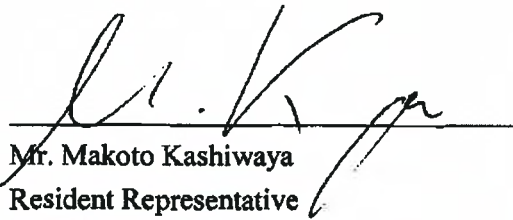


**MINUTES OF MEETING  
ON  
TECHNICAL COOPERATION  
IN  
SUPPORTING SERVICE DELIVERY SYSTEMS OF IRRIGATED AGRICULTURE  
UNDER  
THE AGRICULTURAL SECTOR DEVELOPMENT PROGRAMME (ASDP)  
IN  
THE UNITED REPUBLIC OF TANZANIA  
AGREED UPON BETWEEN  
MINISTRY OF AGRICULTURE, FOOD SECURITY AND COOPERATIVES  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY**

In line with the Record of Discussions on the Technical Cooperation in Supporting Service Delivery Systems of Irrigated Agriculture (hereinafter referred to as "the TC"), which was signed by the Ministry of Agriculture, Food Security and Cooperatives and JICA Tanzania Office, both parties had additional discussions on the details of the TC.

As a result, both sides agreed on the strategies, framework and justification of the TC described in the documents, namely, the Technical Cooperation Document, Logical Framework and Tentative Plan of Operation attached hereto. Additionally, both sides understood that the Logical Framework and Tentative Plan of Operation are subject to changes during the course of implementation of the TC as far as such changes are consistent with the Record of Discussions when the necessity arises.

Dar es Salaam, 8 May, 2007



Mr. Makoto Kashiwaya  
Resident Representative  
Tanzania Office  
Japan International Cooperation Agency



Mr. Peniel M. Lyimo  
Permanent Secretary  
Ministry of Agriculture, Food Security and  
Cooperatives

## **THE ATTACHED DOCUMENT**

### **1. FRAMEWORK OF THE TECHNICAL COOPERATION (TC)**

The Tentative Logical Framework shown in Annex I hereof provides the framework of the TC. The Logical Framework shall be used for monitoring and evaluating activities and achievements of the TC. The Logical Framework may be modified upon the approval of the Joint Coordinating Committee (JCC).

### **2. TENTATIVE PLAN OF OPERATION (PO)**

The Tentative Plan of Operation (PO) is shown in ANNEX II hereof. The PO may be modified upon the approval of the JCC.

### **3. STEERING COMMITTEE OF THE TECHNICAL COOPERATION (TC)**

For effective and successful implementation of the TC, a Steering Committee shall be set up, whose membership shall be drawn from the Task Group members, Japanese experts, and other stakeholders. The committee shall be chaired by the Assistant Director in charge of training of the Department of Research and Training (DRT) of the Ministry of Agriculture Food Security and Cooperatives (MAFC). The function and composition of the committee are described in ANNEX III hereof.

### **4. TECHNICAL COOPERATION DOCUMENT**

The Technical Cooperation Document is shown in ANNEX IV hereof. This document describes the strategies, framework, and justification of the TC.

### **5. PROVISION OF BUILDINGS AND FACILITIES**

Tanzanian side will provide office spaces and facilities at the DRT of the MAFC, the MATI-KATC, MATI-Igurusi, MATI-Ilonga, MATI-Ukiriguru, and Kilombero Agriculture Research and Training Institute (KATRIN) necessary for the implementation of the TC.

#### **LIST OF ANNEXES**

<b>ANNEX I</b>	<b>Tentative Logical Framework</b>
<b>ANNEX II</b>	<b>Tentative Plan of Operation (PO)</b>
<b>ANNEX III</b>	<b>Steering Committee</b>
<b>ANNEX IV</b>	<b>Technical Cooperation Document</b>



# ANNEX I LOGICAL FRAMEWORK

## Title: Technical Cooperation for Supporting Service Delivery Systems of Irrigated Agriculture

Prepared: 8 May, 2007 Version 1

Target Area: Forty (40) irrigation schemes in Tanzania

Target Groups: Rice smallholders (15,000 farmers)

Responsible agency: DRT, MAFC

Implementing Agencies: KATC and other MATIs (Igurusi, Ilonga, and Ukiniguru)

Collaborating Agencies: ARIs, ZITSUs and Districts.

Duration: 2007 to 2012 (5 years)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goals</b></p> <ol style="list-style-type: none"> <li>The TC contributes to ASDP objectives of improving and expanding irrigated agriculture.</li> <li>Profitability and incomes of rice smallholders are increased.</li> </ol> <p><b>Purpose</b></p> <p>Productivity of rice cultivation in priority irrigation schemes is increased through strengthening service delivery systems of irrigated agriculture.</p>	<p>Increase of rice smallholders' incomes Improvement of rice smallholder's household budget</p> <ol style="list-style-type: none"> <li>Increased rice yield per unit area in the irrigation schemes.</li> <li>Increased areas of fields for rice cropping in the irrigation schemes.</li> </ol>	<p>ASDP/DADP reports</p> <p>Annual reports of MATIs and ARIs Monitoring reports of the TC Farming Survey Report</p>	<p>Rice price is stable. Farm inputs (e.g., fertilizers) are available and affordable for smallholders.</p>
<p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>Rice cultivation practices are improved in targeted irrigation schemes through the Farmer-to-Farmer extension approach.</li> <li>Cooperative linkages between Research, Training and Extension Institutes are strengthened for improving rice productivity.</li> </ol>	<ol style="list-style-type: none"> <li>1-1. Degree of understanding of extension officers of rice cultivation technology.</li> <li>1-2. Number of rice cultivation technology adopted by the farmers (male/female) in the irrigation schemes.</li> <li>1-3. Number of training materials produced for gender training and participation rate of woman farmers.</li> <li>2-1. Number of the training implementation under DADPs.</li> <li>2-2. Number of meetings and technical seminars conducted among the stakeholders.</li> <li>2-3. Number of new rice varieties tested by on-farm trials.</li> </ol>	<p>Annual reports of MATIs and ARIs Monitoring reports of the TC Ex-participants' report Farming survey report</p>	<p>Any serious drought does not occur.</p>
<p><b>Activities</b></p> <ol style="list-style-type: none"> <li>1-1. To identify priority irrigation schemes through dialogues with the stakeholders.</li> <li>1-2. To conduct trainers training.</li> <li>1-3. To conduct residential and field training.</li> <li>1-4. To conduct monitoring and evaluation.</li> <li>1-5. To plan, conduct and monitor the technical training of irrigated rice production with gender consideration.</li> <li>2-1. To conduct workshops for the stakeholders.</li> <li>2-2. To provide Districts with technical support for planning training programmes of irrigated rice production as part of DADPs.</li> <li>2-3. To test new rice varieties including NERICA.</li> <li>2-4. To conduct on-farm trials for rice varieties including NERICA.</li> <li>2-5. To prepare basic guidelines on rice cultivation technologies.</li> </ol>	<p><b>Inputs Japanese side</b></p> <ol style="list-style-type: none"> <li>Dispatch of experts (Long-term and Short-term)</li> </ol> <p>The experts with the following assignment titles and expertise will be assigned upon necessity: Chief Adviser, Coordinator, Rice Cultivation, Farm Management, Irrigation, Farmers training, Upland Rice Cultivation, Gender, Livelihood Improvement, Post-harvest Processing, and Marketing.</p> <ol style="list-style-type: none"> <li>Allocation of operational costs of the TC.</li> <li>Provision of machinery and equipment.</li> <li>Training of Task Group members in Japan and/or in third countries.</li> </ol> <p><b>Inputs Tanzanian side</b></p> <ol style="list-style-type: none"> <li>Assignment of Task Group members and administrative personnel.</li> <li>Allocation of implementation costs for the TC such as salaries of task members and necessary expenses for training (DADP funds).</li> <li>Provision of working spaces and necessary facilities for Japanese experts to perform their duties.</li> <li>Farmer labour contribution to on-farm activities in the irrigation schemes.</li> </ol>	<p>Budget for capacity building at district levels does not substantially decrease.</p> <p><b>Pre-condition</b> MAFC recognizes the necessity of cooperation between research, training and extension institutes. Security conditions in the target areas are maintained.</p>	

**ANNEX II: TENTATIVE PLAN OF OPERATION**

	2007				2008				2009				2010				2011				2012				Responsible Person/ Status	Implementer	Input
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
<b>Purpose:</b> Productivity of rice cultivation in priority irrigation schemes is increased through strengthening service delivery systems of irrigated agricultural.																											
<b>Objective:</b> Rice cultivation practices are improved in priority irrigation schemes through the Farmer-to-Farmer extension approach.																											
1-1. To identify priority irrigation schemes through dialogue with the stakeholders.																											
1-2. To conduct Trainers Training.																											
1-3. To conduct residential and field training.																											
1-4. To conduct monitoring and evaluation.																											
1-5. To plan, conduct and monitor the technical training of irrigated rice production with gender considerations.																											
<b>Outcomes:</b> Cooperative linkage between Research, Training and Extension Institutions are strengthened for improving rice productivity.																											
2-1. To conduct workshops for the stakeholders.																											
2-2. To provide Districts with technical support for planning training programmes of irrigated rice production as part of DADP.																											
2-3. To test new rice varieties including NERICA.																											
2-4. To conduct on-farm trials for rice varieties including NERICA.																											
2-5. To prepare basic guidelines on rice cultivation technologies.																											

1: Jan-Mar 2; Apr-Jun 3; Jul-Sep 4; Oct-Dec

## **ANNEX III**

### **STEERING COMMITTEE**

The Task Group members of the TC, Japanese experts, and other stakeholders will hold a Steering Committee which shall be chaired by an Assistant Director of the DRT of the MAFC.

#### **1. Functions:**

- (1) to develop and improve detailed activities of the TC;
- (2) to monitor, coordinate and evaluate the activities of the TC; and
- (3) To summarize the proceedings of TC activities and report it to Joint Coordination Committee.

2. Chairperson: Assistant Director in charge of training of the DRT of the MAFC

3. Co-chairperson: Chief Advisor of the Japanese experts

#### **4. Members**

##### **(1) Tanzanian side:**

- i) Principals of the MATI-KATC, MATI-Igurusi, MATI-Ilonga and MATI-Ukiriguru;
- ii) Heads of Departments of the MATI-KATC, MATI-Igurusi, MATI-Ilonga and MATI-Ukiriguru; and
- iii) Representatives of Rice Research programme.

##### **(2) Japanese side:**

Experts of the TC

#### **Notes:**

- The members of the Steering Committee may be reviewed and modified flexibly upon necessity and the approval of the JCC.
- The chairperson may have persons relevant to the agenda participate in Steering Committee meetings.

**ANNEX IV**

**The United Republic of Tanzania  
and  
Japan International Cooperation Agency (JICA)**

**Technical Cooperation in Supporting Service Delivery  
Systems of Irrigated Agriculture**

**Technical Cooperation Document**

**May 2007**

## **Contents**

### **Chapter 1 Introduction**

### **Chapter 2 Background of the TC**

- 2-1 Tanzania – Country overview**
- 2-2 Current Situations of the Agricultural Sector**
- 2-3 Tanzanian Government's agricultural sector strategies and the current situation of donor coordination**
- 2-4 Related TC implemented by Japan in the field of irrigated agriculture**

### **Chapter 3 Current Situation of Extension Support for Irrigated Agriculture**

- 3-1 Institutional and organizational framework**
- 3-2 Current situation and challenge analysis**

### **Chapter 4 Strategies of the TC**

- 4-1 Concept of the TC**
- 4-2 Institutional Arrangement of the TC**

### **Chapter 5 Framework of the TC**

- 5-1 Purpose**
- 5-2 Overall Goal**
- 5-3 Outputs & Activities**
- 5-4 Inputs**
- 5-5 Analysis of Important assumptions and pre-conditions**
- 5-6 TC management and implementation system**

### **Chapter 6 Justification of the TC**

- 6-1 Relevance**
- 6-2 Effectiveness**
- 6-3 Efficiency**
- 6-4 Impact**
- 6-5 Sustainability**
- 6-6 Conclusion**

## Chapter 1 Introduction

Agriculture is the key industry in the Tanzanian economy, contributing about 50% of the country's gross domestic product (GDP) and about 75% of foreign earning, and employing over 70% of the total working population. However, being highly dependent on rainfall, agricultural production is greatly affected by droughts and other fluctuations caused by natural conditions. Furthermore, due to other factors including the declining of market price for traditional export crops, the reduction of subsidy policies as the result of financial stress, the underdevelopment of agricultural and economic infrastructure and the inactiveness of the agricultural support services, agricultural productivity and profitability of farms remain low. With an annual population growth rate of 2.9% in 2003 (Region & District Population Projection Report) and an increasing demand for staple foods, increasing the production efficiency through irrigated agriculture is indispensable.

In its Agricultural Sector Development Programme (ASDP), the Government of United Republic of Tanzania targets irrigated agriculture as a top priority and aims to develop agricultural extension services for eight highly profitable crops including rice referred to as strategic crops. However, in the ASDP Programme Document, the specifics of the agricultural service delivery system have not been clearly designed. In addition, Districts often do not have enough capacities required for providing extension services independently. Nevertheless, the ASDP Programme document, while highlighting privatization of service delivery, it does not fully recognize the roles of the public training institutes (public service providers) at national level, which could contribute to the promotion of the agricultural service delivery system. Hence, it is necessary to: 1) analyze the challenges to the agricultural service delivery system, and 2) reassess the roles of public training institutes in the agriculture sector.

Japan has a long history of cooperation with Tanzania in the field of agricultural development, having implemented since the 1970s a variety of cooperation undertakings promoting the establishment of irrigated rice cultivation techniques and related technological transfer. This cooperation succeeded in producing yields of 6 t/ha, three times larger than the national average in the Lower Moshi Irrigation Scheme in the Kilimanjaro Region. Furthermore, 1,031 rice cultivate technicians (extension officer, irrigation technician and key farmers) have been fostered nationwide, while the average yield of farmers who received training in six model sites around the country has increased to 1.4 times from 3.1 t/ha to 4.3 t/ha.

The outcomes of these cooperation activities have been highly evaluated by the Tanzanian Government, who has requested assistance from Japan for improving rice productivity in about 150 irrigation schemes nationwide, and in promoting extension services for irrigated agriculture techniques at the national, local and farm levels.

In response to this request, JICA dispatched a preparatory study team from 5, September, 2006 to 14, September, 2006 to confirm the relevance of implementation of this Technical Cooperation (TC) through detailed discussions with the parties concerned and through field surveys. As a result, JICA agreed to provide technical cooperation, through the four MATIs: KATC, MATI-Igurusi, MATI-Ilonga and MATI-Ukiriguru.

This report has been produced on the basis of the results of the above mentioned preparatory study. The background of the TC and the adequacy of JICA's support in this field are explained in Chapter 2 of the report. Chapter 3 describes the problems of extension support in the field of irrigated agriculture, focusing on the issues that need to be addressed. Chapters 4



and 5 explain the strategies and framework of the TC respectively. Finally, Chapter 6 summarizes the results obtained as to the Justification of the TC implementation, on the basis of five evaluation criteria: Relevance, Effectiveness, Efficiency, Impact, and Sustainability.

## Chapter 2 Background of the TC

### 2-1 Tanzania – Country overview

The United Republic of Tanzania has the fifth largest population in Sub-Saharan Africa (SSA), estimated at 38.3 million inhabitants (2005). Tanzanian economy is faced with a diversity of problems, including small-scale domestic market, distorted open economy, high trade dependency, persistent deficit in trade and international balance of payments, debt accumulation, inflated government sector and fiscal deficit, strong regulation/control and weak administrative capabilities, and aid dependency. These problems are not easy to overcome. Despite the relatively stable economic growth in recent years (GDP annual growth rate: 7%), according to the World Bank Atlas, GNI per capita was US\$340 (about half of the SSA average (US\$745)). In addition, according to the Household Budget Survey 2000/01 conducted by the National Bureau of Statistics, 35.7% of the total population is under the basic needs poverty line, while 18.7% is under the food poverty line. As these data indicate, poverty reduction is still the greatest national challenge for Tanzania.

Tanzania's development strategy, set out in the Poverty Reduction Strategy Papers (PRSP) introduced in 2000 and the National Strategy for Growth and Reduction of Poverty (NSGRP) developed in 2005, both designate agricultural sector development as a major issue in poverty reduction and economic growth, the Agricultural Sector Development Strategy (ASDS) proposes a series of strategies aimed to revitalize the country's agriculture.

Tanzania is ranked 164th out of 177 countries in the 2005 Human Development Index of the United Nations Development Programme (UNDP), based on the following main development indices.

Index	Tanzania	SSA
GDP per capita (PPP in US\$)	621	1,856
Official development assistance (ODA) received per capita (US\$)	46	33
Life expectancy at birth (years)	46	46
Infant mortality rate (per 1,000 live births)	104	105
Adult literacy rate (% ages 15 and older)	69	61.3
Male	75	64
Female	62	52

(Source: 2005 Human Development Report, UNDP)

### 2-2 Current situation of the agricultural sector

Agriculture is a key industry of Tanzania. It employs 70% of the working population and yields 50% of the GDP. Its growth, however, is suppressed, owing to such problems as low agricultural productivity and underdeveloped distribution system of agricultural products. To address this situation, the government completed the Agricultural Sector Development Strategy (ASDS) and Rural Development Strategy (RDS) in November 2001 and the Agricultural Sector Development Programme Framework and Process Document in March 2003 with an aim of contributing to the economic growth and poverty reduction mainly through agricultural development. In 2006, the Government officially launched the basket fund of the Agricultural Sector Development Programme (ASDP), which is the implementation vehicle of these strategies.

The ASDP attaches great emphasis to activities promoting irrigated agriculture, designates eight highly profitable crops (including rice) as strategic crops, and stresses the importance of developing extension services for these crops. In addition, in the manifesto of the majority party, the CCM, for the presidential and parliamentary elections held in December 2005, as well as in the President's inaugural speech in the Parliament after the election, the party and current administration stressed irrigation development and the advancement of irrigated agriculture as the country's top priority for the sake of increasing food production and farmers' income.

## **2-3 Tanzanian Government's agricultural sector strategies and the current situation of donor coordination**

### **(1) Overview of agricultural sector development strategies**

The overall objective of the ASDS, formulated in 2001, is "to establish an enabling environment for improving agricultural productivity and profitability, improving farm incomes". The ASDS focused on the following 5 strategic areas of intervention.

- (i) Strengthening the institutional framework,
- (ii) Creating a favorable environment for commercial activities,
- (iii) Clarifying public and private roles in improving supporting services,
- (iv) Strengthening marketing efficiency for input and output, and
- (v) Mainstreaming planning for agricultural development in other sectors

In addition, the ASDS emphasizes: (1) agricultural productivity and profitability; (2) encouragement of the private sector; and (3) ASDS implementation through District Agricultural Development Plans (DADPs) as the three fundamental policies to promote agriculture in Tanzania.

To achieve the objectives laid down in the ASDS, the Agricultural Sector Development Programme (ASDP) Framework and Process Document was formulated in 2003, consolidating proposed interventions into three major sub-programmes:

- Sub-programme A: Agricultural Sector Support and Implementation at District and Field Level;
- Sub-programme B: Agricultural Sector Support at National Level; and
- Sub-programme C: Cross-cutting or Cross-sectoral Issues with other Sectors at the National Level).

As described in the ASDP Programme Document, *The Agricultural Sector Development Programme (ASDP) Support through Basket Fund* completed in May 2006, the ASDP comprises local-level and national-level components, which are further broken down into three and five sub-components, respectively. The framework for fund provision through the basket fund was formally presented in a Memorandum of Understanding signed by five Development Partners: EU, IFAD, Irish Aid, Japan, and the World Bank. Fund allocation through the ASDP at local level comprises around 75% of the total programme budget, while the national level component receives 25%.

Having led the process of establishing the framework of the ASDP basket fund as a

leading donor in agriculture sector, Japan has also signed the August 2006 Memorandum on Basket Fund contributions together with the Government and other Development Partners.

#### **Box 1 ASDP Programme Components**

1. Local Level Support
  - 1.1 Local Agricultural Investments
  - 1.2 Local Agricultural Services
  - 1.3 Local Agricultural Capacity Building and Reform
2. National Level Support
  - 2.1 Agriculture Services (Research/Extension)
  - 2.2 National Irrigation Development (Technical Study/Detailed Design/Irrigation Infrastructure/Irrigation Capacity Strengthening)
  - 2.3 Marketing and Private Sector Development
  - 2.4 Food Security
  - 2.5 Co-ordination, Monitoring and Evaluation (Service quality control/district government functions)

Sub-components relevant to this TC have been underlined.

#### **2-4 Related cooperation of Japan in the field of irrigated agriculture**

Japan's cooperation in the field of irrigated agriculture in Tanzania has a long history, which started in the 1970s aiming at promotion of irrigated rice cultivation techniques and of related technical transfer in the Kilimanjaro Region. As a result of the positive linkage between different cooperation schemes provided by Japan in the Lower Moshi area of the Kilimanjaro Region, including construction of a modern irrigation scheme (creation of rice paddies 1,100 ha, and dry fields 1,200 ha) through Bilateral Loan, construction of an Kilimanjaro Agricultural Development Centre (KADC) through Grant Aid Cooperation, and establishment and extension of irrigated agriculture techniques through Technical Cooperation, high rice yields of 6 t/ha - three times higher than the national average - have been achieved in the Lower Moshi Irrigation Scheme, and rice cultivation techniques have been disseminated to the surrounding areas.

This achievement convinced the Tanzanian Government of the advantages of disseminating irrigated rice cultivation techniques nationwide. In doing so, the Government upgraded Agriculture Training Centre in the Lower Moshi Irrigation Scheme to MATI, a national-level Agricultural Training Institute, targeting rice experts from around the country, and has requested the Japanese government to implement technical cooperation projects focusing on improving the institute's capacity and on training irrigated rice cultivation technicians. In response to this request, between 1994 and 2001, JICA assisted the Tanzanian Government to implement the Kilimanjaro Agricultural Training Center (KATC) Project which contributed developing human resources for promoting irrigated rice production through designing and executing training courses on irrigated rice cultivation techniques and the fostering of 1,031 irrigated rice cultivation technicians.

During the Kilimanjaro Agricultural Training Center Phase II Project (KATCII) (2001-2006) training was implemented in six model sites around the country, with the aim of promoting the extension of irrigated rice cultivation with farmer-to-farmer extension methods. The established training model benefited farms directly, as average yield in model sites rose 1.4 times, from 3.1 t/ha to 4.3 t/ha.

## Chapter 3 Current Situation of Extension Support for Irrigated Agriculture

### 3-1 Institutional and organizational framework

#### (1) General services

The ASDP aims to reform agricultural services to encourage the private sector to play a major role in service delivery. Although the Government documents on the gives no clear definition of "services," it is generally perceived that agricultural services cover not only delivery of materials such as farm input, but also transfer of information, such as crop cultivation techniques and market-related data, most of which have traditionally been brought to farmers by agricultural extension officers.

In the ASDP framework, agricultural service providers can be categorized as either private or public service providers. While private service providers include private research institutions (e.g., Tea Research Institute of Tanzania), NGOs, private enterprises, and farmers' organizations; agricultural extension officers, Ministry of Agriculture Training Institutes (MATIs), and Zonal Agricultural Research and Development Institutes (ZARDIs) can fall into the category of public services providers. Among the public service providers, ZARDIs are expected to play an active role in delivering their research results directly to farmers by collaborating with private service providers.

As summarized in the Box 2 below, Extension Block Grant (EBG) is used to promote transferring of service delivery from public to private sectors, while Agricultural Capacity Building Grant (A-CBG) is for building capacities of LGAs necessary for the accomplishment of such a reform.

#### Box 2 Service reform-related subcomponents (local level)

##### Sub-Component 1-2: Local Agricultural Services

(Applicable fund: Extension Block Grant: EBG)

[Activity content]

As services delivered through the public administration are reformed and services offered through the private sector are enhanced, capacity building programs are conducted in order to enable farmers to approach service providers with requests adapted to their needs. Furthermore, the orientation of activities is changed so that the government can contract the services of providers in the private sector. Moreover, the government aims to restructure itself into a policy implementer who promotes the fostering of private sector service providers and the enhancement of contractual agreements between such private sector service deliverers and farmers.

##### Sub-Component 1-3: Local Agricultural Capacity Building and Reform

(Applicable fund: Agricultural Capacity Building Grant: A-CBG)

[Activity content]

Capacity building and organizational restructuring of LGAs, who are in charge of actual implementation of agricultural development activities. Capacity building of farmers and promotion of private sector involvement are also included.

(2) Research

The restructuring of research-related public institutions is the focus of the national-level component.

**Box 3 Service reform-related subcomponents (national level)**

Sub-Component 2-1 Agriculture Services (research and extension)

[Activity content]

The sub-component aims to reform agriculture services (in particular research and extension) so that they respond in a more adequate manner to the farmers' actual needs. The component focuses on the improvement of Zonal Research and Development Institutes (ZARDI) in seven locations across the country through the implementation of a Client Oriented Research and Development Management Approach (CORDEMA), as well as through the improvement and expansion of the Zonal Agricultural Research and Development Fund (ZARDEF) which has been implemented in part of the zones. The key principle of CORDEMA is that those researchers who have produced quality outputs will receive further support for future research. The ZARDEF aims to make research funds available, on a competitive basis, to anyone from the private sector. In addition, the Zonal Research and Extension Liaison Unit will be reformed to Zonal Information and Extension Liaison Unit (ZIELU) focusing on the linkage between farmers' needs and research topics.

As stated above, research institution-related reforms will be carried out in accordance with the "Client-Oriented Research and Development Management Approach (CORDEMA)."

**Box 4 CORDEMA strategies**

- 1) Changing mindsets through training  
(Supply (research-side) driven → demand (farmer-side) driven)  
(Linear model → partnership approach)
- 2) Funds for planning collaborative activities
- 3) Mainstreaming development-oriented research and development fund

In this approach, importance is attached to the research institutions' capacity of assimilating and disseminating relevant knowledge (communication) rather than to their research capacity with the conversion of the Zonal Research and Extension Liaison Unit (ZRELU) into a Zonal Information and Extension Liaison Unit (ZIELU).

(3) Extension

As stated above, the ASDP Programme Document lays emphasis on privatization of agricultural service delivery. Although the Government's role in extension is specified as 1) training facilitation and 2) capacity building of LGAs and ZARDIs, no specific measures are formulated in order to strengthen the public extension work, which is left in the hands of each local government. Moreover, contradictory to the direction of service reform of the ASDP, on 1 September, 2006, the President, in his discourse, announced the Government intention to substantially increase the number of extension

officers in order to promote agricultural sector development.

(4) Training

So far, the reform of training function of Agricultural Sector Leading Ministries (ASLMs) has been out of the scope of the ASDP. As the ASDP focuses on the reform of agriculture service provision, it seems that this aspect has been left behind.

Training is originally understood to function as a connecting element between research and extension, or as a digestion process transforming the research results obtained in research institutions into materials handled at the extension level. However, in the ASDP, this role is expected to be performed by research institutions despite the fact that they have hardly any previous experience in providing direct guidance to farmers or extension officers. Moreover, as mentioned in the item (3) above, the Government intends to increase the number of agricultural extension officers. These facts indicate that the ASLM training institutes could still play an important role even in the direction of the reform of research and extension under the ASDP.

(5) Irrigation development

The current administration elected in December, 2005 has decided to give special priority to irrigation development and practice. Under the ASDP, irrigation development will be promoted with two new funds: the District Irrigation Development Fund (DIDF) and National Irrigation Development Fund (NIDF). Although created at the national level, the DIDF provides a supplementary funding mechanism to assist local governments in promoting relatively small-scale irrigation development.

The DIDF will be used to finance local investments in quality irrigation projects whose financial requirements cannot be fully covered through LGCDG<sup>1</sup> or the DADG, and which will be selected on a competitive basis. Thus, the DIDF will function as a supplementary fund to LGCDG and DADG. On the other hand, the NIDF will provide support to comparatively wide-area, large-scale, technologically complex irrigation projects and where the irrigation schemes to be developed extends beyond one District. Both of the funds encourage contractual consignment of the design and construction involved in their implementation to the private sector, as well as private sector participation in investment. Implementation in partnership with the private sector is heavily promoted.

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<sup>1</sup> Local Government Capital Development Grant (LGCDG): A new fund allocation system introduced in 2005 by the Government as the core mechanism of decentralization. Under the LGCDG system, local government authorities (LGAs) are allocated non-sector specific development funding in a lump, which they inject into a variety of development activities in order of priority (funds can be used in virtually any sector, such as education, health care, and agriculture). In order to receive the top-up grant of the LGCDG, the performances of LGAs must meet the screening criteria set by the government.

### **Box 5 Irrigation development funds**

#### **1) Local-level: District Irrigation Development Fund (DIDF)**

(Scale: A total amount of TZS 810.7 billion (about US\$ 811 million) for a seven-year period)

[Fund overview]

The fund is used to finance, on a competitive basis, small-scale irrigation projects at the local (district) level, which cannot be covered from the DADG or LGCDG (in other words, the fund complements DADG/LGCDG). It is established at national level.

#### **2) National level: National Irrigation Development Fund (NIDF)**

(Scale: A total amount of TZS 269.7 billion (about US\$ 270 million) for a seven-year period)

[Fund overview]

The fund is used to finance larger and more complex irrigation development. It is administered by the MAFC. Irrigation projects are screened and selected based on the criteria including: a sufficient degree of private sector participation, commitment towards operation and maintenance (O&M), and economic efficiency.

The current administration, elected in December 2005, aims to have a cumulative developed area of one million ha of irrigated land by the end of its term in 2010. However, at the moment there is no clear prospect for the Government to acquire the enormous funds necessary for the implementation of such an enterprise.

### **3-2 Current situation and challenge analysis**

#### **(1) Current situation and challenges of irrigated rice cultivation**

With domestic rice production of about 500,000 t and consumption of about 750,000 t, imported rice accounts for around 30% of total rice consumption in Tanzania, large amounts of foreign currency being spent on rice imports. Annual per capita rice consumption in Tanzania is around 20 kg (in Japan: around 65 kg), and it has been rising in recent years, making rice an essential cereal for the country. For farming households, rice is not only a major food crop which complements maize, but is also important as a cash crop. Therefore, the introduction of irrigated rice cultivation can make a contribution both in terms of food security at national level, and in terms of improving farm livelihood, as a development model for smallholders.

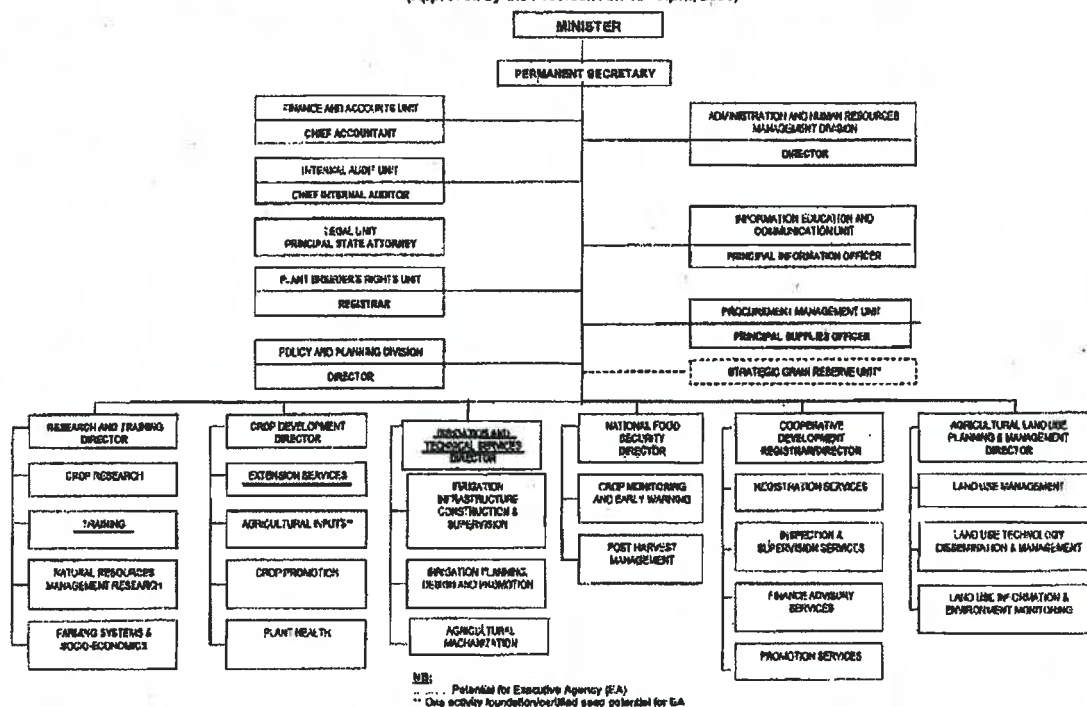
Rice paddies furnished with irrigation facilities are said to exist in about 150 locations throughout Tanzania, covering a total of 65,000 ha. Nevertheless, with most rice cultivation dependent on rain water, it is important not only to expand irrigated farmland, but also to develop rice varieties which can be cultivated even on a farmland on a poorly managed irrigation scheme to increase domestic rice production.

#### **(2) Current situation of the MATIs and MAFC's other institutions concerned**

The figure below shows the organization structure of the MAFC as of April 2006.



**THE ORGANISATION STRUCTURE OF THE MINISTRY OF AGRICULTURE, FOOD SECURITY AND COOPERATIVES**  
(Approved by the President on 18<sup>th</sup> April, 2006)



The Ministry Agricultural Training Institute (MATI), belonging to the Training Section of the Department of Research and Training, together with the Farmer Training Center (FTCs) in the Extension Section of the Department of Crop Development represent the training institutions under the MAFC jurisdiction. In addition, the Zonal Irrigation and Technical Services Unit (ZITSU) belong to the Department of Irrigation and Technical Services.

1) Ministry of Agriculture Training Institutes (MATIs)

According to local characteristics and the initial purpose of their establishment, MATIs exercise jurisdiction over specific agro-ecological zones and fields of expertise. For example, the Kilimanjaro Agricultural Training Centre (KATC) is an MATI which targets the northeastern area, and is specialized in irrigated agriculture. The table below lists training subjects for each MATI in contrast to those offered at KATC. four levels have been used to evaluate training implementation competence: ⊙ = high-level competence, ○ = medium-level competence, △ = some level of competence, and — = not offered.

Capacity to implement training in the field of irrigated rice cultivation for each MATI

MATIs	Region	Characteristics					
		Short Course	Irrigation	Rice Production	Extension Methodology	Food and Nutrition	Number of Tutors
Ukiriguru	Mwanza	⊙	△	△	○	△	30
Uyole	Mbeya	⊙	—	○	⊙	⊙	36
Igurusi	Mbeya	⊙	⊙	○	△	—	14

Ilonga	Morogoro	⊙	△	○	○	⊙	28
Mtwara	Mtwara	⊙	△	—	○	△	7
Mlingano	Tanga	⊙	—	—	△	—	
Tengeru	Arusha	⊙	—	—	○	○	
Tumbi	Tabora	⊙	—	—	—	—	
KATC	Kilimanjaro	⊙	⊙	⊙	⊙	○	28

Although all MATIs offer specialized short courses in agriculture, tailored to the farmers' needs, apart from the KATC, only MATI-Ukiriguru, MATI-Uyole, and MATI-Igurusi, and MATI-Ilonga appear to have potential as service providers who could deliver the training service of irrigated rice cultivation to farmers. In particular, the MATI-Igurusi specializes in irrigated agriculture.

Except for the MATI-Igurusi, three other institutes are built together with Agricultural Research Institutes (ARIs), with researchers acting as tutors. Each ARI has a Zonal Research and Extension Liaison Officer (ZRELO) who could play a role of bridging the gap between research and extension by passing research results over to farmers. ZRELOs also offer support for experiments conducted by researchers on farm fields.

The MATI-Igurusi, being located in the Usangu Plain, an area where irrigated rice cultivation is flourishing, is well known for a long-term (2-year) training program in irrigation at diploma level. Indeed, this institute is expected to become together with KATC one of Tanzania's major institutions to lead rice promotion. By contrast, the MATI-Uyole's location in the uplands (around 1,700 m above sea level) makes it unsuitable for rice cultivation, though the MATI-Uyole and the MATI-Igurusi are located at close distance from each other..

In surrounding areas of Lake Victoria where the MATI-Ukiriguru is located, rice cultivation relies primarily on rain water harvesting methods including the on-site fields of the MATI-Ukiriguru. In order to address such a condition, it is necessary to introduce rice cultivation methods suitable for the farmlands with an incomplete irrigation system.

To conduct farmer training and monitoring efficiently, the above four MATIs would require to be equipped with vehicles, materials and office equipment.

#### Educational level of the staff of the four MATIs (compared to the KATC)

	Igurusi	Ilonga	Ukiriguru	Uyole	KATC (2001)
Master course graduates	3	5	7	10	4
University graduates	4	9	6	8	2
Diploma graduates	7	13	11	14	9
Total	14	27	24	32	15
Eligible for training	6	2	5	4	6

#### Capacity of accommodations and training facilities of the four MATIs

	Igurusi	Ilonga	Ukiriguru	Uyole
Accommodation capacity	40	20	40	20
Area suitable for	27 ha	25	90	None

irrigation				
Area suitable for wet-rice farming	3 ha	9	5	None
Irrigation source	Irrigation canal	Irrigation canal	Irrigation canal	None
No. of copy machines	1	1	2	1
No. of computers	2	1	1	2
No. of tractors	1	1	1	1
Classroom situation	Good	Good	Good	Good
Major problems	No terrestrial telephone Vehicles	Deterioration of irrigation facilities	Unstable water source	Temperature is unsuitable for rice cultivation

## 2) Farmer Training Centers (FTCs)

Although the MAFC has four FTCs across the mainland in Tanzania, farmer training is currently being conducted only at the Mkindo FTC, who has received FAO support. At the other FTCs, either activities are stagnant or the FTC does not have the necessary capacity to implement training on irrigated rice cultivation.

At Mkindo, line planting technique and simple agricultural machinery for rice cultivation have been introduced as part of south-south cooperation with Indonesian experts. With the school principal who is the only staff member stationed at the Center on a full-time basis, group training to farmers is offered by the principal jointly with experienced leader farmers in the area. Furthermore, farmers play a guiding role in the Farmer Field School organized around the school.

## 3) Zonal Irrigation and Technical Services Units (ZITSUs)

4) The mainland of Tanzania is divided into seven irrigation zones, each of which is under jurisdiction of a Zonal Irrigation and Technical Service Unit (ZITSU). Besides irrigation experts, ZITSU employs staff in charge of irrigated agriculture in general, extension, social economy, and agricultural machines.

## 5) Agricultural Research Institutes (ARIs)

The Kilombero Agricultural Training and Research Institute (KATRIN) and the ARI-Uyole are two representative rice cultivation-related research institutions. In particular, KATRIN conducts research on upland rice cultivation, while the ARI-Uyole focuses on rice agriculture in the southern areas. In particular, in the KATRIN, human resources and funding necessary for rice research are far from sufficient, the institutes need support for breeding experiments conducted on farm fields, or in the institute's field as well as for improving the researchers' capacity.

## **Chapter 4 Strategies of the TC**

### **4-1 Concept of the TC**

The goal of this TC is to contribute to the ASDP adopted by the Tanzanian Government through cooperation for the extension of irrigated rice cultivation technology, a field in which Japan has a competitive technical advantage as opposed to other Development Partners. The TC aims to disseminate irrigated rice cultivation technology to irrigation schemes nationwide, and to improve rice productivity in irrigation schemes through a strengthened support system of irrigated agriculture services, compatible with the training implemented at the MATIs, along with a trend of decentralization.

Hence, the first output is to make the training package and extension methods established by the KATC Project phase 2 available throughout the country, in a context marked by the advance of decentralization. Within 40 selected irrigation schemes (a total of 20,000 ha, 13,000 farmers) around the country, key farmers will be fostered and farmer-to-farmer extension approach will be developed for transmitting training outputs to other farmers. As a mechanism facilitating dissemination to the 40 irrigation schemes, the role of implementing irrigated rice cultivation training will be transferred from KATC to 3 more MATI in order to provide coverage for schemes nationwide.

With 200,000 t of rice currently being produced in irrigated areas, 300,000 t in upland areas and rain-fed lowlands, a large percentage of rice production comes from non-irrigated areas. Therefore, the second output has been defined as the strengthening of the necessary research, training and extension system with due consideration to the entirety of rice cultivation practices in Tanzania. By actively encouraging local-level participation, training in rice cultivation technology will be implemented as part of the District Agricultural Development Plans (DADPs), and the expertise accumulated at the KATC will be disseminated nationwide using the ASDP Basket Fund. In addition, support will be provided to researchers, trainers and extension officers for the realization of cultivation experiments on farm fields, using both upland and paddy-field rice varieties, including NERICA.

The goal of the TC has been set as striving to improve rice cultivation productivity in the priority irrigation schemes. This goal is expected to be achieved through the activities mentioned above. Furthermore, striving to improve the livelihoods of small farmers has also been made an overall goal.

### **4-2 Institutional Arrangement of the TC**

#### **(1) Basic agenda**

##### **1) Dealing with changes in the extension system**

Many countries in Sub-Saharan Africa are now considering a "publicly-funded extension system relying on private service providers." Consensus building among parties concerned is necessary as to what sort of extension system is desirable in order to improve agricultural productivity and profitability in irrigation schemes through farmer-to-farmer extension approach. As extension officers are permanently stationed in districts, wards and villages (including irrigation schemes), and the president has expressed his wish to increase the number of extension officers, cooperation will center

for the time being on support to public extension activities.

2) Support to the role of MATIs as providers of training services

Through this TC, MATI are expected to acquire the ability to offer training (in particular irrigated rice cultivation training) using DADP budget. Since training will be provided at four MATIs including KATC, the MAFC headquarters together with the institutes' managerial staff will collect information relevant to the training programs being offered, and will take charge of active operational activities (creating related documents, providing explanation to the districts). Furthermore, in order to demonstrate the significance of the role of MATI in the research-training-extension linkages, it will be necessary not only to publicize the importance and output of short- and long-term training, but also to foster an awareness of the need for improving management of the institutes.

3) Research-training-extension linkages

One of the TC's distinctive features is its emphasis on linkages between research, training and extension in order to achieve improvements in rice productivity (action plan) through farmer-to-farmer extension approach. The formulation of the action plan will focus on the stakeholders of each irrigation scheme (irrigation coordinators, extension officers, farmers' organizations, key farmers, etc.), and will take into account the experience of farmer-to-farmer extension approach accumulated in the course of the KATC Project Phase 2 and through the Farmer-Field Schools (FFS). In its implementation, the Task Group members and Japanese experts of this TC will come up with ways of promoting the proactive interaction between research, training and extension. Given the large number of target locations, monitoring of the action plan and reports on progress should be realized by the stakeholders of each irrigation scheme, and ways of sharing information with related parties should be established (for example, using photos to illustrate the stage reached).

4) Operation and maintenance of irrigation facilities by farmers

To engage sustainability of irrigation facilities, regular maintenance needs to be conducted, with maintenance costs being covered as a rule from water use fees paid by beneficiaries. Nevertheless, for reasons including the inadequacy of irrigation facilities, failures of water distribution services or failures of field management, situations may occur in which farmers cannot (or do not) pay water fees. This TC aims to collect and overview rules of farmers' organizations and actual cases of irrigation facility maintenance in order to examine the possibilities for sustainable management of irrigation facilities in Tanzania. At the same time, attention will be given to the relationship between operation and maintenance of irrigation facilities and gender and social equity issues.

5) Dealing with the diversity of rice cultivation

8% of Tanzanian rice is cultivated on irrigated land, 20% on upland, and 72% is produced as rain-fed lowlands. Therefore, the TC activities (in particular variety selection on the farm field) provide cooperation not only for rice crops grown on irrigated land, but also for the selection of varieties including NERICA that can be

cultivated in upland or marshy conditions. It is necessary to investigate whether rice varieties cultivated at the moment have been catalogued, and to include the new varieties (lines).

#### 6) Importance of support to poverty farmers

Due importance must be attached to ideas and measures aiming to contribute not only to the improvement of rice productivity for key and intermediate farmers, a comparatively privileged category, but also for other farmers and farmers living in poverty who cannot participate in trainings. For example, the establishment of a seed production and distribution system of rice seeds and the use of Azola<sup>2</sup> in irrigation schemes are possible low-cost techniques of raising yields for the entire farming population.

#### 7) Gender consideration

Permitted by a strong awareness of the need to share the benefit of the project by men and women on an equitable basis, the KATC Project phase 2 has demonstrated that gender-sensitive activities, which have been continuously built into the TC, exert a significant influence upon the TC goal itself. Therefore, in the present TC, the necessity for gender consideration must be clearly indicated in all the documents produced throughout the TC cycle. This will serve to establish a consensus with regard to gender-sensitive activities among all those involved in the TC and to facilitate the transmission of this consensus.

#### 8) Development cooperation through training

The rural development in the context of agricultural development entails the establishment of a functioning system in which the cash obtained as the result of the production, processing, marketing and sales of agricultural products returns to the rural communities. As rice is a crop with a high market value in Tanzania, there is a high possibility of increasing profits through increasing yields and improving varieties. This makes irrigated rice cultivation an adequate choice as the TC's main focus. Collaboration with processing, marketing and sales entities will be actively sought in order to link improvements in rice productivity to higher profitability.

Socio-economic sustainability of rural community development is ensured not only through the increase of agricultural production and added value of agricultural products, but also through the enhancement of employment and income opportunities. Whereas the short-term objective of training is to raise income and profits, what is pursued in the long term is the improvement of people's livelihood. The main actors of development are the people who live in a certain area, with assistance from the outside playing only a supporting role by edifying, educating and stimulating the main actors with regard to the self-reliant efforts through which they can improve their lives. The content of the collaboration between research, training, extension and the farmers themselves must be developed in such a way as to strengthen not only the capacity of individuals, but also of organizations and of the country as a whole.

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<sup>2</sup> Azola (Genus: *Azolla*, 6 species. Family: Azollaceae): An aquatic, free-floating fern, native to tropical and subtropical regions. It develops a symbiotic relationship with algae, which fixes atmospheric nitrogen. This relationship fertilizes rice paddies and increase rice production.

**(2) Target groups of the TC**

The groups directly targeted by the TC are (1) staff of the four MATIs (the KATC, MATI-Igurusi, MATI-Ilunga, and MATI-Ukiriguru), (2) the district staff and the scheme manager of each irrigation scheme in the target areas (40 irrigation schemes selected as target sites), and (3) the farmers involved in the activities. Furthermore, ZITSU, NGOs and other entities engaged in agriculture-related enterprises in the target areas are also included in the TC target groups. The same applies to research institutes such as the KATRIN focusing on rice cultivation.

**(3) Target areas**

The target areas cover the irrigation schemes existing in about 150 locations throughout Tanzania, out of which 40 will be selected as sites of the training activities implemented within the TC.

## Chapter 5 Framework of the TC

### 5-1 Purpose

The Purpose of this TC is defined as:

Productivity of rice cultivation in priority irrigation schemes is increased through strengthening service delivery systems of irrigated agriculture.

The fact that farmers who participate in training practice the newly-acquired technology on their fields indicates that they perceive the technology as advantageous. Hence, by measuring the improvement of rice yield in the target areas, it is possible to grasp the degree to which the TC will have contributed to increase the productivity of rice cultivation. The following indicator will be used as a target to be met until the completion of the TC.

Yield rise per rice crop unit in target irrigated areas (an average rise of 1 t/ha)

### 5-2 Overall Goal

The TC's overall objective is defined as:

1. The TC contributes to ASDP objectives of improving and expanding irrigated agriculture.
2. Profitability and incomes of smallholder are increased.

To mainstream the activities of the TC to the framework of the ASDP, the contribution to the ASDP objectives as to improving livelihood and expanding agriculture will be set as its Overall Goal. More specifically, it is essential to build a system which enables the MATIs targeted in this TC to serve farmers as the providers of training services of irrigated agriculture by contracting with the Districts. Needless to say, the ultimate purpose of the TC is not only to create a system for extension services, but also to secure farmers' opportunities for trainings and to enhance agricultural productivity, the amount of production and profits through the trainings.

The following indicators will be used for the overall goal. Concrete figures will be decided after the implementation of the baseline study.

- Increase of rice smallholders' household incomes
- Improvement of rice smallholders' household budget.



### 5-3 Outputs and activities

The following outputs need to be obtained in order to achieve the Purpose of the TC.

- (1) Rice cultivation practices are improved in priority irrigation schemes through the Farmer-to-Farmer extension approach.
- (2) Cooperative linkages among Research, Training and Extension Institutes are strengthened for improving rice productivity.

The TC sets as its first output the nationwide dissemination of the training package and extension methods developed in the second phase of the KATC Project, in a context marked by the promotion of decentralization. To achieve that, 40 irrigation schemes (a total of 20,000 ha, 13,000 farms) will be selected in various locations around the country, and key farmers will be fostered within each scheme, making use of farmer-to-farmer extension approach in order to transmit training outputs to intermediate farmers. As a mechanism for the dissemination to the 40 irrigation schemes, the role of implementing irrigated rice cultivation training will be transferred from the KATC to three more MATIs, in an effort to cover irrigation schemes throughout the country.

Given that in Tanzania, quite large proportion of rice is produced in non-irrigated areas, the second output of the TC has been defined as the strengthening of research, practice and extension systems, for the sake of promoting rice cultivation in Tanzania in its entirety. In particular, the TC aims to work together with the districts in order to implement training for rice cultivation technology under the District Agricultural Development Plans (DADPs), and to extend the cultivation techniques fostered at the KATC to irrigation schemes nationwide, using the Agricultural Sector Development Programme (ASDP) Basket Fund. In addition, the TC offers support for on-farm trials of paddy varieties by researchers, trainers and extension officers, each in their respective roles, using upland and wet rice varieties including NERICA.

Achievement of the above outputs is expected to contribute to the realization of the TC's objective, defined as the improvement of rice cultivation productivity in target irrigated areas.

In order to obtain each output, the following activities need to be realized during the TC implementation period. A more detailed activity plan shall be formulated after the commencement of the TC.

- 1-1 To identify priority irrigation schemes through dialogue with the stakeholders.
- 1-2 To conduct trainers' training.
- 1-3 To conduct residential and field training.
- 1-4 To conduct monitoring and evaluation.
- 1-5 To plan, conduct and monitor the technical training in irrigated rice production with gender consideration.
  
- 2-1 To conduct workshops for the stakeholders.
- 2-2 To provide Districts with technical support for planning training programmes of irrigated rice production as part of DADPs.
- 2-3 To test new rice varieties including NERICA.
- 2-4 To conduct on-farm trials for rice varieties including NERICA.
- 2-5 To prepare basic guidelines on rice cultivation technologies.

## 5-4 Input

### (1) Input from Japan

- **Long-term experts**  
Long-term experts in the following assignment titles will be assigned to the TC upon necessity. The assignment title could be held concurrently by plural experts: Chief Advisor, Coordinator, Rice Cultivation, Farm Management, Irrigation, and Farmers Training.
- **Short-term experts**  
Short-term experts in the following assignment title will be assigned to the TC upon necessity. The assignment title could be held concurrently by plural experts. (Upland Rice Cultivation, Gender, Livelihood Improvement, Information Management, Post-harvest and Processing, Marketing, etc.)
- **Training of Task Group members in Japan and/or in third countries:**  
For up to three staff per year, training is provided in Japan or in a third country, including long-term training.
- **Provision of machinery and equipment:**  
Vehicles, training equipment, and office equipment are provided during the first year. Equipment provided from the second year onwards will be decided upon consultation with Tanzanian counterparts, along the lines of the detailed Plan of Operation.
- **Allocation of operational costs:**  
Part of local costs incurred during training implementation, facility improvement for offices and seminar rooms at the four MATIs and domestic training for trainers.

### (2) Input by the Tanzanian side

- TC member and office personnel assignment (staff members of DRT, MATI (KATC, Igurusi, Ilonga, Ukiriguru) and rice researchers of ARI).
- Provision of the working spaces and necessary facilities for Japanese experts to perform their duties in the DRT, the four MATIs (the KATC, MATI-Igurusi, MATI-Ilonga, and MATI-Ukiriguru) and the KATRIN.
- Expenditures necessary for the implementation of technological TCs, i.e.: counterpart remuneration, costs required for training,
- Farmer labour contribution to on-farm activities in the irrigation schemes.

## 5-5 Analysis of important assumptions and pre-conditions

Important assumptions and pre-conditions at each level of the TC summary are indicated in the table below.

Important assumptions for the achievement of the Overall	<ul style="list-style-type: none"><li>• Rice price is stable.</li><li>• Farm inputs (e.g., fertilizers) are available and</li></ul>
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Goal	affordable for smallholders.
Important assumptions for the achievement of the Purpose of the TC	<ul style="list-style-type: none"> <li>• Any serious drought does not occur.</li> </ul>
Important assumptions for the achievement of outputs	<ul style="list-style-type: none"> <li>• Budget for capacity building at district levels does not substantially decrease.</li> </ul>
Pre-conditions	<ul style="list-style-type: none"> <li>• MAFC recognizes the necessity of cooperation among research, training and extension institutes.</li> <li>• Security conditions in the target areas are maintained.</li> </ul>

Awareness on the part of research, training and extension institutions as to the need to collaborate with one another is an important pre-conditions for the realization of the activities and inputs conducive to the TC's objective of improving agricultural productivity of farms. In addition, target area safety is an indispensable condition for the smooth unfolding of activities.

The important assumptions necessary for achievement has been listed as no major reductions in the budget of districts involved in training. This TC utilizes the ASDP Basket Fund to provide specific training on the district's extension programs. At the minimum, if there is no operating budget for district extension officers then monitoring of the establishment of the results of farmer-to-farmer training cannot be conducted, and there can be no hope of results materializing.

The important assumptions necessary for the achievement of the TC goal is that "A serious drought does not occur." In the KATC Project Phase 2, at one of the six model sites rice farming could not be carried out during the project due to the serious drought. The fact that in the remaining model sites rice yield rises were achieved despite the drought tendency indicates the importance of improving irrigation efficiency in order to prevent adverse natural conditions from affecting the TC as a whole.

"Stable rice prices" and "access to farm input" have been set as the two important assumptions for the achievement of the Purpose of the TC. While maintaining the current rice prices is a minimum condition for improving livelihood of farm households through the increase of agricultural productivity, the transfer of post-harvest treatment technology, enabling farmers to cope with seasonal price fluctuations by storing rice, is equally important. Moreover, farmers' investment into farm input is indispensable for further increase of agricultural productivity. Farmers' awareness of the importance of input will be enhanced through guidance concerning the farm's household accounts, as well as through training on the criteria for use of fertilizers. It is also essential to suggest ways of using available materials as substitutes for expensive equipment and of manufacturing fertilizer.

In conclusion, it can be said that, by taking the steps described above, it is possible to address all the important assumptions necessary for the TC, with the exception of those related to natural disasters.

#### **5-6 TC management and implementation system**

- (1) Joint Coordinating Committee (JCC)
  - 1) Committee functions

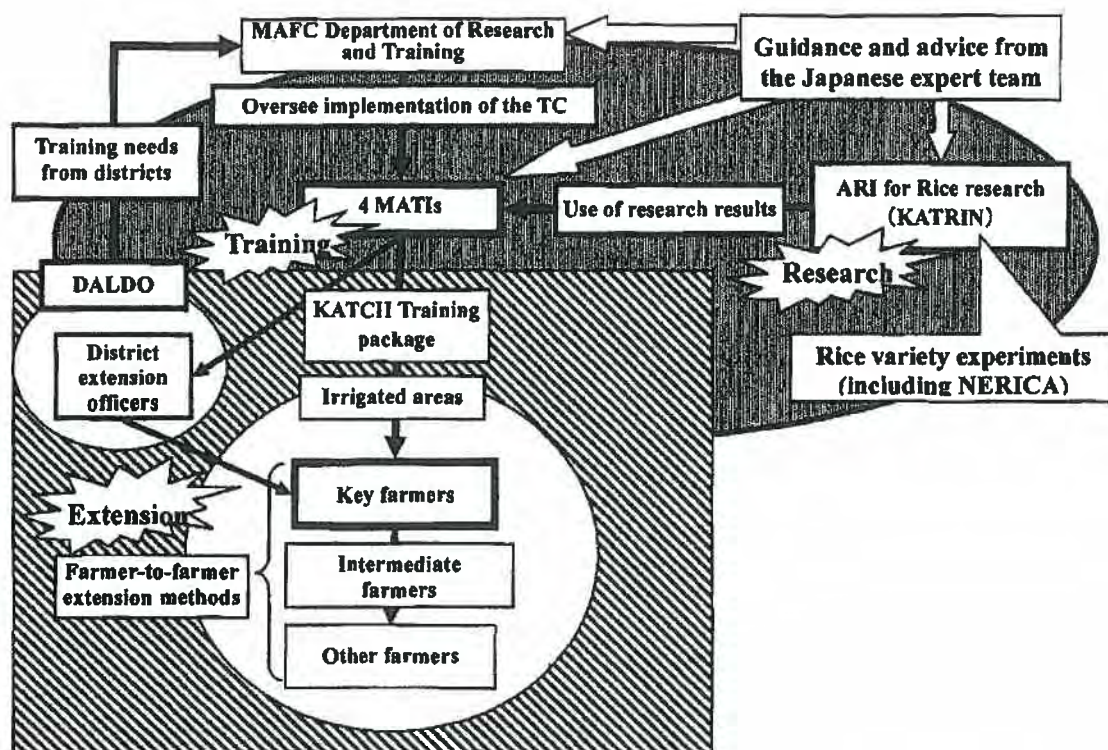
- To approve the Annual Work Plan of the TC.
- To review the overall progress and annual expenditure of the TC.
- To review and exchange views on major issues arising from or in connection with the TC.

## 2) Committee structure

- **Chairperson:** Permanent Secretary of the MAFC
- **Secretary:** Director of the DRT of the MAFC
- **Tanzanian side Task Group members:**
  - (MAFC representatives)
    - Assistant Director in charge of training of the DRT;
    - Representatives of DPP, DRT, DITS, and DCD;
    - ARIs and ZITSUs involved in the TC; and
    - Representatives of the MATI-KATC, MATI-Igurusi, MATI-Ilonga and MATI-Ukiriguru.
  - (Other Ministries)
    - Representatives of Ministry of Finance;
    - Representatives of Ministry of Water;
    - Representatives of Ministry of Natural Resources and Tourism; and
    - Representatives of PMO-RALG.
- **Japanese side Task member**
  - Experts of the TC;
  - Representatives, JICA Tanzania Office; and
  - Personnel concerned to be dispatched by JICA, if necessary.
- **Observers:**
  - Officials of the Embassy of Japan may attend the JCC meetings as observers.
  - The Chairperson may have persons relevant to the agenda participate in the JCC meetings.

## (2) TC implementation system

The TC implementation system is illustrated in the figure below.



TC implementation system chart

### (3) Monitoring and evaluation

The role of monitoring TC activities will be held every six months primarily by the DRT of the MAFC, who is the supervisory agency of the TC. Results will be synthesized in a monitoring report, and presented in a meeting of the Steering Committee constituted by practitioner, who will discuss possible approaches for dealing with the relevant issues and revisions to the activity plan. Similarly, results will be reported and discussed at the central level, in meetings of the Joint Coordination Committee (JCC). Monitored aspects, which will include performance towards accomplishment of the TC objective and of outputs, will be determined in detail after the launch of TC implementation.

Evaluation will be undertaken at the middle and during the last six months of the cooperation term by outsiders who are familiar with the TC. These evaluations will assess the progress of activities and achievements of the TC based on the five criteria: Relevance, Effectiveness, Efficiency, Impact and Sustainability. They will also serve to review the Logical Framework and to make the necessary amendments.

## Chapter 6 Justification of the TC

### 6-1 Relevance

This TC is judged to be highly advisable for the following reasons.

#### (1) Relevance of the TC and Japan's comparative advantage

The proposed TC will make good use of the past experiences, knowledge and know-how accumulated in Japan's long-term cooperation in supporting the agricultural sector of this country, especially irrigated agriculture development in Kilimanjaro Region (the KADC, KADP, and KATC project phase 1&2)<sup>3</sup>. Moreover, the proposed TC takes a wide perspective in combination with JICA's another contribution, the *Technical Cooperation for Formulation and Training of the DADP Guidelines on Irrigation Development*, which has been implemented under the initiative of the Department of Irrigation and Technical Services (DITS) of the MAFC. An important thing, among others, is that the Tanzanian Government has highly appreciated the results of the KATC Project phase 2 and made a strong request for expanding the results to other regions. In this respect, the proposed TC is relevant to implement as Japan's contribution to agriculture sector in Tanzania.

#### (2) Consistency with strategies of Tanzanian Government

The upper goal of the proposed TC is consistent with the policies and programs of the Tanzanian Government, such as the NSGRP, ASDS and ASDP and appropriate for the significance of agriculture, especially rice cultivation in this country. Introduction of rice cultivation is highly consistent with the national policy in that it will contribute to food security on the one hand and provide a model for modernizing smallholders.

##### (i) National Strategy for Growth and Reduction of Poverty (NSGRP)

The National Strategy for Growth and Reduction of Poverty (NSGRP), more commonly known by its Swahili acronym, MTUKUTA was developed as a new strategy for poverty reduction for the year 2005 to 2010. The NSGRP is different from the first Poverty Reduction Strategy Paper (PRSP) in that it places greater emphasis on economic growth and that it sets cross-sectoral goals focusing on the achievement, instead of setting the priority sectors. The NSGRP aims at achieving the target of economic growth rate 8-10% per annum, which would require significant increase in agricultural investment, given that agricultural sector takes up around 50% of GDP.

##### (ii) Agricultural Sector Development Strategy (ASDS)

In 2001, the Government formulated the Agricultural Sector Development Strategy

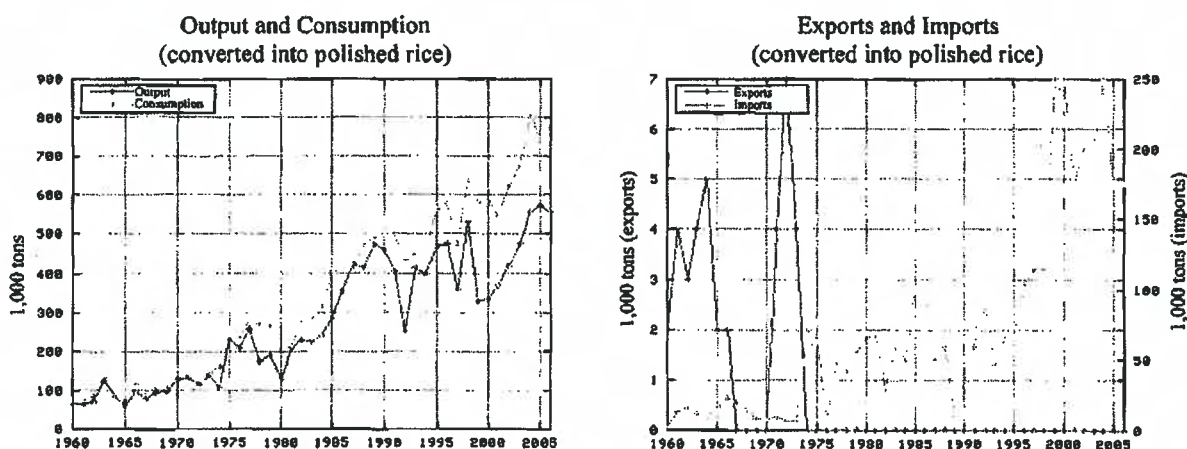
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<sup>3</sup> In 1974, the master plan for regional development in Kilimanjaro Region was formulated in the development survey under "The Kilimanjaro Agricultural Development Programme". Subsequently, the Kilimanjaro Agricultural Development Center (KADC) project was carried out in the period from 1978 to 1986 and another project was carried out under the Kilimanjaro Agricultural Development Programme (KADP) in the period from 1986 to 1993. In parallel with these projects, paddies and dry fields were developed and relevant facilities were provided with yen credit and grant aid of Japan. In the period from 1994 to 2001, a project was carried out under the Kilimanjaro Agricultural Training Center (KATC) Project and subsequently the Kilimanjaro Agricultural Training Center Project Phase II (KATCII) was carried out in the period from 2001 to 2006.

(ASDS), which aims at activating sustained growth of agricultural growth rate of 5% per year based on the three principles: 1) a focus on agricultural productivity and profitability; 2) the promotion of private/public sector partnerships; and 3) decentralized implementation through District Agricultural Development Plans (DADPs) as the comprehensive tool for agricultural development at district level.

(iii) Agricultural Sector Development Programme (ASDP)

The ASDP is designed to implement the ASDS and it is a main tool of the Agriculture Sector Leading Ministries for coordinating and monitoring agricultural development and for promoting the sector reform. To support the implementation of this programme, the Government and five Development Partners; the Government of Japan/JICA, European Union, Irish Aid, International Fund for Agricultural Development (IFAD), and International Development Association (IDA) have jointly formulated the ASDP basket fund in 2006. The proposed TC will be implemented under the framework of the ASDP.



Source : United States Department of Agriculture (USDA), PS&D View, April 2007

The situation of rice cultivation in Tanzania will be outlined as follows.

As shown in the above charts, rice production and consumption in Tanzania began to show rapid growth, especially in the 1980s, and rice has become a major cash crop in this country. Whereas the production has recently expanded to nearly 600,000 tons, the consumption is 800,000 tons, which exceeds the output. To fill this gap, more than 200,000 tons of rice is imported every year. Judging from this situation, it is clear that the promotion of rice cultivation is critically important for not only farms at the individual level but also in terms of food security at the national level. Moreover, if imports are reduced by expanding production, Tanzania will be able to save its foreign currency reserves.

(3) Consistency with Japan's Country Assistance Strategy and JICA's Country Assistance Program for Tanzania

At TICADIII, Japan presented its cooperative policy for Africa. This policy places the

promotion of rice cultivation, including NERICA, one of high priorities from the standpoint of food security. Moreover, as for assistance to Tanzania, Japan took up the agricultural sector, especially irrigation technology for rice cultivation as one of five priority areas in the Country Assistance Strategy (CAS) formulated in 2000. In addition, the proposed TC is regarded as “promoting agriculture and small enterprises”, which is one of five priority themes of JICA’s Country Assistance Program. Thus, the proposed TC is highly consistent with these strategy and program.

(4) Consistency with target group’s needs and properness of TC design

Given that Tanzania has just a short history of rice cultivation, the productivity of rice cultivation remains quite low. This situation suggests that farmers are still unskilled in rice cultivation. Training farmers in irrigated rice cultivation is strongly needed by smallholders as final beneficiaries of the TC.

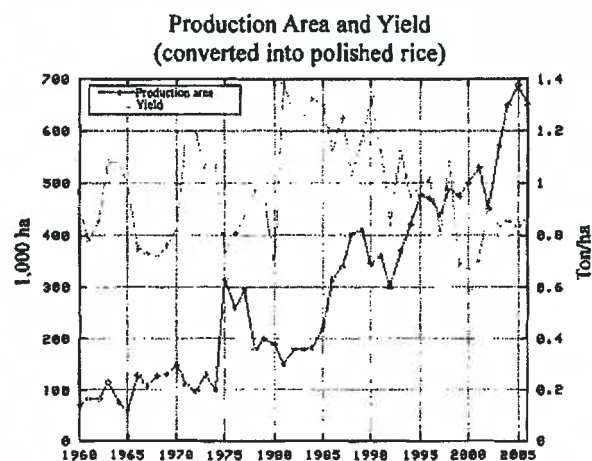
The KATC who has received support from Japan for a long time, qualifies for the proposed TC because it has established a unique and distinctive status among the Ministry of Agriculture Training Institutes (MATIs) specializing in irrigated rice cultivation and has trained farmers under the JICA projects.

Except for the KATC, the rest of the MATIs have conventionally trained young students who seek academic diploma in agricultural subjects and also provided extension officers with short-term training. However, in the context of agricultural service delivery reform under the ASDP, it is inevitable for these institutes to change their roles as training service providers who can directly deliver the service to the farmers.

To promote this change, the proposed TC, on top of the KATC, has selected the three MATIs (i.e., MATI- Ilonga, Igurusi and Ukiriguru) as implementation units of the activities, based on the assessment of their potential in irrigated agriculture as described in the previous chapter. Indeed, inclusion of these MATIs in its implementation system enables the TC to provide training to extension officers of LGAs and farmers of at least 40 irrigation schemes across Tanzania.

As shown in the following chart, the situation of rice cultivation in Tanzania is characterized by the fact that productivity has been stagnant or rather has tended to decline in recent years (1 ton/ha or less), though the area of irrigated land has expanded year by year. To change this trend, the Government of Tanzania needs to focus not only on irrigated rice cultivation but also on non-irrigated areas, given that irrigated lands produce only 8% of total domestic rice production, while uplands and rain-fed lowlands take up 20% and 72%, respectively. In other words, non-irrigated areas have a dominant share of rice cultivation. From this point of view, it is very rational that the proposed TC is designed to address promoting a research on upland rice varieties suitable for non-irrigated areas.





Source: UDSA PS&D View, April 2007

## 6-2 Effectiveness

### (1) Logic of the design of the TC

The proposed TC is to reinforce the service delivery systems of irrigated agriculture, especially rice cultivation technology, by disseminating the results of the KATC Project Phase 2 across the country through the MATIs. In addition, the TC aims to strengthen, cooperative relationships among research, training and extension institutes so that these institutes could effectively collaborate to respond to farmers' needs. These activities are logically set to achieve the Outcomes of the TC:

- (1) Rice cultivation practices are improved in priority irrigation schemes through the Farmer-to-Farmer extension approach; and
- (2) Cooperative linkages between Research, Training and Extension Institutes are strengthened for improving rice productivity.

It is apparent that achievement of the two of these outcomes will strengthen service delivery systems of irrigated agriculture, thus leading to increase the productivity of rice cultivation, which is the Purpose of this TC. Hence, it can be concluded that this TC is logically designed.

### (2) Contribution to capacity building of Districts

In order to successfully achieve the objectives of the ASDP, it is the urgent issue to build capacities of Districts for planning and implementing DADPs. To address this issue, this TC could significantly contribute by facilitating Districts and the four MATIs to organize training on irrigated rice cultivation for farmers as well as for extension officers as part of the DADPs.

### (3) Dissemination of the outcome of Japan's past cooperation in irrigated agriculture

The proposed TC will inherit and utilize know-how accumulated in the KATC Project phase 2 in terms of training manuals, training packages and the skills and teaching capabilities of the KATC instructors as continuous contribution. In this respect, the

proposed TC is very effective in strengthening and expanding the past results of cooperation across the country.

### **6-3 Efficiency**

#### **(1) Dispatch of Japanese experts to help build an efficient implementation system**

In order to cover at least 40 irrigation schemes throughout the country, this TC requires a practical implementation system to efficiently plan, implement, moreover monitoring and evaluate training programs. Needless to say, it is important to consider the specific socio-economic and natural conditions of each site and to utilize local resources. For this purpose for the proposed TC, three long-term experts are expected to be dispatched to give advice to the Task Group members.

#### **(2) Cost efficiency**

This TC aims at providing technical supports to the Districts to include the training program of irrigated rice cultivation for farmers and extension officers as part of their DADPs. This means that the training will be implemented efficiently using the budget of the ASDP basket, rather than relying solely on the off-budget provided by Japanese side, which would not contribute to ensure the financial sustainability of this training.

In addition, different from the KATC Project phase 2, in which the KATC instructors had to travel across the mainland to conduct the field training in the six model sites, the proposed TC could significantly curtail the travel costs by transferring the experience of the KATC to MATI-Ilonga, Igurusi and Ukiriguru.

#### **(3) Others**

As for indicators and means of verification of the indicators shown in the Logical Framework, it is necessary to review the contents in the beginning or in the middle of the cooperation period in order to reflect the realities into the implementation plan of the TC and to share the same understanding with the stakeholders.

### **6-4 Impact**

#### **(1) Prospect of achieving the Overall Goal**

The direct purpose of the proposed TC is to improve irrigation agriculture, especially the quality of technical extension services for rice cultivation and rice productivity in irrigated areas. If the improvement of rice productivity is demonstrated by the proposed TC, the technology of rice cultivation of the TC will be further disseminated across the country. In a longer perspective, the proposed TC will contribute to poverty reduction and food security in Tanzania by assisting the Government to attain the goal of the ASDP, namely qualitative improvement and area expansion of irrigation agriculture.

#### **(2) Social impact**

The proposed TC aims at not only transferring rice cultivation techniques to farmers through mainstreaming gender equity issues in the training process. For example, the TC will require that training participants in one irrigation scheme must comprise 50% of

women and another 50 % of men. In addition, the TC will aim at changing gender roles in the community by providing gender training, in which the farmers learn importance of sharing not only the productive work (i.e., rice cultivation on the field) but also reproductive work (e.g., household, collecting firewood, and fetching water). Further more, the farmers will be given an opportunity to learn the family budgeting for properly planning use of the revenue from the productive work throughout a year. Such training could ensure that male and female farmers will equally share the benefit of the TC and improve the livelihood of the smallholders, far better than a simple technical transfer of rice cultivation.

(3) Economic impact

As demonstrated in the phase 2 of the KATC Project, it is predictable that rice yield increase substantially under the irrigation scheme for the 40 irrigation schemes, which are to be selected in the proposed TC. In addition, with the District Irrigation Development Fund (DIDF) and the National Irrigation Development Fund (NIDF), it can be expected that the irrigation scheme will expand the irrigated areas and thus leading to further increase rice production . Moreover, if the farmers outside the 40 irrigation schemes participate in the field day and field visit events to be held in the selected schemes, the proposed TC could be expected to have a ripple effect on other irrigation schemes.

(4) Others

In a same manner demonstrated in the KATC Project phase 2, the proposed TC is designed to provide farmers with practical training in an understandable way so that they will be able to promptly put the results of training into practice. However, the key to successful training is how instructors can give appropriate advice to meet various needs of farmers in different situations. Moreover, like the second phase of the KATC Project, it is envisaged that the proposed TC would substantially depend on the presence of leaders in promoting rice cultivation, including key farmers, and also stable weather condition, the presence of markets, rice prices, agricultural input and the presence of rice polishers.

## 6-5 Sustainability

(1) Technical aspect

If farmers and government officials concerned acquire knowledge and experience in irrigated agriculture and have confidence in them and apply their knowledge and experiences to their respective businesses or improve their standards of living, the independent development of TC activities can be expected to a considerable degree in technical terms.

(2) Institutional aspect

If the KATC and other implementing and cooperative agencies promote the activities of the TC technically improve their services fitting the needs of recipients, the farmers would evaluate these organizations and agencies higher. However, regarding the institutional sustainability, as pointed out in the terminal evaluation of the KATC

Project phase 2, it will depend on whether the TC could convince agricultural and planning officers of Districts that the TC's training package is worth spending scarce DADP funds to increase rice productivity and whether the TC could establish a way of including the training program in DADPs. In other words, it will depend on if the TC could establish an effective coordinating and communication mechanism between the Districts and the four MATIs including the KATC.

### (3) Financial aspect

It is impossible for the MATIs to financially manage the organizations as a whole just with revenue from the training services. To improve the financial sustainability of these institutes, the Tanzanian Government will need to continuously allocate appropriate amount of budget to each of the MATIs, while setting the reform of the training institutes under the ASLMs including the MATIs as a mainstream agenda of the ASDP framework.

## 6-6 Conclusion

The results of the assessment of the proposed TC with the five criteria: Relevance, Effectiveness, Efficiency, Impact, and Sustainability are summarized as follows. First of all, the proposed TC is highly relevant because: 1) Japan has a competitive advantage in the field of irrigated agriculture in Tanzania, as shown in the past cooperation in Kilimanjaro Region and across the mainland; 2) the objective of the TC is consistent with the national strategies and policies of the Tanzanian Government; 3) It is also consistent with Japan's CAS and JICA's Country Assistance Programme for Tanzania; and 4) There are needs to improve irrigated rice cultivation practices of smallholders to improve their income and to ensure food security in Tanzania..

Second, the proposed TC has high effectiveness, given that the activities are properly and logically designed to achieve the Purpose by fully applying Japan's past cooperation in the field of irrigated agriculture. In addition, the TC is expected to contribute to enhancing the capacities of Districts for planning, implementing, monitoring and evaluating the DADPs, which is the urgent issue for the success of the ASDP, through the four MATIs including the KATC.

Third, the TC will be an efficient intervention in terms of its training implementation system using the four MATIs as core implementation units and with the assistance of Japanese advisors. In addition, as opposed to the second phase of the KATC Project, the proposed TC can enjoy higher cost efficiency by reducing the travel expenses by sharing the jurisdictional areas for delivering training services to the farmers among the four MATIs.

With regard to the impact of the TC, though it cannot be precisely predicted at this moment, a positive socio-economic changes are expected. By improving rice productivity in the forty irrigation schemes covered by the TC, in a mid-term perspective, it is predictable that the rice cultivation technology will be further disseminated beyond the forty schemes covered by the TC. In addition, the TC could change the farmers' perception on the gender roles in productive and reproductive work and promote equal sharing of the benefit of rice cultivation between men and women, thus leading to improve living standards of smallholders. Furthermore, the Tanzanian Government could use the DIDF and NIDF as a leverage to boost rice production with the rice cultivation technology of the TC to achieve poverty reduction

and food security of this country.

Finally, the result of assessing sustainability of the TC is rather complex as opposed the rest of the criteria. While high technical sustainability is predicted as the KATC Project phase 2 has already demonstrated, the institutional sustainability of the training services depends on whether the TC could establish the way of including the training program in DADPs. What is more, in order to achieve the overall sustainability of this TC, it is inevitable for the Tanzanian Government to address the financial sustainability of the MATIs who are the implementation units of this TC.

In conclusion, the preparatory study team, through this assessment, confirmed high relevance, effectiveness, efficiency and technical sustainability and predicted the positive socio-economic impact of this TC. In addition, the study team is highly confident that the Task Group members and Japanese experts would establish the ways to plan the training program as part of DADPs throughout the cooperation period, and thus ensuring the institutional sustainability. Hence, as a whole, the study team recommends the Tanzanian Government and JICA to jointly implement this TC. In the meantime, however, to ensure the financial sustainability of the TC, the study team also recommends the Tanzanian Government allocating continuously necessary amount of budget to the MATIs and initiating the reform of training functions of the ASLMs as part of the ASDP.