資料 ２６

農業背景調査：組織／組合／流通編

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Rural and Agricultural Development Advisory Group of JICA Tanzania Office
(RADAG)

Discussion Paper
Agricultural Sector Development Programme (ASDP) of Tanzania

Marketing and Co-operatives in the Context of Implementation of ASDP (Draft)

March, 2002

Hiroshi YOSHIMURA, Marketing and Co-operatives

Franks KAMHABWA, Research Assistant

Table of Contents

1 Introduction

The Tanzanian Government liberalized marketing systems for agricultural products and inputs by 1993/94 as a part of the Economic Recovery Programmes, aiming at vitalising agricultural production and rural economies. Efficient and responsive marketing systems for inputs and products are key issues addressed in Agricultural Sector Development Strategy (ASDS) for increasing farmers' income. Whereas, Tanzania is still in transitional period to liberalization, and several difficulties are reported in ASDS: a hesitant and lagged private sector response to market liberalization; poor rural infrastructure which reduces market access then substantially increases marketing costs; administrative impediments to free market operations; a tax regime that creates disincentives to using formal marketing channel; weak farmer organizations which are unable to access credit, market, and inputs on behalf of the members, and a failure to regulate markets which has resulted in unethical trade practices on the part of some agribusiness firms.

The objectives of the study are to review the current situation of agricultural marketing and cooperatives and to identify the key issues to be addressed in the context of Agricultural Sector Development Programme (ASDP) currently under formulation. The mission visited, based on literature review, the regions of Kilimanjaro, Arusha and Morogoro, Mwanza, Dodoma, Iringa, Mbeya, and Ruvuma and interviewed the various stakeholders of the selected commodities to capture the actual situation, vital views and problems that they face. Those stakeholders are regional and district officers, Commodity Boards, Cooperative Unions, Primary Societies, individual producers, inter-regional traders, middlepersons, retailers, and inputs traders. The selected products are maize and rice as food crops, coffee and cottons as export crops and vegetable.

2 Background: Liberalization of Agricultural Marketing and Cooperatives

2.1 Characteristics of Tanzanian Agriculture and Cooperatives

Agriculture is the leading economic activity that consists of 50% of GDP and employs 80% of the people. The major crops are coffee, cotton, sisal, tea, cashew nuts, tobacco, pyrethrum and sugarcane as export crops, and maize, rice, sorghum, millet, pulses and bananas as food crops. Especially among food crops, maize is the most important crop as stable food, and rice comes the second. Among export crops coffee and cotton are the most important crops for their importance in the sources of foreign currencies and their number of people engaged in cultivation.

Cooperatives were originally initiated by farmers. Some of them go back as far as 1925. They were aiming at bringing near all members, although they were abolished in 1967 and them re-established in 1984 by the Government. Individual cooperatives are "Primary Societies", and Cooperative Unions are the regional union of Primary Societies. Currently, 4,800 primary societies are registered of which 800 are Saving and Credit Cooperative Societies (SACCOS), and SACCOS in urban areas is increasing in number.

2.2 Market Liberalization

The marketing sector of all agricultural produces has been liberalized by 1994/95. The government has rapidly disengaged from cash crop procurement, processing and exporting due to the inefficiencies of the institutions.

(1) Food Crop Markets and Cooperatives

Prior to 1989, the Government controlled marketing of food crops through Parastatals and Cooperative Unions. Cooperative Unions procure products from farmers and sell to the National Milling Corporation (NMC), as well as distributing inputs to farmers. In 1989, single channel marketing systems through Cooperative Unions and NMC was collapsed and private traders were allowed to purchase products from farmers. In 1990s, almost all of marketing activities of food crops is carried out by private traders. Currently, the Strategic Grains Reserve (SGR) is the only public intervention in the food crop marketing.

(2) Export Crops Markets and Cooperatives

The Government also controlled the marketing of export crops through Commodity Parastatals and Cooperative Unions prior to 1989. Cooperative Unions (CUs) procure products from farmers and sell to the Parastatals of respective commodities, as well as selling farm inputs to farmers by credit. By 1994/95 single channel marketing systems through Cooperative Unions and Parastatals had been changed crops by crops and private traders were allowed to purchase products from farmers. Parastatals have been privatised. Currently, most of Cooperative Unions have serious debt unable to borrow enough money from banks; then a few of Cooperatives Union are functioning for coffee and cotton. A large part of marketing activities of export crops is carried out by private traders. Currently, the commodity boards are the only public intervention in export crop marketing as regulatory bodies. These includes, licensing of traders, processors and exporters of crops, quality control of the produces at marketing levels, overseas promotion of the crops and industrial development to ensure availability of recommended farm inputs.

(3) Farm Inputs Markets and Cooperatives

Before liberalization, farm inputs such as fertilizer, seeds and agro-chemicals were supplied by cooperatives unions to farmers through primary societies on credit with government subsidised prices. After 1993/94, cooperatives unions are not able to get finances from banks for supplying farm inputs to farmers; private traders deal with farm inputs. As a result, farmers reduced the use of farm inputs because of unaffordable prices.

3 Selected Commodity Markets and Cooperatives under the Trade Liberalization

3.1 Maize Marketing and Cooperatives

(1) Maize Production

Maize production areas are centerd in Southern Highland known as "the Big four" that is Iringa, Mbeya, Rukuwa and Ruvuma. Dodoma, however, is known as emerging production market center in spite of its production level since there is production market center in Kibaigwa that is known to every trader in the nation.

(2) Maize Markets and Distribution Channels

Almost all of maize marketed is sold in the domestic markets through private traders; the biggest market is Dar es Salaam. The Strategic Grain Reserve (SGR) is the only buyer controlled by public sector. SGR is under the Food Security Department, Ministry of Agriculture and Food Security that is managing strategic grain reserve. SGR buys maize for

food grain reserve from traders. As of July 31, 2001 the size of food grain reserve is 46,288 ton, of which major part is maize (Tanzania Food security Bulletin July 2001).

Currently, all surplus maize is distributed by private traders except the Strategic Grain Reserve (SGR) which is the sole public intervention. Private traders come to the farms or villages to purchase maize. Farmers sell the rest directly to consumers and large-scale mill. Traders include local traders (middlepersons) and inter-regional traders. Local traders sell maize to local retailers, mills, or directly consumers on local markets. Inter-regional traders transport maize grain to sell to wholesalers in major town or maize mills. After trade liberalization, maize is traded in the form of grain is instead of maize flour, which is due to non-functioning NMC and longer preservation for maize grain than flour form.

Recently, traders have started to bypass wholesalers. At Tandale market in the municipality of Kinondoni, the biggest markets in Dar es Salaam, since 1996 traders start bypassing wholesalers because traders perceived the wholesalers cheating. Currently no maize is traded in Tandale market. In stead, areas around Tandale markets, there are many maize millers who directly purchase maize from traders.

The most interesting thing here is that, the majority of the millers prefer maize from Kibaigwa in Dodoma and Kiteto in Arusha. This is due to the quality of maize, which give a large rate of flour to the husks if compared with maize from other regions like Iringa, Morogoro and Mbeya.

Other than domestic markets, maize is also exported to neighbouring countries (Zambia, Uganda, DC Congo, Malawi, Zimbabwe, and Kenya) according to their demands. In 2000/2001 marketing year, only 54 tonnes of maize was officially reported tobe exported to Burundi where civil unrest threatens food security[1]. Exporting maize or non-perishable crop is required to obtain export permits from Ministry of Agriculture and Food Security. The Ministry eventually stops issuing export permits, when the country is perceived to face food shortage. Private traders export maize illegally to avoid taxes, and other levies. FAO estimates the unrecorded cross-boarder trade 20,000 ton of maize in 1998/99 marketing year[2]. This production season 2001/02, substantial amount of maize is exported to Zambia and DR Congo through boarder town Tunduma of Mbeya region since their production are not good enough. According to the exporters, the amount exported to Zambia is estimated as 100,000 tonnes.

(3) Farm inputs for Maize

Private inputs traders deal with the distribution of farm inputs for maize. Farmers become to use the lesser amount of farm inputs year by year because they can not afford to purchase inputs due to those increasing prices. The farm inputs play an important role in the maze production in Southern Highlands, Iringa, Mbeya, Ruvuma and Rukuwa regions. Those areas are traditionally maize-grown areas, which requires fertilizer to keep soil fertility, as compared with Dodoma region where a lesser amount of fertilizer application is made. Southern Highlands used to consume more than 50% of total fertilizer distributed. The fertilizer use decline in the 1990s in these areas because of the collapse of Cooperative

---

[2] FAO/WFP, Special Report FAO/WFP Crop And Food Supply Assessment Mission To Tanzania, 3 August 1998.
[2] Ministry of Agriculture and Food Security, Food Security Department, The Crop Monitoring and Early Warning Unit (CMEWU), Tanzania FOOD SECURITY BULLETIN, Buttetin No. 7. 2001. 27 August 2001.

Unions that used to supply inputs and the increase of prices due to removal of subsidy.

Improved seed is also vital inputs for maize production; major types of seeds are hybrids and composite maize seed. In Iringa region, the annual uses of hybrid and composite seeds decline from 236 tonnes and 123 tonnes to 46 tonnes and 57 tonnes respectively during period of 1990/01-1994/95 to 1995/96-1999/00. Especially hybrid seed declined to one-fifth because a hybrid seed requires a larger amount of fertilizer for its highly responsive nature to fertilizer application, which increases the costs of production.

Agro-chemical, especially post harvest storage chemicals are important for maize grains. These are important for farmers, traders and millers because maize easily attracts insects than rice. Then, maize has greater seasonal price fluctuation of than rice, which leads that farmers and traders try to keep maize grain up to attaining the better prices.

(4) Maize Prices Differences

The prices of maize differ across the seasons and regions. The seasonal price fluctuation is significant; the prices are the lowest in harvesting season in June/July and the highest in February/March before harvest of Vuli (Short rainy season). Taking an example of 1998/99 seasonal fluctuation, the lowest national average wholesale price is 9,500 Tsh/100kg in March, and highest is 19,000 Tsh/100kg in July. Most of farmers are forced to sell maize at the lowest prices immediately after harvest to pay living their expenses because they do not have enough money for survival as well as storing maize up to trough season of maize.

The seasonal price fluctuation differs among the regions. For example, Songea (Ruvuma region) has the highest price at 19,500 Tsh/100kg in April and the lowest price at 6,200 Tsh/100kg in July/August in 1989/90. The highest price is 3.15 times as large as the lowest price. On the other hand, Dodoma region has the highest price at 23,000 tsh/100kg in March and the lowest at 9,000 Tsh/100kg in August, whose ratio is 2.33 times. These price differences occur because market integration is not yet done. Then the distance to the major market as Dar es Salaam, transportation costs and transaction costs are the crucial.

There has been said to be no price differentiation on quality, however, at millers around Tandale market in Dar es Salaam, maize from Kibaigwa in Dodoma and Kiteto in Arusha are sold well and get better prices for their better quality as mentioned above. Millers can get lesser amount of waste from Maize in Dodoma and Arusha in milling. Since 1993/94 maize from Dodoma started increasing in Tandale market, currently, a large part of maize marketed in millers around Tandale market is from Dodoma.

(5) Production Center: Kibaigwa Market Center in Dodoma Region

The Kibaigwa Maize Selling Center in Dodoma Rural district is the only big market center near production areas. Maize growers bring their produce from the fields and sell them to private traders who come to the center. Currently, Kibaigwa market attracts the many traders because they can purchase the necessary amount at one place instead of going to individual farmers, which reduce the cost for traders. The producer prices in Kibaigwa are higher than the other areas and have smaller seasonal fluctuation.

In the maize marketing, traders have advantages to farmers in terms of pricing. The standard measure and pricing is based on a bag containing 7 tins of approximately 130 to 140kg. This reflects that farmers are not making profit as they are paid basing on 100kg weight. The

whole center lacks weighing scale, and traders are easily taking this advantage to cheat farmers. One private maize buyer buys maize at the center and transports it to millers around Tandale market in Dar es Salaam. He hires a truck and has to pay 1,500 Tsh per bag. At Dar es Salaam he sells by considering weight, at 170 Tsh per kg, not by number of bags as he purchased at Kibaigwa at 19,500 Tsh per bag of 160 kg. He admitted to be making a lot of profit when he brings his maize to Dar es Salaam. He depends on market information from Dar es Salaam by a friend or brokers, not on the radio programmes, although he is aware of such a programme.

Apart from the maize marketing process at Kibaigwa, villagers form the cooperatives that benefit them. Kibaigwa area has 3 cooperatives: SACCO with 471 members; UMASACCO dealing with marketing of vegetables and fruits with 50 members; and Cargo and Porters Cooperative dealing with loading with 130 members. Cargo and Porters Cooperative, which started in 1991 and was registered in February 1995. This cooperative has 25 members whose main activity is loading of cargo to customers. Other services offered by the cooperative to members are procurement of maize and store to wait for high prices, provide security to buyer and sellers and to assist each other in time of difficulties. These supporting services for market are also some of the reason to attract traders.

(6) Maize Marketing by Cooperatives

Almost all of cooperatives withdraw from marketing of maize. For example, Iringa Farmers Cooperatives Union (IFCU) was registered in 1985 to provide services to members such as purchasing various crops, distribution of inputs to members, and advice and necessary services to increase production. Currently, IFCU exists but has stopped services since 1996/97. This is because, in 1995/95 season, IFCU collected maize but failed to pay members, currently owing 8.5 million Tsh of debt to members, then no member trust maize to IFCU. According to their business plan for 2001/02 season, they estimates 11.6 million Tsh of revenue while actual amount is 5 million Tsh, of which 99.7% is revenue from renting their office building to private companies. For expenditure side, more than 90% goes to the survival of staffs such as staff salaries, member allowances, staff house rent, and staff vehicle maintenance.

(7) Collective Marketing: Wino Agricultural Marketing Cooperatives

There is a few cases that cooperative societies are active in dealing with the maize marketing. Wino Agricultural Marketing Cooperatives (WAMCOS) in Wino Ward, Songea District, Ruvuma region, purchase maize and coffee from producers and sell to markets. WAMCOS collects maize at harvesting time for advance payment, and stores and sells maize later during the time of scarcity then pays final payment to members. This system has benefited the farmers because farmers are not necessary forced to sell maize during the harvesting time when maize prices go down at 7,000 Tsh per bag of 100 kg, instead, they can sell during the time of scarcity at the prices ranging from 18,000 to 20,000 Tsh per 100kg of bag.

3.2 Rice Marketing and Cooperatives

Major rice production regions are Mbeya, Morogoro, Mwanza, and Shinyanga. Recently the production increases in Dar es Salaam/Coast, Tanga, and Rukuwa regions. Almost all of marketed rice is sold in the domestic markets, and Dar es Salaam is the biggest market. Tandale market is the largest market in Dar es Salaam, where traders are in a group with

elected leaders in place. The main activities of the group are to coordinate all traders and make sure revenue is being collected from the traders and sent to the Kinondoni municipality.

At the market, we found that rice traded is increasing in volume, and a big portion of rice that is preferred by consumers comes from Mbeya region. Mbeya rice is preferred by consumers for its aroma and taste, especially rice produced in Kyiela in Mbeya region is known as the best quality and the most expensive. The next to Mbeya rice, Shinyanga comes, then Morogoro and Rukuwa. The other rice from Moshi and other places are not preffered much for these taste and were not obtained in the market. From the same order of origin, the prices also vary accordingly. The Mbeya rice, the super grade, was selling as far as 550 Tsh/kg, while Morogoro rice was selling at 420 Tsh/kg. Other than price differentiation by production areas, prices differ by quality such as broken rice and mixture of stones. Seasonal fluctuation of rice prices is smaller than that of maize for its easiness of preservation.

Rice marketing is solely done by private sector. Private traders are categorised as middlepersons (mainly women) and big traders/inter-regional traders who ferry rice to other destinations in the country and abroad. There is no cooperative society or organization that is involved in rice marketing. Usually, farmers sell paddy middlepersons at the fields or their houses. Middlepersons carry paddy to mill machines for milling. Milling machines in production areas are trading place where middlepersons and inter-regional traders and/or retailers meet. Inter-regional traders send rice to big markets such as Dar se Salaam.

Trading paddy also has problem of scaling as maize' case. When farmers sell paddy to middlepersons, they set prices per bag that is provided by middlepersons. The prices are not transparent for both sides. Middlepersons, after milling paddy to rice, sell rice per kg. Marketing problems has resulted into low prices paid to farmers. Farmers have to secure loans from private traders for production, whom they pay later as twice as much during the recovery of the loan.

Farm inputs for are not useally used for rice cultivation because of indigenous varieties except in Moshi. At Moshi, high yield IR variety is cultivated, which required substantial amount of farm inputs such as fertilizer and agro-chemicals. All farm inputs are traded by private sectors.

3.3 Coffee Marketing and Cooperatives

(1) Coffee Production

Tanzania produce Mild Arabica (70% of total production), Hard Arabica (25%) and Robusta coffee (5%). Mild Arabica is the major coffee produced, mostly in the Northern Highland (Arusha and Kilimanjaro) and in the Southern Highland (Mbeya and Ruvuma). Hard Arabica is produced in Kagera; Robusta is produced in Kagera and Kigoma. Smallholders produce 95% of production, and the estates produce 5%. The yield of coffee production is 250kg/ha, which is much lower than that of Kenya (1,000kg/ha). Major reason of low yield are that non-replace of aged trees, poor management of coffee trees, and farmers' non-affordability to purchase farm inputs.

(2) Coffee Markets and Distribution

The main market of coffee is the export market; 97% of production is exported from 1995/96 to 1997/98. The market share in the world market is 0.7% for 1998 to 1999. Tanzania is the price-taker of coffee in the world market, which is influenced by the world market prices. Currently world coffee prices are decreasing due to over-supply in the world market.

Currently, 90% of coffee produced is distributed by private sector; farmers sell coffee to private buyers because of better purchasing prices. Private buyers send their coffee to the auction in Moshi for export where exporters bid for coffee. For selling to cooperatives, farmers sell their coffee at buying post of Primary Societies (PSs) in villages for advance payment. Cooperative Unions collect coffee from Primary Societies, then send to the auction. Cooperative Unions pay the final payment to members after auctioning of coffee if the profit is large enough to afford. Currently, every coffee has to be exported through the auction operated by the Tanzania Coffee Board (TCB) according to the regulation. TCB is the regulatory and controlling body in coffee marketing who offers permits to traders and exporters of coffee.

(4) Decreasing Quality of Coffee

Decreasing quality is one of the major problems in coffee. Lower quality coffee gets lower prices at the world market. There are some reasons that: (1) low quality control at primary processing; (2) farming practice of farmers become worse due to non-affordability to purchase farm inputs; and (3) buyers do not pay any incentive to producers for better quality coffee.

Primary processing is one of the bottlenecks to produce better grade coffee. Coffee harvested is processed through primary and final processing before auctioning. At primary processing, coffee is pulped, fermented, washed and sun-dried. Final processing is to cure coffee into tradable form at big curing factories. Usually, primary processing is done at home for small farmers. Some amount is processed at central pulperies. Primary processing at home has a higher risk to produce lower grade coffee than central pulperies because of the difficulty in controlling the wash and dry to get homogenous grades of the coffee.

High farm inputs prices without subsidy and stagnating prices of coffee discourage producers to take care of the plantation. Pesticides and fungicides are important for coffee cultivation as farm inputs. Farm inputs had been supplied through Cooperative Unions and TCB on credit basis before liberalization. Currently, most of farm inputs are supplied by private sector. The inputs voucher system was introduced by Tanzania Coffee Association (TCA) in 1997/98 intended to facilitate farm inputs distribution. Coffee buyers have to issue 50Tsh of vouchers per kg of coffee purchased to producers. Producers take those vouchers to the registered stockists for farm inputs. Stockists will send these vouchers to the scheme for redemption. However, this system does not function well in many places. For example, this system does not work well in Mbinga district in Ruvuma region. The reason of non-functioning are that the stockists are located in town while producers are located in remote areas, which makes it difficult for producers to go to stockist for farm inputs; and producers are willing to receive cash, even discounted, instead of vouchers when coffee buyers often offer, say, 30Tsh of cash instead of 50Tsh of vouchers. Farmers often voluntarily go to stockists in town to sell vouchers at discounted prices for small cash.

When private buyers purchase coffee from producers, private buyers employ several agents who purchase coffee at the fields. Competition among these agents makes buyers not care the quality but only quantity. Some of Cooperative Unions still keep purchasing coffee at buying posts with grading but they can not compete with private buyers for lower purchasing prices.

(4) Quality Control by Private Traders

There is the successful case of private coffee trader who keeps quality. Soochak Bush & Co. Ltd and its sister company Tropex Ltd in Mbinga district, Ruvuma region has the largest share at 33% and is getting increased its share among private traders in Mbinga district. They control quality by central pulperies and successful operation of voucher system. They have 13 central pulperies of which 8 are hired from the Mbinga Farmers' Cooperative Union (MBIFACU) and 6 are constructed by the company. MBIFACU (former MBICU) have rehabilitated central pulperies with EU assistance during 1997 to 1990. MBIFACU under the project, other than rehabilitation, got assistance for education to farmers and assistance to farmers to get necessary materials. After liberalization, MBIFACU rented their central pulperies to Soochak & Bush Co. Ltd because of financial problem. Soochak also introduced 8 mini pulperies in 1998.

Soochak & Bush Co. Ltd uses Primary Societies as agents to purchase coffee from farmers. They have, currently, the agreements for purchasing agents with 43 Primary Societies out of 47 Primary Societies. They care for the quality of coffee by procuring at buying posts, contrary to other private traders who does the house-to-house in hunt of coffee from farmers. The company distribute weighing scale to buying posts and purchase coffee. At the purchasing time, the company does not give the vouchers to them; instead, they keep the vouchers for farmers up to the time when application of fungicide and pesticide is needed. Then, they go to buying post with the vouchers and fungicide/pesticide, and distribute fungicide/pesticide for the vouchers so that farmers can access to farm inputs even in the remote areas and can not misuse the vouchers. They purchased at 350 Tsh/kg last year and even provide final payment at 50 Tsh/kg.

(5) Cases of Coffee Marketing by Cooperatives

Some of Cooperative Unions are still active in purchasing coffee. The Kilimanjaro Natives Cooperative Union (KNCU) in Kilimanjaro region that the mission visited is the one of the active in collecting coffee from farmers. KNCU managed to secure the shares of purchasing from farmers at 75% of coffee produced in Kilimanjaro region last year. The Mbinga Farmers' Cooperative Union (MBIFACU) in Ruvuma region in collaboration with Mbinga Coffee Curing Company collected about 24% of the coffee shares in the district from 47 primary societies dealing with coffee production with an estimated 9,000 members.

Above all, Wino is the one of the most successful cases in terms of linking marketing and community development. Wino Agricultural Marketing Cooperatives (WAMCOS) in Wino ward, Songea district, Ruvuma region, as also mentioned in maize marketing, purchases 100% of coffee in their covering area. WAMCOS supervises collection of coffee from farmers and send it to Mbinga Coffee Company for processing. The sample of processed coffee for export is sent to the auction. From the quality of coffee that is produced at Wino ward, they managed to find importer and are in a contract with the European company for 3 years to supply processed coffee.

This European company participates the Fairtrade Labelling Organizations International (FLO) that is the movement which intends to buy directly from small farmers at better prices, help to strengthen their organizations and market their produce directly through their own shops and catalogues[3]. FLO also enforces the producers to keep better quality and their better management, furthermore, promote the organic coffee at premium prices. Currently, even the world-wide coffee shop chains such as Starbucks Coffee Company and Seattle's Best Coffee begin offering Fair Trade certified coffee through their extensive network. Farmers at Wino are enjoying the advance and final payment for their coffee, as for last year; they received a total of 1,050 Tsh per kg of coffee of which 400 Tsh/kg was advance payment, as compared with the other areas prices at 500 Tsh/kg in total.

WAMCOS hire the Tanzanian exporter stationed in Moshi as an agent who attend the auction in Moshi to buy Wino coffee to export to the European Fairtrade Labelling company. During the interview by the mission, a bad news came in that Wino coffee got the low prices at the Moshi auction took place February 8, 2002. This year the trading company hired by WAMCOS in Moshi cannot work as an exporter by some reason, and WAMCOS sent their coffee the auction without doing any measures. Another trading company makes a successful bid at the low price.

(6) Coffee Auction System

This case happens because even producers who already have customer are obliged to sell their coffee through auction according to the rule. Even Wino, the most successful and capacitated community organization the mission observed in Tanzania, is not aware the market situation and information to cope with this problem. Coffee auction started in 1925 in Moshi where quality is observed and guaranteed to traders in terms colour, smell and moisture content. The licensed coffee export companies only participate the auction. The strange things happen currently in the auction that a coffee trader purchase coffee at the fields from producers and send to the auction where the same trader as exporter bid for his coffee to buy his coffee back. This is because coffee traders are exporters as well as buyers from producers. The auction system has lost its initial purpose. Generally, auction systems work in the case the goods are scarce and demand is large enough and the case buyers and sellers are not identical persons. In Kenya where the auction is taken place, exporters are prohibited from purchasing coffee from producers; the sellers and buyers are separated in the auction.

3.4 Cotton Marketing and Cooperatives

(1) Cotton Production

Production area of cotton is divided into the Western Cotton Growing Zone (WCGZ: Mwanza, Shinyanga, Mara, Tabora, Kigoma, Singida) and the Eastern Cotton Growing Zone (ECGZ: Arusha, Morogoro, Mbeya, Kilimanjaro, Coast, Tanga, and Iringa). WCGZ produces more than 90% of all cotton produced in the country with Mwanza and Shinyanga regions accounting for more than 80% during 1996/97 to 1998/99. In ECGZ cotton is planted in November/December and marketed from July to November. In ECGZ cotton is planted in January to March and marketed from August to December.

---

[3] FLO sets the Fairtrade criteria that include trading relations and production. Fairtrade relation includes: prices that cover the cost of production, social premium for development purposes, partial payment in advance to avoid small producer organisations falling into debt, contracts that allow long term production planning, and long term trade relations that allow proper planning and sustainable production practises. And Fair production conditions, including: for small farmers' co-operatives a democratic, participative structure

(2) Cotton Market and Channels of Cotton

Marketing of cotton starts by collecting of the seedcotton from farmers and sent to the ginneries for processing. Cotton processing is separation of cotton lint and cottonseed from seed cotton in the ratio of 34% and 64% respectively. Bailing of cotton lint is done at the ginneries, and 97% of lint is exported in 1996/97. Cottonseed is left for planting in the next year, oil extraction and seed cake production for animal feed. The domestic market for cotton lint is minimal. Currently only three textile mills are operating since most of textile mills are out of business; over 30 textile mills were operating in 1970s and1980s. In the world market, the share of Tanzanian cotton is less than 1%, which makes the country price taker influenced by the world market prices. Export prices are decided by the world market prices. Recently export prices are decreasing; they got the prices ranging from 0.38 to 0.43 USD/pound (0.83-0.95Tsh/kg) of cotton lint in 2001/02 as compared with 1.88 USD/kg in 1995/96 because of the increase in supply from China.

Private buyers purchased almost 90% of seed cotton in year 2001 according to the Tanzania Cotton Lint and Seed Board (TCLSB). The Cooperative Unions collected only 10% of the total shares as decreased from 85% in 1994/95. Private buyers and Cooperative Unions export cotton lint. The active Cooperative Unions with substantial scale are only two; those are Nyanza Cooperative Union (NCU) and the Shinyanga Region Cooperative Union (SHIRECU). From August 10th of 2001 to January 10th of 2002 in 2001/2002 marketing season, NCU and SHRECU purchased, respectively, 4,736 ton and 6,860 ton of seedcotton accounting for 3.2% and 4.6% of total purchase in WCGZ which is 148,180 ton.

(3) Cooperative Unions: Nyanza Cooperative Union (NCU)

The Nyanza Cooperative Union (NCU) that the mission visited was established as the Victoria Federation Cooperative Union (VFCU) in 1959 to handle cotton matters in three regions of Mwanza, Shinyanga and Mara. As other Cooperative Unions, in 1967 the Government abolished it. In 1984 when the same Government re-established the Cooperative unions countrywide, NCU which was formed to deal with cotton procurement, ginning and seek markets for cotton lint abroad on behalf of the farmers of Mwanza region only. It serves about 30,000 members who are represented through 343 Primary Societies who are shareholders in 7 different zones. It used to supply farm inputs to farmers on loan basis and control of quality through farmers' organization that is the primary societies.

NCU has 11 ginneries of which 2 ginneries are operating under NCU, 7 are operating under private traders, and 2 are not operating. Magu ginnery the mission visited is the one of the ginneries owned by NCU but hired to someone to Nyanza Gas Oil. This ginnery is surrounded by 33 primary societies with almost 3,000 members. It managed to collect only 351,248 kg of seed cotton in 2001 while other 20 private traders are estimated to have procured 5.4 million kilograms. This indicates to be far below in terms of market share for seed cotton procurement at the ginnery as a marketing center and its processing capacity.

(4) Producer Pricing Policy of NCU

TCLSB announces the indicative prices at the beginning of marketing season; it was 130 Ths/kg for seedcotton for 2001/02 season. Cooperative Unions, in case of the Nyanza Cooperative Union, (NCU) sets the advance payment price at early marketing season; it was 152.5Tsh/kg. This price is fixed throughout the year, and at the end of marketing season NCU pay final payment according to profits that has been not paid for these years. Private

traders set the little higher prices after the announcement by NCU at 140-180Tsh/kg. NCU can collect the cotton in peak production season in June/July. As the production reduce, private traders can set higher prices for competition of collecting seed cotton, which reduce the purchasing share of NCU because they cannot compete with private traders as shown in the Figure 1.

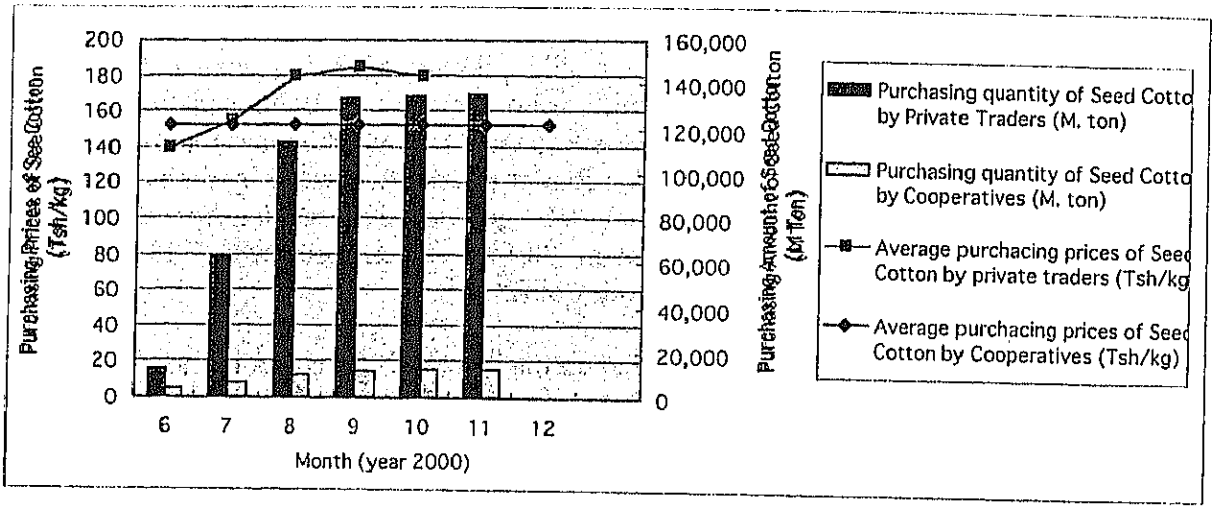

Figure 1 Share and Prices of Seedcotton Purchase by Privates and Cooperatives

NCU cannot change the advance payment prices because of their by-laws and instruction by banks. NCU who does not enough capital to purchase cannot be fully financed by banks because of their financial status and has to follow the bank's instruction. NCU's plan of survival is (1) to request the government for take the NCU's outstanding and put the limitation of trade at ginneries level, (2) to get loan from foreign buyers, and (3) to re-organize the operation to stop reducing the share of purchase year by year, according the management.

(5) Tanzania Cotton Lint and Seed Board (TCLSB)

TCLSB is the sole board, which issues licenses to cotton buyers, ginners and exporters of cotton lint. It has to ensure quality through inspection and cleanliness of the buying posts and small stores where seed cotton has to be stored in, and ensure proper functions of weighing scales used by traders and agents. Education to traders is one of the TCLSB activities. The number of private buyers in the season was twenty; most of them are foreigners, with about 100 agents. Such a big number is leading the TCLSB to think of trim the seed cotton buyers to only 10 according to their records of performance on business management for their easiness of regulation and control.

(6) Farm Inputs for Cotton

Insecticides are important for cotton inputs. Cooperative Unions and private companies performed distribution of cotton farm inputs after liberalization; however, these do not work well because of high prices of inputs. Tanzania Cotton Association (TCS) that is the association of cotton traders and ginneries under supervision of TCLSB established Cotton Development Fund (CDF) funded by levy on traders at 3% of purchase price. CDF is used for subsidy for import and distribution of insecticides, research and development at Ukiruguru Institute that is the research institute for cotton, and distribution of seeds. CDF uses the tendering system to get the importers as well as the distributors to the end users. Last year,

CDF imported about 1 million litters of chemicals. TCLSB has to ensure that private traders import and distribute all necessary farm inputs, especially the agrochemicals, which are pesticides, fungicides and herbicides. Some companies import 320,000 litters of agro-chemicals last year.

A giant company in Mwanza dealing with farm inputs was contacted. It stocks various pesticides, fungicides and herbicides, which are mainly sold to stockists around the lake regions. Regarding the prices, a company representative said prices were going up every time making farmers not to afford. He explained that during the cooperatives era, farmers get used to subsidy from the Government for farm inputs.

(7) Decreasing Quality of Cotton

Tanzanian cotton is named white gold because of its whiteness and cleanliness before. One of the main problems after market liberalization is the decreasing quality. The cotton lint is classified into 4 grades when it is sold to the international markets; the prices are offered according to quality. Currently, the shares of upper two grades are decreasing. This quality decrease is caused mainly by climatic conditions and consequent pest attacks, and the absence of seedcotton sorting according to grades. Pest attack can be controlled by pesticide, however, farmers are not affordable to purchase farm inputs.

Seedcotton is classified into Grade A and B, where Grade A is clean, mature and dry cotton while Grade B is stained and immature cotton. It is hand picked and hand graded during harvest, which produces good quality. In the past, farmers separated the dirty one from clean seedcotton during picking it by hands or after picking. This is stipulated in the Cotton Regulations. Farmers receive better prices for well-sorted Grade A. The proportion of Grade A varied from year to year, which depends on whether conditions and pest damage. Currently, the separation of Grade B from Grade A is seldom done by farmers. There are several reasons why the grading system does not work. First, most of farmers sell to private traders who employ quite a number of purchase agents who do not care the quality due to the strong competition among those buyers. Second, there is no price incentive for the farmers to classify the seedcotton. Although Magu ginnery the mission visited differentiates purchasing prices where 150Tsh/kg for Grade A and 60Tsh/kg for B, private buyers purchase all seedcotton for better prices, then Magu ginnery can not compete with private buyers. Third, TCLSB can not enforce the seed cotton regulations to buyers.

Furthermore making it complex, there is the mixture of zones. Before liberalization, there was zoning that demarcates catchment area for each ginnery. This zoning works for controlling the spread of pests and diseases and the mixture of varieties introduced for each zone. After liberalization, private traders carry seedcotton beyond zoning, which causes the spread of pests and diseases by infected seeds and the mixture of different varieties of cotton. The mixture of varieties discourages the introducion of new variety and phasing out of old varieties, and in addition, results in the non-homogeneous quality of cotton lint, which is also one of the causes of the decreasing quality.

After market liberalization, there have been some improvements in efficiency in various areas of operations such as transport of seedcotton to ginneries in time, and improvements in facilities such as new construction of ginneries. Furthermore, there are new initiatives by private companies. There are several companies that care the quality from the production up to sales. These are S & C in Musoma and Farai Oil Mill in Mwanza, unfortunately the mission could not visit them due to time constraints. These companies practice, more or less,

contract farming which supplies farm inputs and renting tractors farmers.

3.5 Vegetables Marketing and Cases for Progressive Cooperatives

The marketing horticultural products like vegetables and fruits has never been state control. The marketing of these crops is carried out mainly by small-scale individual producers and traders. Main marketing channels are: small farmers take the products to the collection points along the main roads and wait for buyers; several small farmers jointly hire truck to transport to major markets; and traders come to buy products at farm level and sell at the major markets. Horticultural crops are sold in the daily goods markets in major town. The biggest market is in Dar es Salaam. Kariakoo Market is the major market in Dar es Salaam, which is operated by the municipality. At Kariakoo Market, vegetables such as potatoes and onions are collected over the country and sold by traders. Individual farmers and traders are main actors in the marketing, however, there are several cases of cooperatives doing crop marketing.

(1) Mbuyuni Development Association in Iringa

At Mbuyuni, Iringa region, the primary society deals with marketing of onion. Mbuyuni village has 450 households and 2,200 population. The Mbuyuni Development Association that was established in 1997 with 27 members is doing onion marketing. It has 86 members currently. The main activities by the association members are agriculture and trade of agricultural produce, mainly onions. They produce onions and green pepper and sell most of them to traders who come from Dar es Salaam, Songea, Mbeya and some places in Kenya and the Democratic Republic of Congo. Apart from serving traders who come for their commodities, there are some association members who are entrusted by members for freight charge of 3,000 to 3,500 Tsh/bag to ferry onions to Dar es Salaam market and get their money after the whole lot have been bought. This benefits members for higher selling prices at 38,000Tsh/bag in February than selling to the coming traders at the village, that is, 25,000Tsh/bag. This association also supplies farm inputs such as fertilizer and seeds to members according to the size of contribution to the Association. It is a progressive association as it has secured 40 acres of land for communal farming of onions and is anxious waiting to get a water pump for irrigation purposes. Their major constraint is on the quality of onions been produced which is lower than the Moshi, Arusha and Tabora products.

(2) The Malimbichi Association in Lulanzi, Iringa

The Malimbichi Cooperative (an Association) in Lulanzi village, Iringa rural district was formed in 1982 with 14 villages in Ukumbi ward. This is a voluntarily formed association by 600 members with entry fees of 100 Tsh and a share of 500 Tsh and was registered in 1983. The association is dealing with marketing of perishable agricultural produces. At the initial stage, they received the assistance from Irish NGO named Irish Foundation for Cooperative Development (IFCD) for technical assistance for livestock keeping and training and physical assistance such as construction of offices, a truck, and 2 motorcycles.

Marketing is done collaboratively while individual farmers do production. This marketing system is safeguarding the interest of the farmers as they had a truck sometimes, which was used to ferry produce from Lulanzi village to major consumers in Dar es Salaam. Sometimes, they insist their marketing style against District Cooperative instruction. The association disintegrated in 1995, and in 1996/97, the new management re-established it with

new vision. Currently the association has 45 members who pay the entrance fees of 2,500 Tsh and a share of 50,000 Tsh in 10 clusters each 5,000 Tshs.

Other services offered by the association to members include local training of members through the Training of trainers (ToT) and Extension staff at the village. It provides loans to small groups of vegetables, maize, sunflower and pyrethrum production in form of physical inputs such as chemicals, fertilizers and seeds according to proposals made by groups. Repayment is done with an interest rate of 5% in 6 or 12 months. Farmers are getting farm inputs at their newly opened Farm Input shop in the village that started operation in 1997 and there is a strong cooperation among members.

The association are planning various activities in networking with surrounding 5 villages. One challenge is, currently, in the process of establishing a local Microfinance to be known as *Chama cha Akiba Tarafa ya Malolo (CATAKI)* in networking with surrounding 5 villages. To date 52 members have contributed 460,000 Tsh in 2 months with their entry fees of 104,000 Tsh at the rate of 2,000 Tsh. Another challenge is a plan to have market center for various crops with utilizing the storage facility at neighbouring Kilolo village, which was constructed in 1990 under the Japanese Grant Aid Programme[4]. This storage was utilized for 2 years after construction and has been abandaned under the market liberalization. Their idea is that a market center in production area attracts traders for benefiting from reducing costs instead gathering crops house to house, then producers can benefit for reducing costs for transportation and getting market information. This storage is under control of district; they are trying to persuade the district to realize this plan. They had succeeded in having 10 days-local market festival for farmers' day on August 8 of last year.

It was found that the marketing information for their produce is normally from Dar es Salaam where some members go to every week. They also use of the farmers' experiences for getting information due to long time participation in the cultivation of such perishables.

(3) Wino Development Association (WIDA) in Songea District, Ruvuma Region

In Songea district, Ruvuma region, only Wino primary society deals with coffee and maize while the rest 41 are engaged in tobacco and cashewnut marketing. Wino Development Association (WIDA) was established in 1990 and registered as NGO under the Ministry of Home Affairs to carter for 5 villages of Matetereka, Maweso, Wino, Egawisengu and Lilondo in Wino ward with the prime objective of promoting social and economic development. WIDA has now 1,200 members while Wino ward has 500 households and 12,000 population. WIDA, at the beginning, identified the 7 areas of concentration to be addressed: (1) agriculture, (2) cooperatives, (3) primary education, (4) health, (5) women, (6) environment, and (7) youth issues. Next, they established Wino Saving and Credit Cooperatives Society Ltd. (WinoSACCOS) in 1992 to create capital. WinoSACCOS started with 720 members, 4 million Tsh of savings grew with 2,200 members and 84 million Tsh of savings in February 2002. Then, Wino Agricultural Marketing Cooperative Society Ltd. (WAMCS) was established in 1993, currently having 1,500 members. These 3 associations are financially and administratively independent each other. WinoSACCOS accumulates capital and

---

[4] The Grant Aid Project for Improvement of Agricultural Storage and Transportation System in Iringa Region, exchange of note signed in 1988 and 1989 with total amount of 1,018,000 JYen. The components of this project are 4 storage facilities (Kilolo village, Iringa district; Ifuwagi village, Mfindi district, Mtinbwe village, Njombe district; and Itundu village, Ludewa district) and their storage equipment, and feader road rehabilitation to the storages and maintenance equipment for feeder roads.

extends loans to WAMCOS for marketing activities to purchase products such as coffee and maize, as mentioned earlier. WinoSACCOS recruits young manager who were born in Wino and working as extension officer in Tanga region.

For agricultural sector other than marketing, they pay offices, motorcycles and topping allowances for extension workers: 2 for agricultural extension and 2 for livestock; and conduct study tour and seminar. For education sector, they rehabilitated all 6 schools, paid workshop for teachers, and paid for textbook for students. In health sector, they rehabilitated dispensary; provide dental equipment, wheel chair to disabled and microscope; and provide seminar on HIVs. WIDA also employed coordinator for womens' activities. For youth groups, WIDA assists them to have "4H Club" that is club to improve Head, Health, Hand and Heart of youth to utilize their energy to productive purpose, otherwise, they are easily misuse young energy. Under the 4H club activities, WIDA support record keeping training for youth. For environment sector, bee keeping and tree seedling are introduced.

One of the reasons for their success is their capacity. WIDA has strong leader who is the retired officer back to home village who loves home and knows the outside world. Their capacity was strengthened through cooperation with external resources. Before establishment of WIDA, the Cooperative College in Moshi came to Wino because Wino was behind areas, and conducted baseline study. Based on the study they established WIDA. In addition, WIDA also receives support from Swedish NGO as technical and financial assistance. Currently, they have two experts for agronomy and administration. Songea district also provides officers stationed in Wino.

Songea district itself receives external assistance from Dutch NGO named SNV for the District Rural Development Programme. They receive technical assistance for capacity building such as participatory planning for Village Level Planning. Their capacity building is followed by the decentralisation policies. Currently, they have one advisor, and 17 officers are trained. Songea district, currently, conducts pilot projects for the establishment of SACCOS in 5 wards and for the dairy development entrusting dairy cow to farmers' groups. Villages pay 40,000 Tsh/year for an expertise, and 5% of producer prices of crops as a cess.

Other reasons for success of WIDA are: strong independent mind to help themselves; they never depend on the government and protect them by themselves, and close linkage between SACCOS and AMCOS, which strengthen the capital base for marketing.

3.6 Border Trades

According to the cross-boarder survey to look into boarder trading between Tanzania and neighboring countries, the procedures for exportation and importation of agricultural products are the same at both posts according to the Agricultural Produce Inspectors, Phytosanitory Officers and the Customs and Excise Department. Before importation or exportation of any of these goods a trader is required to posses all relevant export/ import permits, import/ export certificates and inspection reports regarding the produce. It was informed that in case of any irregularities, the Zonal offices have to be contacted. If the damage of the produce is severe, the consignment is always sent back to the country of origin.

(1) Border to Kenya: Namanga

At Namanga in Arusha region, the border town to Kenya, there was an increase in exportation of cut flowers, onions, oranges, fresh banana and wheat flour. One trader dealing with

production and exportation of roses to Europe through Kenyan airports explained the bureaucratic procedures, which cause some delays for clearance of goods, which are imported in the country. Custom clearance for exporting from Tanzania to Kenya takes half an hour while the opposite way takes whole day. This is the one of the bottleneck to impede the investment in Tanzania. This probably is contributing to illegal boarder trade. Among the imports are packaging materials for roses, various seeds, fertilizers and chemicals. The access road to border is quite good condition.

(2) Border to Zambia: Tunduma

At Tunduma in Mbeya region, the Tanzania-Zambia border town, there was exportation of maize, beans, rice, potatoes, wheat flour and some spices to the neighboring courtiers of Democratic Republic of Congo, Zambia and Malawi. Imports observed were finger millets, groundnuts, apples, seeds (vegetables, maize and sorghum) and farm inputs such as fertilizers, pesticides and other chemicals. At the village in Zambian side facing Tunduma, there are many storage facilities some of them have post-harvest treatment funciton, where many buyers from Zambia gather. They hire Tanzanian agents to collect crops like maize from Mbeya, Iringa and Dodoma. It is quite easy to cross the border in Tunduma; most of crop export to Zambia is illegal trade for avoiding high costs and long time procedures. The access road to border is paved but not good conditions with full of potholes.

It was interesting as we met the Traders Association, which has 15 members at the Tunduma boarder post. The main activities of that association is to receive produces such as maize, beans, dried fish, rice, sesame and groundnuts from different areas in the country; store them; export and transport them to the neighboring countries of the Democratic Republic of Congo, Malawi and Zambia. Maize is normally obtained from Kibaigwa maize selling center, Sumbawanga in Rukuwa region and small portions from Iringa, Songea and Mbeya. Members of the association confirmed that farmers are being paid less for their produces, as they purchase at cheap prices and sell at high prices despite the cost for transportation and moving from one place to another in search of agricultural produces.

(3) Boader to Malawi: Songwe

At Songwe, the Tanzania – Malawi boarder, most of exports seen were maize. There were some few imports, mainly cosmetics from Malawi. There is no illegal trade because Songwe river isolates both country. The access road to border is quite good condition.

3.7 Institution of Marketing and Cooperatives

(1) Government Administration

The Ministry of Cooperatives and Marketing (MCM) is responsible for marketing and cooperatives issues. However, MCM withdraws from production sector, rather concentrates on policies. At regional level, Cooperative Advisor is a person in charge in each region. Cooperative Advisor is losing his/her job because not many cooperatives are active. Their main job is registering, cancelling, and inspecting the cooperatives.

At district level, there are several staffs such as Cooperative Officer lead by District Agriculture and Livestock Development Officer. Their job is technical services and advice at village level; they are actually working staffs and their capacity is very important to implement programmes/projects. One of the problems at this level is the coorditnaion

among officers. They are originally from ministries and paid by ministries; they apt to work for their own ministries.

(2) Cooperative College

Cooperative College was established in 1963. The role of the college is to provide residential training and training by correspondence to cooperative members and cooperative groups. They offer one year management and accounting course for cooperative person, two year diploma course for accounting and management courses, three year advanced management and accounting courses, and one year post graduate courses for cooperative business and management and development policy for MCM staffs. Recently, under government reform and trade liberalization, student enrolment dropped suddenly from 600 to 260 because students have to pay some of tuition and not many cooperatives are active enough to send students. The composition of students is changed. Students were 80% from cooperative sector and 20% from marketing board before, currently less than 10% of students are from cooperatives and 15% are from MCM. Cooperative College has a plan to have students from business sector. They are planning to have new courses to meet demands of business people. These are 3 year advanced diploma courses for accounting and finance and material management, post-graduate courses for accounting and finance and community development, and certificate course of information technology.

Cooperative College is still government organization, where staffs are paid by MCM while operation cost is borne by government subsidy and own finance such as student fee, consultancy services. They have regional wings where field training is taken place. They also have field pilot project such as member empowerment program and rural finance services. Last year, Cooperative College drafts a proposal to JICA through MCM for agricultural marketing.

3.8 Market and Statistical and Information

Market information services had been done by the Marketing Development Bureau (MDB) with assistance by FAO for collecting and disseminating market information. MDB published annual market review for major crops, quarterly market review, and monthly market review. These services are stagnated because MDB is divided into three ministries: Ministry of Cooperatives and Marketing (MCM), Ministry of Agriculture and Ministry of Livestock, and FAO assistance phased out in 1995. Currently, MCM is the responsible body to collect and disseminate the market information. They are still collecting the price information of major crops in major markets in the country three times a week (Tuesday, Thursday, and Saturday), then broadcast on the radio programme at 6:15 AM on the next day of the survey. MCM drafted the proposal for the Marketeting Development Center and looking for Donars. This proposal includes the construction of Market Development Center Building, the provision of equipment such as 4WD vehicles, and capacity building for analysis of market information for policies formulation. Other than ministries, Kariakoo Market broadcast the price information programme named *"Sokoni Kariakoo"* at 6:30 PM of every Tuesday.

Statistics Unit, Ministry of Agriculture and Food Security is responsible for compiling statistics. Statistics Unit, functioned at regional, district, ward, and village level before, is also divided in to 3 ministries, which causes the confusion of information systems and collection such as three different officers go to the same informant at village for information

gathering.

The Crop Monitoring and Early Warning Section (CMEWS), the National Food Security Department of the Ministry of Agriculture and Food Security forcasts the cropping performance by processing date from meteorological, agronomic, and market information. CMEWS publishes and distributes the bulletin for prediction of cropping for several times from one year before harvest. CMEWS is functioning quite well despite of the government reform for its high priority among government policies. The National Food Security Department operates the Strategic Grain Reserve.

3.9 Projects related to Marketing and Cooperatives

(1) Agricultural marketing System Development Project supported (IFAD)

The Agricultural marketing System Development Project supported by IFAD will start implementation around July 2002. This project aims at to increase and diversify production of small holders in response to market demand from greater number of small and medium scale entrepreneurs in northern and southern zones, with total amount of 42.31 million USD. The components are (1) agricultural marketing policy development (2.93 million USD), (2) producer empowerment and market linkages (13.29 million USD), (3) financial market support services (1.74 million USD), (4) rural marketing infrastructure (19.96 million USD), and (5) programme organization and co-ordination (4.39 million USD). Out of these components, the Tanzanian government is looking for the Japanese assistance for agricultural marketing policy development.

(2) Earth Greenery Activities of Japan (EGAJ) supported by JICA

Earth Greenery Activities of Japan (EGAJ) is conducting an experimental practice of non-tilling, non-irrigation, non-chemical fertilizer and non-agrochemical rice cultivation in Dakawa of Morogo region. They call Sustainable Rice Cultivation by Mulch System (SURIMU). They produce the yield four times as much as that of traditional farming surrounding. They disseminates the practice to surrounding producers. These farmers are willing to pay a part of incremental volume of rice as an extension. This is the example of sustainable and market-oriented agricultural extension fee.

(3) JICA Projects

JICA extends technical assistance to Sokoine University of Agriculture for capacity building of young professors and graduate students through implementation of grass-rooted project. This approach intends to motivate and mobilize Tanzanian academic staffs or graduate students who tend to stick to the laboratories or offices to go to village level site to study on actual rural situation of Tanzania.

Kilimanjaro Agricultural Training Center (KATC) assisted by JICA is the training project of agricultural extension officers. Under the project they conducts the marketing study of rice for drafting text materials. This study details the market situation, the distribution channels, the way of trade of each channel, and problems that farmers are facing.

4 Constraints and Issues to be Addressed

4.1 Potentials and constraints founded

The introduction of market liberalization planned for aiming at the improvement of the marketing efficiency to get price incentive work, resulting in benefiting small farmers for higher prices of crops. Tanzanian agriculture and its marketing has huge potentialities under the efficient market such as production and export potential to neighbouring counties based on rich and well managed natural resources; the potential to economic integration with surrounding countries that face main production areas of Tanzania; and strong growth of private traders. At the same time, there is also a potential for balanced development without widening the income gap among farmers for their nature of smallholder; the community mind and culture as seen in the voluntarily establishment of cooperatives as social capital; and the existence of progressive cooperative societies.

Indeed, there have been some improvements in efficiency in various areas of operations through growing private sector, however, farmers are not benefiting as expected to have enough profit because of stagnated farmgate crop prices and increased input prices. The government have to support these potential to be developed or removal the bottleneck for the development.

The underlying facts of the problems are: no farm input subsidy increases input prices; the competition among traders is not enough as expected; poor road conditions increase transportation cost; government stipulated procedures are so costly to increase transaction costs: farmers have little capital and access to capital to invest, and farmers and cooperatives get accustomed to free of charge services by the government, as summarized as follows.

Government Policy

- The government introduced market liberalization quickly; Cooperatives and farmers cannot cope with the sudden change.
- The decentralisation policy was introduced quickly; government officers are not responsible for markets.

Market Information

- Market information dissemination is not enough.

Food Crops

- Price fluctuation
- High transaction cost caused by poor infrastructure
- Transparency of trade in terms of scale.
- Heavy burden on producers and traders such as taxes and levies
- High cost of chemical inputs: post harvest chemicals for maize, hybrid seed together with fertilizer.

Export Crops

- Decreasing quality of export commodities for coffee and cotton.
- Limited number of exporters/traders permits hinder the fair competition
- Auction system of coffee is outdated
- Expensive fungicide and insecticides for coffee and cotton

Cooperatives

- Cooperatives can not compete with private traders.
- Mentality of managers dependent on the government; active cooperatives those are independent from the government.
- Capacity to access market information (not only prices) is poor.

Border Trade

- High custom clearance costs in terms of money and time lower the trade activities, which squeeze the potential of foreign investment and development of Tanzanian agriculture.

These problems are summarized as constraints to the agricultural development under the efficient market. The major constraints are as follows.

(1) People are not enough capacitated to participate in the market under the quick lliberalization. Farmers are not familiar with the markets, and Cooperatives withdraw from marketing due to their dependency on the government and the inefficient management. There are risks that the quick market liberalization and full involvement of non-capacitated small farmers in the markets could cause the negative impacts on the rural economy and society. These are:

- the expansion of the gap among smallholder farmers,
- the aggravation of the poverty dependent on loan; working for repayment of the loan,
- the destruction of the traditional functions of rural community as social capital, and
- the commercial agriculture dependent on external inputs could lose the sustainability.

The mechanism to avoid the above negative impacts should be incorporated.

(2) The rules and regulations are not ready to market liberalization: large impediments to the efficient markets such as:

- impediments to smooth movement of products such as a barrier to the boarder trade, complex administrative procedures, and many taxes and levies, which raise transaction costs,
- impediments to fair trade such as non-standardized scale and insufficient market information, and
- impediments to fair competition such as a barriers to entry the markets.

(3) Commodity boards, controlling bodies for export crop markets and coming back in power, emphasize on control and regulation not on support private traders. High costs to get license for private traders and coffee auction are the impediments to the competition among traders.

(4) The government officers decrease in their responsibility in market and in their administration capacity under the government reform program. Support services are weakened such as extension, market information and research and development.

(5) Large transaction cost due to insufficient infrastructure

- Poor road condition: access road to markets and boarders
- Insufficient production center of maize and consumption market of food crops

4.2 Issues to be Addressed for ASDS

Together with market liberalization, the decentralization policies of the government institutions changes the role of the government in the agricultural marketing sector; the Governemtnt roles are summarized as follows as described in the Agricultural Sector Development Strategy (ASDS).

- **Regulator: Policy formulation and regulation establishment.**

- **Support Private Sector: Provide public goods and safety nets.**

In other works for the marketing sector, the government has to support (1) the capacity building of farmers for market participation and provide buffers to lower the risks caused by liberalization, (2) the improvement of efficiency of markets within the country, and (3) the expansion of marketing activities, i.e., supporting for the more competitiveness in the world market, which is conceptualize as shown in the Figure 2.

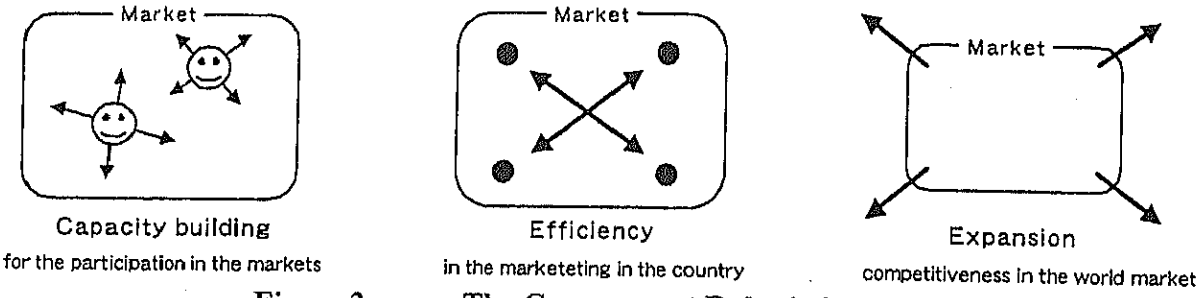

Figure 2 The Government Roles in Marketing

Taking both these potentials, constraints and the government role mentioned above into consideration, the issues to be addressed by the government intervention in the field of Marketing and Cooperatives can be consistent with the following purposes for the implementation of ASDP. The issues to be addressed by public intervention are as follows.

(1) Capacity building of small farmers for participation in markets

Mechanism to provide agricultural support services: It is better to utilize the existing organization to implement the provision of services. Getting the involvement of the communities such as cooperatives as service providers is the reasonable way because Tanzania has a long history of cooperatives those were initially voluntarily established, there are a number of members still loyal to cooperatives, and cooperative is rooted in the rural culture. The mission observed many good practices by people to support themselves, which gives us a hint for the development of the mechanism.

(1-1) Targeted on Primary Societies for capacity building

In consistent with decentralization and liberalization policies, the priority shall be placed on Primary Societies where some of them are quickly meet the market demand. Capacity building for the management of Primary Societies is targeted.

- Strengthen the management capacity of Primary Societies such as training of the management, sharing good practice, and market information.
- Strengthen Primary Societies and empower members to take clear ownership and participatory decision-making and recruitment of staff.
- Good governance, accounting and improve book-keeping systems for controlling funds of cooperatives.
- Targeted pilot projects start with viable/progressive Primary societies which have came with ideas of mental change.
- Good practice Model development as mentioned below.

<u>Learn from good practices and develop the "Model"</u>

There are several successful and progressive cases that people innovate self-support mechanism. One of the best practices is the "Wino's case" in Songea district, Ruvuma region. NGO was established for the development association then, identified the problems to be addressed by them. Next, they established SACCOS to accumulate capital and utilised this capital for marketing activities by agricultural marketing cooperatives societies (AMCOS) to purchase products and purchasing services from outside. The interesting features of Wino are highlighted as:

- **Close link but independent management of 3 societies, and**
- **Agricultural extension officers (AEOs) stationed at the villages, whose costs are shared by villages.**

They have marketing (WAMCOS), financial (WinoSACCOS) and development (WIDA) societies, especially WIDA has important role as leader and SACCOS provides financial base for them; without money nothing can be done. They are independently managed financially and administratively.

Agricultural extension officers (AEOs) from district are stationed to provide technical services to villagers. The system is as follows.

- Stationed extension officers are paid by the district.
- Villages pay a part of costs of AEOs to the district.
- Villages pay fringe benefits to AEOs to motivate.

This system benefits AEOs and villagers in such ways. (1) AEOs have motivation to work and cannot be idles because the incentive mechanism for government officers is working. It links a visible connection between villagers as direct beneficiaries as well as taxpayers (customers) and AEOs as service providers, like commercial services. Customers who owe the cost of AEOs can monitor their performance. (2) AEOs also benefit because they can have the experiences of the grass-roots works, and know the actual conditions of rural areas. This can also motivate AEOs to work due to the awareness of issues to be solved. This is a kind of demand-driven agricultural extension service.

Some of the factors that they can develop the systems are: (1) they have capacity that is developed by a strong leader who know the outside world and strengthened by an external assistance from NGO; (2) the district is also capacitated through NGO assistance and willing to support them as a pilot, which create good interaction between them; (3) they have strong independent minds from the government; they never depend on the government and protect them by themselves; and (4) close linkage between SACCOS and AMCOS, which strengthen the capital base for marketing. For further development, they need the information of markets.

This is a good Model of self-support mechanism. It is not easy to replicate the Model, but the systematic actions to gather good practices information and further improvement of Models can be done. Cooperative College that has capacity of professional staffs as well as regional wings, is currently not well utilized under the decreasing demand of student for cooperatives. Cooperative College can be utilized for the following activities develop the Model for self-sustaining mechanism for rural people, in collaboration with external assistance such as NGO. Cooperative staffs are also to be capacitated by JICA training in

Japan.

(i) Gather and anylize the information of good practices from the country as well as neighbouring countries.
(ii) Disseminate the above information of good practices for stakeholders, especially for young managers of primary societies. Dissemination can be training courses for sharing experiences of good practices or information bulletins/newspapers. A information bulletin or trade papers can be also used for publicity to call participants.
(iii) Business minded capacity building targeted to Primary Societies can be done through training such as business management, market information access, and financial management for microfinances.
(iv) During the implementation of these courses, interactive information sharing can be done, which can screen for the potential/viable villages or leaders.
(v) Pilot projects targeted to viable societies/members screened above shall be formulated and implemented.
(vi) Review the results of pilot projects, and taking the lessons for the development and modification of replicable Model for application to another areas.
(vii) The results of good working mechanism can be feed back to the policies in regional and national levels.

(1-2) Restructuring Cooperative Unions: improve their management

Cooperatives Unions that is regional union of primary societies were one of the main service providers before liberalization, while currently, most of them are sleeping. Their major problems are concentrated on the management such as:

- Political appointed management.
- Bureaucracy
- Mind of management dependent on the government or government itself.

There have been cooperatives, which have been controlled by Government appointed honorary officers, managers and rural elites to carry duties with no sympathy to farmers. This results in that Cooperatives Unions have lost integrity with members at all levels.

Cooperative Unions were set up with combining all regional primary sòcieties in 1984 according to the Government policies. This causes bureaucratic problems such as a lack of accountability and mistrust among the cooperatives' staff due to poor management, misappropriation and misused of cooperatives funds. This came as the after re-establishment of the Cooperative Unions in 1984 in the whole country.

These aspects lead the bureaucratic and outdated mind of managers of Cooperative Unions. The managers of Cooperative Unions tend to criticise government and waiting for government support. Some of the management mentioned that their survival plan is the revival of cooperative movement, which can be said as a nostalgic desire. Cooperatives lost competitiveness to private traders; Some of Cooperatives can not have pricing policy: Cooperatives fix purchasing prices throughout the year and can never compete with private traders. These are not the case in the active Cooperative Union such as Kilimanjaro Native Cooperative Union (KNCU), in which the management are business minded people.

In consistent with decentralization and liberalization policies, the priority shall be placed

on Primary Societies where some of them are quickly meet the market demand. However, for few operating Cooperative Unions, if Primary Societies take it necessary, those Cooperative Unions, unless of which mission are terminated, have chance to be operated restructured into only the necessary parts. Those are some Cooperative Unions still operating; some of members still have loyalty, and CUs have large facilities as assets but not full operation.

- The management shall change their mentality. Management should be professional business people; cooperative unions should be given expertise on business management in competitive liberalized market. Managers shall be selected among themselves or hired professional persons rather than appointed by the government.
- Cooperative management training for executives (manager, committee member, and society leaders) to share experiences and to have ability to solve the existing problems by themselves arranged by Cooperative College.
- Further slim down their structure and utilization of their facilities like storages and processing plants.
- Concentrate on the targeted activities, only if necessity arisen from members, such as (i) collective marketing if required to strengthening bargaining power, and (ii) information dissemination.
- Should have marketing strategy such as pricing policy to compete with private traders. Flexible pricing policy narrows profit margin but increases the quantity dealt.
- Should have good governance, accounting and improve book-keeping systems for controlling funds of the cooperatives.

(2) Review of the role of commodity boards: from regulation to support

(2-1) Decrease the cost of obtaining traders licenses and removal of the limitation of traders number

For export crops such as coffee, cotton, tea, cashew, sisal, tobacco, and pyrethrum, traders are required to obtain traders licences from commodity boards. Commodity boards have regulatory role and still have power to operate the markets, through licenses/registration fees, export taxes and market regulation. Recently, they revive to have power due to market failures after liberalization. One of their major activities is licensing of traders who does the procurement of the crops, processing and exportation. Obtaining the license is expensive, and the number of companies is limited by commodity boards for its easiness of control. Most of the licensing procedures are not transparent. Commodity boards shall support private traders not only regulate them. For this purpose, the procedures for licensing shall be simple, less costly and transparent, and the limitation of traders should be abandoned to reduce the barriers to entry the markets. This ensures the competition among traders and benefits producers, furthermore farmers groups can enter the markets. This action can be done internally within the country. However, the change is politically difficult because currently a huge amount of money goes to commodity boards and to vested interests, external technical assistance can be introduced to secure the fairness.

(2-2) Coffee auction system to be changed

Coffee Auction system started in 1925 for securing quality to traders. Currently, traders are sellers and buyers at the same time at the auction, where a trader bids his coffee to buy back. Their rationale of keeping auction is that the auction guarantees the Tanzanian

coffee, which is losing in meaning under the global market integration. If a trader export with cheating quality to an importer, she/he will lose business. The coffee auction system should be changed according to the liberalization. This auction system also collects huge amount of money, which means there are many vested interests people. When the change is politically difficult, external technical assistance can be introduced.

(2-3) Innovate mechanism to price incentive work from production to sales

One of the biggest problems in export crops is the decreasing quality of products, which results in lower export prices. This is urgent task to keep competitiveness of Tanzanian products. Commodity boards in consultation with stakeholders shall innovate to let price incentives mechanism work for producers and traders to keep quality upward to keep the prices.

(3) Government services shall meet market demand: get government staffs involved to benefit small farmers and let supporting services work under market mechanism

There are agricultural support services other than marketing for farmers. Most of these support services had been carried out by the government and cooperatives before liberalization, while, the private sector shall increase its role in providing these services in demand-driven way, as described in the ASDS. The public sector shall limit its role to financing the provision of these services. Mechanisms shall be developed in the delivery of effective support services for private and public sector collaboration. These services and providers are described in the ASDS, as follows.

(i)	Research and development services	[Govnt, Boards, Privates]
(ii)	Agricultural extension services	[District govnt]
(iii)	Training and capacity building services	[Govnt]
(iv)	Agricultural and market information services	[Govnt]
(v)	Farm input supply services: seed, chemical, fertilizer, and tractor.	[Privates]
(vi)	Financial services	[Privates]
(vii)	Plant protection and animal health control services	[Govnt]
(viii)	Regulating services: market, environment and health, phytosanitary.	[Govnt, Boards]
(ix)	Natural resources management services	[Govnt, Privates]

The capacity of the Government staffs is one of the most important for providing services. However, they have several constraints as follows:

- Released from the responsibility of marketing players, which makes them observers. They stick to the offices do not know the actual situation.
- Mentality: bureaucracy, and the government serving for the government.

Incentive mechanism for government officer to provide agricultural services

- To involve the project and understand the actual situation of markets
- To link the visible relation between customers and service providers.
- To change mentality as service providers

(3-1) Mobilisation of the government staffs to the site

Currently the government sector reform decentralised the government structure to give more power to the district level, and the implementation of programmes/projects is carried by district level. In addition, agricultural support services shall be demand-driven services. In this context, agricultural officers should go to the grassroots to know the

local conditions to know the demand of farmers. While government officers tend to be stick to the offices. District level officers shall be activated in ward or village level as shown in Wino.

Many of senior ranking agricultural officer were graduated Sokoine University of Agriculture (SUA) which is major the source of human resources to agricultural sector. Sokoine University of Agriculture (SUA) under the JICA project tries to mobilize the university staffs and graduate students who tend stick to laboratory/office to go the village level site to study on actual rural situation of Tanzania.

Pilot projects in collaboration with SUA as facilitators

Pilot projects can be done in collaboration work of SUA and villages or ward with the involvement of the staffs/graduate students of SUA who are trained in the field level as facilitators.

Grass roots oriented Human resources development

Keeping the trial of SUA to mobilise their staffs and students to the grass-roots so that the university management change the mind place more emphasis on the grass root level activities. This helps the creation of human resources who have grass root-minded and knowledgeable about the actual rural sector of Tanzania in the long-run since SUA is the one of the major supply sources of human resources supply to the government.

(3-2) Mechanism to link government as service provider and customers

WIDA pays additional fringe benefits for district officers for their incentive to work such as motorbike and so on. This practice can be promoted and expanded to another areas.

(3-3) Mentality change of government officers as service provider

Tanzania has a long history of socialism, in which the government officers had played the important role in leading the countries. This causes the mentality of the government that lead and guide the people. The government and public sector have to, once again, remind the principle that the government officers are paid by the people and have to serve the people. The government provide services to privates and the areas not covered by private sectors.

(3-4) Information services

There are information services necessary for farmer support and efficient markets, as follows.

- Market information for narrowing the information gap between farmers and traders.
- Encourage the private information providers such as media to provide news for markets, innovative practices, and other useful information for sharing experiences among farmers.
- Agricultural extension officers shall also provide the market information to the villages.
- Statistics information for policy makers and practitioners should be organized from collecting to disseminating.

Narrow the information gap between farmers and traders

Information service is important for narrowing the information gap between traders and farmers. At present there are two channels of crop price information to disseminate: (1) the Ministry of Cooperatives and Marketing (MCM) radio programme on crop pricing at major markets three times a week (Tuesday, Thursday, and Saturday) on the next day of the survey, which covers major crops such as maize, rice, wheat, sorghum, millet, Irish potato, and beans; and (2) Weekly *"Sokoni Kariakoo"* radeio episodes for market publicity and crop pricing of major vegetables operated by Kariakoo Market in Dar es Salaam. Currently for MCM radio programme, they have difficulty in collection of market information due to the confusion of the government reform.

Most people involved in the process of crop marketing have no common source of marketing information. They depend on relatives, friend and fellow traders who dwell in or visit Dar es Salaam, where most of consumers live. The marketing information radio programme, which is prepared by the agricultural ministries and markets, is not reliable to them. This is reasonable because the information is critical in trading business, which determine a winner or loser. Traders are battling everyday for how to update and differentiate the information among themselves. On the other hands, farmers are generally not aware of the update price information at the big markets. There is a big gap of market information between traders and farmers, especially for farmers who sell their crops at home.

Monitoring, collection and broadcasting of relevant marketing information to both farmers and traders will be useful to eliminate the problem of lack of information. Even for traders, it reduces the risks, then narrowing the transaction costs. The following improvement shall be done. (1) MCM radio programme shall be improved to deliver more reliable and up-dated information everyday. (2) Furthermore, other than Kariakoo Market, the price information of other local major markets shall be broadcasted. (3) The price information shall be publicized in newspapers.

The Ministry of Cooperatives and Marketing (MCM) drafts a **proposal for the establishment of the Marketing Development Center**. However, this proposal is over-sized that includes office building in Dar es Salaam, the provision of 4WDs with the replacement every 4 years, and staff training for obtaining PhD, which are mostly benefiting government staffs. These could be achieved in the very long run. At present, the investment should be concentrated into the real activities such as collecting and disseminating the information. MCM also provides the information like annual market review, quarterly market review and monthly market review for practitioners and professionals people other than market price radio broadcasting. The publication is stagnated due to financial and institutional problems. Revitalising these activities should be done.

(3-5) Research and Development, and extension service for low inputs and sustainable agriculture

Taking advantage of unavailability of expensive chemical inputs, trial of low inputs agriculture is alternative. Low input farming benefits small farmers because it requires smaller costs and sustainable practice with the smaller external chemical inputs. Research and development for low input agriculture should be strengthened for benefiting small farmers who can not afford to buy farm inputs.

Earth Greenery Activities of Japan practices the low input sustainable rice farming in Dakawa, Morogoro. They are trying no-tillage, organic and non-irrigation rice farming. They are in experimental stage, however, the experiment shows the four times of yield as much as of the local practice. Non-tillage practice lowers the labour cost for plough, and organic farming utilizing rice husks lowers the chemical inputs costs. They disseminate the practice to neighbouring farmers in return for a part of incremental rice harvested as extension fees, which is nothing but a good example of sustainable and demand-driven extension services.

(4) Review of the rule and regulation as impediments to the efficiency of marketing

(4-1) Securing the fair trade

Standardization and transparency of trade custom: measurement

The standaization in trading is important for transparent and efficient trade, and avoiding suspicions between buyers and sellers. There is a problem on the measurement of crops at trading. When traders purchase crops from farmers, the prices are negotiated and determined pert tin or bag. These tins or bags are provided by traders, they use larger size of tins or bags for evasion of taxes levied on per bag and getting their profits larger. In Kibaigwa, Dodoma, a trader uses 170kg of bag that is officially supposed to be 100kg of bag. Although the prices differ according to size of bags, there is no transparency in the trade, and farmers may be losing. Weighing scales are not available even in a market place that is operated by a district.

It is recommendable to promote use of weighing scales by buyers and avoid use of bags and number of tins as standard measures for procurement of crops to start with ensuring availability of weighing scales at buying centers and market places for agricultural products.

Legal arrangement for fair trade: anti-trust law

Traders have the advantages of bargaining power to farmers in terms of information, the number of actors, and the position of purchasing side. They have a chance to collude among traders because the number traders is smaller than farmers, and they know each other in case of export crops where the number of traders are limited by commodity boards and in case of rice where traders always seating at rice mills. It is said that they have cartel to set lower the prices among traders, which is not sure but causes suspicion in farmers. To secure fair trade, there is a need to regulate the collusion, such as an Anti-trust law. In Tanzania, there is no regulation to secure fair trade and prohibit from collusion among traders. These regulations with strict penalty for effective enforcement shall be introduced under the market economy. The regulatory body of the market shall be outside the agricultural stakeholders such as the neutral institution to cover all industries to avoid the corruption among vested interested groups.

(4-2) Smoothing the border trade procedures

Large cost of boarder trade narrows the potentials to export of non-traditional export crops such as fresh flowers through Kenya to European countries. Bureaucratic procedures, however, in cross-boarder trading hinders the potentials. Trade problems as cut flowers have to be exported to Kenya for airlifting to Europe is normally faced with the problem of delays at the boarder, despite the fair competition among the traders, leading sometimes to

losses to the traders. Import and Export permits, phytosanitory certificates and the inspection certificates have to be paid for before any trader is involved in the cross-boarder trading. This high cost of getting all relevant documents have led to some traders with very small quantity of produce to engage themselves into illegal trading.

The ease of the trade barriers/ procedures can narrow the costs of trade, which promote boarder trading as well as encouraging foreign investment into the country. Smoothing the boarder trade procedure and transaction shall be done. In addition, education to boarder traders need be provided, as big illegal business by-pass the procedure due to the failure of the Government to issue proper guidelines on exportation at boarder post and leading the Government to miss some revenues.

(4-3) Right rate of taxes, levies and cess

Too many levies to be paid by traders and producers at trading. For the traders to qualify to do well the business, she/he has to utilize the crop buying centers where she/he will be required to pay for different taxes and levies as specified by the by-laws of the district where she/he is conducting his business. This causes the tax evasion for traders to report smaller amount of crops traded than actual volume. Taxes and levies are usually laid on the number of bag that is assumed to be uniform size, however, traders use quite larger bag, i.e., 170 kg of bag instead of 100 kg base. This results in losing farmers. The rate of taxes, levies and cess shall be reasonable enough not impede the trade.

(4-4) Step by step institutional change with broader awareness of the people to reduce the impediments to marketing efficiency.

The policy changes and project/programme shall be tested, review and modified as pilot project in the limited areas before full introduction. This enhances the awareness and participation of the people contributing the smooth introduction and implementation.

(4-5) IFAD project component shall be studied

The component of the component of IFA project shall be studied. The Agricultural marketing System Development Project supported by IFAD will start implementation of which the component of agricultural marketing policy development is in search of the finance.

(5) Improvement of market infrastructure

(5-1) Market facilities and system improvement

<u>Market Center at production areas for food crops: arrangement for maize market in Iringa</u>

There is no marketing center in food production areas except Kibaigwa in Dodoma. This increase the transportation and collecting costs for traders, which results in the lower producer prices for farmers who have not enough bargaining power. Setting up the market centers around the production areas can benefit farmers as well as traders by reducing their costs. Farmers can sell at one place while sharing market information with other farmers, which increase the bargaining power. Traders can collect crops at one place instead of going to house to house. This contributes the lowering the price fluctuation, increasing the producer prices, and decreasing transaction costs to traders.
Quick action is to start with the pilot project to utilise the storage in Kilolo, Iringa region that is donated by Japan under "the project for Improvement of Agricultural Storage and

Transportation System in Iringa Region." This can be done thorough local institutional arrangements among villages and district that is the management of the storage. Financial and technical assistance can be done for publicity, institutional arrangement for market operation, and the improvement of access road to the market if necessary. Setting up the markets centers at selected districts with the review of the pilot projects, which can be applied to various crops market other than food crops in the long run.

Market Improvement in Consumption Area: Tandale Market for food crops

Tandale Market is the biggest market for food crops in the country. In addition, the surrounding area of Tandale Market has been developed as maize market center. However, the facilities of Tandale Market are so dirty, muddy and congested, with muddy access road on which a mountain of waste from crops is laid, which hinder the traffic. This situation reduces the transportation and transaction costs for trading. The improvement of facilities and systems of Tandale Market in Dar es Salaam benefits traders and wholesalers working, furthermore, it benefits small farmer traders. The facility of market and access road and the operation systems shall be improved. Financial and technical assistance can be done for operation system and consequent physical improvement.

(5-2) Roads condition improvement: access roads to markets and border points

Good road condition is necessary for efficient marketing, however in Tanzania, only few routes such as North-East corridors and routes to Southern Hinglands have good paved truck road. Poor roads (feeder/main) increase transport costs to traders: for traders to maximize the profit from the business they are doing, they normally pay low prices to farmers in order to compensate for the cost of transportation of produces to the selling points. Transportation limits competition and entry into the market for farm inputs and produces. Under the financial constraints to improve netword, the access roads to border points and the markets shall be the priority road to be improved. As a first step, the access road from Mbeya to Tunduma shall be improved, which is paved but poor conditioned with full of potholes.

(6) Expanding Market and Penetrate the World Markets in the Future

(6-1) Penetration new market

The investment and experiments shall be done to penetrate the emerging markets in the future. There are emerging markets such as organic cotton and/or coffee and Fairtrade Labelling as mentioned in 3.1 above. Tanzania agriculture has advantages of its nature of smallholders as major producers and their low chemical practice to penetrate these markets. will benefit smallholders in the sustainable in the future.

(6-2) Regional economy integration with neighbouring countries

Reduction of the barriers to border trades shall also develop the potential to regional economy integration with neighbouring countries.

(7) Issues to be Considered for Implementation of ASDS and ASDP

ASDS has the highly idealistic nature of the market economy, the following issues shall be considered for the implementation of ASDS and ASDP.

- **Avoid being experimental laboratory by donors**
- **Avoid multiplying the inefficiency by coordination among public sectors**

Donors often tend to introduce the idealistic model like armchair theory making it an experimental laboratory, as shown the structural adjustment policies. The government of Tanzania should have standpoints to lead own people and country for the sake of the people, introducing the realistic policies not leading the life of the people confusion.

ASDS and ASDP are formulated under the coordination with the government and donor agencies. The coordination of the government and donors that are both the public sectors has a risk to formulate rigid and overwhelming planning like planned economy. External assistance also needs the market mechanism between recipients and donors and competition among donors to increase the efficiency of resource allocation.

References

Ackello-Ogutu, C. and Echessah P. N., *Unrecorded Cross-Border Trade Between Tanzania and Her Neighbors, Implications for Food Security, SD Publication Series, Office of Sustainable Development, Bureau for Africa*, U.S.Agency for International Development Technical Paper No. 89, September 1998.

Bank of Tanzania, *Economic Bulletin for the quarter ended Jun 30, 2001*, Vol.XXXI No.2.

Bank of Tanzania, *Monthly Economic Review*, December 2001.

East African Development bank, *Guide to Investors*.

Food Crops Unit, Marketing Development Bureau, Ministry of Agriculture and Cooperatives, *Quarterly market Bulletin*, Second Quarter, October-December 1999/2000.

Gibbon, Peter, *Limping Towards a Ditch without a Crutch: The Brave New World of Tanzanian Cotton Marketing Cooperatives*, CDR Working Paper 98.18, Centre for Development Research, December 1998.

International Co-operative Alliance, *A Report on the Performance of the Cotton Industry in Tanzania Particularly the Western Cotton Growing Zone*, February, 2000.

Kahkonen, Satu and Leathors Howard, *Transaction Costs Analysis of Maize and Cotton Marketing in Zambia and Tanzania*, SD Publication Series, Office of Sustainable Development Bureau for Africa, Technical Paper No. 105, June 1999.

Majengo, O., *Marketing Development Department, Ministry of Cooperative and Marketing, Agricultural Inputs Market Review (1999/2000)*, April 2001.

Majengo. O, *Planning and Marketing Department, Marketing Development Bureau, Ministry of Agriculture and Cooperatives, Agricultural Inputs Market Review 1997/98*, December 1999.

Mbelwa, R. J. Planning and Marketing Department, Marketing Development Bureau, Ministry of Agriculture and Cooperatives, *1997/98 Market Review of Horticulture*, Julyr 1998.

Ministry of Agriculture and Food Security, Food Security Department, The Crop Monitoring and Early Warning Unit (CMEWU), AGSTATA FOR FOOD SECURITY, *A Statistical Analysis of the 2000/01 Final Food Crop Production Forecast for Food Security, Volume one*, Tanzania National, Regional and District Level Food Situation for 2001/02, August 2001.

Ministry of Agriculture and Food Security, Food Security Department, The Crop Monitoring and Early Warning Unit (CMEWU), *Tanzania FOOD SECURITY BULLETIN, Buttetin No. 4. 2001*, 30 May 2001.

Ministry of Agriculture and Food Security, Food Security Department, The Crop Monitoring and Early Warning Unit (CMEWU), *Tanzania FOOD SECURITY BULLETIN, Buttetin No. 7. 2001*. 27 August 2001.

Ministry of Agriculture and Food Security, Statistics Unit, Basic Data Agriculture sector 1993/94-1999/2000.

Ministry of Agriculture and Cooperatives and World Bank, *Tanzania Agriculture: Performance and Strategies for Sustainable Growth*, Dar es Salaam, February 2000.

Ministry of Agriculture and Cooperatives, Ministry of Water and Livestock Development, and

Ministry of Cooperatives and Marketing, *Study Streamlining of On-going Agricultural Projects and Programmes in the Context of the Agricultural Sector Development Strategy*, Dar es Salaam, October 2001.

Ministry of Cooperatives and Marketing, A Proposal for the Establishment of a Marketing Development Centre (MDC) in the Ministry of Cooperatives and Marketin, *Project Design Document (Final Draft)*, Dar es Salaam, July 2001.

Mwaikambo, W. S., Agricultural Information Services, Polocy and Planning Department, Ministry of Agriculture and Cooperatives (MCM), *1997/98 Marketing Review of Coffee*, May, 2000.

Pedersen, Poul Ove, *The Changing Structure of Transport under Trade Liberalisation and Globalization and its Impact on African Development*. CDR Working Paper 00.1, Centre for Development Research, January 2000.

Ponte, Stefano, *'The latte Revolution'? Winners and Losers in the Restructuring of the Global Coffee Marketing Chain*. CDR Working Paper 01.3, Centre for Development Research, June 2001.

Ponte, Stefano, *The Coffee Crisis*, January 2002.

Sakurai Seiichi, Senda Masayuki, et. Al, *Rice Marketing in Tanzania, Kilimanjaro Agricultural Training Centre (KATC)*, September, 1998.

Senda Masayoshi, Mtika, Marie A., Kazoba Leah, Research on the Rice Marketing System in Tanzania, KATC Staff Paper No. 22, Kilimanjaro Agricultural Training Centre (KATC), April, 1998.

Tanzania Cotton Lint and Seed Board, *The Tanzania Cotton*,.

The International Fund for Agricultural Development (IFAD), *Tanzania agricultural Marketing Systems development Programme, Draft Appraisal Report, Volume 1*: Main Report, August 2001.

Undolle P.M., Marketing Development Bureau, Planning and Marketing Department, Ministry of Agriculture and Cooperatives, *1998/99 Marketing Review of Cotton*.

Van der Linde, Watson, J.S., *Tanzania Formulation of a Cotton Sector Development Strategy*, Initial Consultancy Mission, August 1999.

Persons Interviewed

Dar es Salaam

Mr. Nsiima M.P.L. Head, Statistics Unit, Ministry of Agriculture
Mr. Chibole T. Manumbu, Marketing Economist, Ministry of Cooperatives and Marketing,
Mr. Eric Tagalibe, MIS Specialist, Ministry of Cooperatives and Marketing, Dar es Salaam
Mt. A. S. Mapunda, Principal Cooperative Officer, Ministry of Cooperatives and Marketing, Dar es Salaam
Mr. A. C. Chilipweli, Cooperative Officer, Ministry of Cooperatives and Marketing, Dar es Salaam
Dr. Kimati, Ministry of Coopertaives and Marketing
Mr. O. A. Ntikha Team Leader, Crop Monitoring and Early Warning System, National Food Security Department
Mr. Shogholo C. Msangi, Senior Economist, Ministry of Finance
Mr. Justus K. Kbyemera, Programme Assistant, FAO Tanzania
Mr. Kuboja.A. Ng'ungu, General Manager, Kariakoo Market Corporation, Dar es Salaam
Potato Trader, Kariakoo Market, Dar es Salaam
Mr. Hahinda, Chairman of Traders, Tandale Market
Small maize miller around Tandale Market
Big maize miller around Tandale Market
Maize retailer around Tandale Market

Kilimanjaro

Mr. Emanuel Moshi, Accountant, CHAWAMPU, Moshi
Mr. Kenji Tamura, JICA Expert, Kilimanjaro Agricultural Development Project
Mr. Hirotoshi Koda, JICA Chief Advisor, Kilimanjaro Agricultural Training Center (KATC)
Mr. Kiyoshi Shiratori, JICA Expert, Kilimanjaro Agricultural Training Center (KATC)
Mr. A.G. Pyuza, Deputy Principal, Kilimanjaro Agricultural Training Center (KATC)
Ms. Marie A. Mtika, Kilimanjaro Agricultural Training Center (KATC)
Farmer, CHAWAMPU, Moshi
Trader/Miller, Moshi
Mr. Mlowe, Acting Principal, Director of Studies and Programmes, Co-operative College-Moshi
Mr. Tobias I. Masaki, Administrative Manager, Kilimanjaro Native Co-operative Union (KNCU)
Mr. Joseph J. Njau, Export Marketing Officer, KNCU
Mr. GABRIEL E. Ulomi, Export Marketing Manager, KNCU
Farmers, Kibosha Rural Central Cooperative Society, Moshi
Milling Machine Owner, Moshi
Middle person, Moshi
Retailer, Sokekuu Market, Moshi
Coffee Trader, Moshi

Arusha

Mr. Bigambo, Regional Cooperative Advisor, Arusha
Mr. Andrew k. Mbise, Agricultural General Manager, Arusha Cooperative Union (ACU)
Mr. Aseli Sikawe, Secretary, Poli Primary Society, Arusha
Coffee Trading Company in Arusha
Rice Middle-person in Arusha

Namanga
Mr. Mchau Omari, Examination Officer, Custom and Excise, Namanga
Mr. Lema Hatib, Inspector, Department of Agriculture, Namanga
Mr. Mungure, Tropical Plant Research Institute (TPRI)
Traders in Namanga

Mwanza
Mr. Kilangi, Regional Cooperative Advisor, Mwanza
Mr. John M. Nyamwaga, Cotton Inspectrate Officer, Tanzania Cotton Lint and Seed Board (TCLSB), Mwanza
Mr. Kaseco, General Manager, Nyanza Cooperative Union (NCU), Mwanza
Mr. Nordert Magege, Operattion Manager, Magu Ginnery, Magu, Mwanza
Farm Inputs Dealer in Mwanza
Cotton Trader in Mwanza

Morogoro
Dr. Florens M. Turuka, Sokoine University of Agriculture, Morogoro
Dr. Manabu Tsunoda, JICA Expert, Sokoine University of Agriculture, Morogoro
Mr. Jun Ikeno, JICA Expert, Sokoine University of Agriculture, Morogoro
Mr. Isamu Terao, Earth Greenery Activities of Japan, Dakawa, Morogoro
Mr. Shingo Noguchi, Earth Greenery Activities of Japan, Dakawa, Morogoro
Director, Dakawa Agricultural Station, Morogoro
Onion Farmer in Mtandika

Dodoma
Mr. Undolle P.M., Policy and Planning Department, Ministry of Cooperatives and Marketing (MCM), Dodoma
Mr. I. M. Mdadica, Director of Agricultural Marketing, Ministry of Cooperatives and Marketing (MCM), Dodoma
Mr. Eliakin B. Chacha, Agricultural Directore for Cooperative Development, Ministry of Cooperatives and Marketing (MCM), Dodoma
Mr. Olondi, Acting Director, Department of Cooperatives, MCM, Dodoma
Mr. Ernest Mwakibasa, Cooperative Officer, Department of Cooperative, MCM, Dodoma
Mr. Kagaruki, Department of Cooperatives, MCM, Dodoma
Mr. Jelemie Mtagwa, Village Executive Officer, Kibaigwa, Dodoma
Cargo and Porters Association in Kibaigwa Market, Dodoma
Maize Trader in Kibaigwa Market, Dodoma
Farmers in Kibaigwa, Dodoma

Iringa
Mr. Mnyone, Regional Cooperative Officer, Iringa
Mr. Yasin Isa, Chairman, Mubuyuni Development Sociatiy, Iringa
Mr. W. M. Chetenge, Finance Administrative Manager, Iringa Farmers Cooperative Union (IFCU), Iringa
Mr. Mohamed Alfani Ngangwa, Village Chairman, Mbuyuni, Iringa
Tanganica Farmers Association (TCA), Iringa
Mr. Andrew Hepelwa, Chairman of Malimbichi Cooperative Association, Lurenzi, Iringa
Mr. Oscar Nyalusi, Member, Malimbichi Cooperative Association, Lurenzi, Iringa
Retailers in Makambako Market, Iringa

Mbeya

Mr. M.N. Mwamlima, Regional Cooperative Advisor, Mbeya
Mr. Mwakila, Inspector, Department of Agriculture, Tunduma, Mbeya Mr. Koroso, Assistant Manager, Kyiecu Cooperative Association, Kyiela, Mbeya
Kyiecu Cooperative Association, Kyiela, Mbeya
Farmer in Kyiela, Mbeya
Rice Mill Owner and Trader in Kyiela, Mbeya
Retailers in Mbalizi Market, Mbeya
UMATU Association, Tunduma, Mbeya
Clearing Agents in Tunduma, Mbeya

Ruvuma

Mr. Selungwi, Regional Land Advisor, Songea
Mr. Mr. G.A. Mhina, Agricultural Extension Officer, Mbinga District, Songea
Mr. A. Mwaiteleke, Agricultural Cooperatives Officer, Mbinga District Songea
Soochak and Bush (Coffee trading company), Mbinga, Songea
Dr. Tarimo, District Agricultural Development Officer (DALDO), Songea District
Mr. M. Mpanfara, Cooperative Offecer, Songea District
Mr. I. P. Mwenda, Manager, Wino Development Association (WIDA), Wino, Songea
Mr. D.K. Mwenda, Manager, Wino Saving and Credit Cooperative Society Ltd. (WinoSACCO), Wino, Songea
Potato Retailer, Njombe Market, Songea
Potato Farmer, Njombe Market, Songea
Rice Retailers, Njombe Market, Sogea

資料 27

農業背景調査：灌漑／水資源開発編

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Rural and Agricultural Development Advisory Group of JICA Tanzania Office (RADAG)

Discussion Paper
Agricultural Sector Development Programme (ASDP) of Tanzania

Irrigation Development in Tanzania in the Context of Implementation of Agricultural Sector Development Programme (ASDP) (Draft)

March 2002

Takuya Igawa, Irrigation Development

Table of Contents

1. Introduction

There are three reasons why the development of irrigation system is an important aspect of the agricultural development strategy. First, the variability inherent in Tanzania's rainfed production systems rates problems of shortage of the main food crops in years of inadequate or poorly timed rainfall. For this reason, policy makers concerned about food security have always sought to increase food production in irrigated areas, and to reduce this variation. Second, irrigation schemes if properly managed, provide sustainable increase in small farmer productivity and income, addressing rural poverty alleviation and environmental management objectives. Finally, irrigated agriculture is the only way in which high value crops (vegetables, flowers) can be produced under the controlled conditions needed to meet market schedules. The objectives of this study are to review the present situation of irrigation development and to indicate possible measures to improve the implementation of the irrigation development, leading to sustainable farming.

2. Sectoral Overviews

2.1 Present Condition

2.2.1 Irrigation

(1) General

Of the 10.7 million under cultivation and out of this only 157,000 ha is developed / improved for irrigation representing some 15% of the estimated irrigation potential of 1 million ha. As much as 120,000 – 100,000 ha, is farmed by smallholders in some 600 small-scale schemes, typically using small diversions and furrows in the highland areas, as well as small diversions for paddy production in the lowland areas. In addition, there are substantial areas where smallholder farmers practice traditional systems of flood recession or water harvesting for paddy production. Rice is by far the most important crop irrigated in Tanzania, but sugarcane, tea and coffee are also irrigated. Traditional irrigation schemes that use water and simple diversion structures, account for the bulk of the irrigated rice area. There are traditional schemes that have been upgraded, new smallholder schemes, irrigated parastatal farm and a few private sector irrigated farms.

Since both crops and livestock are adversely affected by periodic droughts, irrigation holds the key to stabilizing agricultural production. Irrigation is now seen as an important aspect of Government's agricultural development strategy to improve food security, increase farmers' productivity and incomes, and to produce higher valued crops such as vegetation and even flowers.

(2) Classification of irrigation schemes

Irrigation farming in Tanzania can be grouped in three main categories: The first is the traditional smallholder irrigation owned by individual and / or groups of farmers who have attempted to harness the available water from rivers, springs, and large river flood plains. This category covers relatively small and scattered areas, often not more than 5 ha. They employ traditional methods and their intake structures are often temporary, having to be replaced from time to time. Much of the diverted water is lost due to seepage before reaching the field and efficiency in the field is very low. This category covers more than 80% of the total irrigated land in Tanzania. Major areas with this category are Kilimanjaro, Meru and Usambara as well as in the flood plains of the major rivers.

The most common problems with traditional irrigation are lack of drainage, improper organization and planning which results in some fields receiving much water while others receive too little. Other problems include trampling of animals in farms after harvest resulting in destruction of soil structure and unfavorable environment for crop growth, deforestation of the catchment area resulting in soil erosion and frequent flood damages. It is revealed that over-cultivating around water source is also a threat to the sustainability of traditional irrigation practices and environment in general.

The second category is the modern small scale holder/village irrigation schemes which in most cases

are planned and constructed by the central / local government which bears the costs of head works, the main canal and where necessary the storage reservoir and some laterals In the majority of the cases the distribution of the water, land preparation and decision on what should be grown as well as scheduling are the responsibilities of the farmers. Although a lot of money has been spent to build and sustain these schemes, nearly all of them have been unsuccessful and have degraded after few years.

There are normally two main problems with these irrigation schemes. The first one is the problem of ensuring fair distribution of water to all. This problem frequently results in dissatisfaction and conflicts among farmers, particularly with schemes for which the water supply is inadequate to meet all the framers' needs. The other main problem arise out of the need for adequate and prompt maintenance of the canals, which in turn can affect the first problem, the fair distribution of water. The three factors as essential for the success of small-scale holder irrigation scheme: first, the scheme must be certainly managed i.e. the interest of the individual farmers must be subordinated to the interests of the scheme. Second is availability of well-trained and multidisciplinary extension manpower and essential inputs. Third, farmers must have ownership of the scheme to ensure responsibility.

The last category is large-scale irrigated private/public farms. These are large-scale farms growing high value crops for export and/or local consumption. They are centrally managed by either private or parastatal companies and generally have quite efficient irrigation system. They require large capital investment and well-trained manpower.

Lack of capital, low technological level and high maintenance cost of large irrigation schemes for majority of rural farmers in Tanzania in general, necessities the need to look into the potential for traditional irrigation practices in increasing agricultural production and alleviating poverty in the country.

2.2.2 Water Resources

One third of Tanzania receives less than 800 mm of rainfall and is thus arid or semi-arid. Only one-third of the rest of the country has precipitation of above 1,000 mm. In addition, the long dry season, normally extending from June to October, has an effect on low river flows and drying of water reservoirs. However, about 7 per cent of Tanzania land surface are covered by lakes, which border the country apart from other inland lakes. These include lake Victoria (second largest fresh water lake in the world), Lake Tanganyika (second deepest lake in the world), and lake Nyasa. Inland lakes include Lakes Rukwa, Eyasi and Manyara. There are also big rivers flowing to the lakes. Ground water is also another source of water for both urban and rural settlement areas.

Water Resources Available: Tanzania has sufficient water resources to meet most of its present needs and they include surface and underground sources. About 7 percent of the land surface is covered by 3 lakes (all of them fresh water) which border the country apart from other inland lakes. The three lakes include Lake Victoria (second largest fresh water lake in the world), Lake Tanganyika (second deepest lake in the world) and Lake Nyasa. Inland Lakes include Rukwa, Eyasi and Manyara. There are also big rivers flowing to the lakes. Underground water is also another important source of water for both urban and rural settlement areas.

There is a great variation of water availability between different parts of the country. The variation is explained by differences in topography, rainfall pattern and climate. About one third of Tanzania receives less than 800mm of rainfall per annum and they are considered as arid or semi arid. In addition, Tanzania experiences a long dry season normally extending from June to October which has an effect of low river flows and drying of water reserves.

Surface Water: Surface water resources in Tanzania consist of lakes, rivers, springs, man-made reservoirs and natural ponds. Considerable water resources exist in the country's Lakes namely

Tanganyika, Nyasa, Rukwa, Eyasi and Natron.

About 50% of the surface run off water is derived from the main rivers flowing directly to the Indian Ocean and these are: Pangani, Wami, Mkondoa, Ruvu, Rufiji, Ruaha, Kilombero, Mbarangandu, Matandu, Mbwemkulu, Lukuledi and Ruvuma. The remaining 50 percent is divided into surface water drainage into the main internal drainage basins which have no outlet to the sea (Lake Rukwa, Bubu depression complex, Lake Eyasi and Lake Manyara), others flowing into lake Victoria (Meri, Maru and Kagera rivers), River Malagarasi draining into Lake Tanganyika and rivers Songwe and Ruhuhu draining southwards into Lake Nyasa Zambezi River system.

Wetlands: Tanzania has 5,439,000 ha of lakes and swamps which represent 5.8 percent of the total land surface; but this number excludes seasonally inundated flood plains.

Drainage Systems: Tanzania is divided into five major drainage systems and these are (1) the Indian Ocean drainage system (2) the Internal drainage of Lake Eyasi, Natron and Bubu Depression complex, (3) the internal drainage of Lake Rukwa, (4) Atlantic Ocean drainage system and (5) Mediterranean Sea Drainage system.

Ground Water Resources: Ground water is a major source of water for many areas in Tanzania and actually the most viable alternative supplement in the central and northern parts of the country/the drier regions of Dodoma, Singida, Shinyanga, Tabora, Mwanza, Mara, Arusha, Coast and Southern Kilimanjaro.

2.2 Government Policy and Institution

2.2.1 Irrigation Policy

(1) National Irrigation Development Plan

Government policy in relation to the irrigation sub-sector is presented in the National Irrigation Development Plan from October 1994 (NIDP) and in the paper on Agriculture Policy, 1996.

The basic justification for irrigation development is food security. The risk of draught, inadequate, and erratic rainfall is seen as the main threat to food security and self-sufficiency, which remains the basic objective of the agricultural policy.

Smallholder irrigation is seen as having a vital role in achieving the following primary objectives:

- Satisfying subsistence requirements in many parts of the country; either by direct production of staples or by allowing the production of high value crops, the sale of which covers the growers' subsistence requirements (with the possibility of economic benefits accruing to the country if the crops are suitable for export).
- Generating local surpluses of main staples, particularly rice, in order to facilitate food security at regional and national levels,
- Ensuring the production of the much needed dietary supplements.

In the Agricultural Policy the objectives towards which the irrigation sub-sector can contribute are formulated as follows:

- Improvement of food security by increasing the production of rice which depends mainly on irrigation, and maize through supplementary irrigation on predominantly rainfed fields;
- Increasing farmers' productivity and income;
- Production of high value crops such as vegetables, flowers etc.

The challenges facing Government in the department of the sector include the formulation of a water

master plan and the development of irrigation systems that can be managed by farmers on a sustainable basis.

Government involvement in the financing irrigation infrastructure is considered justifies when:

1. The beneficiaries are poor,
2. The beneficiaries are unable to mobilize the necessary resources themselves,
3. Technical standards and economic viability criteria are met,
4. There is a need for social and organizational development to ensure effective schemes management.

The NIDP outlines three basic strategies:

1. Rehabilitation or upgrading of traditional schemes in 10 regions where there are significant areas with such schemes. Efforts will be concentrated on smallholder only.
2. Construction of schemes based on water harvesting technologies in five regions having little or no traditional irrigation schemes. The Ministry's role will be to design, prepare and supervise the construction of the schemes. The actual construction and management will be left to the villagers,
3. Construction of new smallholder schemes in five regions with little or no traditional irrigation and unsuitable physical conditions for water harvesting. The role of the Ministry will be as in 2) above.

Government intervention will emphasize an integrated development approach, community participation, genuine demand by farmers and sustainable use of natural resources.

The management of the schemes and the financing of the operational costs, and ideally the investment cost, should be the responsibility of the users through their water users associations (WUAs).

Irrigation policy was further articulated in the MAC 1997 Agricultural and Livestock Policy document. Government intends to focus its support on the development of smallholder irrigation schemes in areas of high potential and where there is demand from the beneficiaries. The private sector is to be encouraged to provide services in the planning, design and construction of large-scale schemes. With respect to small-scale irrigation schemes for smallholders, Government will provide assistance in planning and design and in supervising construction, while the construction work will be contracted to the private sector.

(2) Constraints of NIDP

The NIDP identified a number of constraints facing irrigation development in Tanzania. Many of these constraints can be traced to a lack of resources, especially trained personnel. Since 1994, some of these constraints have been partially alleviated through the implementation of various externally supported projects. However, there remain many constraints, the main ones being:

- Absence of hydrological data for irrigation planning
- Failure of development planners to appreciate the need for human, equipment and financial resources to implement irrigation projects
- Continued emphasis on sophisticated, expensive and uneconomically viable irrigation projects
- Poor project planning and inadequate project preparation
- Under-resourcing of irrigation services at national, zonal and regional levels
- Failure to develop extension packages for irrigated agriculture and the ineffectiveness of extension services to farmers
- Inadequate human resource development and lack of funding for training, leading to low staff motivation

The poor performance of irrigation in the past has been one of the man causes for the low level of

resource allocation to it, despite the obvious advantages it would brig to a country with such vast areas of arid and semi-arid land. The overall institutional setting for irrigation development also acts as a constraint.

There is undoubtedly a shortage of expertise in planning, design and construction of irrigation schemes. This reflects the inadequate funding of sub-sector and the absence of basin studies and scheme designs. The result has been an inability to select the most viable schemes for development. The poor performance of schemes once developed reflects the low level of technical and operational support available to farmers. This is the result of a combination of inadequate staffing and operational resources on the part of MAFS as well as a failure to develop appropriate extension package for irrigation farmers. In general, irrigation water efficiency is low, and there is lack of maintenance. All these shortcomings result in poor yields, low cropping intensities and a failure to realize the productive and income-generating potential of the investment.

The policy document makes it clear that operation and maintenance costs of schemes are to be met by the users, except in the case of major common infrastructure such as feeder canals and drains, where government will pay. However, there is a certain ambiguity about the recovery of capital costs. Although the Policy declares that capital costs, which will be met by government, will be partly repaid by users through cost recovery mechanism, these mechanisms remain undefined. The NIDP also alludes to charging for water abstraction, by levying fees from WUAs or irrigation cooperatives, but again, no mechanism for this to operate have been defined.

2.2.2 Institution

(1) Government

The institutional support for smallholder irrigation development in Tanzania comprises a number of key ministries, district authorities, agencies and community-based organizations. In the Ministry of Agriculture and Food Security (MAFS) support for smallholder irrigation through Zonal Irrigation Units (ZIUs) of the Irrigation section (IS), and through a limited number of irrigation technicians and agricultural extension staff in the districts. The ZIUs have limited planning, designing and supervision capacity. The IS is expected to provide coordination and policy guidance through its headquarters, and supervision of scheme construction. The Ministry of Water and Livestock Development is responsible for collecting and analyzing hydrological data for the development of water resources and for issuing water rights. However, its capacity to fulfil these functions at district level is extremely limited. Private sector involvement is expected to gradually increase and concentrate on construction of infrastructure by contractors and artisan, and capacity building of WUAs by specialized training institutions and NGOs.

Local governments presently face many constraints that limit their capacity including:

- Lack of a legal mandate, technical skills and facilities to enforce some roles.
- Lack of expertise for strategic and financial planning and management.
- Very limited resources for local level institutional building for community participation in the development process.
- A shortage of competent personnel and, in some cases, technical equipment to manage and control the development process. For example, all local governments lack the technical capacity for effective and timely land use planning.

(2) Private sector

Farmers are now expected to play a much greater part in all stages of small-scale irrigation development. They will be responsible for site identification, will contribute to construction, set up WUAs and be fully be responsible for operation and maintenance (O&M). Experience in Tanzania, and throughout the developing world, has shown that WUAs are the best institutional arrangement to operate and maintain schemes. Through this means farmers can be involved in scheme planning and design, as well as O&M. However, they need training in the organization and management of their

WUA and in water management and irrigation agronomy to ensure efficient use of the irrigation investment.

At present farmers face many constraints to perform their roles largely, ASDS pointed out the followings:

- Institutional and governmental constraints, including an uncertain regulatory environment, inappropriate policies, inadequate extension, research, marketing and regulatory services.
- Financial constraints, including lack of access to capital assets and credit, exacerbated by low prices of output, high cost of inputs, multiple taxes and limited incomes.
- Natural environment constraints, which include limited access to land and water, frequent outbreaks of pests and diseases and a deteriorating natural resource base.
- Human constraints that include limited knowledge and skills, poor health and low productivity.
- Infrastructure constraints, including poor roads, inadequate marketing infrastructure, lack of electricity, water and communication facilities.

The constraints have tangled complexly and hampered farmer's efforts. It seems very difficult to overcome all of them in a short period. However, the constraints will be carefully studied further through some case studies in the next stage of the study. Some key factors for practical and efficient countermeasures will be identified and formulated gradual steps to overcome the persistent constraints one by one.

Private sector capacity within the sector seems to be increasing, including contractors who can meet eligibility criteria for tendering for construction of smallholder irrigation scheme. However, there has been little experience of this yet and availability of construction equipment within the private sector could well be a problem. ZIU staff is not experienced in preparing tender documents and in supervising contractors.

2.3 Donors' Assistance in Irrigation Development

Support by donors to the irrigation sub-sector has been limited in comparison to other sub-sectors of agriculture. This is due to a lack of capacity to implement irrigation projects and, until recently, to a lack of commitment by Government to pursuing sustainable irrigation development policies. Most assistance is focused on beneficiary participation in construction, operation and management.

External assistance started in 1975 when responsibility for irrigation development was shifted from the Ministry of Water to the Ministry of Agriculture and Livestock. From 1978-80 the Irrigation Department (ID) received technical assistance from India in small-scale irrigation, and from 1980-82 USAID assisted in the construction of the Bahi scheme (20ha) and the small Kintinku scheme. These small projects paved the way for further development of simple water harvesting for the supplementary irrigation of rice in marginal areas. From 1987-94 the UNDP/FAO-funded Institutional Support to Irrigation Development (ISID) project developed guidelines on possible privatization of ID activities and the sale of irrigated parastatal farms. ID has retrenched a large number of staff and devolved the construction and O&M of some irrigation schemes to the private sector. The Presidential Parastatal Sector Reform Commission (PSRC) has also offered irrigated parastatal farms for sale to the private sector.

The development Association of the Netherlands (SNV), has been supporting small-scale irrigation development in Dodoma Region through the Small-scale Irrigation Development Programme (SSIPDO), and more recently in Kilimanjaro and Arusha Region through the Traditional Irrigation Improvement Programme (TIP). This program will be made into a NGO and will concentrate on sustainable land use in river basins, on the empowerment of water user associations (WUAs), and on organizational activities at district and micro catchment levels. ADB in association with UNCDF has supported two high-cost irrigation schemes through the Smallholder Irrigated Rice Project (Kitivo and

Mwamapuli schemes) in Tanga and Tabora Regions respectively and are continuing to develop the Madibira Smallholder Irrigation Project in Mbeya Region.

Japanese Government assisted the construction and management of Lower Moshi Smallholder Irrigation Project and Ndungu Agricultural Development Project in Kilimanjaro Region, and Bagamoyo irrigation scheme in Coast region. Mwega Agricultural Development Project in Morogoro Region has also being developed by the assistance of Japan. Three experimental smallholder irrigation development projects as being supported by UNDP in Zanzibar, Kilimanjaro and in Mbeya, and the Italian Government is funding the Hombolo irrigation scheme in Dodoma Region. The world Bank-funded River Basin Management and Smallholder Irrigation Improvement Project (RBMSIIP), which started in 1996, covers the Pangani and Rufiji River Basins. The project aims to: (i) strengthen Government's capacity for water basin management; (ii) address environmental concerns; (iii) support the downsizing of the irrigation support function of the MAC through beneficiaries involvement and (iv) rehabilitate and upgrade traditional smallholder irrigation schemes. The IFAD-funded Smallholder Development Project for Marginal Areas (SDPMA) contained a smallholder irrigation development project, as does the Mara Region Farmers' Initiative project which will bring up to 1,200 ha of irrigation to smallholders through the construction of small earth bund for harvesting rainwater. Consequent IFAD-funded irrigation project is the Participatory Irrigation Development Project (PIDP), which commenced in 1999. The DANIDA-financed Agricultural Sector Programme Support (ASPS) includes a smallholder irrigation improvement component, focusing on improving the management of water resources and crop husbandry practices in existing smallholder irrigation schemes in Mbeya, Iringa and Morogoro Regions. It covers 16 villages and is aimed at increasing production and productivity of two main staple crops, rice and maize, through the participatory demonstration of improved farming technologies, especially crop intensification. Part of the program includes a water control component, which covers the demonstration of low-cost methods of irrigation rehabilitation and improved systems of water management. Description of major projects is shown in Attachments 1 to 4.

NGOs have become increasingly important in irrigation development. International NGOs with projects in horticulture or irrigation, include CARE-Tanzania, SNV, TechnoServe (USA), CONCERN, the Irish Foundation for Cooperative Development (IFCD) and World Vision. National NGOs include the Presidential Trust Fund (PTF), the Tanzania Youth Development Foundation, the Arusha Diocese Development Office, and the Mission for the Needy.

2.4 Special Issues Related to Irrigation

2.4.1 River Basin Water Resources Management

Present experience shows that other major sectoral water users like irrigated agriculture and hydropower generation have been implementing parallel targeted development program independently. Thus, a coordination of implementing projects is still required.

Water users conflicts between different sectoral users and indeed inside the irrigation sector are occurring especially in the Rufiji and Pangani basins. The establishment of regulations and issuing of reliable water rights are preconditions for sustainable irrigation development. This regulation of the sector will have to be done in cooperation with the users with the objective of maintaining and improving the river basin management.

A river basin management approach has been adopted by a World Bank project in its support to smallholder irrigation. The project is currently in the process of preparation and Ministry of Agriculture and Food Security and Ministry of Water and Livestock Development are joint ministries. The project is to establish River Basin Water Boards in order to:

- Bring together all water resource information and planning in a single basin
- Facilitate basin wide management of water resources

- Improve the control of water use by issuing and enforcing water rights
- Initiate a process for introduction of water tariff
- Address catchment wide environmental issues
- Include stakeholders in the river basin management

Legal provision is given in the water law. To date, two river basin water boards have been formed. Pangani and Great Ruaha sub basin of the Rufiji basin. These two basins are prioritized because they are upstream of the dams supplying hydroelectric power. The nation is short of power and the hydroelectric plants are operating below capacity due to insufficient water. Upstream irrigation is often blamed for this although recent investigations question this.

The concept of river basin boards suffers from a number of drawbacks in the context of Tanzania. These can be summarized as:

- The recovery of administrative and operational expenses. Nothing or very little can be expected from the government.
- Whilst large users can contribute to cost recovery of the river basin this is not realistic for small users – the cost of collection is likely to higher than the amount collected even if collected through WUAs. The whole process is subject to political interference. The government is amongst the worst payers. The system of cost recovery is not convincing.
- Application of water tariff is unlikely, unfortunately, to have the desired effect of improving small sale irrigation efficiency since water use cannot be measured reliably. A formalized water right, which is charged for, might be treated as an entitlement to use the maximum allowed for rather than as an incentive for water efficiency.
- Planning skills are a scarce. Centralized management system are not noted for their efficiency.
- Basin wide issues are crucial for large users but much less so for small users although conflicts occur between small and large users and between different small users. Most of the conflicts would be better solved at a more local level where the micro issues are understood.
- Over-cultivating around water source is a threat to the sustainability of traditional irrigation practices and environment in general.

RBMSII
Inadequate implementation of water management principles. The major water management crises of the past decade are all basically water allocation related conflicts, which have not yet been resolved.

Although it was originally foreseen that the irrigation improvement would have a supportive role to river basin management, the two components of the project have in many respects been implemented separately from each other. There is need to reinforce linkages between the two components.

For effective basin management, it is important to follow coordinated plans with water users in the sub-catchment. This approach is good for water resources management.

2.4.2 Environment

Environmental problems that have been observed and which are recorder in reports on different schemes can be summarized as follows:

- Overuse of water by upstream users to detriment of downstream users. This results in loss of income and quality of life for downstream users. Loss of water can also lead to over grazing and wide spread land degradation.
- Overuse of water leading to falling replenishment of groundwater reserves.
- Local flooding due to poor water control/management.

- Soil erosion leading to loss of soil cover
- Water logging and salinity in vulnerable soils leading to poor agricultural production.
- Water related diseases such as Bilharzia, Malaria and other water borne diseases.
- Increased use of fertilizer and pesticides. Although at small-scale use fertilizer contamination has been shown not to be a problem. The situation of pesticides is not known due to research.
- Deforestation as rich soils are opened up for rice and other irrigated agricultural production.

Smallholder irrigation can also contribute positive to the environment:

- Irrigation schemes often have small end drainage points, which are used by cattle for grazing during periods when there are not many alternatives
- Irrigated production can act as an incentive for highly beneficial soil and water conservation practices
- Where flood alleviation is part of a scheme there are numerous benefits such as reduced damage to downstream and upstream cultivation; reduction of health risks associated with flooding; reduction of soil erosion.

If the program should widen its approach, it would be more productive to do this in the direction of natural resource management than river basin management. For interventions in upland areas, this is essential. In areas where there are fragile natural environments or where there are strongly competing uses for water this may also be necessary.

Lessons that have been learnt from natural resource management approaches are:

- To preserve, where it exists, the customary linkage between right and obligation in the use of common resources.
- To link very clearly the perceived benefits of natural resources management
- To avoid underestimating the value and scarcity of labor
- To value indigenous local knowledge
- To ensure the active participation of the stakeholders.
- Afforestation is important especially where women have to go long distances to collect firewood.

Inevitably, any intervention that increases or changes the utilization of water in a system is likely to have an impact on the environment. For this reason, it is important that government adheres strictly to its policy of addressing environmental issues for any irrigation development. Similarly, the potential for conflict over water use between competing needs has to be carefully handled. Conflicts can arise between villages, which embark on irrigation, and downstream villages that might be deprived of water. Conflicts are also increasingly common between cultivators and pastoralists who invariably have prior claim to wetlands which are their traditional grazing areas. Conflicts are also observed between the agricultural sector and other sectors like hydropower generation. Government, especially at the District level, will need to devote resources to resolving such conflicts so that irrigation development is not unnecessarily delayed.

PIDP

The environmental conservation aspect is not clearly built in the project. As a result, canals are silted up and de-silting takes a lot of farmers energy and time. Modalities and mechanism for a holistic approach to conservation considering the whole catchment should be given some attention.

2.4.3 Land Tenure

(1) General

The security of land tenure in irrigation schemes is important to promote the investment in soil conservation and the interest in maintenance. Presently, Tanzania has a plural tenure structure,

consisting of formal legislation as well as various forms of informal and customary regulations. Officially, land in Tanzania can be held in one of the two ways: either by granted right of occupancy or by customary right of occupancy. The distinction between the two system is that, while the granted right is issued by the President or his authorized subordinates, the deemed rights is held under Customary Law, where the law deems customary landowners as lawful occupiers.

However, in reality there are various ways of gaining access to land, including:

- Allocation through statutory rights of occupancy,
- Allocations through customary arrangements,
- Through Operation Vijiji or allocations made by village governments after villagization,
- Access through renting or borrowing land from those who owned it by means of (ii) or (iii); and
- Animal grazing in various parts of villages and beyond

Prevailing tenure systems strongly influence irrigation and related land management activities. Activities such as ridging, terracing and scheme maintenance demand considerable investments of labor and other resources, hence it is essential that the irrigators feel secure that their efforts and investments will benefit them and their offspring.

In addressing the problems of tenure insecurity and land conflicts, the Ministry of Lands, Housing and Urban Development is presently finalizing the Land Act for approval by Parliament during 1996/97 and this ministry and local governments are now undertaking surveying, village boundary demarcation and allocation of land titles. This exercise may result in a gradual replacement of the customary tenure system by the leasehold system. In theory, every villager, regardless of sex, will have equal access to land under the leasehold system. In reality, however, men may still be advantaged, unless deliberate steps are taken to rectify the situation.

(2) National Land Policy

The National Land Policy 1995 was prepared and formulated. It is intended not only to guide the allocation, ownership and use of land by also to help resolve recurring land conflict problems. The overall objectives of the policy are to: -

- Promote an equitable distribution of and access to land by all citizens.
- Ensure that existing rights in land especially customary rights of small holders are recognized, clarified, and secured in law.
- Set ceilings on land ownership which will later be translated into statutory ceiling to prevent or avoid the phenomenon of land concentration.
- Ensure that land is put to its most productive use to promote rapid social and economical development of the country.
- Modify and streamline the existing land management systems and improve the efficiency of land delivery systems.
- Streamline the institutional arrangements in land administration and land disputes adjudication and also makes them more transparent.
- Promote sound land information management
- Protect land resources from degradation for sustainable development.

(3) Land Act Bill and Village Land Act 1999

The land Act and the Village Land Act together provide the basic law in relation to the management and administration of land, settlement of disputes and related matters. The core construction of the Village Land Act is as follows:

- The designation of the elected village council as 'village land manager' acting in trust for the members of the community and with general responsibility to the community and with a wide-

ranging powers to manage land matters independently of the central state and local district government

- The establishment of each village area as under the jurisdiction (not ownership) of the village land manager (village council), to be manifest in a Certificate of Village Land; this will restore the rightful relationship between villagers and their government, currently miss-directed through the provision of Village Title Deeds to village councils, who are then able only to sub-let to individual villagers
- The provision of the prime new mechanism for statutory ownership of rights in the law, the Customary Right of Occupancy, borne out of customary land law and with the incidents of customary ownership, but recognized in national law and able to registered and titled as other statutory rights
- The provision of community-based institutions for adjudication of land leading to recording, registering and certification (titling) customary rights in lands, existing and in the future, and (less satisfactory worked through) for mediating disputes over land
- The provision of constructs (including but not exclusive of joint land management agreements between villages, and land association) through which groups of peoples or whole communities may share rights in land, regulate their sharing and management of an estate, establish joint rights over disputed or previously un-owned land, or coordinance different rights in the same land (e.g. agricultural and pastoral rights)

(4) Equity on land distribution with irrigation project

The reasons for poor farmer participation in maintenance vary from poor physical condition of the system to a high percentage of non-owner cultivation and to owners residing outside the scheme. Although the penalty for the persons, who do not attend the maintenance works, are decided in the farmers' general meeting, their application have not been made in most of the groups. In order to make full and profitable use of irrigation water, farmers must have both security of tenure and access to land. It is essential that government provide for adequate security of tenure for irrigation farms, in the form of long leases, which are tradable in order to encourage farmers to invest in irrigation development.

Irrigation projects may change land values and income distribution. Landholders are able to charge higher rents, which can reduce the access of landless tenants, wives, and young people to irrigated land. Irrigation projects should encourage villagers to develop socially acceptable methods to reduce the inequitable concentration of benefits on land tenure. Government and donors should pay special attention to encourage distribution of newly irrigated land to the landless, to encourage redistribution of very large farms that are already irrigated land.

It is remarked the Village Land Act of 1999 stipulates that "the village council may require the payment of an annual rent for a customary right of occupancy from a non-village organization or a person or a group of persons." In place of annual payment, the non-village recipients of village land could return a portion of the land to the village after it is developed. This land could then be distributed to landless men and women from the village.

2.4.4 Water Right

(1) Legal aspects

The water management in Tanzania is governed by Act. No. 42 of 1974, amended by Act. No 10 of 1981 and Act No. 17 of 1989. These Acts allow any person having lawful access to any water to abstract and use water for domestic purposes, provided the abstraction activities do not involve construction of any works. Abstraction of water for any other purpose requires possession of a water right. It is the Basin Water Officer who is supposed to grant this right to all people abstracting or intending to abstract water.

To use water for irrigation always requires a right, whether the irrigation system is indigenous, traditional or modern and technically advanced. The difference between the types of water right is

that the formal water rights are obtained from higher level authorities (river basin board), the informal rights and duties in connection with them are defined in customary regulations which are administrated in the various contexts where customary law operates (local water communities, councils of elders, village authorities and local courts).

The formal water rights which is an agreement between the water user and river basin water board who regulate these rights. The conditions on which the user can maintain the granted rights are stipulated in the agreement: the number of cubic meters to be taken, the number of months during which it can be used, the amount of water to be returned to the water source. It is the obligation of the water right holder and the basin water board to oversee that conditions are adhered to.

(2) Major issues

The Ministry of Water and Livestock Development set fees for water use to ensure more rational and efficient use of this scarce natural resource. Further, water users' associations are requested to collect the fee from the beneficiaries. However, since they have very little capacity in financial planning, management, and reporting, it is doubtful whether leaders of the groups have adequate skill to collect money for the ministry. Further, the farmers think that the water fees they pay should be used for the operation and maintenance of the scheme. However, since farmers are not usually informed about how the money is used, and why the money should be paid, they will be reluctant to continue paying.

The second issue is the equity problem created by the current practice of imposing the annual water fee on water users' associations by not on private pump irrigators. A River Basin Office pointed out the difficulty of collecting the fees from individuals. It is important that the water fee be paid equitably with villagers. Individual farmers who own a pump are normally far wealthier than most farmers with plots in the traditional scheme are. When farmers realize that the wealthier farmers are not paying the water fees, they also would not pay.

The third problem is that the water fee is charged based on the designed intake capacity to simplify the administration system. This system could cause another equity issue, namely the problems of unfair taxation for schemes that depend on small or ephemeral rivers. Even if farmers can get inadequate water due to little rainfall, resulting in less cultivated area than designed one, they are obliged to pay the fixed water fees nevertheless available water flow.

It is therefore suggested that a mechanism to charge the water fee be reviewed and revised according to realistic water consumption. If the annual water fees are not equitably assessed, sustainability of water users' association will be threatened.

2.4.5 Gender Issue

The role of women in irrigation is crucial. They contribute a major part of the labor and to target women especially in the mainstream of the irrigation development is essential for viability of schemes and for securing the household's food security and nutrition. A number of areas need to be addressed through gender-specific analysis and interventions; these include: responsibilities and issues in production and marketing, access to land and financial resources, and community level decision making.

Most Tanzanian rural households, although single units of production and consumption, consist of several economic sub-units based on gender and age. Women are the predominant food producers. Their overall responsibility includes the provision of food as well as domestic services (cooking, fuel & water collection, childcare). In most ethnic groups, women's food production responsibility is socially recognized and they are allocated food plots, known as "shamba la mama". Although the sexual division of labor between the cultivation of each crop by males and females and food crop by women is a stereotype, there is a tendency that men concentrate on cash crop production on their plots ("shamba la baba"). Usually, men control the resulting income, with their wives having little or no participation in the decisions. Men and women work on both types of farms but generally women

supply the major part of the labor input. The "shamba la mama" is always intended for family food crops and is more likely to be on rainfed than irrigated land, and is often too small to allow a woman to earn income from it.

Women in Tanzania have legal rights to land and law has a legal structure of equity. In principle, women can legally obtain land through the village government. However, if she is married, she is unlikely to exercise that right as her husband is considered by all parties as the landowner (customary law).

Land improved by reliable water supplies is often shifted maize to rice production, i.e. a former woman's food field becomes a man's cash crop field. Some women may have some influence on the distribution of the rice output between food supplies for family and sale, but generally, they do not. Thus, while irrigation increases both men'' and women'' workload, the benefits for the women and children may be small.

Due to their subordination, women's negotiating power on the community level is limited inmost cases. Women are rarely represented in the village leadership and in many cases not supposed to speak out in public. Village leaders tend to be older men from the original families of the area. They are often the largest landholders and may have little interest in promoting a distribution of land in favor of women. Irrigated land is a variable resource and is rarely allocated to the women and the poor, to immigrant households and younger lame farmers for the matter.

Furthermore, women are rarely represented in water users' committees and several cases were reported, where women had little influence on water management and received an unfair share in water supply in the irrigation scheme.

The imbalance in gender-specific rights and responsibilities limits women's access to land and their control of their own labor and output, which reduces their possibility of feeding the family, purchasing their own inputs, earning an income and caring for the children.

3. MEASURES FOR IRRIGATION DEVELOPMENT

In lines with the strategy envisaged in NIDP, the government has been making much effort with the donors toward its goal, such as improvement of food security, increasing farmers' productivity, and so on. However, it should be commented that most of existing irrigation schemes is constrained by technical, financial, and institutional aspects. This chapter, focusing on the implementation arrangement of irrigation development project and necessary capacity building program, outlines the measures taken by the donors to solve the constraints, and the remaining issues for further improvement of the project implementation.

3.1 Improvement of Implementation Arrangement in Irrigation Development Project

3.1.1 General

At present, although the donors related to the irrigation development have their own guidelines/procedures, consistent procedure for the implementation should be set up by the government. It may include scheme selection criteria, methods of participatory planning, farmers' contribution, and so on. This section describes the implementation arrangements established by the donors and further measures to be taken so that the improved arrangements are expected to be a model in irrigation development.

3.1.2 Application by Beneficiaries

During the project identification period, a study team consisting of staff in the districts carried out field investigation, contacting to farmers, who are anxious to proceed irrigation project. In ASPS-IC project, an application form to be filled by the farmers for project application is as follows:

Application form by farmers

Date	
Project proposer (e.g. farmers' group, association, cooperative or company) Specify type and name	
Membership: Male	
Membership: Female	
Registration number and date:	
Date of last Audited Accounts:	
Name of Proposed Project:	
Location (village, district)	
Purpose of the proposed project	
Expected Outputs of the project	
Proposed activities to be funded/done by scheme owners	
Proposed activities for assistance	
Comments of the Village Agricultural Extension Officer	
Approved in principle by Village Government	
Comments of the Ward Agricultural Extension Officer	

It is suggested that the above form be scrutinized to be common in the whole areas.

3.1.3 Scheme Selection Criteria

The application of the construction work is evaluated in the district office and finally approved by the project coordination committee. It is pointed out that these criteria for project selection and prioritization should be prepared and applied for proper and program formulation. NIDP suggests six aspects for evaluation and scoring of the schemes as shown below.

NIDP Selection Criteria

	Evaluation Criteria	Weight (maximum score)
1	Technical Aspects	20
2	Social Aspects	20
3	Economic Aspects	10
4	Agricultural and Management Aspects	20
5	Ease of Implementation	10
6	Land Distribution, Environment	20
	Total	100

Detail of criteria is described below.

Technical Aspects	
Hydrology:	access to stable and enough water resource and ease to tap water
Soil Suitability:	suitability of soil for irrigation and paddy cultivation
Technical viability:	result of initial survey and assessment of technical soundness based on level of technology applied and required knowledge for operation and maintenance of the schemes.
Social Aspects	
Demand:	the need of the potential beneficiaries including specific problems like water shortage and flooding and willingness of beneficiaries to contribute to implementation
Conflicts of interest:	Potential conflicts of interest regarding irrigation and present land use, competition of water use, different interests among women and men, different interests between large and small landholders.
Targeting:	willingness and ability of farmers to meet target requirement, such as possibilities for land allocation to poor farmers, female headed households and farmers without irrigated plots, adequate representation of women
Commitment of farmers:	attendance of farmers in general meeting, their perceived willingness and ability to contribute labor and materials for implementation, and starting saving for future O&M expenditure
Economic Aspects	
Financial viability:	implementation costs, the anticipated incremental production, and estimated O&M costs.
Market access:	constraints and opportunities regarding markets and sales of products, such as the ease of access to the site for traders, availability of transport, local storage facilities, and the distance to the nearest mill and market.
Beneficiaries' experience:	the previous experience of the beneficiaries in terms of existing practices related to water management and the maintenance of local infrastructure.
Farmers' Organization:	the capacity of farmers to manage their scheme including progress with the formation of a WUA, and cooperation between the farmers and program
Labor:	labor availability and labor constraints including peak labor requirements, division of labor for paddy cultivation.
Ease of Implementation	
Topography:	The suitability of the topography for irrigation development
Access:	Access to the site during dry and wet season for implementation of the works
Construction materials:	The availability of construction materials including
Environment and Land Distribution	
Environment:	An assessment of whether irrigation development at the site would affect any national conservation area, protected area, important wetlands, fishing areas or have a potentially negative impact on wildlife.
Land distribution:	Information of land holding and tenure including the average plot size of the proposed area, the number of large farmers and their land holdings and possibilities for allocation of new plots or land redistribution.

Further, PIDP sets special criteria taking in consideration poverty alleviation as shown below.

Special selection criteria

Land distribution, to ensure that at least 80% of the plots owned by individual households in an irrigation scheme will not be larger than 1 ha each, and about 25% are owned by women.

Within the program target group, resource-poor farmers, women and women-headed households who face periodic food insecurity, will be expressly targeted through three specific intervention instruments: (a) economic criteria. The target group in each scheme will have, on average, not more than 2 ha of cultivable land, as against the national average of 5.0 ha. In addition, 75% of beneficiaries will have an income below the poverty line; (b) specific targeting criteria. Each scheme must ensure that at least 30% of the total beneficiaries and 50% of the irrigation managing committee members are women. In new irrigation schemes, where some additional land may be brought under cultivation, preference will be given to landless women, to whom a minimum of 25%

will be distributed; and (d) self targeting investments. Support will be given to groups or associations willing to be involved in high-value cash crops, such as rice and vegetables, etc., to ensure the program 's overall viability.

Appraisal Report of PIDP

It is suggested the government should review and revise the existing criteria for project implementation under the ownership of the government.

3.1.4 Criteria for Planning and Design

Although some technical references in terms of planning and design for irrigation development projects have been prepared under previous projects/programs, they are not used systematically. The criteria for the project planning and design should be reviewed and updated taking into account the proper development level.

3.1.5 Participatory Approach in Planning and Design

(1) Achievements and lesson leant

The on-going foreign-assisted projects have been putting much effort on farmers' participation in planning and design of irrigation projects. It is stressed especially that ASPS-IC prepared "Guidelines for participatory improvements to farmers initiated and managed smallholder irrigation scheme in Tanzania" so as to establish and promote the approach. The guideline is expected to be scrutinized and revised through verification in the field.

According to the report on "Study Streamlining of On-going Agricultural Projects and Programs in the contexts of the Agricultural Sector Development Strategy", achievements to date and lessons leant in participatory planning and design is summarized below..

ASPS-Irrigation Component

Approach

The Component attempts to involve the farmers at all stages of scheme development. However, it is important that during this process the farmers should understand what the incremental benefits should be and their cost contributions. These are key to determining commitment in participation and ownership of the project.

The ASPS-IR component aspires to involve farmers to the highest degree in participating throughout the whole process of scheme improvement.

1. *Selection of schemes with clearly defined process*
2. *Baseline survey and participatory rural appraisals (PRAs)*
3. *"interactive design" (presentation and explanation to farmers of the conceptual design of the scheme derived from the baseline surveys and get farmers' feedback and preference)*
4. *Conventional training and extension using manuals and handouts.*

Lesson leant

The slow progress of physical rehabilitation works is a consequence of the time taken to develop improved approaches and methodologies for participatory irrigation management. Thus when an implementation process genuinely seeks to engage the full participation of the beneficiaries, including an element of cost sharing, it must then proceeded at a pace, which is dictated by the farmers' capacity and willingness to participate.

If cost sharing is to be introduced it becomes critically important that the project is capable of delivering increases in income, otherwise you could be asking "beneficiaries" to share the cost of failure.

Need to utilize financial tools in the process of identifying schemes for support and designing the specific type of assistance required. The assumption that providing cheap form of rehabilitation will lead to financial viability and sustainability may not always hold.

The ASPS-IC component has made good progress in many aspects, especially in the development of improved approaches and methodologies for participatory irrigation management. However, the utility of the approaches in delivering higher profits is yet to be demonstrated.

Participatory Irrigation Development Project (PIDP)
Approach
PIDP is using or intends to use participatory approach in rehabilitation of irrigation schemes: identification farmers' priorities, technical assessment, preparation of action plans by farmers, formalizing cooperation and signing agreements between farmers and PIDP; Capacity building also through training in procurement and contract management.

Lesson leant
Use of labor intensive methods and application of simple technology and/or locally available materials should be encouraged to facilitate cost effective construction and sustainable maintenance of irrigation infrastructure.

Experience gained elsewhere suggests that where irrigation improvement results in incremental production of high value crops for which markets are readily available an investment cost of US$ 500-1000 per ha may be justifiable, however, investment costs higher than this should be carefully scrutinized. PIDP should take this into consideration.

The project uses a participatory approach whereby beneficiaries are involved in all steps of the project cycle management. However, this process takes time to be entrenched into the beneficiaries/farmers/stakeholders.

River Basin Management & Smallholder Irrigation Improvement
Approach
Rehabilitation of irrigation schemes and technical dissemination through demonstrations. The beneficiaries are involved in project activities, contributing 10% of costs.

(2) Issues to be addressed

As for ASPS-IC, before a feasibility study, a participatory design is introduced. This is the activity of preliminary engineering design to feasibility level carried out jointly between the farmers and the design engineers responsible.

The purpose of the Interactive Design is to present and explain to the farmers the conceptual design derived from the baseline study conducted earlier. The objective is to involve the farmers to the highest degree in participation throughout the whole process of scheme improvement. The methodology adopted was to present the options to farmers in a seminar setting, with maps, charts and tables and to give the farmers the opportunity to ask any questions they wished. These were then discussed and the farmers were asked to make a choice between the engineering available, and to give reasons for doing so. Although the above mentioned approach promotes the beneficiaries' participation in the project planning, it is also the fact that the slow progress of physical rehabilitation works is a consequence of the time taken to develop improved approaches and methodologies for participatory irrigation management.

The designer have made an effort to consult the farmers on their preference, but this has been done without quantifying what the improvements will cost the farmers and without quantifying the incremental benefit. Unless farmers know the real costs of improvements and the proportion of these costs they are expected to bear, they can hardly be expected to participate genuinely and take rational

investment decision. Guidelines for farmers' contribution have not yet been prepared.

It is suggested, therefore, that a preliminary assessment on beneficiaries' affordability based on the total construction cost as well as incremental benefit with the project would be carried out prior to the participatory planning. This information will help all stakeholders to discuss project component with realistic levels.

3.1.6 Agreement for Farmers' Contribution

At present, according to each donor, farmers' contribution ranges from 10 to 20% of total construction cost. Although there might be argument that the contribution ration is to be variable taking consideration investment and affordability of beneficiaries, a guideline in terms of farmers' contribution for project implementation should be prepared.

3.1.7 Tender Procedures for Engagement of Consultants and Contractor

In recent years, opportunities to entrust planning and design works to external consultants have increased according to expansion of the works. Thus, the capacity to manage them would be strengthened. This includes preparation of terms of reference, and method to monitor their performance. Further, construction management and contract administration, including preparation and interpretation of general and technical specification, monitoring of physical and financial progress, and quality control, should also be build-up as construction works will be carried out by a private contractor. Standardization of the tender procedure for consultants and contractors is being carried out under the ASPS-IC. It includes Standard Form of Agreement and General Condition of Contract as well as Standard Tendering procedure. These are expected to be standard documents in irrigation development in Tanzania after scrutinizing them.

3.1.8 Establishment of Consistent Monitoring and Evaluation Method

A method of monitoring and evaluation had been established by each project, mainly using a Logical framework with different objective indicators. In addition, a guideline to monitor and evaluate performance of existing irrigation schemes in the national level should be established in terms of technical and institutional viewpoints. To ensure smooth progress of the works, a reporting system with data collection and compilation method shall be set up between IS and the district offices. The data needed for the monitoring and evaluation shall be updated regularly to enable the district offices to forward latest information whenever IS requires them. Especially, means how to monitor and evaluate the effects of capacity building programs conducted to the government staff and farmers should be studied carefully.

3.2 Strengthening of Capacity Building Program

This section presents activities to strengthen capacity of stakeholders and suggests future measures to enhance the program.

3.2.1 General

The project, such as ASPS-IC, PIDP, and RBMSIIP, have been putting great emphasis on capacity building for stakeholders, including government staff and beneficiaries. In fact, although the projects are coordinated in national level in the following organization, they are organized so that staff in the district office carry out the engineering and administration works.

	ASPS-IC	PIDP	RBMSIIP
National Level	- Programme co-ordination unit headed by a National Programme Coordinator - Programme steering committee chaired by	- Project Steering Committee - Project Co-ordination Unit	- Inter-ministerial Steering Committee

	PS-MAFS - Technical advisory unit headed by a National Irrigation coordinator		
District Level	- District Steering committee chaired by DED	- District Programme Management Committee chaired by DED - District Programme Manager	- District Catchment Facilitation Teams (DCFTs)

The zonal irrigation units will be strengthened by providing essential transport facilities, equipment and funds for operational costs to enable them to provide effective training support to the districts. Resources will be funded for staff training on aspects, such as interactive scheme design, analysis of scheme viability, contract preparation and supervision, and study tours. Similarly, provision is made for upgrading the technical skills of district staff on organizational and technical management of schemes, and infrastructure construction. Since most construction work will use private sector contractors and village artisans, provision has been made to train them in the fields of bid preparation, contract execution and quality control.

The capacity building programs to the farmers consist of:

(i) an introductory seminar in the proposed schemes with the village council, local leaders and farmers, to discuss the general principles, conditions and proposed approach to irrigation development under the program;
(ii) a general training course in each scheme to help farmers with the formulation of by-laws, setting up of financial accounts, scheme registration and the opening of a bank account;
(iii) training for the scheme leaders of WUAs on various aspects, such as leadership qualities, WUA administration, operation and maintenance, water management practices and a cost recovery system; and
(iv) specific training to women on laborsaving technologies and other elements of women's participation in the program.

The report on "Study Streamlining of On-going Agricultural Projects and Programs in the contexts of the Agricultural Sector Development Strategy" outlines achievements to date and lessons leant from the project as shown below.

ASPS-IC

The ASPS-IC component involves the district in implementation of its activities, which is in line with the LGRP. The ASPS-IC components seems to focus its capacity building at the district and farmer level. No mention is made of capacity building of village and ward staff.

A general lack of capacity for adequate technical support by GOT staff at District and Zonal level. This is a direct consequence of low levels of central government support and the inadequate financial base of districts.

PIDP

The district office helped the beneficiary farmers, approximately 800 in number, to form water users' groups for operation and maintenance of the irrigation facilities, and the construction of lateral canals and secondary canals as well as the collection of water charges.

Setting-up of institutional structure has been low.

Training and capacity building of Water User Association (WUAs), registration of WUAs. Formation of saving and marketing groups. Capacity building of district teams dealing with rehabilitation schemes. The team comprises agricultural officer, planning officer, co-operative officer, and

community development officer, rice agronomist/specialist, an organization and training officer and an irrigation technician.

The project is strengthening the capacity of the various actors but the progress needs time to change the mindsets of the people in light of the past experiences during the SDPMA. A transformation of both beneficiaries and PIDP staff is a prerequisite for project success.

RBMSIIP
The delays in engineering works in all schemes are partly related to inexperience of a number of contractors, especially with respect to resource management. There are weakness in contract management on part of the supervision team.

3.2.2 Preparation of Training Program in Engineering Staff

The engineers in both the Central Government and Local Governments are generally highly qualified with higher educational background. It is important, however, to accumulate work experiences through actual irrigation and drainage development. Therefore, the practical training programs should be provided to the engineers, after clarifying present capacities of the engineers. The objectives of the program are (1) to determine the present capacity and knowledge of the existing engineers for irrigation development, (2) to optimize realistic target to meet the tasks of the engineers, and (3) to select effective training programs necessary to fulfil the gap between (1) and (2).

3.2.3 Strengthening of Capacity for Participatory Planning

It is pointed out that the implementers of the project are not likely to have fully grasped the concept of bottom-up approach in the field, and top-down approach continues. The Center for Sustainable Rural Development in the Sokoine University of Agriculture (SCSRD) facilitates basic functions in rural development activities to implement sustainable rural development actions at selected sites in Tanzania as a way of gaining practical experiences, which can be disseminated to other areas in the country, and to establish a methodology for carrying out sustainable rural development program applicable in Tanzania. The experience of the center, especially attitude to the beneficiaries needed for the bottom-up approach, can be extended to strengthen the capacity of district officers in terms of participatory planning in the field.

3.2.4 Support to Farmers' Group Formation

It is crucial that, before commencement of scheme operation, the staff in districts and villages should support farmers to organize farmers' groups for sustainable management of irrigation schemes. To achieve the objective, the staff is required to know and master the process to establish the groups practically. The systematic procedure described hereinafter was applied in the Mwega Agricultural Development Project by GOT staff in cooperation with the JICA. The process and lesson learnt could help to prepare a practical guideline for farmers' group formation.

(1) Establishment of preparatory committee for farmers' group

In March 2001, farmers established a preparatory committee for farmers' group establishment, and commenced activities to let farmers join the group. However, the activities were constrained by lack of data and information for the farmers. Thus, the district officers decided to collect data and information necessary for management of the group. In addition, the farmers were committed to pay the water charge, which has been set at Tsh 5,000/ha/crop for non-member and Tsh 5,000/ha/crop for member. It was also decided that entry fee was Tsh 1,000/member while the minimum share is set at Tsh 1,000.

(2) Preparation of land users' map

To manage the cooperative smoothly, it is crucial to collect basic data and information of beneficiaries and their farmlands. An irrigation technician in the district office prepared a list of farmers, in which

farm lot number, farmers' name, and cultivation condition in past 3 years were shown. In parallel with the list, he also carried out a farm plot survey to identify farmers who have right of occupancy in each farm plot. The result of survey was drawn on the scheme map. The map enabled the government staff to promote the entry for the cooperative, and will be basic data for collecting water charge.

(3) Promotion of farmers' registration to the group

It was revealed that some 40% of farmers agreed to register the group as of August, 2001. Asked why non-members of the group do not join the group, they replied that the were not familiar with what the water group would manage. The district officers started regular meeting with farmers twice a month to promote the entry to the group. They stressed importance of operation and maintenance by communal works under the water users' association, and management of the group with sound finance collecting the water fee from the members. This continuous effort reached the high registration rate of some 90%.

In Mwega Project, it was agreed that membership of the group is vested to only landowners, which cultivated some 80% of total lands, and they are responsible for collecting water charge for their tenants. It should be remarked that in such scheme, that the ratio of landless farmers is high, the membership be carefully discussed with farmers so that the scheme can manage properly.

(4) Registration

In November 2001, Mwega Irrigation Primary Co-operative Society was registered after a by-law was approved by the members in the general meeting. Although the society is entitled to deal with some commercial activities, such as procurement of agricultural inputs, and marketing of agricultural products, the first objective of the society shall be put on fair water distribution to the members through proper operation and maintenance of irrigation infrastructures.

(5) Election of executive committee members

Members of executive committee were elected in December 2001. The project conceits of 15 water users groups, which members abstract irrigation water from the same lateral canal. Each group has a chairperson, a secretary and a treasurer. Representatives of 15 water users groups form a main executive committee, and among the members a chairman, a vice chairman, a secretary, and treasurer are elected by voting.

3.2.5 Training for Operation and Maintenance of Irrigation Scheme

(1) Training for farmers' group in the Mwega Project

Four persons were appointed for operation of the head works while water distributors, who in charge of water distribution to the lateral canals, were selected in each WUG. ZIU staff and the JICA expert conducted a series of the training with the O&M manual. Major tasks of the head work gate operators are to check the gates condition twice a day whether the gate functions well and the specified discharge is flown to the main canals, and to adjust flow discharge three times a year according to irrigation schedule. The training for the water distributors is how to adjust flow discharge to each lateral canal according irrigation schedule.

It was observed that the leader in Mwega did not have adequate skills in financial planning, financial management, and financial reporting. All members of the committee of the cooperative need to be understand and communicate openly and effectively about financial issues. Thus, the training for accounting was also carried out to the leader, which includes budgeting, bank account and cash receipt, water fee collection, purchase, and entry fee and share.

(2) Training for operation and maintenance in KATC

A two-weeks "Participatory Irrigation Scheme Management Course" is being carried out in the Kilimanjaro Agricultural Training Center (KATC) for village extension officers and key farmers in

selected 40 irrigation schemes in Tanzania. It covers 1.5-days curriculum for water management and operation and maintenance of irrigation schemes, 0.5-day leadership training. In addition, theory and field practice for participatory rural appraisal (PRA) is included in the course so that the participants can learn practical participatory planning methods.

JICA experts in KATC have prepared guidelines and handout for intensive water management training course. It includes: (1) topographic survey (2) crop water requirement, (3) irrigation planning, (4) water management principle, (4) management of irrigation system, (5) operation and maintenance, (6) quality control of construction works, (7) leadership training, (8) farmers' group and agricultural production, (9) improved rice farming technology in Tanzania, (10) Rice production, (11) agro-meteorology, (12) canal works, (13) environmental impact, and (14) flow measurement for irrigation works. Based on these materials, practical handbook for field officers can be prepared. Especially, engineering staff in district will be required to acquirer knowledge to review and scrutiny the technical reports prepared by consultants. At the village level, extension officers are expected to have necessary knowledge to supervise minor maintenance works to be conducted by farmers' groups.

(3) New approach for training by KATC

It should be commented that KATC, in cooperation with LGA's, would conduct a comprehensive training course for participatory irrigated rice farming and management in some selected model irrigation schemes. The major points of the courses are: (1) to conduct need survey and baseline survey for farmers to realize supply-led training program; (2) in-house intensive training for VEO, leaders, and key farmers; (3) intermediate practical training in the irrigation scheme; and (4) follow-up on the overall program. The experiences and lessons leant in the model schemes will be accumulated and feed-backed to the future training.

3.2.6 Training for Gender Awareness

The Traditional Irrigation Improvement Program (TIP) developed effective methods to reduce women's social marginalization by providing gender analysis training for both district staff and male and female villagers. Gender training creates an awareness of differences in men's and women's economic roles, access to resources, and participation in decision-making. TIP adapted standard gender training tools to the needs of an irrigation project. The analysis of roles was focused on who does what work on irrigated crops and who controls the output; the analysis of access to and control over resources considered access to irrigated plots and why it is differentiated by gender; and the analysis of decision making examined constraints on women's participation in irrigation scheme management. TIP's gender training models should be studied by other agencies implementing irrigation project.

Once this analysis is completed, villagers are often highly motivated to identify appropriate action or changes to involve marginalized groups more fully in the development process and to seek ways to improve their access to the benefits expected from the irrigation projects.

4. Outlines of On-going Projects

Mwega Agricultural Development Project
Location: Malolo Village, Kilosa District, Morogoro Region
Program Objectives: To improve farmers' economy and living condition through stability of and increase in production of staple foods and cash crops by rehabilitating existing irrigation facilities for stable water abstraction and timely water distribution
Program components and Achievements: Institutional strengthening, Economic Farmer organizations Capacity building of farmers' Water User Groups and Mwega Primary Irrigation and Cooperative Society (MPICS) Input supply, marketing, agricultural extension Strengthening of agriculture supporting services Rural Infrastructure Irrigation development – rehabilitation of existing irrigation facilities and construction of new headworks and irrigation water conveyance systems aimed at enhancing crop production Improvement of rural access roads Major achievements to-date are: - Construction of Mwega Headworks - Construction of irrigation canals and related facilities - Road improvement works - Support to Establishment of MPICS - Support to farmers for on-farm development - Training of MPICS staff for scheme management

River Basin Management & Smallholder Irrigation Improvement
Location: Pangani and Rufiji River Basins covering Arusha, Dodoma, Mwanza, Singida and Tabora Regions.
Duration: 1996 to 2002 (6 years). An extension of one year to 2003
Program Objectives: The broad development objectives are: (i) to strengthen the Government's capacity to manage water resources in the Rufiji and Pangani river basins and (ii) to improve irrigation efficiency of selected smallholder traditional irrigation schemes in the two basins. Specific objectives of Smallholder Irrigation Improvement are to: - Support comprehensive river basin management by improving demand for irrigation water; - Improve water use efficiency; - Increase crop yields and scheme productivity, improving smallholder farmer incomes and reducing susceptibility to drought; and - Reduce the Government's involvement in smallholder irrigation.
Program Components & Achievements: Institutional strengthening, Legal/regulatory framework, Rural infrastructure: River Basin Management Component (RBM) Production technologies, Extension, Farmer organizations, Institutional strengthening: Smallholder Irrigation Improvement Components (SII) The RBM component has made good progress in supporting institutional framework for managing competing demands for water through: (i) the rehabilitation of hydromet stations and laboratory facilities, (ii) the collection and compilation of water abstractions and water rights, and the collection of water fees by Basin Water Offices (BWOs), (iii) the drafting of a National Water Policy, including legislation and institutional reform of the Ministry responsible for water, (iv) the strengthening of BWOs, and (v) the establishment of catchment level water organizations that provide a platform for all water users to discuss and agree on water allocations. However, the institutional framework for water management has not translated into specific actions on the ground to address the many water conflicts in the two basins. Thus, the main achievement of the project to date is the reinforcement of administrative structures without delivering much on the ground. The SII component has made slow progress mainly because of delayed implementation of rehabilitation works. However, the SII component has carried out a large number of activities related to irrigation improvement: farmers' mobilization and subsequent significant contribution to rehabilitation, technical designs have been made, tenders prepared and launched and contracts awarded. While, much delayed, currently 12 schemes (out of 24 selected schemes) are being rehabilitated.

Participatory Irrigation Development Project (PIDP)
Location: Twelve selected Districts in Arusha, Dodoma, Mwanza, Shinyanga, Singida and Tabora: Babati, Dodoma Rural, Igunga, Iramba, Kwimba, Mbulu, Manyoni, Maswa, Mpwapwa, Nzega Shinyanga and Misungwi.
Duration: 2000 – 2006 (6 years) The PIDP follows an earlier GoT/IFAD project called Smallholder Development Programme in Marginal Areas (SSPMA) that was implemented during the period 1991 to 1997.
Program Components & Achievements: Institutional strengthening: Program coordination (supports to setting up of administrative and coordination structures at central, zonal and district level. Support to Programme Liaison Office in Dar es Salaam) Institutional strengthening, Production and production techniques: Irrigation development (rehabilitation of irrigation schemes; preparation for establishment of new schemes; strengthening engineering services) Rural Infrastructure, Research, production/production techniques, Extension Support to agricultural development (agricultural extension; farmers participatory research; improved market access roads) Farmer organizations, Farm input supply: Farmer organizations and local institutions (Water user associations; gender mainstreaming; saving and marketing) 36 schemes of about 200 ha will be developed and 16 former SDPMA schemes will be rehabilitated. 72 shallow wells (36 for domestic water and 36 to assist women establish vegetable kitchen gardens of about 0.4 ha each) The project has accomplished the following: - All the necessary bureaucratic structures at central and zonal levels are in place (including inauguration of the Project Steering Committee-PSC, formation of the Project Co-ordination Unit-PCU and strengthening capacity of Zonal Irrigation Units-ZIU) - Establishment of project offices in 6 districts (out of 12 selected districts) - Has mobilized beneficiaries in two districts (Manyoni and Dodoma Rural) where scheme rehabilitation has started through the assistance of district Executive Directors(DEDs) and the staff - Some good progress in procurement of goods and services (vehicles, equipment and consultations on setting up M&E system) - Training activities for both beneficiaries and Project staff on farmers organization and sensitization techniques and procurement have been completed.

ASPS – Irrigation Component
Location: Three Regions in Mainland Tanzania (Iringa, Mbeya and Morogoro) Lumuma Irrigation Scheme in Kilosa district, Morogoro Region, Nyanzma and Irindi in Iringa Rural district, Iringa Region Utengule/Usongwe in Mbeya Rural District and Naming'ongo in Mbozi District in Mbeya Region
Duration: Duration 1998 to 2002 (5 years)
Program Objectives: To increase ability of farmers in existing traditional Irrigation schemes to achieve a sustainable increase in agricultural productivity through application of improved and replicable approaches/methodologies for participatory irrigation management, and delivery of improved services by public and private sector to smallholder irrigators.
Program components and Achievements: The ASPS-Irrigation Component outlines a five-step intervention process comprising: 1. Identification of target areas and schemes for program support 2. Feasibility and planning of interventions 3. Project design 4. Implementation (rehabilitation and soil conservation works, training of farmers, extension workers and WUA leaders) 5. Follow up including monitoring and evaluation The ASPS-IR component has accomplished the following: - Identification of five schemes for support in five districts within the three regions - Provision of support for district and zonal irrigation offices in terms of capital equipment and some recurrent expenses to enable improved outreach by government irrigation offices - Capacity building of farmers in the identified schemes (training, awareness campaigns and organization development) - Initial capital development (offices, tree nurseries, tree planting) and preliminary design work for some schemes - Development of various irrigation sector investment and support modalities (guidelines for environmental support) - Co-hosting of the National Irrigation Conference in March 2001 (providing a platform for debating major issues and experience on Tanzania by 200 stakeholders from various levels) The Component has not made any progress in physical rehabilitation of selected schemes.

5. References

Ministry of Agriculture and Cooperatives, Ministry of Water and Livestock Development, and Ministry of Cooperatives and Marketing, *Study Streamlining of On-going Agricultural Projects and Programmes in the Context of the Agricultural Sector Development Strategy*, Dar es Salaam, October 2001.

United Republic of Tanzania, *Agriculture: Performance and Strategies for Sustainable Growth*, Dar es Salaam, February 2000.

United Republic of Tanzania, *Agricultural Sector Development Strategy*, Dar es Salaam, October 2001.

The World Bank, *Staff Appraisal Report, River Basin Management and Smallholder Irrigation Improvement Project*, Dar es Salaam, June 1996.

IFAD, *Participatory Irrigation Development Project (PIDP), Appraisal Report*, Dar es Salaam, September 1999.

IFAD, *Participatory Irrigation Development Project (PIDP), Report and Recommendation of the President to the executive board on a proposed loan to the United Republic of Tanzania*, Dar es Salaam, September 1999.

DANIDA, *Sector Programme Support Document, Agricultural Sector Programme Support, Tanzania*, September, 1997

Ministry of Agriculture and Food, *Agricultural Sector Programme Support, Component C: Smallholder Irrigation Improvement, Annual Progress Report, 2000* , January 2001.

Ministry of Agriculture and Food, *Agricultural Sector Programme Support, Component C: Smallholder Irrigation Improvement, Annual Activity Plans & Budgets (18 months)* , January 2000.

Ministry of Agriculture and Food, *Agricultural Sector Programme Support, Component C: Smallholder Irrigation Improvement, Guidelines for Participatory Improvements to Framer Initiated and Managed Smallholder Irrigation Schemes in Tanzania, Discussion Draft* , January 2001.

DANIDA, *Sector Programme Support Document, Agricultural Sector Programme Support, Tanzania*, September, 1997

Research on Poverty Alleviation, *The role of Traditional Irrigation Systems (Vinyungu) in Alleviating Poverty in Iringa Rural District*, Tanzania, 2001.

Irrigation Section, Ministry of Agriculture and Cooperatives, *Community Participation in Traditional Irrigation Scheme Rehabilitation Projects in Tanzania, Report of a Collaborative Research Project*, Dar es Salaam, Tanzania, January, 2001.