



**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS**

**Rome, Italy, January 1995**

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**UNITED REPUBLIC OF TANZANIA**

**SPECIAL PROGRAMME ON FOOD PRODUCTION IN  
SUPPORT OF FOOD SECURITY**

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**EXPLORATORY MISSION REPORT**

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## **INTRODUCTION**

At the request, in early October 1994, of the Minister of Agriculture and Livestock Development of the United Republic of Tanzania, through the FAO Representative in that country, this Exploratory Mission for the Special Programme on Food Production in Support of Food Security in Tanzania was undertaken from 27 October to 9 November 1994. The Mission consisted of Mr. Tito E. Contado and Mr. Henry Mwandemere from Headquarters, Mr. Richard Fuller, Mr. Shahid Najam and Mr. Justice Kabyemera of the FAOR's Office in Dar-es-Salaam and the active participation of Mr. Yves Gillet and Mr. P.J. Riddell, FAO Experts in Plant Nutrition and Irrigation respectively in Tanzania. The Headquarters members of the Mission were briefed on the Terms of Reference of the Mission by the Special Programme Officials and by the representatives of the different technical divisions on current and future activities/projects in Tanzania relevant to the objectives of the Special Programme and the purposes of the Exploratory Mission.

The Mission undertook a series of group and individual meetings with relevant Ministry of Agriculture and Livestock Development Officials, the National Planning Commission, current and potential partners from the international donor's community and the private/NGO sector (see list of people met in Annex 1). In between meetings, the Mission reviewed documents relevant to the scope and purpose of the Mission (see list of documents made available for review in annex 2).

Because of the conflicting opinions and the great importance attached to the proper selection of the Special Programme Expansion and Demonstration areas, of the five agro-ecological zones initially considered, four were visited, namely: (a) the Central/Eastern Zone (Dodoma/Morogoro regions), (b) the Lake Zone (Mwanza/Shinyanga regions), (c) the Northern Zone (Arusha/Moshi region) and (d) Zanzibar. The Mission travelled approximately 3,500 km. by road (see map of the regions visited in Annex 3).

### **A. FOOD SUPPLY AND DEMAND OUTLOOK**

In a number of published reports, the demand outlook for food in Tanzania is definitely high and increasing. The major reasons for this outlook are the continuing high population growth, (currently at 3.0% annually), increasing urbanization and the trend of an increasing income of the population particularly in the growing modern sector. The population was 27 million in 1990 and is expected to reach 33, 39 and 84 million in 1995, 2000 and 2025 respectively. The total demand for food and non-food commodities in Tanzania is expected to increase by more than three and a half times by the year 2025.

It needs to be mentioned that the mission was informed that the demand for food is increasing from the neighbouring countries of Burundi, Rwanda, Uganda, etc. But because of the informal nature of the movement of food to these countries, it is difficult to know the actual volume of demand for food by these countries. Furthermore, there was no evidence to use in projecting how long this demand for food would last from these neighbouring countries.

The food supply situation in Tanzania is very complex. It is a vast agricultural country with varied agro-ecology and micro-climate conditions. Hence different food crops could be produced in different parts of the country although there are regions which are more suitable for certain food crops than others. For example, cassava, plantain and sweet potatoes can be suitably produced in certain regions but not in others. Furthermore, there are areas/regions where the food supply is chronically short due to low domestic production of food crops because of ecological and micro-climatic problems (low and short rainfall). Regional rainfall pattern is a significant factor in understanding the food supply situation in the country.

Currently, the annual total cereal requirements are put at 3.99 m tons. In 1993/94 domestic cereal production was 3.10 m tons, down 7 % on the harvest of 1992/93. In the 1994/95 period, Tanzania faces a cereal deficit of 881,000 tons. Failure to attain adequate domestic supply of cereals even during normal crop year could be attributed to the low yields of cereals per hectare (see annex 4), and the limited land under cultivation for food crops. It is estimated that only 5.1 million ha. are cultivated annually out of approximately 36.6 million ha. of rainfed cultivable land and 5.1 million ha. of irrigable land.

In a normal agricultural year, there are regions in the country which are able to produce sufficient food crops, while others are constantly in short supply of food. Because of the uncertainty of the food supply situation in the country, an important component of the national food security policy is the maintenance of a strategic grain reserve. Reflecting its importance, the Strategic Grain Reserve Board is headed by the Principal Secretary of the Ministry of Agriculture, Livestock Development and Cooperatives (MALDC).

The Special Programme in Tanzania would be in a strategic position to facilitate filling of the food demand-supply gap by focusing on technologies that will increase the land cultivation efficiency of the Tanzanian farmers (to increase the land area planted per season per farmer and to improve timeliness of land preparation) and the adoption by farmers of known cultural practices and technologies that will increase the yields per hectare. Consistent with the Special Programme approach, these two strategic foci of increasing production dramatically, can only be achieved with the active participation of highly motivated and trained farmers who would be provided with a concerted and well organized support services from both the public (research, extension, infrastructure) and private (input supply, markets, organization, saving/credit, transportation, etc.) sectors of the economy.

## **B. POLICY AND INSTITUTIONAL ENVIRONMENT**

### **(1) Macro-economic and agricultural policies**

Starting in the mid eighties the Government instituted a number of policy reforms to spur agricultural growth and productivity. In 1980 National Economic Survival Programme (NESP) was launched to boost export and food crop production. This was followed by the Structural Adjustment Programme (SAP) in 1982 and the Economic Recovery Programme (ERP) in 1986/87. The latter aimed at, among other things, increasing the output of food and export crops through appropriate incentives for production, improving marketing structures, and increasing the resources available to agriculture.

The 1989/90 Economic and Social Action Programme (ESAP), successor to the ERP aimed at, among other things, increasing domestic production of food and export crops and rehabilitating the social services to enhance people participation. Both the ERP and ESAP encompassed far reaching sector and policy instruments reforms that included internal liberalization of markets and prices of agricultural products, external liberalization policies, reform of the cooperatives, infrastructure improvement, public sector reform, and environmental protection.

The structural adjustment policy of Tanzania has a significant influence upon the agricultural economy of the country. Aimed at improving the dynamism and efficiency of the agricultural sector, this has led to the liberalization of the agricultural economy and leading the "3.5 million subsistence farm families to enter voluntarily into the market economy". Operationally, the Tanzania Agriculture Sector Memorandum suggests the following:

- Discontinuing the Government's practice of setting of farmgate prices and producer margins (even pronouncements on "indicative" levels) in export industries. (Between November 1992 and July 1994, the Government has discontinued this practice.)
- Withdrawing Government from the marketing of agricultural inputs, including fertilizers, agrochemicals and veterinary inputs. (Following November 1992, the Government has announced its withdrawal from the fertilizer, agrochemicals and veterinary inputs markets.)
- Eliminating the subsidy of fertilizer. The lack of sufficient budgetary resources to cover the cost of the subsidy reduces fertilizer supplies and affects deliveries. (Subsidy has been gradually phased out and was completely discontinued in the 1994/95 budget. Currently there are 9 companies importing fertilizers).
- Following an open trade policy which takes advantage of Tanzania's favourable position for supplying food to neighbouring landlocked countries in Eastern and Southern Africa. This would support maize production in the Southern Highlands and help counteract the reduced profitability of maize production caused by the removal of the fertilizer subsidy.

According to Tanzania Agriculture Sector Memorandum, the key elements of the medium-term strategy include measures to:

- a) improve the Government's ability to understand and influence the market-determined incentive structure for agricultural production and processing, enhance competition in liberalized input and product markets, and at the same time, manage the country's natural resources to sustain productivity and minimize negative environmental consequences;
- b) improve the functioning of markets for the land, capital and labour elements of the agricultural production process; and
- c) induce technological change by improving the efficiency of markets that supply improved agricultural inputs, and by increasing the effectiveness of the Government's agricultural research and extension services.

The macro-economic framework and agricultural policies appear to be adequate under which the Special Programme could be planned and implemented. Including the policies that support the Tanzania Comprehensive Food Security Programme, there is hardly any element in the Special Programme that does not find support in the existing macro-economic framework and agricultural policies. Even the participation of farmers in the development process is recognized in the government's policy to revitalize the cooperatives. It could be concluded that the introduction of the Special Programme in Tanzania is timely. The macro-economic framework as well as the agricultural development policies which were examined need strong initiatives such as the Special Programme to put a clear action and operational dimensions to these policies.

#### (ii) Institutional environment

The Ministry of Agriculture and Livestock Development appeared to be in a stable state of organization as seen from the Regional Offices visited and at the central levels. Furthermore, both the local and central units of government appeared to have stabilized, a condition that could facilitate increased food production and rural development. Specific aspects of the institutional environment which have a direct influence upon the Special Programme are briefly described below.

##### a) Planning

The Government is strengthening the institutional capacity of the Ministry of Agriculture, Livestock Development and Cooperatives through a number of projects including those on policy and management, extension, and research.

The key elements of the Agricultural Sector Management Project (ASMP) include encouraging the growth of private sector agricultural production, trade and investment; phasing out certain public sector provided goods and services; divesting the Government of agricultural parastatals with commercial potential; strengthening policy formulation

and planning activities of the Ministry; and improving the collection and dissemination of marketing information.

b) Research

The Tanzanian agricultural research system includes more than 50 research institutes, stations and sub-stations, staffed by 350 graduate level researchers, 550 diploma level technicians, and 760 certificate level assistants. The research network is divided into seven agro-ecologically defined zones each with a lead station and sub-station. Latest attempts by the Government to strengthen the capacity of agricultural research include the reorganization in 1989 of the four parastatal agricultural research institutions into the Department of Research and Training in the Ministry of Agriculture, Livestock Development and Cooperatives.

The National Agricultural and Livestock Research Masterplan (NALRM) and National Agricultural and Livestock Research Project (NALRP) have guided and supported the rehabilitation of research respectively. The latter has supported the consolidation of various agencies and units under the Division of Research and Training; improvement of research planning and management, financial control and monitoring; the formulation and implementation of a the NALRM; establishment of an Agricultural Research Fund; purchase of vehicles, equipment, and materials; training of research staff; and financing of civil works, technical assistants, and recurrent foreign costs. The Special Programme for African Agricultural Research (SPAAR) has facilitated close donor coordination in the implementation of NALRP.

The main constraints of the research system have included fragmented and uncoordinated research programmes, inadequate funding, poor interaction between research, extension, and the farmers, and the fragmentation of the research service. Attempts are being made to overcome these with NALRP and NALRM.

(c) Extension

The national agricultural extension system employs 80 percent of the 9,400 staff of the Ministry of Agriculture. The rehabilitation and strengthening the capacity in planning and implementing efficient and sustainable agricultural extension services in Tanzania has been supported by the National Agricultural Livestock and Extension Rehabilitation Project (NALERP) initiated in 1988.

Through the project the ministry has been able to establish the Training and Visit extension methodology in 13 of the 20 regions. Some 4,400 Village Extension Workers have been trained in the new methods. The ratio of frontline extension workers to farmers in these regions now stands at 1 to 450.

The project has made progress in resolving the problems of inadequate resources, low staff motivation, inadequate technical expertise, and poor supervision, monitoring and evaluation. Coupled with the liberalization of the food market, the project has contributed to the recent high growth rates in the agricultural sector. However to sustain these gains there is need to link extension more effectively to the research efforts,

increase the level of real funding of operating costs, to conduct a critical review of the commitment, technical capabilities and retraining of potential of the existing Village Extension Workers.

(d) Production supplies, marketing and financial services

Before the liberalization policy of the economy, these services were all provided by the government. But the government could provide only a limited scope of the services due to structural problems, very limited resources and inefficiency. The liberalization policy has stimulated some developments of the private sector to provide those services that the government used to render. For example before the liberalization policy, only the government imported and distributed fertilizer and seeds. Towards the end of 1994, there were 9 registered fertilizer importers/distributors while two seed importers/distributors have also come into the scene. An important development is the revival of the farmers associations and cooperatives. Currently the Tanganyika Farmers Association Ltd., probably has the largest distribution and marketing centres in the country. Unfortunately, the cooperatives are still not fully organized and functional. Of the services that are needed by farmers, the credit/financial services are almost absent in the local scene. The services on a wide range of farm mechanization, especially at the local level, are also almost totally absent or very weak.

For the Special Programme, the current institutional environment has two very important implications at the micro-level, namely: economic and educational. The liberalized economy is new to the farmers. Some of these farmers who were reached by the government services are used to subsidized production inputs such as fertilizer, seeds and chemicals and government procurement agents while other farmers have very little contact with modern means of increasing production and profitability of farming. Changing the attitude and behaviour of these farmers to operate under an open market economy is a big training or educational challenge. At the local level, the farmers who have no savings, at least initially, are anticipated to find it difficult to finance purchase of production inputs at the open market prices. Even if local credit for production inputs are made available by the private or public sector, farmers will need training in credit and farm management.

### C. SELECTION OF TARGET FOOD STAPLES AND AREAS

The 25 administrative regions of Tanzania have been divided, for land resources use, into main agro-ecological zones and farming systems. The seven agro-ecological zones identified include the Coast, Arid Lands, Semi-arid lands, Plateaux, Southern and Western Highlands, Northern Highlands, and Alluvial Plains (Annex 5). The smallholder farming have been grouped into six main categories of Coffee-Banana and Horticulture; Maize and Legumes; Pastoral and Agropastoral; Sorghum, Millet, livestock; Wetland Paddy and Sugarcane; and Cassava, Cashewnut, Coconut.

Of the agro-ecological zones identified above, the Highlands and the plateaux have good soils, reliable and plentiful rainfall, and are of high agricultural potential, especially for smallholder farmers. The Alluvial plains zones also offer good potential



for cultivation, although more appropriate for larger scale, mechanized farming. The coast and semi-arid lands are only moderately suitable for annual cropping and high-intensity agriculture, and are used for more drought resistant crops such as sorghum, millet and sisal. The Arid Lands are of low potential for sustained cropping and are best used for low-intensity extensive livestock grazing.

The maize and legumes farming system is one that is practised by the majority of smallholder farmers. Maize is grown as a cash crop and for subsistence consumption. Most of the maize marketed in the country is produced under this system with little use of improved technologies of seed, fertilizers, and mechanization. The system is found in zones with medium to good agricultural potential, Western Plateaux and Southern Highlands.

The wetland rice and sugarcane system is based on the use of permanent water sources to cultivate rice and sometimes sugar cane in river valleys and alluvial plains. Most of the rice produced and consumed in the country is produced in the river valleys and alluvial plains. The potential for increasing yields through intensification is great. However additional investment in irrigation and water management, as well as post harvest technology, is needed to expand production.

#### (i) Selection of Target Food Staples

While Tanzania has produced large volume of food to meet the household needs of its population over the past five years, the averages conceal severe differences, across regions (national), and across age groups in rural areas (household). While average caloric intake per capita per day is estimated at 2,206 Kcal in 1989 the intake in the sorghum/millet farming system drops to 1500 Kcal per capita per day. Both figures are well below the recommended level of 2780 Kcal/capita.

The staple foods of Tanzania include bananas, maize, pulses, rice, roots and tubers, and sorghum and millet. However the main source of calories, and the preferred staple, is maize. It provides 34 percent of total calories, while pulses, rice, roots and tubers, sorghum and millet, provide 6, 8, 23, and 5 percent respectively. In rural areas maize provides up to 62 percent of the DES. In urban areas the demand for rice is increasing rapidly due to the rapid population growth of the cities in the Arusha, Dar-es-Salaam, Dodoma, Iringa, Kagera, Mbeya, Mwanza, Shinyanga, and Tanga regions.

It was also noted that for national food security purposes certain food crops, such as cassava, plantain and root crops, have short keeping quality, therefore they could not be stored and transported to other parts of the country where food shortages may be located. It was further noted that the production of staples with high preference and demand locally and in neighbouring countries such as maize and rice (which have good keeping qualities, easily stored and transported) could be dramatically increased both in terms of increasing yield per hectare and expanding the areas planted to these crops. For these reasons, it was concluded during the exploratory mission that the strategic target food staples for the Special Programme in Tanzania would be maize and rice.

(ii) **Technological Options**

Despite the demonstrated availability of technological options for increasing production, smallholder maize and rice yields continue to be well below potential. The technologies available in the country for improving the yields of maize and rice include the following:

- a. **Farm mechanization:** Timely and thorough land preparation is the key to improving land, labour and crop productivity. Available draught and tractor drawn implements have the greatest potential for increasing smallholder productivity. Their superiority over the hand hoe, the common smallholder implement, has been demonstrated by research and extension. It is reported that where draught animal power is used in plowing and harrowing, the area cultivated is three to four times larger than by use of the hand hoe. Furthermore, timely and adequate land preparation can be achieved.
- b. **High yielding varieties:** A number of high yielding maize and rice varieties have been introduced and developed in Tanzania. But most farmers continue their unimproved local selections. The improved rice and maize varieties have the potential to produce 6-8 tons/ha and 4-6 tons/ha respectively.
- c. **Weed Control:** Family and hired labour hand weeding is the main method of weed control at present. Proper land cultivation and using animal drawn or small tractor drawn cultivator in the case of maize could minimize the weed problem significantly, hence increase productivity of land, labour and crop. In the case of wet rice culture, a combination of proper land preparation, irrigation management and use of mechanical weeders could also minimize the weed problem. Another weed control method is the proper use of herbicides. It has been demonstrated in Tanzania to be cost effective and profitable, especially for rice, but needs to be properly evaluated for environmental reasons.
- d. **Integrated Pest Management (IPM):** At present, no control measures are being taken against maize streak and stalk borer and against rice blast. Pest and disease control methods, including integrated pest management, are known to be available and can substantially reduce yield losses.
- e. **Irrigation and Water management:** Irrigation schemes and good water management have high potential for substantially increasing rice yields. The use of small water pumps for advanced preparation of rice seedbed and supplementary irrigation has big potential increasing the production of rice through timely transplanting of seedlings, by lengthening the growing period of the plant in the field and enabling the farmers to have more time to prepare wider land area for the rice crop in a given season.
- f. **Proper use of fertilizer:** The FAO Plant Nutrition programme in Tanzania has demonstrated the significant increases in crop production as a result of proper application of fertilizer together with HYVs and proper cultural practices. However, the use of fertilizer in Tanzania remains to be very low (FAO Country Tables 1994, shows that in 1992 Tanzania's fertilizer consumption was only 48,000 mt compared to

Thailand's 1,095,000 mt and Pakistan's 2,144,000 mt). With liberalization, in 1993/94 nine companies imported a total of 250,000 mt but only about 74,000 mt were used. If the economics in the use of fertilizer is indeed positive, the problem that the Special programme faces is farmers' education/training, timeliness of fertilizer availability/distribution and marketing of maize and rice at profitable prices.

g. Post harvest technologies: Appropriate and not too expensive post-harvest processing technologies, milling and food processing, will not only reduce the drudgery of work for women but also reduce post harvest losses for both rice and maize.

h. Transportation: Encouraging and promoting the use of animal drawn carts and bicycles for transporting farm inputs and produce would relieve women from transporting goods manually and improve the efficiency of farm household operation and contribute to increased farm production.

### (iii) Selection of Expansion Area

A number of factors were considered in the identification and selection of the expansion area. The process of identification and selection was guided by the following criteria:

- . High production potential for the major staple food crops (maize and rice) under rainfed/irrigated production systems ( soils, rainfall, growing season, potential and actual crop yields).
- . Representativeness (with regards to agro-ecology for maize and rice production, the socio-economic conditions of smallholder rainfed and irrigated food production systems).
- . Agro-ecological zone where demonstrations could be undertaken of available and well tested cultural practices and technologies to dramatically increase food crop (maize and rice) production.
- . Accessible by road and rail and not too far from supply and market centres as well as from sources of innovations (under the liberalization policy of the supply and market prices, this consideration is very important).
- . High participation interest of farmers (men and women), local communities, crop production support services including research, extension, development programmes, cooperatives and farmers groups in the Special Programme area.

### (iv) Selected Areas

In addition to the criteria used above, discussions were held with the relevant authorities and divisions in the Ministry of Agriculture, Livestock Development and Cooperatives to assist in selecting the Special Programme area. These included the

Research and Training, Agriculture and Livestock, Planning and Marketing, and Cooperatives Development Divisions; the Extension Services, Crop Development, Irrigation, Marketing and Development Bureau sections.

In subsequent discussions with Ministry, the Southern highlands area was ruled out since there are already too many assistance projects there and yield levels of maize are already high. The mission was requested to visit the Central/Eastern Zone (Morogoro and Dodoma regions) and the Lake Zone (Shinyanga and Mwanza regions) to finalize the choice of the area. The mission visited the above zones and had discussions with the respective Regional Agricultural and Livestock Development Officers (RALDOs).

The area selected for the Expansion Phase of the Special Programme is the Central/Eastern Zone consisting of Dodoma Central - the semi-arid agro-ecological zone of Dodoma region and the Wami and Kilombero Plains - the alluvial plains in Morogoro region.

#### **1. Semi-Arid Land**

Includes Central Dodoma, Singida, Shinyanga, and parts of western Morogoro, Lindi and Mtwara; central undulating plains, with rocky hills and low scarps, well drained soils with low fertility, alluvial hardpan and saline soils, and black cracking soils in Shinyanga, southern eastern flat and undulating plains with rocky hills, moderately fertile loams and clay in Morogoro and infertile sands in centre; 1000-1500m in centre, 200-600m in southern eastern; central unimodal and unreliable 500- 800mm, southeastern unimodal 600-800mm, growing season Dec.- March. While potential for arable rainfed cropping is limited due to the unreliable rainfall and low soil fertility in selected river basins, appropriate irrigation and crop management can increase potential for food production (rice, vegetables and legumes).

#### **2. Wami Alluvial Plain**

The Wami valley, about 80 km north of Morogoro, lies below the eastern escarpment of the Southern Highlands. It extends northwards for about 140 km and has an area of 5000 sq.km. Its floor is flat with moderately alkaline black clay soils, while the western half consists of alluvial fans with generally well drained loam soils.

Population density is moderate to low, the dominant agriculture is smallholder production of maize, rice and pulses, with cotton and oil seeds as additional cash crops. The potential is moderate for increasing the yields of crops at existing technological levels, but water management is likely to be a constraint for smallholder rice. The potential for increasing rice yields by use of improved technologies is great.

#### **3. The Kilombero Alluvial Plain**

The Kilombero valley is agro-ecologically similar to the alluvial Wami plain above. The plain consists of central clay plain annually flooded, surrounded by alluvial

fans of the rivers flowing from the highlands. Red deep, well drained, freely drained and moderately fertile soils are found on gentle slopes and broad hill tops. Current land use is less than 1000 ha. There is potential for expanding to 6000 ha of crop land.

The rainfall in the Kilombero valley is monomodal with an annual average varying between 1200mm and 1400mm, falling between November and June, with a dry spell in February. Mean monthly daily max. and min. temperatures range between 22 and 28 degrees C.

Population density is moderate to low, the dominant agriculture being smallholder cultivation of maize and paddy rice, with cotton and oilseeds as additional cash crops. The potential is moderate for increasing the yields of crops at existing technological levels, but lack of water is likely to be a constraint for smallholder rice. There is great scope for raising maize yields by use of improved varieties and cultural techniques and fertilizers. There would be sufficient water for year-round irrigation of about 14,000 ha in an average year with adequate storage reservoir.

Rice is a traditional crop in Kilombero Valley mainly grown in the river valleys and plains. It is planted in December/January and harvested during July/August.

#### **(v) Pilot Phase Demonstration Areas**

The criteria and procedures used to select the demonstration areas included potential for increasing maize and rice production; accessibility of markets for inputs supply and disposal of farm products; predominant farming systems of maize or rice; availability of technology options for increasing rainfed/irrigated maize and rice production and conserving the natural resource base; availability of research, extension input supply and marketing services, on going agricultural development programmes in the area; and existence or potential for people's and farmers' participation mechanisms.

The areas were selected based on the capacity to meet the above conditions.

##### **1. Mkindo Pilot Phase Area Wet Rice Cultivation**

Mkindo Village irrigation scheme is situated in the western part of the Wami valley plain about 90 km due north of Morogoro. It is served by 50 km of tarred road up to Mvomero and 40 km of gravel road thereafter. The area is flat consisting of alluvial fans with generally well-drained loam soils. Rainfall varies from 900-1500 mm. Potential is high for increasing the production of maize and paddy.

An existing scheme in the area, comprising 42 farmers on 18 ha is representative of a total area of 250 ha. The area is centrally located and connected by railway and road to the main population centres of Dar es Salaam, Tanga, Dodoma, Mwanza, Tanga, Arusha, and Mbeya. The supporting services for research, extension and inputs supply are provided by public and private institutions and organizations in the area.

Yields of rice are low, ranging from 2.5 to 2.7 tonnes/ha, reflecting the low level use of available technology. However with the use of available improved technologies farmers can obtain yields of 6 tons/ha. The main constraints to crop production include poor land preparation; poor water and soil management; fertilizers, chemicals and improved seed unavailability; and lack of post harvest handling capacity.

## **2. Ifakara (Kilombero) Rainfed Bunded Rice Production**

Ifakara is situated in the Kilombero valley, about 400 km (six hours gravel road drive) south of Morogoro. The demonstration area is composed of an upland area on the low hills and ridges which separate the flood plain from the mountains and the lowlands area which is seasonally inundated.

The red soils found on gentle slopes and broad hill tops are deep, freely drained, stone free weakly acid clay, with moderate fertility. Dark coloured clays, which crack open in the dry season but inundated in the wet season and of good fertility are found in the concave slopes. The alluvial fans have soils with high water holding capacity and are intercropped with maize, sorghum, cassava, sweet potatoes and vegetables.

Rice is the main staple food and cash crop in the Kilombero Valley. It is grown in the lowlands in areas flooded during the rainy season and also in the uplands under rainfed conditions. Rice is planted during December/ January and harvested during July/August. In the lowlands, farmers use the residual moisture in the soil to plant maize, sweet potatoes, vegetables or legumes after harvesting paddy.

In 1993/94 season the average yield obtained from 17000 ha planted to rice was 2.2 tons/ha. Average fertilizer application was 13 kg/ha. There is great potential for increasing rice yields with the use of available improved technologies.

While Ifakara is representative of a total area of 1.2 million ha only 42,000 ha are currently cultivated. Sixty percent of farmers hold an area of less than 2.4 ha. Rice and maize are the main staple food and cash crop, grown in the lowlands and the uplands. Its railway and road link to main cities and towns renders the area accessible.

Farmers' interest is high. They are organized under the Morogoro Farmers Cooperative Society and the Ifakara- Kilimo Farmers Service Centre. Support services to farmers are provided by research, extension and private and parastatal input suppliers.

Constraints to rice production include inadequate land preparation, poor soil and water management, the lack of improved varieties, fertilizers, chemicals, poor crop management.

## **3. Ifakara Rainfed Maize Production**

Maize is a major preferred staple and the most important food grain that is widely produced and consumed. It is a major food source for the majority of the population. It has also become a major source of farm income.

Farmers interest, organization and availability of support services is as under rice production in 2 above. Average maize yields are low, 1.7 tons/ha, due to low levels of improved technology use. Adoption of available technologies would increase yields considerably.

Constraints to raising production include poor land preparation, improved seed and fertilizer unavailability, and poor soil and crop management.

#### **4. Water Harvesting Irrigated Rice Production**

The Bahi smallholder water harvesting rice irrigated scheme is situated 40 km from Dodoma, about one hour's drive. The scheme is being developed with assistance from IFAD. It lies in the South Eastern Semi-Arid low lying lands between 200 and 600 metres, comprising flat or gently undulating plains with some rocky hills and strongly dissected areas. The soils are a mixture of moderately fertile loams and clays and infertile sands. The rainfall is low with a high of 800 mm., but the area is flooded where the river overflows during the rainy season. The dominant crops are maize, sorghum and cassava. Livestock grazing is extensive with considerable overgrazing. The Bahi scheme lies in the dry zone, with a growing periods of 90 to 180 days.

The scheme is representative of approximately 1000 ha. The IFAD water harvesting programme has high potential for increasing food production. Farmers are currently producing rice from 400 ha. of flooded fields. Land preparation and water are provided free of charge by the programme. Farmers are organized through the Water Users Association and self help organizations. Interest in increasing crop production is very high among farmers. Research, extension and input supply are provided by public and private organizations.

The main constraints to increasing production in the scheme include short growing season, inadequate land preparation, inefficient water use, salinization, water logging, land tenure, lack of appropriate varieties to allow double cropping or second catch cropping. Expansion and improved production are dependent on availability and management of water.

#### **D. POTENTIAL PARTNERS**

At the national level, the potential partners of the Government of Tanzania for this Special Programme could include the FAO, the World Bank, the UNDP, the IFAD, the WFP, and the Netherlands. From the private sector, the following could be counted as potential partners: the Tanganyika Farmers Association Ltd., The Centre for Agricultural Mechanization and Rural Technology (CAMARTEC) and private distributors of fertilizers and seeds.

At the expansion and demonstration area levels, the potential partners could include, (a) the FAO, (b) the World Bank with its on-going projects in extension (NALERP) and research (NALRP), (c) the UNDP with its on-going project in seed production, (d) the IFAD with its on-going SDPMA project in Dodoma, (e) the

Netherlands with its on-going fertilizer project and district planning project. The following could have a strong presence in the expansion and demonstration area: (a) Agricultural Mechanization and Rural Technology (CAMARTEC), (b) Moshi College of Cooperatives, (c) the Cargill, Tanseed, Pana, and Alfa seed companies, (d) the Tanganyika Fertilizer Company (TFC) and (e) the Sokoine Agricultural University. In addition it is reported that there are a few Farmers' Cooperative Unions, Water Users Associations, and self help organizations.

#### E. OVERALL ASSESSMENT

While Tanzania has vast areas of arable land with moderate to high production potential, the country will continue to be food deficit in the years ahead due to a fast growing population and persistent low productivity of the major food crops and of the food crop farmers (men and women). In 1993/94, cereal production was short by around 880,000 mt from the previous year. While the Mission was in the country, some 50,000 tons of food aid was received.

There is a genuine interest and commitment of the Government of Tanzania (Ministry of Agriculture and Livestock Development and National Planning Commission) for the Special Programme on Food Production in support of Food Security in Tanzania. Although there was an initial debate as to the main focus of the Special Programme, it became clear that it should address the national food security goals of the country to strategically attain household food security throughout the nation.

Prior to the Mission and during the Mission, the Special Programme was well received by the donor community and the private sector. Except for the EC whose priority in Tanzania is on cash crops production, the potential partners for the Special Programme in Tanzania, i.e. the WB, UNDP, WFP, the Netherlands were interested in the initiative and expressed interest to be considered as partners as their role becomes more clearly identified. The private agencies met by the Mission were very enthusiastic with the possibility of being involved in the Special Programme.

The liberalization policy of the economy has several implications for the food production programme of the country. The farmer's learned dependence on government production inputs at low cost whenever available and market interventions have to be overcome with more economically advantageous supply and marketing services. As a result of the liberalization policy, there has been a foreign exchange decontrol. As a consequence, Tanzania has at present 9 private companies that imported as much as 250,000 mt of fertilizer (the government used to import 150,000 to 180,000 mt.), but only about 75,000 mt. were sold during the years cropping season. The most direct effect of the liberalization policy has been in the selection of the Special Programme area, which for reasons of economy, must have accessibility to input supply and market centres.

After very careful consideration, it was possible to identify and select the strategic staple food crop and a suitable Special Programme area which is not too far away from the supply and market centre of the country. The selected Special Programme area (the Morogoro and Dodoma regions) have high potential for increasing maize and rice



production with known and available cultural practices and technologies under normal rainfed maize, rainfed rice and wet rice farming systems. The cultural practices and technologies that can boost dramatic increases in food production in the Special Programme area range from efficient land preparation, good water management, to the use of improved/high yielding seeds and rational use of organic and inorganic fertilizer. It was also evident that the farmers in the selected Special Programme area as well as the research and extension agents and supply/market services are interested in being active participants in the Special Programme.

Finally, there was a general agreement that the question on resources for the Special Programme should be addressed during the Pre-pilot phase as far as the resource requirements of the Pilot Phase was concerned. It was also understood that the resource requirements and their sources for the Expansion Phase will have to be worked out during the Pilot Phase. It was also understood that the trigger point of the Special Programme would be the appointment by the Minister of the MALDC of Special Programme Team with a full time Team leader and the provision by FAO of a qualified field officer (a Tanzanian) to work on the pre-pilot phase of the SP.

#### **F. PROPOSED PROGRAMME (PRELIMINARY DESCRIPTION)**

**Title: Tanzania Special Programme on Food Production in Support of Food Security**

##### **I. Objectives:**

The two immediate objectives of the Special Programme are: " 1) to rapidly increase food production in order to stem the growing incidence of food insecurity and undernutrition and 2) demonstrate, through a Pilot Phase, how: (a) barriers to widespread utilization/adoption of available improved production technologies and cultural practices can be clearly identified and sustainable solutions worked out, (b) a sound programme of policy action and reform, (b) capacity building, and (c) investment project formulation and implementation, can lead to sustainable increased food production".

To achieve these objectives, the Tanzania Special Programme would consist of four inter-related areas of action. A preparatory, participatory planning phase of two to three months will closely follow the exploratory mission. The Pilot Phase, lasting for 2-3 years, will implement the plan and arrangements prepared during the pre-pilot phase while the fourth, the expansion phase, implements the plan and arrangements made during the pilot phase.

##### **II. The Pilot Phase of the Programme (2 years - extendable by another year)**

The detailed plan and description of the Pilot Phase will be formulated with the participation of the farmers and service agencies in the pilot locations during a Pre-pilot phase of two to three months. A Special Programme Team (SPT), with a full time Team Leader will be appointed by the Minister of ALD who will work with a Local Special

Programme Team (LSPT) and farmers in drawing up the specific plan of this Pilot Phase.

**a) General Location of the Special Programme**

The Tanzania Special Programme on Food Production is located in the country's Eastern/Central Zone covering the Morogoro and Dodoma regions. With alluvial plains in the Morogoro region and semi-arid lands in the Dodoma region, the Zone has high production potential for maize and rice although at present the yields are less than half of known potential yields of these two crops. The rainfall of the Zone ranges from as low as 500 to 800 mm to as high as 1200 to 1400 mm with mean monthly temperatures ranging from 22 to 28 C. The Zone has a number of rivers which become dry during the dry season with the exception of the river in Mkindo. The Morogoro region is about two hours by road to Dar es Salaam while it is about three hours between Dodoma and Dar es Salaam. Both regions are crossed by all weather road as well as by the Tanzania rail road system. The Cholima, Hombolo, Ilonga, Katrin, and Mpwapwa research stations as well as Sokoine University of Agriculture are located in the Special Programme area.

**b) Locations of the Pilot areas**

Four locations in the Expansion area have been identified for the Pilot phase activities. These are the following:

1. Mkindo pilot area for wet rice cultivation demonstrations. It is situated in the western part of the Wami valley which is about 90 km due north of Morogoro. It is served by a 50 km of tarred road up to Mvomero and 40 km of gravel road thereafter. Most of the area is flat, made up of alluvial fans with well drained loam soils, and crossed by the Wami river. The rainfall varies from 900 to 1500 mm. The food crops grown include maize, rice, cassava, vegetables, sweet potatoes, phaseolus beans and grain legumes.
2. Ifakara (Kilombero): Rainfed bunded rice production system. It is situated in the Kilombero valley, about 400 km (six hours gravel road drive) south of Morogoro. The demonstration area is composed of an upland area on the low hills and ridges which separate the flood plain from the mountains and the lowland areas which is seasonally inundated. Food crops grown in Mkindo are also dominant in Ifakara with maize and rice being prominent.
3. Ifakara area for Maize based farming system demonstrations. Also about six hours gravel road drive from Morogoro, it is part of the Kilombero plain. Maize is the major crop of the area but legumes, vegetables and sweet potatoes are also produced.
4. Bahi area for water harvesting irrigated rice production. The area is situated about 40 km north west from Dodoma. It lies in the southeastern semi-arid low lying lands between 200 and 600m and comprise of flat or gently undulating plains. The area has a river which dries up during the dry season. The rainfall is low with 800 mm considered high but the crop growing periods range from 90 to 180 days.

**c) Pilot Phase component and its activities**

The Pilot phase would have five components to fulfil its objectives. These five inter-related components will include the following:

1. Getting organized for the Pilot Phase at the pilot locations. This component will be an implementation of the pre-pilot phase plan. It will include the designation of the local special programme team, the assignment of the research and extension staff for the pilot phase, getting agreement of the different support services and the identification or formation of farmer groups and the selection of the demonstration farms and farmers. This component will also undertake the preparation of monitoring and evaluation instruments, guides, training and demonstration materials and plans, as well as collection of selected benchmark data.
2. Training for the Pilot phase. This component include all the seminars/workshops for the different actors in the Pilot Phase and all the training activities with group of farmers on their involvement in the Pilot Phase and studying the cultural practices and technologies for demonstration.
3. Demonstrations component. The component would include participatory analysis and identification of the problems and constraints of increasing maize and rice production, the identification and elaboration of the cultural and technological solutions to the technical problems and constraints, training of demonstration farmers on their specific application on step by step manner, and the carrying out of the demonstration programme by the farmers with the researchers and extension agents guidance/assistance. During the Pilot Phase the demonstration programme would be focused on four food production systems of maize and rice, namely: (a) increasing rice production under wet rice farming system in the Mkindo pilot area, (b) increasing maize production under rainfed maize based farming system in the Ifakara demonstration areas, (c) increasing rice production under bunded rainfed rice production system also in the Ifakara (Kilombero) demonstration areas, and (d) increasing rice production under a rainfed water harvesting irrigation scheme in the Bahi demonstration areas.
4. Monitoring and making adjustments component. This consists of a systematic recording and evaluation of data and observations of the Pilot Phase activities, identification of limiting factors in the pilot and expansion areas, conducting process and policy dialogues, identification of capacity building and investment needs and requirements and making the needed adjustments during the pilot phase as needed. Under this component, reports on the different aspects of the Pilot Phase will be prepared.
5. Expansion phase planning component. During the Pilot phase when experience and lessons shall have been learned from components 2 to 4, the planning for the expansion phase would have to be taken seriously. This phase would consists of undertaking an expanded Food Crop Production Programme which will address or include (a) policy reforms if found necessary to make the expansion programme successful, (b) capacity building plan to meet the requirements of the expansion programme, (c) investment plans and projects to fill the identified needs for investments

in the expansion programme and (d) a plan for the provision of adequate support services to groups of men and women farmers in the expansion programme, particularly input supply, post-harvest handling and marketing, extension, research and possibly farm credit.

**d) Costs and Financing**

The Tanzania Special Programme on Food Production in Support of Food Security is a national programme of the Government of Tanzania with public and private sectors participation. However, to speed up the realization of the objectives of the Special Programme, the Government of Tanzania would have external partners to help and support the planning and implementation of the programme. The Special Programme has four distinct but inter-related areas of action that require resources to undertake them, namely: (a) the exploratory mission, (b) the pre-pilot or preparatory phase, (c) the pilot phase and (d) the expansion phase.

1. The Exploratory Mission. The costs and financing of the Exploratory Mission which took place in the country from 27 October to 9 November 1994 was almost completely borne by the FAO. The cost include the preparation of Mission Report and recommendations which was undertaken at FAO HQ.

2. The Pre-pilot or preparatory phase. Because the Special Programme is to be implemented with the maximum participation of the farmers in its planning and operation, the Exploratory Mission did not have time and resources to produce a workable Pilot Phase Plan. Planning and arrangements for initiating the Pilot Phase will take 2-3 months and will require the following resources from the Government, FAO and ongoing projects in the pilot areas.

**A. From the Government:**

- A.1 One full time Special Programme Team Leader
- A.2 Part time members of the Special Programme Team
- A.3 Part time of the work of the National Technical Council of the Comprehensive Food Security Programme (CFSP) as the Steering and Advisory Council of the Special Programme
- A.4 One third of the time of the RALDO of Morogoro and Dodoma regions
- A.5 Part time members of the Local Special Programme Team
- A.6 One full time Maize research specialist, one full time rice research specialist and one full time farm mechanization specialist
- A.7 Four full time agricultural extension agents with training in the participatory approaches of extension and good basic training in maize and rice farming systems.

**B. From FAO:**

- B.1 One fulltime field management officer (Tanzanian national)
- B.2 One consultant for one month (international)
- B.3 Two weeks of a HQ staff visit to Tanzania

- B.4 Part of the time of the FAOR and one Programme Officer
- B.5 Transportation cost
- B.6 Secretarial assistance

C. From externally funded on-going projects:

- C.1 Part time of the Plant nutrients Project Officer (Netherlands/FAO)
- C.2 Part time of the Irrigation Project Officer (WB/URT)
- C.3 Part time of the IFAD water harvesting project officer (IFAD/URT)
- C.4 Part time of a Seed Production project in Tanzania (UNDP)

3. The Pilot Phase

For the Pilot Phase, the resource and cost requirements will have to be determined during the Pre-pilot phase. It could however be anticipated that this will require higher level of resources which the government may have to secure from a number of sources. During the exploratory mission the following potential partners/sources for the Pilot Phase of the Special Programme were identified, namely: FAO's ongoing projects in the pilot areas, the WB funded Research and Extension projects in the area, the IFAD funded irrigation project in Bahi, UNV/UNDP, and TCDC arrangements. The WFP has expressed interest in being involved with the Special Programme even at the Pilot Phase.

4. The Expansion Phase

For the Expansion Phase, the resource and cost requirements will have to be determined during the Pilot Phase. Given the anticipated wider coverage of the Expansion phase, it can be expected that it will require, not only technical assistance resources but also investment type of resources. During the exploratory mission, the following potential partners/sources for the Expansion Phase were identified: the WB, IFAD, UNV/UNDP, the Netherlands, and TCDC. At this stage, it is too early to conclude which partners will eventually support the expansion phase of the Special Programme. It would partly depend upon the experience of the Pilot Phase. UNDP for instance wishes to continue dialogue with FAO regarding possible support to the Special Programme. The Government of Tanzania may find other sources of funding such as the African Development Bank.

e) **Organizational responsibilities**

The Minister of Agriculture, Livestock Development and Cooperatives is the highest responsible Government Official of the Tanzania Special Programme on Food Production in Support of Food Security. He delegates certain responsibilities to the Principal Secretary who is the Chairman of the Strategic Grain Reserve Board.

At the policy and coordination level, it was suggested during the Exploratory Mission that the Minister assign the Special Programme to the Technical Committee of the Comprehensive Food Security Programme (CFSP) which is cross-sectoral and multi-disciplinary.

Operationally, the Mission recommended that the Minister delegates this responsibility to a Special Programme Team (SPT) with a fulltime Team Leader who is a Senior Officer from the Agriculture and Livestock Development Commission. The part-time members of the SPT should come from the Planning and Marketing Division, one from Research and Training, one from Agricultural Extension, one from Agricultural Cooperatives, one irrigation agronomist, one seed technologist, one farm mechanization specialist, one input supply service specialist, one representative of NGOs/private sector and one from the Comprehensive Food Security Programme. The SPT will be responsible for the planning, management and monitoring of the Special Programme activities and resources. Another responsibility of the SPT is working operationally with FAO in Dar-es-Salaam and other partners (multi-lateral, bilateral and private sector partners) of the Special Programme.

At the Special Programme area, the planning and management of the SP activities and resources would be entrusted to a Local Special Programme Team (LSPT) who should be lead by the RALDO. The members of the LSPT should normally have a Planning and marketing Officer, Research and Training, Extension, Cooperatives and possibly one representing the private suppliers sector. The RALDO is supposed to assign fulltime the required qualified agricultural extension agents while the Research and Training Director is supposed to assign the needed research officers in the Special Programme who will be under the guidance and supervision of the LSPT.

On the part of FAO, the FAO Representative himself would be responsible in working with the Government in support of the Special Programme. During the Pre-pilot and the Pilot phase, FAO is supposed to provide one fulltime field management officer who will work with the SPT and the LSPT. FAO will also be responsible for providing at least one m/m of consultancy during these phases, an HQ staff visit and secretarial assistance.

#### **f) Potential Activities for TCDC**

While the Mission was in the country, it was informed that Tanzania has not yet signed the agreement on TCDC. However, the Mission was informed that Tanzania has had experience in the use of TCDC in the past and found no problem or reason not to use TCDC arrangements for the Special Programme.

For the Pilot Phase, the following areas of expertise could use TCDC expertise, say from India: rice agronomist, farm mechanization, underground water irrigation expert (tubewell irrigation), post-harvest technologist and extension programme planning, monitoring and evaluation.

### **III. Transition from Pilot to Expansion Phase**

The interface between the Pilot and Expansion phases will be a major responsibility of the SPT. This responsibility lies in components 4 and 5 of the Pilot phase. When found necessary, the SPT may require some consultants to assist particularly in (a) formulating policy reform recommendations, (b) in programme of food production formulation, (c) in the formulation of technical assistance projects in

capacity building and crop production and (d) identification and formulation of investment projects for the expansion phase. These likely inputs into the interface between the Pilot and Expansion Phase should be identified and included in the Pilot Phase Plan.

The period of the interface can begin at the point when adequate experience and lessons from the Pilot Phase shall have been gained in the areas of policy, capacity building, investment needs, provision of public and private services and on the overall food crop production programme. This interface can begin following the first year of operation of the Pilot Phase.

## **G. FOLLOW-UP**

### **1. Issues to be resolved**

Few issues remained to be followed up. One is where to locate the SPT organizationally and physically. The identified options were the office of the Principal Secretary or the office of the Commissioner for Agriculture and Livestock Development.

Another issue is whether the SPT can work effectively under their current salary without additional support and incentives. The assumption is that the Team Leader and the part-time members are currently employed by the MALDC, therefore they will be transferred temporarily to the Special Programme.

A minor issue has to do with the use of TCDC in the Special Programme. While the Mission was in Tanzania, it was informed that it has not yet agreed or ratified the TCDC agreement that FAO has proposed. But the officials in the MALDC think that Tanzania can avail with the TCDC arrangements for the Special Programme based on previous experience.

### **2. Arrangements for preparing the Pilot Programme**

#### **2.1 By the Government of Tanzania**

- a) A policy statement from the MALDC declaring the institution of Tanzania Special Programme on Food Production in support of Food Security.
- b) Designating the Technical Committee of the Comprehensive Food Security Programme as the Special Programme policy and coordinating council.
- c) The appointment of the Special Programme Team (Leader and members) and assigning them to the most appropriate supervisor (i.e. the Principal Secretary, ALD Commissioner, etc.)
- d) Guidelines for the organization and assignment of the Local Special Programme Team, researchers and extension agents.

2.2 By FAO

- a) Drafting the Pilot Programme documents with the Government.
  - b) Providing assistance and support to the SP through the SPT. This includes the provision of one Tanzanian SP management officer, a consultant, HQ staff visit, transport costs and secretarial support.
  - c) Follow-up dialogue with potential partners of the SP.
  - d) Informing FAO HQ on matters concerning the SP planning and implementation.
3. Timetable of follow-up

The following timetable was discussed but requires confirmation by the FAOR and the MALDC:

- 3.1 Drafting of Mission Report and Plan of Action (Blue Print) and confirmation by the MALDC for the period of November and December 1994
- 3.2 MALDC policy declaration of the Tanzania Special Programme in January 1995
- 3.3 January to February 1995:
  - (a) Government's designation of the TC/CFSP as Policy and Coordination Council of the SP
  - (b) Government's designation/appointment of the Team Leader and members of the Special Programme Team
  - (c) FAO's selection and hiring of a field management officer (Tanzanian)
  - (d) FAO/Government dialogue with potential partners for the Pilot programme
  - (e) SPT, with FAO consultant's assistance if required, formulates guidelines, monitoring and evaluation instruments and study/terms of reference/outlines for the activities at the pilot locations for the pre-pilot phase.
- 3.4 February/March 1995
  - (a) Formation of the Local Special Programme Team
  - (b) Start of the Pre-pilot phase by the SPT and LSPT
- 3.5 March to June 1995 - Pre-pilot phase activities in the Pilot programme areas
  - (a) Participatory studies and dialogue with farmers groups and community leaders in the identification of problems and constraints of increasing maize and rice



production, and in the identification and definition of feasible solutions (know-how, improved cultural practices, technologies and approaches which are available in Tanzania, how input supply and marketing problems could be remedied), and determining priority/strategic pilot phase activities.

- (b) **Planning of the Pilot Programme (pilot phase action plan), including its resource requirements and their sources.**
  - (c) **Securing the required resources for the Pilot Programme and agreement of the government and its partners.**
- 3.6 **June - July 1995 - start of the implementation of the Pilot Programme.**

**Programme of Mission and People Consulted**

**27 October, 1994**

- 0810           Arrival Dar es Salaam (DSM)  
1200           FAOR Meeting, DSM  
1400           MALDC Briefing Meeting, DSM

Arthur, H., WFP  
Banda, T.E., AC Marketing Development Bureau-MOA  
Hodge, C., WFP/HQ  
Kajumulo, D., Ag. DFSD-MOA  
Lemweli, O.O.N., Ag.Econ.- MOA  
Mahwi, T. J., Comm. Coop. Development-MOA  
Muro, S. Ass. Comm. Crop Development-MOA  
Mziray, M.E., Ag. Ass.Comm. Ext.-MOA  
Ngatunga, E. L., Ass. Comm. Support Services-MOA  
Riddel, P.J., FAO-Irrigation Project

Comments: Need to initiate policy dialogue and reforms at the outset instead of during the expansion phase. Questioned the need of the Special Programme in well endowed areas. Need to improve the performance of existing irrigation projects. Land tenure/entitlement and ownership considerations. The sustainability of the Special Programme. Importance of people participation. No single area in the country meets the criteria of the Special Programme. Central zone, irrigated, and the Southern Highlands, rainfed, were considered appropriate for the programme. Maize and rice are the important staples.

**28 October, 1994, DSM**

- 08:00           Meeting with Mr. Muro, AC/ Crop Development, MOA, DSM

Comments: Issues raised for consideration by mission included the availability of rural financing to smallholder farmers, input supply vis a vis government liberalization of input supply and marketing of crops, land preparation, and draught power. Morogoro, Dodoma (Mpwapwa) and Southern Highlands were considered appropriate for the Special Programme.

09:30 M.E. Mziray, Ag. Ass. Comm. Extension, MOA.

Morogoro in the Eastern Zone was considered to meet the criteria for the Special programme. It is well endowed, accessible to main centres of population and markets, great irrigation potential, considerable participatory experience by farmers. Maize, rice are the main food staples. Constraints in the area include wide technology adoption gap, labour shortage, land preparation, and draught power introduction problems.

12:00 Messrs Masija (AC, Irrigation), Galeti, Temu, Tilia, Medani, and Riddel. Irrigation Service.

Comments: The Special Programme is in line with the objectives of Tanzania irrigation development plan (policy) including development of smallholder irrigation and traditional irrigation areas, rehabilitation of irrigation schemes, need for self sufficiency in rice production by year 2000, and participatory approach.

13:00 T.E Banda, Ass Comm. Marketing Development Bureau- MOA.

Comments: Maize, rice and wheat are the main urban food. Sorghum, millet and cassava are the staple foods for the rural population. Causes of food deficit include poverty, technology, and drought. Consider both well endowed areas and marginal areas for maize and sorghum and millet production respectively.

14:30 Dr. Mitawa (Ass. Comm. Crop Res) and Mr. Kirway (Ass. Comm. FSR). Research and Training Division.

Comments: Marginal areas should be considered. Constraints to food production include commercialization and processing of food staples, seed production and supply, fertilizer availability and animal power.

**29-30 October, 1994 - Zanzibar**

Mr. Saleh Sadique, Principal Secretary, MOA  
Mr. M. Kutenga, Acting Commissioner Research and Extension  
Mrs. Amina H. Mohammed, Ass. Comm. Research  
Mrs. Mariam Omar, Ass. Comm. Planning  
Mr. Abubakar M. Ali, Ass. Comm. of Agriculture  
Mr. Shaaban S. Jabir, Ag. Ass. Comm. Extension  
Msellem Foum, Chief Extension Officer  
Yohannes Mesfin, Chief Technical Adviser URT/89/019  
A.I Khatibu, National Project Adviser URT/90/017  
Innocent Ntabana, UNV Seed Technologist FAO/92/006  
Rex M. Kenneh, UNV Extension Agriculturalist URT/89/019  
Mark Mulenga, UNV Extension Training Officer  
Mchenga A. Mchenga, Agriculture Head Irrigation Section  
Abdula A. Abdulla, Agri. Information Officer  
Makame A. Ussi, Head, Agricultural Services  
Khamis A. Bakari, Video Camera man

In addition to the meetings with government officials the mission made a few field visits including a commercialized farm, rice irrigation scheme and a women poultry enterprise.

Comments: Most of Zanzibar's staple food, rice, is imported. The constraints to rice production include land availability, inadequate technologies for the prevalent farming systems.

31 October, 1994

08:00 Mr. Y. Gillet, CTA, FAO- Fertilizer Programme

Observations: Smallholder fertilizer use is limited but can serve as a vehicle for increasing food production in LIFDC. Fertilizer use is profitable with potential of increasing average maize yields from 1.3-1.7 ton/ha to 4 tons/ha at intermediate technology levels.

10:00 Mr.SJ Urasa, Head Inputs Section, MOA  
Mr. Mtorelira, Seeds inputs

Comments: Since government liberalization of input supply nine companies are now supplying fertilizers. Fertilizer subsidy removed with effect from 1994/95 season. In 1993/94 235,000 tons of fertilizer were imported against an estimated demand of 185,000 tons. Less than 10% of farmers use certified seed. Fertilizer use can be supplemented with compost and FYM where available. Morogoro is ideal for the Special Programme though communications and infrastructure need improvement.

12:00 Mr.TJ Mahuwi, Comm. Cooperative Development, MAO  
Mr. Muya

Comments: Human resources is a major constraint in the management of people based institutions. Need for sensitizing farmers on self realization. Food crops are loss making activities for co-operatives. Morogoro meets most of the criteria for location of the Special Programme.

13:30 Mr. M. Brandt, Rural Development Adviser, EEC.

Comments: EEC is concentrating on cash commodities of coffee and livestock. It is moving away from integrated rural projects.

14:30 Mrs. S. Kaduma, Coordinator, Agricultural Sector Management Project (ASMP), MOA.

Comments: Reconcile food production and food requirements with population, land potential and incomes. Policy towards assisting smallholder farmers is in place. Policy impact will test the relevance of the Special Programme.

**1st November, 1994**

08:30 Mr. P.M. Lyimo, Director for Agriculture and Natural Resources, Planning Commission, President's Office

Comments: Welcomed the Special Programme. However there is need to integrate it into on-going programmes. Food security is influenced by both on-farm and off-farm global factors. Household food security can be met through increasing household food production and inter-regional transfers. With liberalization, small holder farmers are at the mercy of the markets, hence the need to train farmers. Highest potential areas have comparative and productive advantage. Liberalization policies will impact on production, inputs availability and use. Morogoro has highest potential and comparative advantage in transport and communication and infrastructure. Need to link cash/industrial crops to food crops, production systems, and rural credit and finance.

10:00 Dr. A. Stroud, Coordinator, Farming Systems Research, DRT, MOA.

Comments: Need to integrate staple foods and cash crops and the income generating activities of women.

11:00 Mr. Ngirwa, Commissioner, Planning and Marketing, MOA.

Comments: The lake zone, with second highest population concentration and potential for maize production, should be considered for the Special Programme.

14:00 Mr. Kajumulo, Ag. Director, Food Security, MOA.

Comments: Food production rainfall dependent. Southern highlands, where 40% of the maize is produced, rainfall more reliable than the central. Need for irrigation development including traditional irrigation, water harvesting in marginal areas to increase rice and maize production. Special Programme is relevant and would be appropriate in the central.

**2nd November, 1994, Dar-es-Salaam, Dar es Salaam Region**

08:00 Mr. M. W. De Boer, First Secretary, Rural Development, Royal Netherlands Embassy

Comments: The Comprehensive Food Security Programme need to be regionalized to facilitate the implementation of the Special Programme. Need for good government coordination of the many on-going projects. The Special Programme has to be credible, doable and cost effective. FSR and the District Rural Development Programme could provide assistance in the design and implementation of the SP activities. Implementation of SP through the District Councils could be considered.

10:30 Mr. Mahagama, Permanent Secretary, MOA.  
Mr. Ngirwa, Comm. Planning, MOA

Observations: The Special Programme is well appreciated and received in the country. The Ministry is concerned with food shortages in the Central and Lake zones, areas of high and growing population. Water harvesting could provide sustainability to rice production. Areas for consideration for the Special Programme should include Morogoro (Eastern zone); Dodoma, Singida, Shinyanga (Central); and Mwanza (Lake).

11:00 Mr. S.O Ogundipe, UNV Programme Officer, UNDP, DSM.200

Comments: The UNDP Res. Representative is in support of the Special Programme. UNV could be provided to the Special Programme if and when needed.

#### **3rd November, 1994, Morogoro, Morogoro Region**

10:00 Mr.O.M. Ishumi, Regional Agriculture & Livestock Development Officer (RALDO), Morogoro.  
Dr. Kimario, Veterinary Officer, RALDO, Morogoro.  
Mr. Y. Gillet, CTA, Kilimo, FAO Fertilizer Programme.  
Ms. V. Boerger, Fertilizer/Plant Nutrition (Women), Morogoro.

15:00 Mr. G. Swai, Village Extension Officer, Mkindo, Morogoro.

Comments: Constraints to food and agricultural production include marketing, credit, input supply and processing and utilization, and lack of strong farmers organizations. Removal of subsidy considered premature. Mkindo recommended for demonstration area.

#### **4th November, 1994, Dodoma, Dodoma Region**

10:00 Dr. D. Mabeba, Regional Agriculture & Livestock Development Officer (RALDO), Dodoma.  
Mr. Rajab, Assistant Coordinator, Water Harvesting, Dodoma.

Comments: Dodoma is a marginal rainfall area with potential for irrigated food and agricultural production. Constraints to production are rainfall, low production incentives, credit, input supply, farmers' low education, and poor infrastructure.

#### **5th November, 1994, Shinyanga, Shinyanga Region**

14:30 Mr. Shija, Regional Agriculture & Livestock Officer (RALDO), Shinyanga.

Comments: Welcomed the Special Programme. Marketing of rice is easier than of maize, sorghum and millet, the other staple foods of the region. Main constraints to

maize and rice production are lack of input, poor cultural practices, and erratic rainfall. Shinyanga has potential for increasing agriculture and food production through irrigation. IFAD programme is providing assistance in irrigation.

**6th November, 1994, Mwanza, Mwanza Region**

08:00 Dr. F.M.N. Sarakikya, Regional Agriculture & Livestock Development Officer (RALDO), Mwanza Region.

Comments: The Special Programme is welcome. Marketing, especially for rice, is not a problem. Constraints to agricultural production include farmers' knowledge of available technology, input availability, and lack of credit.

**7th November, 1994, Arusha, Arusha Region.**

09:00 Mr. M.A Mangi, Director of Operations and Mr. A.M. Pishori, Trading Executive, Tanganyika Farmers' Association (TFA) Ltd.

Comments: The Special Programme was welcome. TFA accepts membership from individuals, villages, groups of people (NGOs), cooperatives, unions, and commercial farmers. It has branches in Arusha, Moshi, Dodoma, Iringa, Mbeya, Tanga, and Dar es Salaam. It markets both farm inputs and products. Removal of input subsidy will affect availability and distribution of inputs.

10:30 Mr. E.M. Ngaiza, Director General, Centre for Agricultural Mechanization and Rural Technology (CAMARTEC), Arusha.

Comments: The Special Programme was welcome. The key elements in increasing food and agricultural production are land preparation, irrigation, rural transport, and post harvest and food processing.

**8th November, 1994, DSM**

10:00 Mr. P.J. Riddell, FAO Senior Irrigation Advisor, Irrigation Division, MOA.

Comments: Mkindo very good stepping stone for pilot phase of the Special Programme for rainfed and irrigated rice and rainfed maize. Can be replicated at several existing schemes, with great potential of increasing production with available technology. Expansion of water harvesting technique for increasing production could be constrained by limited resources.

10:30 Mr. F.N Mathenge, CTA, FAO Seed Programme.

Comments: Supply of certified seed has averaged 20% (3 - 6,000 tons) of demand (40-50,000 tons) over the last 20 years. 50% of available seed is maize. Liberalization of

input supply has brought in three new seed companies. Production of rice seed is a problem.

11:30 Mr. H.Arthur, WFP, DSM

Comments: There is potential for providing support to the Special Programme through use of food marginal areas to reduce importation of massive quantities of food.

**9 November, 1994, DSM**

10:00 Debriefing Meeting with MOA (Kilimo)

MOA/Kilimo

Gillet, Y. CTA, FAO/Kilimo Fertilizer Programme.  
Kajumulo, D.A. Ag. Director, Food Security Division.  
Kirway, T.N. Ass. Comm. Farming Systems Research, DRT.  
Masija, E.H. Ass. Comm. Irrigation Section.  
Mathenge, F.N. CTA, FAO/Kilimo Seed Programme  
Mittawa, G.M. Ass. Comm. Crop Research, DRT.  
Mshare, I.Y. Ag. Comm. Cooperative Development.  
Muro, S.A.N. Ass. Comm. Crop Development.  
Mwakatundu, G.A.K. Comm. Agriculture & Livestock Development.  
Ngirwa, W. Comm. Planning & Marketing (Chairman).  
Shao, F. Comm. Research & Training.

FAO Mission

Contado, T. FAO, Rome, Mission Leader  
Fuller, R. FAOR, DSM.  
Kabyemera, J. Programme Officer, FAO, DSM.  
Najam, S. Deputy FAOR, DSM.

Comments: The areas and activities of the Special Programme were accepted. The programme should be local demand driven, with full participation of the grassroots farmers, and should be integrated into on-going programmes. The Division of Agriculture and Livestock should be responsible for the operation of the Special Programme with the Planning and Marketing Division providing the backstopping.

13:30 Mr. F. Shao, Comm. Research & Training, MOA.

Comments: Technologies for maize and rice production are available. Main constraints for rice production are land preparation, weed control, and post harvest handling. For maize, in addition to land preparation and weeding (striga), storage is a problem. Ilonga and Katrin research stations could be used for production of certified seed for the Special Programme.



14:30 M.E. Mziray, Ag. Ass. Comm. Extension, MOA.  
Mrs. E. Shayo. Regional Extension Officer (REO), Morogoro.

**Comments:** 15 % of extension workers in Morogoro are women. Farmers' groups are used for procuring farm inputs. Main constraints for rice production are land preparation, weeding, soil fertility, and input supply. Small holder farmers could be used to produce certified seed.

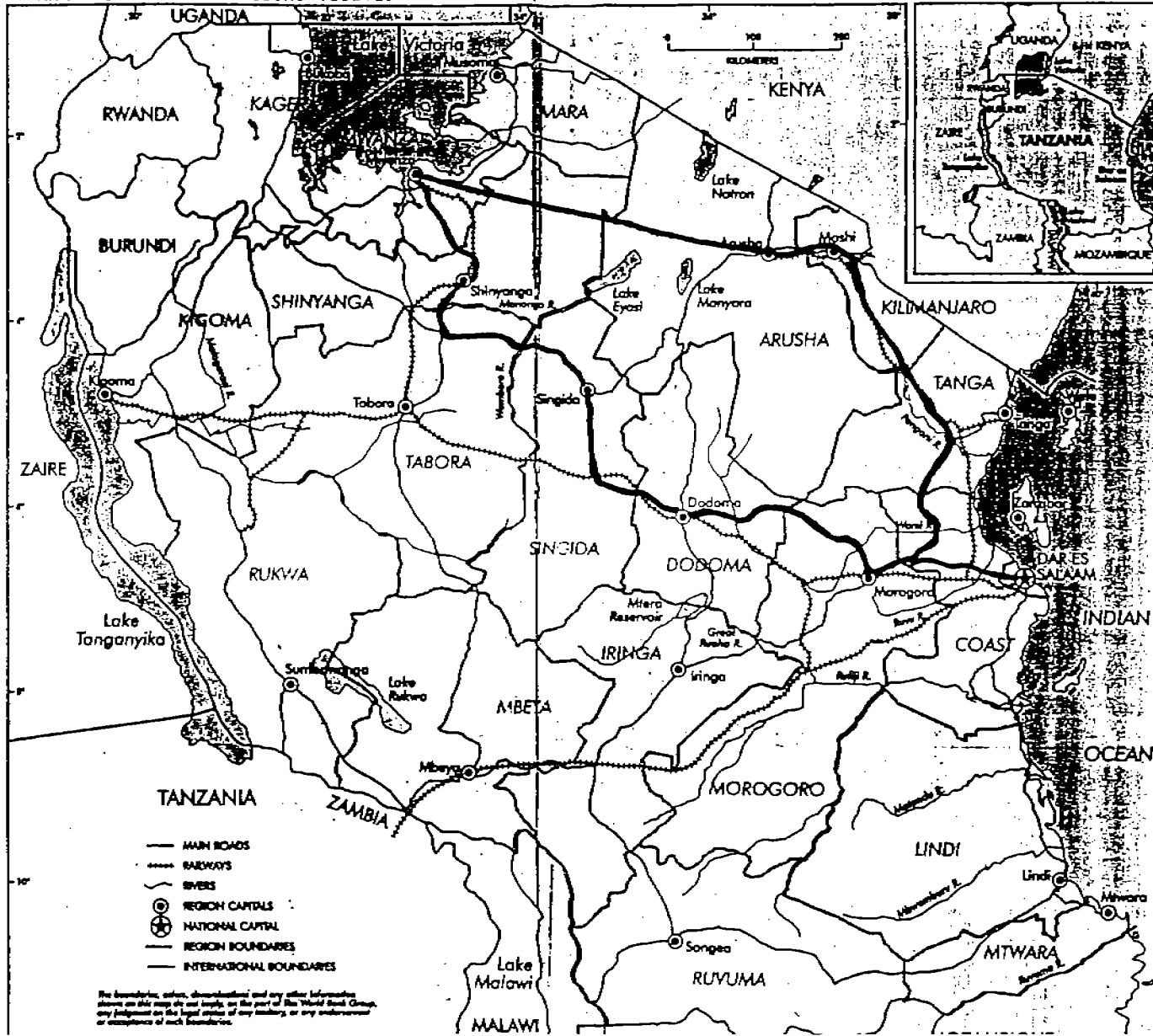
**Documents Consulted**

1. National Plan of Action for Nutrition (NPAN) Tanzania, Draft Report. October, 1993.
2. Industry Review of Maize, Rice and Wheat. J.M. Mdadila, Marketing Development Bureau, MOA/URT, DSM, 12/93
3. Comprehensive Food Security Programme, Vol.I. Main Report, URT/MOA, DSM, 1992
4. Comprehensive Food Security Programme, Vol.II. Annexes. URT/MOA, DSM, 1992.
5. National Programme of Action for Sustainable Income Generation. The National Employment Council, URT. October, 1993.
6. Agricultural Research in Southern Africa- A Framework for Action- World Bank Discussion Paper. 1992.
7. Agricultural Sector Management Project (ASMP) Staff Appraisal Report - World Bank 1993.
8. Commercialization of the Seed Subsector- Enhancement of the Privatization Process and Capacity Building for the Coordination of the National Seed Programme. FAO/UNDP 1994.
9. Tanzania Agriculture Sector Memorandum (Vols.I-III). World Bank. Sept. 1994.
10. Agriculture and Livestock Policy-Revised Edition. URT/MOA April, 1994
11. Water and Sanitation Sector Review Draft Report. Vol.I and II. Ministry of Water Energy and Minerals, URT, DSM. April 1994.
12. Tanzania National Environment Action Plan- A first Step. Ministry of Tourism, Natural Resources and Environment. June 1994.
13. Tanzania National Agricultural and Livestock Extension Rehabilitation Project. World Bank. 1989
14. Policy Documents: National Policy for Informal Sector. Promotion.  
National Land Policy (Second Draft).  
National Seed Policy (Extracts).  
National Population Policy.  
Policy on Women in Development.  
The National Environmental Policy.

15. The Food and Nutrition Situation in Tanzania- Country Paper for the International Conference on Nutrition, Rome, 1992.
16. National Agricultural and Livestock Research Masterplan. URT/MOA/DRT/ISNAR. 1991.
17. National Agriculture Research Masterplan Vol. 1. Working Papers 1-10. NARM Task Force. 1989.
18. National Agriculture Research Masterplan Vol.II. Working Papers 11-18. NARM Task Force. 1989.
19. Agricultural Potential of Mid-Africa: A Technological Assessment. Winrock International Institute for Agric. Development.
20. Agricultural Diversification and Intensification Study. Final Report Vol.I Findings and Policy Implications. Food Policy Group. 1992.
21. Basic Data Agriculture and Livestock Sector 1986-1991/92. UTR Mainland.

ANNEX 3: MAP OF REGIONS VISITED

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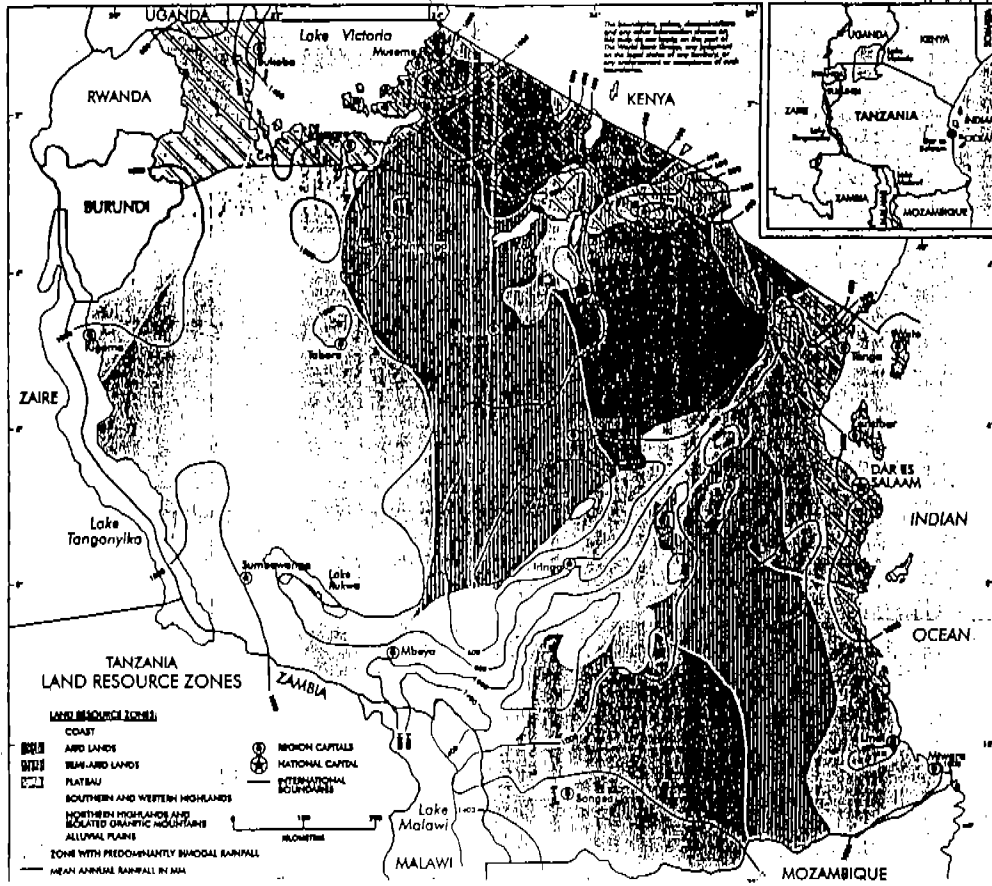


The boundaries, names, designations, and any other information shown on this map do not imply, on the part of the World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

**Current Yields (averages) and Potential Yields of the Main  
Food Crops grown in Tanzania**

Crop	National Average Yield t/ha.	Potential Yield t/ha.
Maize	0.6 - 1.5	4.0 - 8.0
Rice	1.5 - 2.0	8.0
Wheat	1.5	4.0
Barley	1.0	2.5
Sorghum/Millet	0.7	5.0
Cassava	4.4	20
Round Potatoes	5 - 10	15 - 30
Sweet Potatoes	1.3 - 5	20
Banana	3 - 5	25 - 30
Beans	0.2 - 0.7	1.5 - 3.0
Cowpeas	0.15 - 0.25	1.5 - 2.2
Green-gram	0.1 - 0.2	1.0
Soyabean	0.5	1.5 - 3.0
Pigeonpeas	0.3 - 0.5	1.0
Sunflower	0.3	1.7
Sesame	0.3	1.2
Groundnut	0.6	1.5

Source: MOA, Research and Training Division, Dar es Salaam



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ANNEX 5