of maize without using mineral fertilizers or organic manure has greatly depleted the soil fertility in the village.

Support Services

Mufindi district has a total of 55 village extension workers who are well trained under the IFAD Southern Highlands Extension and Rural Finance Project. Similarly the district has two irrigation technicians who provide regular technical backstopping to the different irrigation projects in the district. However, there is one highly experienced village extension officer who is

based at Igomaa Village who serve the 392 farm families.

Input Supply

Production inputs are available from private stockists such as Tanganyika Farmers' Association (TFA) who are based at Mafinga town which is also the district headquarters.

Market outlets

There are no organised marketing posts in place and private traders make house to house purchases of maize. However producer prices are relatively low at the time of harvesting T.Shs. 5,000/100 kg and T.Shs. 20,000/100 kg during the off-season. This implies that farmers would get better prices if they are equipped with improved post harvest technologies.

Farmers' organizations

Members at the village have formed a Savings and Credit Association but this Association is not active due to previous financial mismanagement. Similarly, there is no formal Water Users Association in place to organize the farmers to clean and repair the irrigation canals.

Commitment of the district authorities

The district authorities showed a very high interest in the programme and are willing to contribute a total of T.Shs. 2 million towards the repair of the canals. However, the beneficiaries are required to contribute a total of T.Shs. 400,000/= for the repair works and have complied.

C. MBEYA REGION

Introduction

Mbeya region has a total 63 million ha of land out of which 5.7 million ha are suitable for agricultural and livestock activities. An average of 500 ha are cultivated annually for the production of food crops such as maize, paddy, round potatoes, bananas legumes and cash crops such as cocoa, tea and coffee. The region has a big potential for irrigated agriculture especially for rice production. A large percentage of this potential is in the Usangu and Kyela Plains. The biggest potential, 70,000 ha of irrigable land is in the Usangu Plains of Mbarali district. The rest 20,000 ha and 8,000 ha are irrigated by small holder farmers in other areas and state farms such as Kapunga respectively. Due to various reasons ranging from inefficient water management, poor cultural practices, and use of local seeds with poor genetic potential yields range from 2.0 – 3.7 tons/ha.

However, with improved water control and management, use improved HYV well focused extension messages and improved support services, yield could reach 6.0 ton/ha location – longitude 32 - 35° E and latitude 7 - 9° South.

Population

The region had a population 1,463,519 million people of which 85 percent rural areas earning their livelihood from Agriculture. The annual population growth rate is rather high 3.1% as opposed to the 2.8% (1988 census). At this growth rate, the population now is estimated at 1.7 million people. There were 364,854 families, 372,993 men, 419,522 females. The number of children were 670,999.

Off-farm employment

As noted above, 85% of the population is engaged in agricultural related activities while 15% are engaged in retail trade, furniture making. Women in the rural areas are engaged in local brew making, and mat and basket making.

Mbarali District

The biggest potential of irrigable land which is estimated at 70,000 ha is in Mbarali district. The district lies between Latitude 7.30 - 9°S and longitude 33.20 – 33.40°E.

Population

According to regional reports, the district has a population of 283,792 people. Out of the total population, 73,494 are males and 74,411 females while children under 15 years of age are 135,887. Mbarali is essentially an agricultural district with rice as the main crop. However, pastoralism is also an important activity.

Members of the formulation team held discussions with regional authorities, Zonal Irrigation office regarding the objectives and approaches to increasing food production and productivity under the SPFS. The following irrigation schemes under the Usangu Village irrigation Project were considered to be most potential for the Pilot Phase.

(1) Motombaya (2) Mswiswi (3) Majengo Similarly Kimani was also considered by the authorities as being suitable for increasing food production and productivity.

Members of the team made a field trip

(a) Usangu Village Irrigation

The three schemes under the Usangu Village Irrigation project. The schemes are adjacent and have 2,000 ha developed and under production. A total of 1,327 farmers from 10 villages in the project catchment produce maize, rice, beans and vegetables under irrigation. The main farmers' primary crops are rice which is planted December – April. Farmers use local seed (supa machi, Zambia, Supa India and Taiwani) with low yield potential, the use of production inputs such as fertilizers in minimal and average yields are 2.5 tons per ha. However, with the use of HYV and improved cultural practices, farmers could double yield to 5t/ha.

Maize is another important crop in both schemes. It is grown twice during the season December to May and June – October. Majority of the farmers use local seeds and the utilization of the recommended farming practices are also minimal. Yields are very low 1.25 – 1.50 tons/ha. However with the adoption of the recommended improved production technologies yields could be increased up to 4.0 tons/ha.

With regard to beans and vegetables, which are considered as secondary crops, are usually produced on very small plots 10 sq.m mainly for household consumption.

Source water

The 3 schemes receive water supplies from the following perennial rivers

- ◆ Motombaya scheme - Mlowo river
- ◆ Mswiswi scheme - Mswiswi river
- ◆ Majengo scheme

Soils

The main predominant soils are clay ... and all the farms are properly levelled. There are no problems of water logging due to poor drainage. Similarly water flow from the main canal and to the distribution canals is fairly efficient.

Extension Services

In each of the three schemes there is an extension field officer with ample knowledge on rice production. The extension officers are also supported by irrigation technicians in the district. Similarly, within the scheme area, there is Igurusi Agriculture Training Institute, which offers training in irrigation and landuse planning and other courses related to agriculture and livestock production. The institute has adequate facilities for staff and farmer training.

Agriculture input supplies

The three schemes which are along the all weather road (Tanzania – Zambia) are just thirty five km from Mbeya town where majority of private input traders are based. Therefore some of the farmers who have started using production inputs such as fertilizers and improved maize seeds have not faced any problems as with regard to input availability.

Farmers Organizations

In all schemes, members have formed informal Water Users Associations with the responsibilities of water management and distribution to different beneficiaries. However, most of them are not well organised and need training on leadership and improved management skills.

Market outlets

Marketing of rice is not a major problem in all the three schemes although there are no well organised selling centres or posts. The schemes have the advantage of being along the Tanzania Zambia highway which makes it possible for them to get customers. However, as in many parts of Tanzania prices at the time of harvesting are fairly low – T.Shs. 9,000/100 kg. However these prices improve with time reaching up to T.Shs. 27,000/= per 100 kg of milled rice.

Commitment of District authorities and local leaders

Both district and local leaders showed a very strong commitment towards the SPFS programme and promised full support for the planned interventions.

(b) Kimani Irrigation Scheme

While in Mbarali district, members of the exploratory mission visited Kimani irrigation scheme. The scheme is 100 km East of Mbeya town. The main source of water is Kimani river and land under irrigation is about 1948 ha growing mainly rice. Other land use within the Kimani river flood plain includes about 1047 ha of upland cropping (mainly maize) as well as legumes.

The existing agricultural system currently supports 2816 households of which 25% are headed by women comprising 11,699 people.

Climate

The area is subject to a tropical climate with distinct wet and dry seasons, as well as large seasonal variations in temperature, humidity and precipitation. The mean annual rainfall of the Kimani River flood plain is 670 mm, but almost all this occurs from December to April (94%). Mean monthly temperature range between 20°C to 26.2°C.

Soils

The predominant soils in the scheme comprise mainly clays in basin type landforms which are segmented by active and inactive levees of the existing and previous locations of the Kimani river. The levees and other recent alluvial landforms in the flood plain are comprised of sandy loam.

Agricultural practices

The average land holding of female headed households is 0.6 ha of rice while male headed households is 1.1 ha of rice. The majority of the farmers use local rice varieties such as supa, zambia, kilombero. After field preparation, farmers broadcast the seed, do not use any production inputs and the yields are very low ranging between 1.6 – 2.0 tons per ha. With regard to maize production, the average landholding of female headed households is 0.5 ha while male headed households is 0.9 ha. As with maize, average yields are very low 1.1 tons per ha.

Off farm income generation activities

There are no major off-farm income generation activities for the majority of the farm families at the scheme. However a few members are involved in making local brew and retail business.

Agricultural Support Services

- The main source of input supplies for the farmers especial improved seeds is from private input suppliers who are based in Mbeya town.
- Extension Services

Both rice and maize farmers are served by one village extension who is based at the scheme. However, there are regular technical backstopping from divisional and district level.

- Marketing
With regard to market outlets, the schemes is accessible to private buyers from Mbeya Municipality, Dar es Salaam even the neighbouring countries of Malawi and Zambia.
- Farmers Organization
There are no formal farmers' associations in place. However, as in many other schemes the beneficiaries are in the process of forming a Water Users Association.

Constraints

Both the main canal and the tertiary canals are not well maintained and there is excessive water leakage. Major repairs would be required to improve the water supply network.

Commitment of the district authorities

The district authorities have a high interest in Kimani irrigation scheme and would appreciate any support which is geared towards improving food production and productivity at the scheme

D. KILIMANJARO REGION

Introduction

Kilimanjaro region covers an area of 13,209 km which corresponds to 1.4 % of the total area of Tanzania; with an estimated population of 1,108,699 inhabitants according to the 1988 census, which accounted for 4.8% in the last decade. Administratively Kilimanjaro region is divided into five districts, i.e. Moshi, Hai, Rombo, Mwanza and Same. From the Agricultural point of view; the region is one of the main producers of cash crops, especially Coffee; and yet suffer from food deficiency because of low productivity and the instability of food crops due to shortage of water resources, insufficient irrigation facilities and a rapid growth in population. The Mission visited two districts namely Same and Hai.

Hai District

Hai is one among the five districts of Kilimanjaro region comprising of two distinctive areas being high and low (plain) lands. The irrigation potential seems to have been concentrated in the lower Hai. The Mission therefore visited some sites (Kimashuku, Rundugai, Mussa, Gawaye) along the lower Hai to establish the constraints pertaining to production and productivity of the food crops, i.e. Paddy (Rice) and Maize.

Water Resources

Rainfall

Observations have shown that; the rainfall pattern falls into two seasons; i.e. the short rains (Vuli) and the long rains (Masika), although there exists two dominant seasons namely dry and wet season. The peak of the rainy season is reached in April and the annual precipitation ranges from 600 mm to 750 mm along the lower Hai.

Surface Water Resources

The surface water sources for the irrigated agriculture comes mainly from five Rivers; namely Karanga, Weruweru, Kikafu, Kware, Sanya and Kikuletwa. According to a study conducted by JICA on the request of the Regional Directorate in 1992, most of the mentioned rivers seems to have emerged from Boloti swamp as springs.

Climate

The existence of high and lower lands in Hai district have had an influence of the rainfall pattern, with 500 mm in the Southern part of the district and 900 mm in the Northern part of the district. The relative humidity ranges between 50% to 75% and the temperature range from 20°C to 22°C.

Geology

Geologically the district consists of precambrian basement rock, post-Neogene volcanic deposit, lake deposit, hahar, outwash and alluvium.

Soils

According to the study conducted by JICA on the request of the Regional Directorate of Kilimanjaro region on lower high; there exists a suitable area both in topography and soil conditions for irrigation farming. The mission visited a number of sites; i.e. Kimashuku, Rundugai etc. and salinity was observed to be a major constraint hindering production and productivity.

a) Kimashuku Scheme

The mission had an opportunity to visit the intake site where extensive damage of the main canal due to the excessive floods caused by the el-nino rains was seen. The farmers have been able to organise for remedial measures, i.e. reconstruction of a by pass of the main canal around the damaged portion using their own funding. Originally funds for construction of the headworks were provided by the Hai District Council to abstract 430 l/sec continuous flow. The village has a population of 8000 inhabitants, with a potential area amounting to 1600 ha, although at present only 400 ha are under irrigation. Kimashuku area is located near Moshi city; the administrative headquarters of Kilimanjaro region and the Arusha Moshi highway is running across the upper area of Kimashuku Area.

Irrigation potential

The village comprises of 1600 ha, with good land for irrigation, however only 400 ha are under production at the moment with production levels of the two staple food crops standing at 4t/ha for paddy rice and 6.25 t/ha for maize. Apart from the two staple crops, the farmers are also engaged in the cultivation of other crops such as beans, vegetables, sunflower, sugar cane, onions, root crops, tomatoes, banana, cassava and mangoes.

The irrigation infrastructure consists of the head works, and earthen Primary, Secondary and Tertiary canals, also these canals are not provided with distribution boxes, a constraint leading to low irrigation efficiency and poor water control at farm level. The cost estimate of the water control structure aiming at increasing the irrigation efficiency would be provided in a separate report.

The commitment of the district authorities towards the improvement of the present situation at this site was sited to be very positive.

In view of the present constraints, there is a need for technical assistance in the field of water control and management in order to increase the present level of production being, crop husbandry, irrigation agronomy, fertilizer application, use of pesticides and insecticides and use of improved seeds.

Agricultural services

The whole district comprises of 110 extension workers, 60 being of crop husbandry and 50 are of livestock respectively. However, there are three irrigation technicians who are assisting the farmers on irrigation activities, although there exists no Water Users Association, efforts are underway to register the existing committee in order to enhance operation and maintenance activities. Presently the committee maintains a bank account with a balance of 86,000 /=. There exists three credit and savings societies in the district, but these are established in the upper high area where most of the members are coffee growers.

Most of the farmers are used to the use of tractors for ploughing and an acre costs about Tshs. 10,000/=, the fact that there is no input supplier agent in the locality, seems to pose a serious draw back to the farmers.

Most of the farmers are quite aware and enthusiastic with their agricultural activities, mostly there are two seasons one for paddy (rice), followed by Maize/Beans inter cropping. Looking at the present level of production, still there exists a big potential for increasing yields through proper water distributions methods, irrigation methods i.e. basins for paddy rice and beans, furrows for maize. So, generally if irrigation efficiency could be improved, consequently high production would definitely increase provided crop husbandry is also kept at optimum level.

Marketing Outlet.

The Arusha - Moshi highway runs across the upper area of Kimashiku Village, further the earthen roads on both sides of the Arusha - Moshi highway opens the way for private traders from Bomang'ombe, Arusha, Moshi, Tanga to buy most of the produce according to the farmers

Same District

Same is another district in Kilimanjaro region characterised with lower Same and High Same. There exists a distinctive climate between the low and high lands with both temperature and rainfall distribution. The mission have had some discussions with the district authority as with regard to the existing potentials on irrigated agriculture and the production levels of the grown food crops, crop husbandry and levels of input supply. Among the potential sites visited includes; Maore and Kisiwani.

(a) Maore Village Scheme

Maore village is situated about 50 kilometers from Same town along the old Same – Tanga Road. The village has a total population of 3688, and the major food crops being grown for both rainfed and irrigation are; Paddy rice, maize intercropped with beans.

Water Resources

Rainfall

Observations have shown that, the annual rainfall in the district ranges from 210 mm in the lowlands to 1056 mm in the highlands. Maore village lies in between with perhaps an annual rainfall amounting to 900mm there is no meteorological station at the village.

Surface water resources

Water for irrigated agriculture at Maore village has been abstracted from Hingilili river which passes in the village.

Climate

Maore village lies close to a reserved forestry; which forms part of the catchment area for River

Hingilili seems to have some influence on both temperature as well as rainfall distribution. There is no meteorological station in the locality it was not possible to establish the figures for temperature and rainfall.

Agricultural Production

The major production system at Maore is irrigated agriculture where among the major grown food crops are paddy rice, maize and beans. The paddy season starts in November/December with harvest in March/April yielding about 3 –4 t/ha. The maize/beans season starts in July/August with harvest in November yielding 1 – 2 to/ha.

Water users Association

There exists an informal Water Users groups for Maore canal which saves 400 ha; Kadando canal which saves 600 ha, Maya canal which saves 440 ha; and Kikongo canal which saves 640 ha. These informal water users groups are faced with a number of constraints.

Existing Constraints

- ◆ Inundation due to flooding by river Hingilili
- ◆ Loss of water from the conveyance and distribution system
- ◆ Lack of distribution boxes and their control gates
- ◆ Irrigation scheduling as with regard to water distribution
- ◆ Basic data for the determination of crop water requirements
- ◆ Lack of an irrigation extensionist

One way/approach to remove the above stated constraints is to improve the system through provision of the distribution boxes; ensure a smooth conveyance and distribution system through training of the farmers and extension workers. Establishment of a Water Users Association fully registered is essential; in order to have smooth running of operation and maintenance activities of the systems.

Input Suppliers

There are three input stockists at Same town which is 50 kilometers from Maore. However small stockists are also available at Kisiwani and a bag of Urea weighing 50 kg costs 15,000/=

Marketing

Marketing outlet to the farm produce through private traders to Same, Tanga, Moshi and Dar Es Salaam exists.

(b) Kisiwani Village

Kisiwani village is situated about 40 kilometers from Same town along the old Same – Tanga road. The Mission had discussions with the ward authority as with regard to the existing potentials on irrigated agriculture at Kisiwani. Among the major food crops grown are paddy rice, maize and Beans.

Water Resources

Rainfall

Observations have shown that; the annual rainfall in the district ranges from 210mm in the low lands to 1056 mm in the high lands. Kisiwani village is almost at the same altitude as Maore so they have a lot of similarities.

Surface Water Resources

Water for irrigated agriculture at Kisiwani village has been abstracted from Nakombo river which passes through the village.

Agricultural production

The major production system at Kisiwani is irrigated agriculture where among the major grown food crops are paddy rice, maize and beans. The paddy season starts in October/November with harvest in March/April; yielding 3 – 4 t/ha. The maize/beans starts in March/April with harvest in June/July yielding 1 – 2 tons/ha.

Water Users Association

There exists an informal water users groups for Makuvira canal saving 100 ha, Kitivo cha chini canal saving 380 ha and Mnoa canal saving 200 ha. These informal water user groups are faced with a number of constraints.

Existing Constraints

- ◆ The El-Nino rains has caused a severe erosion, damaging the main canal rendering 200 ha out of use.
- ◆ Loss of water through infiltration and percolation along the conveyance system
- ◆ Lack of distribution boxes and their control gates
- ◆ Irrigation scheduling as with regard to water distribution
- ◆ Lack of intake (headwork – Weir)
- ◆ Basic data for the determination of crop water requirements

- ◆ Lack of an irrigation extensionist

One way/approach to remove the above mentioned constraints is to improve the system through provision of the headworks (intake) comprising of a Weir and the main (primary) canal quite an expensive aspect.

Strengthening of the informal groups through establishment of Water Users Association fully registered is essential; in order to have smooth running of operation and maintenance activities of the two systems.

Inputs Suppliers

There are three input stockists at Same town which is 40 km from Kisiwani. However, there is a stockist at Kisiwani and a bag of Urea (N46%) weighing 50 kg costs 15,000/=.

Marketing

Marketing outlet to the farm produce through private traders to Same, Tanga, Moshi and Dar Es Salaam exists However; the farmers raised their concern over the absence of cotton market which is a cash crop grown at Kisiwani

E. ARUSHA REGION

Arusha Region is located in Northern Tanzania, between longitude 35° and 38° east, latitude 2° and 6° south and is divided into ten administrative districts namely: Arumeru, Babati, Hanang, and Karatu. Others are Kiteto, Mbulu, Monduli, Ngorongoro and Simanjiro. The districts are further divided into 44 Divisions, 177 Wards and 542 Villages. The main ethnic groups are Iraqw, Arusha, Maasai, Meru, and Barbaig, others in small numbers are Sonjo, Gorowa, Rangi, Chagga, Pare and Nguu. According to the 1988 population census, Arusha region had a population of 1,351,675. This represented 5.8% of the total population of Tanzania mainland. The population density is as low as 16.2 compared to the Tanzanian mainland average density of 26.2. Future prospects in agriculture depends very much on further development of arable land. The arable land in the region is more than 2,472,860 ha, but only about 552,128 ha (22% of arable land) is under cultivation, implying that about 1,920, 732 ha (78% of the arable land) could be put into better use. i.e. cultivated. The irrigable land in the region is more than 60,000 ha and currently the area under irrigation is about 38,000 ha (63%). The mission had a lengthy discussions with the Regional Authority agreed to choose Monduli District as being more potential and easily accessible.

Monduli District

Monduli is one of the most potential districts with an area estimated at 2,896 square kilometers; Maasai being the main tribe. In 1988, its population was 109,298 people and with a growth rate of 3.6%, it is expected to reach 167,908 people.

Considering the 1988 population census, Monduli District accounts for 8.1% of the total

population in Arusha region also; Male population stands at 54,562, while female are 54,730; with a total house 20,397 households of which the average size of a household is 5.3.

The District has a total land estimated at 1,420,100 ha; out of this the potential arable land is 247,588 ha; out of which only 90,680 ha remains unexploited. Also, the district has a potential irrigable land amounting to 5,830 ha out of this only 1,910 ha are under irrigation while 3,920 ha are unexploited. The crops recommended for this area are: Maize, Beans, Paddy Rice, Vegetables, Banana and Finger Millet. The mission had a lengthy discussions with the District Authority agreed to choose Mto wa Mbu as being more potential and easily accessible. In addition to agriculture, pastoralism is also an important industry.

(a) Mto wa Mbu

Mto wa Mbu or the “mosquito river” is located at some 120 kilometers from Arusha Town, it is part of the Rift Valley located at the base of the escarpment at an altitude of 914 meters.

Water Resources

Rainfall

Observations have indicated that; the average annual rainfall ranges between 600 - 642 mm.

Surface water resources

Mto wa Mbu site has a number of perennial rivers (Mto wa Mbu, Kirurumo, Simba and Njoro Springs) crossing the potential irrigable area and ultimately draining to lake Manyara.

Climate

Mto wa Mbu site lies within the semi - arid zone characterized by high Evapotranspiration rate combined with low erratic rainfall. The average rainfall is between 600 - 642 mm ranging from 280 - 1280 mm and almost half of it falls in march and April. The rainfall pattern is bimodal with short rains from November to January and long rains from February to April. The mean monthly temperature is more less uniform throughout the year, ranging from 22°C to 25°C. The mean monthly Evapotranspiration rates varies from 150 mm in April to 240 mm in August/September (Watson et al,1986).

Geology

The Mto wa Mbu Site lies within the Manyara sedimentary basin in the half graben structure of the rift valley. According to Prins and Lett (1986), the valley was formed as a result of block faulting during the late tertiary. Volcanic activity was associated with the Rift Valley formation. Most of the present volcanic forms were formed during the pleistocene up to recent times. The rift valley filled with sediments (to its present form) during the last 10,000 years (Berry, 1972), Baker (1986) reported that tertiary lava's and recent ash layers that resulted from volcanic processes in the surrounding areas are found to be sedimentary deposit in the area.

Soils

The dominant soils of Mto wa Mbu site are clay-loams. Other soils found in the area are loams, clays, and to a lesser extent sandy loams and sandy clay loams. The pattern of the occurrence of the soils of Mto wa Mbu site shows that the courser, sandy soils are mainly found in the west, at the foot of the escarpment while the finer, more clayey soils are found to the south and east. The soils become finer with increasing distances from the rift valley wall.

Agricultural Production

The major production systems at the site is irrigated agriculture. The western and central part of the site is adequately irrigated due to closeness to the rivers and irrigation canals. The eastern and southern part is not adequately irrigated due to lack of enough water. The main crops cultivated are bananas, maize, paddy rice, finger millet is grown in the drier areas. (Yanda, 1989). The majority of the pasture land lies to the east of the project area (Maasai steppe). It was noted that farmers within that area do keep a few livestock such as cattle, goats and sheep. Some pockets of uncultivated land either due to salinity in the soil or lack of irrigation water are used as grazing areas within the irrigation project area.

Intensive agricultural activities are carried out during the months of January to February and July to September. Land preparation and plantation of maize are done in January, while paddy nurseries are prepared and sowing done from December to January. During the long dry season (July to September the maize crop is harvested while in short rainy season the crop should be planted.)

Marketing

Most of these crops are marketed through middlemen living in Mto wa Mbu or Arusha or directly at the mill where local people buy products.

Population

The present population in Mto wa Mbu originates from around 60 tribes. It was approximately 10,000 inhabitants in 1978 and in 1988 the population was 14,434 and is described as densely populated area. The population density is about 25/km². The overall increase of household stands at 13.9% with a concomitant increase in the population of 10.3%. The growth rate is 3.5% per annum.

In general most of the people in Mto wa Mbu are immigrants from overpopulated areas within the outside of the Arusha Region. Most of these people have been attracted to Mto wa Mbu due to its potential for irrigated agriculture development and the tourism business.

Social aspects

According to a study by Raikes 1889; Mto wa Mbu was Moslem (Swahili culture) dominated community, however of recently (two decades ago) Christians from the Northern high land areas have become increasingly dominant.

According to an interview conducted with the water users of mto wa Mbu, several health problems were identified. These includes the colds and broncholing respiratory disease, diarrhea and dysentery, cholera, malnutrition, among under five year olds, sexually transmitted diseases, parasitic infestation such as ascaries, hookworms and amoebiasis, eye infections, bacterial and fungal skin infections, typhoid fever, hepatitis, abancrothan filiannasis, tuberculosis and leprosy, typonosomiasis, aids and malaria.

The community services at Mto wa Mbu includes hospital (ten beds) with four Medical Assistants one Pharmacy (administered by Catholic Church), two churches, one mosque, tourism facilities, village hall, National Micro finance Bank, petrol station, local food market, souvenir shop, food shops, guest houses, post office, police station and bus transport to Arusha.

Water Users Association

There exists an unregistered WUA, faced by a number of constraints; which means any meaningful development towards irrigated agriculture will depend very much on the increase of delivery and effective use of good quality irrigation and the surface water.

Existing Constraints

- Flood damage during the rainy seasons due to untrained rivers.
- Loss of water from the conveyance and distribution system.
- Unreliable or poorly timed availability of water due to improper control and operation of the irrigation system.
- Inefficient field irrigation methods and layout of water distribution systems, including poor alignment of watercourses and water channels, lack of regulation structures and flow-measuring devices, poor field shaping, grading and leveling and channel sizes improperly related to slope and soil conditions.
- Reduced productivity of the soil due to water-logging and salinity resulting from lack of appropriate drainage.
- Poor irrigation practices because of unavailability of effective extension education programs

One way (approach) to remove the above stated constraints is to improve the irrigation system through rehabilitation, reinforcement of the existing WUA by acquiring a legal status through registration; and of foremost is the organization of the existing 40 water users groups which seems to have a common economic interest. Since each group elects it's leadership (consisting of Chairperson, Secretary, Treasurer, and two members) is already a step forward for a well functioning irrigation system and a key point towards its members being committed to Operation and Maintenance activities.

It is therefore recommended that; the improvement of the Water Users Association; will depend on the selection of an acceptable system by the group members. More emphasis should directed

towards the organizational pattern and experience of other places in the country e.g. the SPFP areas of Morogoro and Dodoma. The WUA will have to function through administrative systems based on laws that reflect the policies and issues regarding the development and use of water resources. Each system of water use law is directly related to local physical, legal, political and cultural conditions. These conditions will need to be considered in developing the Water Users Association.

Input suppliers

There exists two input suppliers at Mto wa Mbu namely ACT; which happens to be a Belgian Non Governmental Organization and the second one is M/S Elisamehe. Even with these two agents perhaps in future the farmers will have to organize themselves to establish a Savings and Credit Society.

F. MOROGORO REGION

Morogoro region lies between latitude 5° 58" and 10° 0" to the south of Equator and Longitude 35° 25" and 35° 30" to the East, and it is divided into five administrative districts namely: Morogoro Urban, Morogoro Rural, Kilosa, Kilombero and Ulanga. The region covers an area of 73,939 square kilometers, which is 8.2% of Tanzania Mainland. The districts are further divided into 30 divisions, 140 wards and 457 villages. The main ethnic groups are Waluguru, Wasagara, Wakaguru, Wandamba and Wapogoro. According to the 1988 population census, Morogoro region had a population of 1,220,564. This was about 5.27% of the total Tanzania mainland population of 23,174,443. The region's population density is as low as 17.3 people per square kilometer as compared to that of Mwanza and Kilimanjaro which had 95.4 and 83.7 population densities respectively. Agricultural development is still seen as the future prospect; the regions arable land totals 5,885,700 Ha, but only 1,177,500 hactres are cultivated which is about 20% of the total arable land. The potential irrigable area is estimated at 420,000 hectares of which only 30% is under irrigation. The Mission have had exhaustive discussions with the Regional Authorities as with regard to potential districts and agreed to choose Kilosa in view of the ongoing SPFP activities in Morogoro Rural and Kilombero Districts.

Kilosa District

The district has an area estimated at 14,918 km² with a population of 346,526 people; 28.4% of the region's population (according to 1988 population census); out of these 172,528 male and 173,998 Female and the number of households stands at 63,694.

Good agricultural land is also estimated at 536,590 ha out of which the potential of irrigated agriculture is 17,474 hectares. The major food crops grown in the district includes; maize, paddy, sorghum, potatoes and legumes; while the major cash crops are cotton, simsim and sunflower. The Mission had a lengthy discussion with the District authority as with regard to the available potential in the district and agreed to choose Kilangali and Msolwa villages.

Water Resources

The district has seven permanent rivers of Lumuma, Iyovi, Myombo, Mkondoa, Mwega, Msowero and Mvumi which drain water to the Indian Ocean through Wami, Ruaha and Rufiji.

Rainfall

Rainfall pattern ranges from 400 mm in the Western areas, Kidete, Mwasa, Lumuma and Maloto to 1100 mm in central part of the District.

(a) Kilangali Village

Kilangali village is located approximately 370° 15" E, 16° 58" S in Kilosa district about 30 Kilometers from Kilosa town; at an altitude of about 440 meters. Irrigation development in this village started in the year 1948 when a state food farm was established although it was abandoned by the Government in the year 1951 due to excessive flooding, poor communication and difficulties in using machinery. Local farmers continued with the scheme and later it was handed over to Kilosa District in the year 1960. However, the Government decided to rehabilitate the scheme as a seed farm in the year 1970, but adjoining 400 hectares out 600 hectares. Rehabilitation was not successful and since 1975 only some 250 ha were grown producing 300 tons of paddy rice and a single crop. Complete rehabilitation of the scheme was recommended by both FAO and IDM Mzumbe in 1984 which never take off. A study carried out by Carl-Bro and Cowi Consultants were aiming at being considered by UNCDF for funding which never take off. However, their proposal was to use the existing infrastructure to develop fully gravity irrigation and for a double cropped rice.

Geology

Kilangali village farm is found in the Mkata plain of which in essence is a flood control plain. It is bounded on the west by chain of faulted hills. The parent material is considered to be alluvium of diverse nature consisting of gravel, sand, silt, mud, limestone and tuff (Geological survey, 1965).

Water Resources

Rainfall

Observations have shown that; the rainfall pattern is characterized by a bimodal; consisting of a warm rainy season lasting from October to May; short rains starts from late October to early February and long rains starts from March to May with its peak in April. The annual mean rainfall is 1369 mm.

Surface Water Resources

The source for irrigation water in Kilangali village is Myombo river.

Climate

The annual precipitation is high compared to other parts of the region; this implies therefore the residue moisture in the soil is also high and could support crops. The mean temperature range from 21.7°C to 26.9°C.

Soils

The farmland occurs on a broad physiographical position (flood plain). There exists soil variations within the farm area, but these variations are not significant as 90% of the farm is uniform; and the farm is mostly occupied by deep imperfectly to moderately well drained soils, with very dark grayish brown, sandy clay with distinct dark brown to yellowish brown mottles in some parts.

Agricultural production

The two production systems of rainfed and irrigated agriculture are in use by the farmers; but mostly they prefer rainfed and supplementary irrigation during dry spell periods. Major food crops grown in the area includes maize, paddy, sorghum, sweet potatoes, beans, cassava, peas, banana and millet. Intensive agricultural activities are carried out during the months of October to early February and march to May. Land preparation is done during and towards the end of short rains (November – February) by using both hand hoe and tractor drawn ploughs.

Marketing

In view of its accessibility any surplus grains so produced get ready markets in neighbouring regions such as Dar Es Salaam, Tanga, Pwani, Arusha, Moshi and Zanzibar.

Population

The whole district is mainly dominated by two ethnic groups namely Wasagara and Wakaguru. Kilangali village has a population totaling to 3065; with 1206 being male and 1859 being female.

Water User Association

The Traditional Irrigation Improvement Project (TIP) had organised a Water Users Group who are currently operating irrigation activities on an area of 1260 acres. The group comprises of 262 farmers; with 63 female and 199 male. Also of interest to note is the fact that the group operates a bank account with a balance of 48,000/=. Field visits to the project site have revealed non-functioning of this group as the canals could be seen to be heavily vegetated, silted and no maintenance at all. Training of leaders and the group members is mostly essential as well as acquiring of a legal status through Registration. Also the group could be encouraged to establish a Savings and Credit Society.

Existing Constraints

- ◆ Flood damage during rainy season due to untrained river

- ◆ Proper control gates are not installed in place
- ◆ Most of the farmers never use any fertilizer
- ◆ Excessive weeds lead to low production levels

It is therefore recommended that; the improvement of the Water Users Association; will depend on the selection of an acceptable system by the Group members. The knowledge on Water use efficiency in relation to the type of crops grown and adopting of the irrigation methods are among the key issues to be addressed. Increase of production is quite possible given the present infrastructure in place; however there are minor repairs and maintenance of the distribution boxes and replacement of some gates required.

Input Suppliers

Although there is no stockist (input supplies) at the village there are three supplies situated at Kilosa town which is 30 km from Kilangali. The suppliers are M/s Farahani's Rombo, Kimamba and Kilosa Co-operative Union.

(b) Msolwa Village Scheme

Msolwa village is located at about 36 kilometers off the Mikumi – Kilosa road. It is a village with an irrigation potential estimated at 1,000 ha. The irrigated agriculture has been on practice for many years on traditional basis only. There are no measures seems to have been undertaken either by the MOA through the Irrigation Division or the District Authority to improve the present irrigation systems.

Water Resources

Rainfall

Msolwa village lies in the low lands of Kilosa district, receiving a fairly amount of rainfall slightly higher than the minimum of 400 mm per annum.

Surface Water Resources

There is a number of emerging spring; which lead to streams emptying into Raha River.

Climate

Msolwa village gets fairly a low amount of rainfall as compared to other villages in the district. The rain season starts in November/December to March/April. The mean monthly temperature ranges between 22°C to 27°C.

Agricultural production

The major production system is irrigated agriculture with two seasons; the food crops mainly grown are maize and beans. The maize season starts in November/December with harvest in March/April yielding 2t/ha. The beans season begins in July/August with harvest in October/December yielding 2 – 3 t/hectare.

Water Users Association

There are about 1294 farmers in the village; among them 681 are male and 613 are female. There is no formal group coordinating the activities of the irrigated agriculture; hence the village is faced with the following constraints.

Existing Constraints

- ◆ Non existence of any group coordinating the activities of the irrigated agriculture
- ◆ Non existence of improved irrigation system
- ◆ The tradition systems are subject to being washed away during every rain season
- ◆ Abstraction of water from the source and leading it to the farm has always been on trial and error
- ◆ Water control and management seems poor and does not exist at all
- ◆ The lack of both crop and irrigation extensionist has worsened the irrigation practice

Removal of the above mentioned constraints will entail the following:-

- (1) Carry out a feasibility study and draw up a design of the scheme
- (2) Construct an improved irrigation system (i.e. weir, canals and its related control and distribution structures).
- (3) Establish and strengthen of a Water Users Association fully registered. WUA will have to be equipped with the responsibilities of operation and maintenance of the newly constructed irrigation system.
- (4) Establish a Savings and Credit Society within the Water Users Association to deal with input supply.

Input Supplier

There is no input Supplier (stockist) at the village, however there exists three stockists at Kilosa

town which is about 100 km from Msolwa.

Marketing

Private traders from Kilombero and Dar Es Salaam have been frequently to Msolwa for the produce.

G. MWANZA REGION

Mwanza Region is geographically located between longitude 31°45" to 34°00" East and Latitude 1°45" to 3°30" South and with an altitude ranging between 1000m to 1500m above sea level; the annual average rainfall ranges between 800mm – 1200mm. Covers an area estimated at 34,876 km²; and it is divided into seven administrative districts viz: Mwanza Municipality, Geita, Kwimba, Sengerema, Magu, Ukerewe and Missungwi. Similarly it is divided into 38 Divisions; 159 Wards and 648 registered villages. According to the 1988 population census the region has a population of 2 million people, about 85% of this population earns its living from Agricultural production (crops and livestock) while the rest is engaged in fishing, mining and other miscellaneous activities. The average population density is about 96 people per square kilometer well above the National average which is 24 people per square kilometer. This fact makes Mwanza to be the most densely populated region in Tanzania.

The Mission had lengthy discussions with the Regional Authority agreed to choose, Magu, Sengerema and Missungwi districts as being more potential.

Water Resources

The main rivers draining into Lake Victoria are Mwame flowing from Ilula into Lake Victoria near Missungwi, Simiyu flowing from Mahaha in Lake Victoria near Magu, Nyaruhwa flowing into Lake Victoria and Butobela/Nyakadohomi which flows from Bukoli into Lake Victoria.

Magu District

Magu District is a potential district with an estimated land area of 4,795 square kilometers which is about 13.6% of the Regional area. According to the 1988 population census, the district has a population of 310,918 people; whose composition is 152,374 male and 158,544 female. The arable land is estimated at 135,900 Ha. The major staple food crops grown includes; paddy rice, maize, sorghum etc; with an average annual rainfall ranging between 600mm – 850mm. Out of the arable land the irrigated potential land area is only 1,545 ha.

The mission have had some discussions with the District authority as with regard to irrigated agriculture in the district and agreed to visit two sites namely Missungwi and Kaliangara.

(a) Missungwi Site

Missungwi site is located 3 km from Magu town with three participating villages namely; Itumbili, Kitongo, Mabulenga, Buhumbi and Kipeja. The site has had an IFAD assistance in 1996/97; where a gabion weir and excavation of two main canals to save both sides of the seasonal river were executed.

Surface Water

There exists a seasonal river called Matu from which an abstraction has been constructed to supply water to Sawenge with an area of 70 ha and Missungwi with an area of 80 ha.

Climate

The annual average rainfall seems low; and in some years it has failed to sustain crop production. The average day temperatures 23°C to 26°C; with relative humidity ranging from 40% to 70% at the end of the rainy season.

Geology

The site is dominated by flat to gently undulating plains which developed mainly on granite. Apart from that there are also rocky hills with gentle to steep footsteps developed on granatic rocks, rocky hills with very gentle to undulating footsteps developed on the basic metamorphic rocks associated with banded ironstone and flat, seasonally inundated low-land plains developed on young alluvium.

Rainfall

The rainy season starts in September – October and ends usually halfway May. The general rainfall pattern is bimodal with most of the raining in November – December and March April. In January and February there are often prolonged dry spells. From June to September there is almost no rainfall. The minimum levels range between 500mm to 600mm.

Soils

The dominant soils are the Black Cotton soils.

Agricultural production

The major production system at the site is rainfed agriculture where rainfall runoff flowing through river Matu has been obstructed through a gabion weir to supply water to paddy fields for the farmers of Missungwi and Sawenge. The grown crop is paddy rice yielding 1.6t/ha. The use of improved seeds and better crop husbandry could increase productivity. The paddy rice varieties being grown in this area includes Supa, IR54, Lugata, Moshi and Subarimati.

Fertilizer Application

Although there has been some fertilizer trials under FAO; the impact has been very low as the adoption rate remains zero. Most of the farmers interviewed and information from DALDO's office has revealed the fact that the farmers are mostly using farm-yard manure.

Population

The population of Itumbili village is 4097 people according to the 1988 population census; comprising of 1698 male and 2399 female.

Water Users Association

Under the initiatives of the SDPMA/IFAD; a Water Users Association (WUA) was established as Sawenga with 100 members and at Missungwi with 50 members. Both WUA" have not been registered and at the moment they seem to be non-functional or too weak.

Existing Constraints

- Maintenance of the infrastructure
- Siltation at the weir site (in front)
- Access road to and from the farm (plots)
- Floods occurring during every season inundate the plots, damaging the canals, bunds and severe erosion
- Water Control Management training to village extension officers and the farmers.
- Absence of water regulating structures along the conveyance canals has led to a poor water distribution
- Absence of Reservoir up stream to store water has led to crop failure due to shortage of water
- Lack of an extension staff

Any measures as with regard to the removal of the above mentioned constraints have to do with rehabilitation of the present infrastructure, registering the WUA, strengthening WUA through training.

Extension Services

Magu district has 96 extension workers just before the deployment exercise of the MOA; presently there are only 30 Extension Workers who have to offer their services to 115 villages. Already this seems to be a constraint to the farmers of Sawenga and Missungwi. A total of four farmers and six Village Extension Officers have attended training at KATC – Moshi. One subject matter Specialist was sent to Kenya for a similar course.

Savings and Credit Societies

There exists a traditional system of Saving and Credit called IFOGONGO.

Marketing outlet

Private traders visit the village frequently to buy the produce and sale the same to Mwanza, Musoma, Kisumu.

Other activities

Other income generating activities in the village includes; local brewing, pottery, Livestock keeping.

(b) Kahangara Site

Kahangara irrigation Scheme is situated 12 km from Magu District Headquarters at Kahangara/Shinembo village. The scheme was drawing water from Lake Victoria through two pumps installed on the shore. The total irrigated area is about 75 ha.

The explanation given above under Missungwi on climate, Soils, Geology rainfall, agricultural production, Fertilizer application, Extension Services, Input Suppliers, Marketing outlet and other activities hold good for Kahangara site.

Water Users Association

There exists a WUA with about 60 members but unregistered. At the moment the WUA is non-functional due to a major breakdown of the two pumps bringing the operation of the scheme to an end.

Scheme Rehabilitation

The Scheme requires installation of two pumps in order to become operational again.

District Authority Commitment

The District Executive Director has assured the Mission of fully support; either the Council is ready to contribute some funds during implementation.

Sengerema District

Sengerema is another potential district with an estimated land area of 8,817 square kilometers which is about 25.1% of the Regional area. According to the 1988 population census, the district has a population of 302,161 people; whose composition is 151,062 male and 151,099 female. The arable land is estimated at 121,100 ha; with the major food crops grown being paddy, maize and sorghum. The average annual rainfall ranging between 600mm – 950mm. Out of the arable land the irrigated potential land area is only 2400 Ha. After some lengthy discussions with the District Authority the Mission agreed to visit two sites namely Katunguru and Luchili.

(a) Katunguru

Katunguru site is situated 25 km from Sengerema town; with an irrigated potential land area of about 2000 ha. At present only 500 ha seems to be under production during the wet season; using three seasonal streams namely Ibondo, Nyamililo and Namitera.

Rainfall

The rainy season starts in September – October and ends usually halfway May. Compared with Magu District; the rains in Sengerema starts earlier. As usual the general rainfall pattern is bimodal with most of it falling November – December and March – April.

Surface Water Resources

There exists three seasonal streams from where the farmers have made their own initiatives to abstract the rainfall run-off to the fields.

Climate

The annual average rainfall seems low in comparison to other districts in the region. The average daily temperatures ranges between 22° to 28°C and the relative humidity between 45% to 70% at the end of the rainy season.

Geology

The site is dominated by flat to gently undulating plains. Seasonally inundated lowland plains developed on young alluvium.

Soils

The dominant soils are the black cotton soils; clay loam and sand loam.

Agricultural production

The major production system at Kahunguru is rainfed agriculture. Apart from the rain falling directly on the basin; the farmers have traditionally abstracted the seasonal streams to fill up their basins. These farmers grow both maize and paddy with the corresponding yields being 1 – 2 tons/ha and 1.5 tons/ha respectively. The varieties being grown include; Katumani, TMVI, Kilima, Ukiriguru Composite, Cargil 4141, 4142 and fire, Kahogo, Supa and Rangi mbili.

Marketing outlet

Private traders visit the district frequently to buy the produce and selling the same to Kagera, Kenya, Uganda, Rwanda and Zanzibar.

Population

Water Users Association

There exists an informal water users group with no legal entity however there is about five hundred farmers. They have an organized traditional Savings and Credit Society called IFOGONGO.

Existing Constraints

- No formal Water Users Association
- A well designed farm layout incorporating farm roads, supply and drain canals siltation
- Flooding do cause inundation to the paddy fields
- Lack of water control and distribution structures
- Culverts/bridges at the farm level

Removal of the above mentioned constraints could led to an increase of both production and productivity.

Extension Services

The district has an extension strength of 74 officers; with 15 of them being at the district level. There are 116 villages being saved with 69 Village Extension officers.

Input Suppliers

There exists some four stockists at Sengerema town.

Agricultural Support Services

At Ukiriguru – Agricultural Research Institute, there exist a unit of the Rice Research – KATRIN of Morogoro assisting the farmers of Katunguru. Also their exists a farmers training centre nearby the village called Nyamahona Agricultural Centre.

District Authority Commitment

The District authority has expressed its full support and cooperation in implementing this project through the respective department.

Luchili Site

Luchili village is another site where a pumped scheme was developed in the past. The total irrigated land was 44 ha with about 60 farmers forming a group of Water Users. Since this group existed as an informal group its functioning could not make any progress. The Mission visited the site and found no efforts being made by the farmers to cultivate any crop. The pumps installed on the lake shore are in a working condition but the farmers cannot organise themselves

to buy fuel.

Perhaps sensitization will have to be the first priority before establishing a Water Users Association; which will have to take care of the Operation and Maintenance of the scheme.

It is therefore recommended that the District Council through the office of the District Agriculture and Livestock Development Officer to sensitize the Luchili farmers.

Missungwi District

Missungwi district is another potential district on irrigated agriculture in Mwanza region with an estimated land area of 2,122 square kilometers which is about 6.0% of the regional area.

According to the 1988 population census the district has a population of 250,284 people. The District has a potential irrigable area of 5,560 ha with the major food crops grown being paddy rice, maize and sorghum. The average annual rainfall ranges between 600 – 800 mm and most of it falls between October and May with dry spells in January and February.

The Mission have had some discussions with the district authority as with regard to irrigated agriculture potential in the district and agreed to visit Igongwa Irrigation Scheme.

(a) Igongwa Site

Igongwa Scheme is located 20 km from Missungwi District headquarters. The Scheme was developed under the assistance of SDPMA/IFAD.

Water Resource

Rainfall

The rain season starts in September – October and ends usually half way May.

Surface Water Resources

There exists a seasonal river called Magogo; this is the source of water supply to Igongwa scheme.

Climate

The annual average rainfall seems low and in some years it has failed to sustain crop production. The average day temperature ranges between 23° C to 26° C, with relative humidity of 40% to 70% at the end of the rainy season.

Soils

The dominant soils are the black cotton soils i.e. clay loam and sandy loam.

Agricultural production

The major production system at Igongwa is rainfed agriculture where rainfall run off flowing through seasonal river Magogo is abstracted and directed into the field. The mostly grown crops are the paddy rice and maize with yielding of 1- 5 t/ha and 1 – 2 t/ha respective. Among the varieties being grown includes supa, fire and some local varieties for paddy while Cargil 4141, 4142, Ukiriguru composite and TMVI for maize.

Fertilizer Application

Although there has been some fertilizer trials of the FAO in the district the adoption rate has been very low. Most of the farmers use farm yard manure.

Population

The Scheme caters for three village namely Mabuki with 2000 people; Missungwi with 2200 people and Rubaga with 1500.

Water Users Association

Under the initiative of the SDPMA/IFAD; a Water Users Association was established with a total number of members being 167. This WUA has not been registered and at the moment it seems to be weak.

Existing Constraints

- Maintenance of the infrastructure after the El-Nino rains
- Siltation in front of the Weir
- Due to floods the fields are subject to inundation in every rain season
- Water Control Management training to the farmers and the extension staff
- Provision of Water Control Structures
- Pests – quelea quelea

Any measures as with regard to removal of the mentioned constraints have to do with improvement of the existing system through rehabilitation.

Input Suppliers

There are three stockists situated at Missungwi.

Marketing outlet

Private traders visit the village frequently to buy the produce and sale the same to Mwanza, Musoma, Kisumu, Rwanda, Kenya and Uganda.

5. RECOMMENDATIONS

The Mission recommends nine potential for the ADBV/SPFS pilot project based on the following factors.

- (i) Available potential for increasing food production and productivity in the areas visited.
- (ii) The interests of the farmers/beneficiaries.
- (iii) The commitment of the district authorities.
- (iv) Representativeness with regard to agro-ecology for rice and maize production, the socio-economic conditions of smallholder under irrigated food production system.
- (v) Agro-ecological zone where demonstrations could be undertaken of available and well-tested cultural practices and technologies to sustainably increase food crop production.
- (vi) Accessible by road and rail and not too far from production input supplies, market outlets as well as sources of potential innovations (under the liberalization policy of the supply and demand market prices).

The potential selected sites from six regions are as follows:-

1. Tanga Region
 - (i) Kwa Mngumi – Korogwe District
 - (ii) Chekelei – Korogwe District
2. Kilimanjaro Region
 - (i) Maore – Same District
 - (ii) Kimashuku – Hai District
3. Arusha
 - (i) Mto wa Mbu – Monduli District
4. Iringa Region
 - (i) Mbuyuni – Iringa Rural

5. Mbeya Region

Usangu Village Irrigation Project

- (i) Motombaya – Mbarali District
- (ii) Mswiswi – Mbarali district
- (iii) Majengo – Mbarali District

6. Mwanza Region

Katunguru Site – Sengerema District

LIST OF PEOPLE MET**Tanga Region**

1. Mr. G. P. Msanga – Principal Planning Officer

Korogwe

- | | | |
|--------------------------------|---|--|
| 1. Mr. Y. Tesua | - | District Executive Director |
| 2. Mr. E. Rimoi | - | District Planning Officer |
| 3. Mrs. Maria Mashingo | - | Ag. DALDO |
| 4. Mr. Salum Msomali | - | Stastician |
| 5. Mr. Raphael Bago | - | District Irrigation Officer |
| 6. Mr. Stephen Augustine Kessy | - | Irrigation Technician Kwemazandu Irrigation Scheme |
| 7. Mr. Omari Ally | - | Farmer – Kwemazandu Irrigation Scheme |
| 8. Mr. Ibrahim Sabuni | - | “ |
| 9. Mr. Bakari Dhahabu | - | “ |
| 10. Ms. Mwanaidi Rajabu | - | “ |
| 11. Mr. Rajabu Sechambo | - | “ |
| 12. Ms. Mwanaidi Omari | - | “ |
| 13. Mr. Martin Joseph | - | Farmer at Chekelei |
| 14. Mr. Francis Augustine | - | “ |
| 15. Mr. Yohana Paulo | - | “ |

Lushoto

- | | | |
|---------------------------|---|--|
| 1. Mr. Justine Mzoo | - | District Irrigation Officer |
| 2. Ms Beatrice Shemdoe | - | District Community Dev. Officer |
| 3. Mr James Chandenda | - | Irrigation Technician |
| 4. Mr. David Mndeme | - | Statistician |
| 5. Mr. Ephrem Minde | - | Resident Engineer Kitivo Irrigation Scheme |
| 6. Mr. Joha Frank Sangali | - | Kitivo Irrigation Scheme Manager |
| 7. Musa Kirimo | - | Chairman Kitivo Irrigation Scheme Farmers |
| 8. Cooperative Society | - | |
| 9. Mzee Hamza Ngada | - | Vice Chairman “ |
| 10. Ms. Nuru Ngole | - | Secretary “ |

Kilimanjaro Region

1. H. Z. Riwa - Principal Planning Officer

Same

2. Mr. P. C. Kangwa - District Commissioner
3. Mr. Hamisi Singano - DPLO
4. Mr. R. K. C. Kivia - District Crops Officer
5. Dr. E. P. Osanga - DALDO
6. Mr. Yusuf Mohamed - Farmer Marininga Irrigation Scheme
7. Mr. David Nkunundu - Ward Executive Officer – Kisiwani
8. Mr. Issa Sambala - Councilor
9. Mr. Jacob Kavishe - Village Extension Officer

Hai

1. Mr. G. K. Mwaijande - District Executive Director
2. Dr. E. Ulicky - DALDO
3. Mr. Noali Kajigili - District Irrigation Officer
4. Mr. Fatous Mlay - Irrigation Technician

Arusha Region

1. Mr. J. Kileo - Regional Administrative Secretary
2. Mr. L. L. M. Ngigwana - RALDO
3. Mr. L. R. Chalamila - RAA

Monduli District

1. Mr. John Lukumay - District Crop Officer
2. Mr. T. A. Mbasha - Community Dev. Officer
3. Mr. R. S. Kwayu - Irrigation Technician (SMS) Monduli
4. Mr. B. J. Kileo - Irrigation Technician Incharge – Mto wa Mbu

Morogoro Region

1. Mr. G. W. Kikwasha - Ag. RPLO
2. Mrs. Shayo - RAA
3. Mrs. A. Mziray - RAO – SPFP
4. Mr. Lizer - Agricultural Officer

Kilosa District

1. Ms Tumbo - District Commissioner
2. Mr. C. S. Kavi - DEO
3. Mr. W. C. Gilbert - District Irrigation Officer
4. Ms. A. M. Farahani - Agricultural Field Officer
5. Mr. M. Y. Mrasi - Ag. DED

Kilangali Village Farmers

1. Mr. Dickson D. Joseph - WEO, Kilangali
2. Mr. C. P. Libang'u - Chairman
3. Mr. Hamisi Mwambuli - VEO
4. Ms. Christina Libang'u - Member
5. Mr. Hassani Mtunga - Member
6. Mr. Selemani Kindamba - Member
7. Mr. Fedho Mziray - Member
8. Mr. Mathew Kiyungu - Doctor, Kilangali Hospital
9. Mr. Omary Nguchuke - Member
10. Mr. Ally Maganga - Chairman, Irrigation
11. Mr. Rashidi Ally - Member, irrigation
12. Mr. Batista Changa - Member, Irrigation
13. Ms. Amina Abdallah - Member, Irrigation
14. Mr. Nassoro Lugumba - Member, Irrigation
15. Mr. Abdullah Vimbi - Member, Irrigation
16. Mr. Abdallah Ngaukila - Member, Irrigation
17. Mr. Hamisi Masudi - Member, irrigation
18. Ms. Mwajibu Ally - Member, Kilangali Village
19. Mr. Saidi Paliani - “
20. Mr. Abdallah S. Kijiko - Member, Irrigation

Msolwa

1. Mr Tresphory Mlonge - Village Chairman Msolwa
2. Mr Joseph Kasiani - Village Executive Officer - Msolwa

Iringa Region

1. Mr. Ndesario Mwangi - SMS Irrigation
2. Mr. Lusajo Mahena - Divisional Extension Officer
3. Mr. Venadian Maulaga - District Irrigation Officer, Iringa
4. Mr. Philemon Mpwehwe - Ag. Regional Crop Advisors
5. Mrs. C. Shirima - Regional Administrative Secretary Iringa
6. Dr. E. Mbunda - District Agriculture and Livestock Dev. Officer
7. Mr. Martin Kindimba - Divisional Extension Officer (Sadani Division)
8. Mr. Yahaya Mhina - Finance & Administrative Manager, Madibira Project
9. Mr. Daniel Manase - Environmentalist

Mbeya Region

1. Mr. Joseph Kitangalala - Regional Agric. Advisor
2. Mr. Luvanda - Ag. RAS Mbeya
3. Mr. P. N. Mauto - Regional Planning Officer
4. Mr. M. A. Majo - Design Engineer Zonal Irrigation Office, Mbeya
5. Mr. Joseph Samjumbi - Village Executive Office
6. Mr. Joel Ande - Ag. Village Chairman
7. Mr. Msuya - Irrigation Technician, Zonal Irrigation Office
Soil Scientist, Zonal Office

Mwanza Region

1. Mr. A. O. U. Mwakyusa - Ag. RAS
2. Mr. K. R. Sangiwa - Principal Planning Officer
3. Mr. Kyamba - Planning Officer
4. Mr. Karugila - RAA
5. Mr. P. F. Buzoya - REO
6. Mr. E. W. Siyame - Zonal Irrigation officer, Mwanza

Magu District

1. Mr. P. Z. Kwiluhya - DED
2. Mr. J. P. O. Watae - DPLO
3. Dr. J. Mzee - DALDO
4. Mr. Susuma - DEO
5. W. C. Kapaga - DIO
6. Mr. C. P. A. Degeleki - SMS – Crops
7. Mrs. Magere - DCO
8. Mr. Jumanne Ngemi - Chairman Itumbili Scheme

Sengerema District

1. Ms. M. Sanka - District Commissioner
2. Ms. P. S. Masashua - DALDO
3. C. B. Kiula - DIO
4. Mr. J. H. Mbura - DEO
5. Mr. Marekana Martina - VEO Katunguru

**TENTATIVE PROGRAMME FOR THE LOCAL EXPLORATORY MISSION TO
ADB/SPFS POTENTIAL AREAS FROM 15.12.98 – 6.1.1999**

Day	Date	Time	Activities	Place	
				Region	District
Tuesday	15.12.98	8:00 hrs	Depart for Tanga Region	Tanga	
		13:00 hrs	Courtesy call to the Regional Authorities		
Wednesday	16.12.98	8:00 hrs	Depart for Korogwe		Korogwe
		9:30 hrs	Courtesy call to the District Authorities		
		10:30 hrs	Visit Sites		
Thursday	17.12.98	8:00 hrs	Depart for Lushoto		Lushoto
		10:00 hrs	Courtesy call to the District Authorities		
		11:00 hrs	Visit sites		
		15:00 hrs	Depart for Kilimanjaro	Kilimanjaro	
Friday	18.12.98	8:00 hrs	Courtesy call to Regional Authorities		
		8:30 hrs	Depart for Same		Same
		10:30 hrs	Courtesy call to District Authorities		
		11:30 hrs	Visit sites		
		16:30 hrs	Depart for Moshi		Moshi
Saturday	19.12.98	8:00 hrs	Depart for Hai		Hai
		9:00 hrs	Courtesy call to District Authorities		
		9:30 hrs	Visit sites		
		16:30 hrs	Depart for Arusha	Arusha	
Sunday	20.12.98	8:00 hrs	Depart for Arumeru		Arumeru
		9:00 hrs	Visit sites		
Monday	21.12.98	8:00 hrs	Courtesy call to District Authorities		Monduli
		10:00 hrs	Depart for Monduli		
		11:00 hrs	Visit sites		
Tuesday	22.12.98	8:00 hrs	Depart for Morogoro	Morogoro	
Wednesday	23.12.98	8:00 hrs	Courtesy call to Regional Authorities		
		9:00 hrs	Depart for Kilosa		Kilosa
		11:30 hrs	Courtesy call to District Authorities		
		12:30 hrs	Visit sites		
Thursday	24.12.98	8:00 hrs	Visit sites in Morogoro Rural		
		15:00 hrs	Depart for D'Salaam		

Day	Date	Time	Activities	Region	
Sunday	27.12.98	8:00 hrs	Depart for Iringa	Iringa	
		14:00 hrs	Visit sites on the way to Iringa		Iringa
Monday	28.12.98	8:00 hrs	Courtesy call to Regional Authorities	Iringa	
		9:00 hrs	Visit sites		
Tuesday	29.12.98	8:00 hrs	Depart for Mbeya	Mbeya	
		12:00 hrs	Courtesy call to Regional Authorities		
		13:00 hrs	Visit sites		Mbarali
Wednesday	30.12.98	8:00 hrs	Depart for Mbozi		Mbozi
		9:30 hrs	Courtesy call to District Authorities		
		10:30 hrs	Visit sites		
Thursday	31.12.98	8:30 hrs	Depart for Dsm	Mbeya	
		17:00 hrs	Arrival Dar es Salaam	Dar es Salaam	
Sunday	3.1.99	6:30 hrs	Depart for Mwanza	Mwanza	
		9:30 hrs	Arrival Mwanza		
Monday	4.1.99	8:00 hrs	Courtesy call to Regional Authorities		
		9:00 hrs	Depart for Magu		
		11:30 hrs	Courtesy call to District Authorities		
		12:30 hrs	Visit sites		
Tuesday	5.1.99	8:00 hrs	Depart for Sengerema		Sengerema
		10:00 hrs	Courtesy call to District Authorities		
		11:00 hrs	Visit sites		
		16:00 hrs	Depart for Mwanza		
Wednesday	6.1.1999	11:00 hrs	Depart for D'Salaam	D'Salaam	
		14:00 hrs	Arrival D'Salaam	D'Salaam	

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9. Usangu Village Irrigation Project (URT/91/005)
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Map of Tanzania indicating the visited Districts

