

## Ex-ante Evaluation (for Japanese ODA Loan)

### 1. Name of the project

Country: The United Republic of Tanzania  
Project: Small Scale Irrigation Development Project  
Loan Agreement: May 30, 2013  
Loan Amount: 3,443 million yen  
Borrower: The Government of the United Republic of Tanzania

### 2. Background and Necessity of the Project

#### (1) Current State and Issues in the Agricultural Sector in Tanzania

The agricultural sector accounts for about a quarter of the United Republic of Tanzania's GDP, approximately one-fifth of its exports, and sustains the livelihood of two-thirds of its population. In addition, more than three quarters of the poor are engaged in this sector. A large variety of crops are grown throughout Tanzania, but much of its land remains uncultivated despite having relatively abundant water resources compared to other sub-Saharan African countries. Unfortunately, the country's great potential for further agricultural and irrigation development remains untapped due to a lack of funding. Only 0.37 million ha (2011/12) of the country is irrigated, which is just over a mere 1% of the potential of 29.4 million ha available for development. Even today, rain-fed subsistence agriculture accounts for the majority production of the sector, though the agriculture is less productive and vulnerable to irregular and unstable precipitation. The government of Tanzania is modernizing and commercializing its agricultural sector to make the transition from subsistence agriculture to more profitable farming. The country hopes to achieve a significant boost in agricultural productivity by developing its irrigation to ensure an ample and stable water supply, combined with the introduction of better seeds, fertilizers, and the appropriate technology of cultivation. Areas with high potential for irrigation stand at around 2.10 million ha<sup>1</sup>. The irrigation development of numerous hitherto undeveloped areas (despite their potential) is a pressing task for this country.

#### (2) Development Policies for the Agricultural Sector in Tanzania and the Priority of the Project

Agriculture lies at the core of poverty reduction and enhanced food security in Tanzania's National Strategy for Growth and Reduction of Poverty II (known as "MKUKUTA II" in Swahili) for the years 2010 through 2014. The strategy aims to irrigate 30,000 ha annually in order to break away from rain-fed subsistence agriculture. With Japan's assistance, the Agriculture Sector Development Program (ASDP) was created for the years 2006 through 2013 to enhance the agricultural productivity and income of farmers as a part of a sector-wide approach (SWAp). Under this program, a basket fund was set up to implement projects such as ones to increase the capabilities of farmers, to improve agricultural services (research and dissemination), irrigation and other infrastructure, as well as marketing practices. Moreover, in 2009, Tanzania developed the National Rice Development Strategy (NRDS) as one of the twelve First Group countries in the Coalition for African Rice Development (CARD), seeking to double their rice production in Sub-Saharan Africa. Tanzania promotes irrigation development in accordance with the strategy to achieve its goal of doubling annual rice production within a decade, from 0.899 million tons in 2008 to 1.963 million tons in 2018. Projects that align with these development policies in Tanzania are given high priority.

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<sup>1</sup> Source: JICA Report, "The Study on National Irrigation Master Plan," 2002

### (3) Japan and JICA's Policy and Operations in the Agricultural Sector

In the TICAD IV Yokohama Action Plan (2008), Japan focused on enhancing food production and agricultural productivity by identifying agricultural and rural development as one of the priorities. Japan's country assistance policy for Tanzania (June 2012) emphasizes economic growth for poverty reduction. According to the policy, JICA's assistance in the agricultural sector centers around a cooperation program to increase the capabilities of organizations and human resources for promoting ASDP ("Program of ASDP"), and the cooperation program (2011–2018) for facilitating CARD, particularly in boosting rice production according to the NRDS. The intended project is a part of the latter, "Program of Strengthening Rice Production", which aims to help Tanzania boost rice production from 0.899 million tons in 2008 to 1.963 million tons in 2018, according to the NRDS target<sup>2</sup>. Financial aid (both grants and loans) is combined with technical cooperation to boost rice production through (1) the expansion of irrigated areas by facilitating irrigation development and training irrigation engineers, and (2) widespread application of productivity-boosting techniques in irrigated rice farming. As a way to develop irrigation at the field level in activity (1), Project for Capacity Development for the Promotion of Irrigation Scheme Development Under the District Agricultural Development Plan (DADP) (hereinafter called the Irrigation Technical Cooperation) is being implemented from 2010 to 2014. In this project, implementation capacity was reinforced at each irrigation technical service unit in seven zones in Tanzania (hereinafter called zonal irrigation office) in order to build the capacity of irrigation engineers of each district to plan and implement projects, operate irrigation systems, and maintain and manage facilities, as they play central roles in the implementation of irrigation projects in their respective districts. Also, an expert was dispatched to Arusha Technical College to strengthen its capacity to foster new irrigation engineers (individual dispatch of an expert from 2011 to 2014). As an example of Activity (2), from 2012 to 2018, the Kilimanjaro Agricultural Training Center and six other centers throughout Tanzania are serving as hubs to boost rice productivity by providing training on irrigated rice cultivation, and strengthening value chains in the rice industry in the Project for Supporting Rice Industry Development in Tanzania (hereinafter called Rice Promotion Technical Cooperation). Grant Assistance for Underprivileged Farmers (2KR) was provided in 2010 and 2013 for the procurement of necessary agricultural inputs. The project was intended for the expansion of irrigated area, as mentioned in (1).

Another technical cooperation project (2012–2016) aims to enhance the quality of district agriculture development plans (DADP), as key components of the ASDP (Project for Strengthening the Backstopping Capacities for the DADP Planning and Implementation under the ASDP Phase II). Project for Capacity Development for the ASDP Monitoring and Evaluation System Phase II is also being carried out from 2011 to 2015. In addition, JICA participates in policy dialogues with the Tanzanian government and donors involved in the agriculture sector to promote institutional reforms.

### (4) Other Donors' Activity

ASDP, developed for the agriculture sector in Tanzania and based on SWAp, is at the core of the country's agricultural development. The World Bank, IFAD, AfDB, Irish Aid, and JICA contribute to the ASDP Basket Fund. Among these five donors, the World Bank is the largest contributor, having provided loans totaling 155 million dollars since 2006 for assisting in the ASDP. In its country-specific aid strategy, the bank prioritizes commercialization of agriculture and enhancement of the productivity.

### (5) Necessity of the Project

Assistance in implementing this project is highly necessary and relevant as the intended agricultural development, particularly through the expansion of irrigated areas, addresses the challenges faced by Tanzania, and is in line with the development policy of Tanzania, as well as the assistance policy and analysis of Japan and JICA.

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<sup>2</sup> The target is jointly achieved with assistance by other donors.

### 3. Project Description

#### (1) Project Objectives

The Project is to construct new irrigation facilities; rehabilitate existing facilities: and procure the necessary materials and equipment in mainland Tanzania, aiming to boost agricultural productivity, mainly of rice, thereby enhances the livelihood of small-scale farmers and helps reduce poverty.

#### (2) Project Sites/Target Area

Mainland Tanzania (About 70 sites are anticipated with a total irrigated area of 52,800 ha and with 132,000 beneficiary farmers. The number of sites will be confirmed after the determination of sub-projects.)

#### (3) Project Components

The Sub-projects are selected among small-scale irrigation development projects appraised and approved by the District Irrigation Development Fund Committee<sup>3</sup> in accordance with the Project's selection criteria (e.g., economic rate of return and environmental impact) and confirmed after JICA's concurrence (Thus, the Project is categorized as "Sector Loan"). The key components of the Project are as follows:

- 1) Civil engineering (construction and rehabilitation of irrigation facilities, head works (weir length of 20 m or less), main and secondary canals, etc.)
- 2) Procurement of equipment for designing, construction, and monitoring (including vehicles) by zonal irrigation offices and districts.
- 3) Consulting services for assisting in the designing, construction, and monitoring of irrigation facilities by zonal irrigation offices and districts)

#### (4) Estimated Project Cost

3,785 million yen (Loan Amount: 3,443 million yen)

#### (5) Schedule

May 2013 to March 2017 (47 months in total). Project completion is defined as when the facilities are put into service (March 2017).

#### (6) Project Implementation Structure

- 1) Borrower: The Government of the United Republic of Tanzania
- 2) Guarantor: None
- 3) Executing Agency:  
Ministry of Agriculture, Food Security and Cooperatives (hereinafter called the Ministry of Agriculture)
- 4) Operation and Maintenance:

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<sup>3</sup> Under the ASDP, the National Irrigation Development Fund (NIDF) was set up for medium- and large-scale irrigation development, and the District Irrigation Development Fund (DIDF) was set up for small-scale irrigation development. The DIDF Committee comprises the Ministry of Agriculture, Ministry of Livestock and Fisheries Development, Ministry of Industry and Trade, Prime Minister's Office – Regional Administration and Local Government, and Ministry of Finance. The committee approves proposals for irrigation development projects submitted by individual districts.

After completion, the maintenance of irrigation facilities will be handed over from local government authorities (districts) to Irrigators' Organizations<sup>4</sup>.

(7) Environmental and Social Consideration/Poverty Reduction/Social Development

1) Environmental and Social Consideration

(i) Category: FI

(ii) Reason for Categorization: The sub-projects cannot be specified prior to JICA's approval for financing, and they may have environmental impacts under the JICA Guidelines for Environmental and Social Considerations (April, 2010).

(iii) Other/Monitoring:

In the Project, the executing agency will individually categorize sub-projects in accordance with the legal system of Tanzania and JICA's Guidelines for Environmental and Social Considerations. They will then take the required measures for the respective categories. Note that there will be no sub-projects classified as Category A.

2) Poverty Reduction

The beneficiaries of these projects are poor, small-scale farmers who account for about 80% of the rural population of Tanzania. Adequate consideration is given to poverty reduction, as the project aims to increase the income of underprivileged farmers by developing irrigation.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Person with Disability etc.)

The organizational capacity of Irrigators' Organizations is being reinforced by irrigation engineers from zonal irrigation offices and each district through the ongoing Irrigation Technical Cooperation. Thus, the participation of beneficiaries is encouraged at each project site.

(8) Collaboration with Other Donors

The Project is co-financed (parallel loan) with the World Bank. The Project fund will be transferred to the development account of each municipality (district) through the ASDP Basket Fund. With utilizing the basket fund framework, JICA retain its position as the basket fund donor and participating in policy dialogues regarding irrigation and other agricultural developments in Tanzania with other donors.

(9) Other Remarks

The Project will develop facilities to make irrigated water available for small-scale farmers, who had to rely on rainwater. Stable and efficient access to an agricultural water supply will help them adapt to climate change.

**4. Targeted Outcomes**

(1) Quantitative Effects

1) Operation and Effect Indicators

Indicators	Baseline (Actual value in 2013)	Target (2020) [Three Years after Project Completion]
Beneficiary area (ha)	15,800	52,800
Crop acreage (ha)	50,688	79,200

<sup>4</sup> Irrigators' Organizations will operate, maintain, and manage completed irrigation facilities in line with the National Irrigation Policy (2010) of the government of Tanzania. The necessary costs for the operation and maintenance is covered by the water fee collected from organization members (5% of their products).

Collection rate of irrigation water charge (%)	15–75	70
Production of key crops (ton/year)	51,480	242,880
Yield of key crops (ton/year)	2.0	4.0
Agricultural gross income per household (yen/year/household)	30,610	102,700

Note 1) The baseline and target were estimated from the total and average figures based on the data from the current candidate sites of sub-projects. These figures will be revised based on the baseline survey after the sub-projects are determined.

Note 2) The baseline survey should ideally be conducted within six months after the sub-projects are determined. The survey will be based on interviews conducted by each district through irrigators' organizations with necessary assistance from zonal irrigational offices. The results will be compiled by the Department of Irrigation and Technical Services which will be then reported to JICA through the Project Status Report.

Note 3) Crop acreage will be indicated not only in total, but also specifically with rice as a key crop.

Note 4) Production of key crops is indicated for rice and other key crops ranked high in the baseline survey.

## 2) Internal Rate of Return

The rate is not calculated during the appraisal, as sub-projects have not been determined (the economic internal rate of return, or EIRR, is identified once the sub-projects are determined. Still, selected sub-projects must always have a rate of 12% or greater). Note that the EIRR is calculated for each sub-project based on the following assumption in accordance with the Comprehensive Irrigation Guidelines for DADPs, which provide guidance for project planning and management of irrigation development.

[EIRR]

Cost: Project cost (excluding tax), and maintenance and management cost

Benefit: Profit from increased yield

Project life: 30 years

## (2) Qualitative Effects

Poverty reduction and improved living environment

## 5. External Factors and Risk Control

None in particular

## 6. Lessons Learned from Past Projects

### (1) Results of Evaluation of Similar Past Projects

The ex-post evaluation of the Lower Moshi Agricultural Development Project in Tanzania (yen loan, 1982) tells us that the sustainability of the project outcomes crucially depends on incentives for farmers to maintain their equipment, and consolidation of their financial standing by working through associations. Another finding points out that a sustained increase in agricultural productivity requires assistance both in the form of infrastructure (water resource development and maintenance of irrigation facilities) and knowledge (organization and reinforcement of irrigation associations; training on operation and maintenance; guidance on farming management, and human resource management).

### (2) Lessons for the Project

Proper maintenance of completed facilities is crucial for sustaining the outcomes of this project. Keeping in mind the abovementioned lessons learned, the project is implemented in collaboration with the ongoing Irrigation Technical Cooperation and Rice Promotion Technical Cooperation to ensure

increased yield through dissemination of better rice cultivation techniques as an incentive for farmers, as well as to strengthen the capacity of irrigation associations and consolidate their operational and financial basis.

## **7. Plan for Future Evaluation**

### (1) Indicators to be Used

Beneficiary area (ha)

Crop acreage (ha)

Collection rate of irrigation water charge (%)

Production of key crops (ton/year)

Yield of key crops (ton/year)

Agricultural gross income per household (yen/year/household)

Economic internal rate of return (EIRR) %

### (2) Timing

Three years after project completion