

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: Republic of Tunisia
Project: Mejerda River Flood Control Project
Loan Agreement: July 17, 2014
Loan Amount: 10,398 million yen
Borrower: The Government of the Republic of Tunisia

2. Background and Necessity of the Project

(1) Current State and Issues of the Flood Control Sector of Tunisia

Rainfall in Tunisia is low, with a national average of 500 mm a year. A half of its land is under a semi-arid climate. The Mejerda River, located in the northern part of Tunisia, is the only river in the country that flows year-round (stream length within the country is 312 km, and the domestic population of the basin is approximately 1.33 million¹). The relatively high precipitation compared to other parts of the country and fertile land in the basin allow active agricultural production and food supply through wheat production and stock raising (cattle, goat, etc.), as well as economic activities such as food processing (olive oil, cheese, and tomato puree). Agriculture in the basin is, therefore, playing an important role in Tunisia's economy and food security.

Meanwhile, localized torrential downpours have occurred frequently in the northern part of Tunisia in recent years, including in the area where the Mejerda River flows, and caused major flood damage (in 2000, 2003, 2004, 2005, 2009, and 2012). Among these floods, the disastrous flood in January 2003 resulted in 27,000 evacuees and several fatalities, damaged crops, houses and other buildings, and blocked roads, causing serious social and economic damage to the nation. Another large scale flood occurred in February 2012, resulting in five fatalities and inundation damage to 22,000ha of agricultural land.² This flood, which occurred after the revolution in January 2011, raised the demands of the people, who were facing social and economic disruption due to the revolution, on the Government concerning flood controls along the Mejerda River. These large-scale floods go beyond causing damages for physical losses in agricultural crops, infrastructure, houses, etc., and result in economic and social losses, such as economic stagnation and an increase in poverty triggered by the disasters. Hence, these floods are among the risk factors for achieving sustainable development in Tunisia and must be addressed.

(2) Development Policies for the Flood Control Sector in Tunisia and the Priority of the Project

The Government of Tunisia identified reducing flood damage as a priority area under the "11th Five-Year Socioeconomic Development Plan (2007 to 2011)." The Government also listed environmental conservation and sustainable development as priority areas under the successor "Five-Year Socioeconomic Development Plan (2012 to 2016)," and identified this Project as a priority. While no national development plan

¹ Source: The Study on Integrated Basin Management and Flood Control Project for Mejerda River in the Republic of Tunisia (JICA).

² Source: Same as above.

is in force at present, it is clear that this Project is considered as a national project based on the following and other grounds: Budgetary measures for this Project have been taken under the 2014 Budget Act; and President Marzouki requested support for this Project to Prime Minister Abe during the Fifth Tokyo International Conference on African Development (TICAD V).

(3) Japan and JICA's Policy and Operations in the Flood Control Sector

In the Country Assistance Policy for the Republic of Tunisia, “environmental conservation, addressing climate change, and disaster prevention” is a cooperation program under the priority sector of “sustainable industry development.” Support for river flood control is consistent with the assistance policies of Japan and JICA, and is also in accordance with the support areas of Japanese ODA Loans for middle income countries, namely “environment” and “disaster prevention and countermeasures.” At the “World Ministerial Conference on Disaster Reduction in Tohoku,” held in July 2012, Japan declared its determination to lead international efforts on disaster prevention. Japan is also actively promoting the “Hyogo Framework for Action 2005-2015.” Furthermore, international use of Japan’s expertise in disaster prevention was mentioned in the “Emergency Economic Measures for The Revitalization of the Japanese Economy” (January 2013).

Following are the Japanese ODA loan projects in the flood control sector in Tunisia provided in the past: The “Flood Control Project in Urban Areas (Fiscal 1997, Loan Amount 3,130 million yen) (completed)” and the “Greater Tunis Flood Control Project (Fiscal 2007, Loan Amount 6,808 million yen) (on-going)”. As for technical cooperation, a Development Study entitled “The Study on Integrated Basin Management Focused on Flood Control in Mejerda River in the Republic of Tunisia” was conducted over two years from 2006. Furthermore, through the preparatory survey under this Project, Japanese expertise in climate change and disaster prevention (Climate change impact assessment and run-off analysis) was shared with government officials and researchers in Tunisia.

(4) Other Donors' Activities

Regarding other donors' projects in the area of flood control, the African Development Bank (AfDB) and the World Bank (WB) have previously been providing support.

AfDB has assisted the Department of Urban Hydraulics of the Ministry of Infrastructure, Spatial Planning and Sustainable Development through the “Greater Tunis Flood Control Study (Etude de Protection contre les Inondations du Grand Tunis)” (Phase I)³ in 2005, and the “Study for Protection Against Floods in Northern and Western part of Tunis (Feasibility Study)⁴” in 2012.

³ Measures for flood control in Tunis City were examined in this study. The downstream basin of the Mejerda River was not included in the target area.

⁴ The target area of this study included Tunis City and a part of the Mejerda River basin downstream from the highway that links Tunis and Bizerte (this highway crosses the Mejerda River at 16.017 km upstream from the mouth), and this area is partially included in the D2 zone. However, this Project is coordinated with the Ministry of Infrastructure, Spatial Planning and Sustainable Development regarding the repair of the river channel upstream of the Kalâat el-Andalous bridge, and accordingly, there should not be any duplication of civil works between the

The WB provided financial support of 42 million USD in 1977 for the Sidi Salem Multipurpose Project. The Bank also supported recovery and rehabilitation from the flood damage that occurred in Sfax City in central Tunisia in 1982. Out of the 48 million USD project fund for flood control, the Bank provided 25 million USD for the repair of embankments, development of drainage canals, support to neighboring municipalities for recovery, and for other purposes.

(5) Necessity of the Project

The Mejerda River basin, which is the target area of this Project, is an area actively involved in economic activities such as wheat production, livestock farming and food processing. The basin plays an important role in the country's economy in terms of agricultural production, food supply, and creation of employment. Flood damage has occurred frequently in the area in recent years, thus flood control for the Mejerda River is a pressing challenge that needs to be addressed to enable smooth economic development in Tunisia. Japan has been making an intellectual contribution by utilizing its expertise in disaster prevention through provision of support for master plan development, etc. In addition, this Project is in line with the development policies of Tunisia as well as with the assistance policies of Japan and JICA. JICA's support for implementation of this Project is, therefore, highly necessary and relevant.

3. Project Description

(1) Project Objective

The objective of the Project is to improve flood control functions in the basin of the Mejerda River by infrastructure improvement including river improvement, thereby contributing to reducing flood damage and improving the living environment of the local residents.

(2) Project Site / Target Area

Downstream basin of the Mejerda River (Governorates of Ariana, Manouba, and Bizerte)

(3) Project Components

1) Details of civil works, procurement of equipment, etc.

(i) Civil works (International Competitive Bidding)

- (a) Construction work for river improvement ((i) Lot 1: 34.2 km, Lot 3: 26.2 km, (ii) Construction of embankments, excavation of river channels, repair and new construction of bridges (six sites))
- (b) Construction work to improve the functions of El Mabtough retarding basin ((i) Lot 2: 23.2 km, (ii) Flood control canals, drainage canals, overflow weirs (two sites), repair and new construction of bridges (nine sites))
- (c) Supply and Installation of Hydro mechanical equipment (Lot 4: 41 sites)

Ministry of Agriculture and the Ministry of Infrastructure, Spatial Planning and Sustainable Development.

- (ii) Equipment to be procured (Local Competitive Bidding)
 - (a) Procurement of vehicles to be used for project supervision (Lot 5)
- 2) Consulting services
Detailed Design (D/D), Tender Assistance, Construction Supervision, support for developing an effective operational plan for existing non-structural measures (Dam management system, system for evacuation and flood control) (Short list method)
- (4) Estimated Project Cost

13,426 million yen (ODA Loan Amount: 10,398 million yen)
- (5) Schedule

July 2014 - September 2023 (111 months). The Project will be considered to be complete upon completion of the civil works (September 2022).
- (6) Project Implementation Structure
 - 1) Borrower: The Government of the Republic of Tunisia
 - 2) Executing Agency: Ministry of Agriculture (General Directorate of Dams and Large Hydraulic Works (Direction Générale des Barrages et des Grands Travaux Hydrauliques) under the Ministry, hereinafter referred to as “DG/BGTH,” will be in charge of this Project.)
 - 3) Operation and Maintenance System: The Regional Offices of Agriculture Development under the Ministry of Agriculture will undertake the operation and maintenance.
- (7) Environmental and Social Considerations, Poverty Reduction, Social Development
 - 1) Environmental and Social Considerations
 - (i) Category: B
 - (ii) Reason for Categorization: The Project is not located in a sensitive area, nor has it any sensitive characteristics, nor does it fall into sensitive sectors under the JICA Guidelines for Environmental and Social Considerations (promulgated in April 2010), and its potential adverse impact on the environment is not likely to be significant.
 - (iii) Environmental Permits: The Environmental Impact Assessment (EIA) report concerning the Project is currently being prepared by the Ministry of Agriculture, and is expected to be approved by National Agency for the Protection of the Environment by the end of 2014.
 - (iv) Anti-Pollution Measures: A large amount of excavated soil will be generated

through the excavation and widening of the flood plain⁵ along the Mejerda River by this Project. Portions of the excavated soil that can be reused as material for embanking will be used preferentially and effectively. The negative impact of the surplus soil will be minimized by ensuring transportation to and treatment at dumping grounds, after confirming compliance with the domestic laws of Tunisia.

- (v) Natural Environment: The target area is located upstream from a wetland registered under the Ramsar Convention. However, all civil works under the Project will be conducted on flood plains where water is not flowing. Hence, no effect is expected on the river, and potential adverse impacts on the natural environment are not likely to be significant.
 - (vi) Social Environment: Land acquisition (232 ha) and resettlement of residents (two households) associated with the Project will proceed in accordance with the JICA Guidelines for Environmental and Social Considerations and the land laws of Tunisia.
 - (vii) Monitoring, etc.: Under this Project, the DG/BGTH will conduct monitoring on aspects such as water contamination while construction is in progress, and on aspects such as natural habitats after the facilities are transferred.
- 2) Promotion of Poverty Reduction: None in particular
 - 3) Promotion of Social Development (gender issues, measures against AIDS and other infectious diseases, participatory development, consideration for the disabled, etc.): None in particular
- (8) Cooperation with Other Donors: The results of the preparatory survey (Analysis and simulation of runoff by the University of Tokyo) were shared not only with the concerned officials of Tunisia, but also with those from other countries through seminars and other events. Furthermore, a seminar on disaster prevention for administrative officers of the target area of this Project was conducted in October 2014 in order to present measures to reduce flood damage and measures to be taken at the time of a flood disaster, based on the experience of Japan (community-based disaster prevention in particular).
- (9) Other Important Issues: This Project is considered to contribute to climate change “adaptation.”

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators

Indicator	Baseline value (2012) (Flood of a scale of a ten-year probability)	Target value (2024) [Two years after project completion]
Maximum area inundated by floods in a year (ha)	9,137	4,171

⁵ A flood plain is a part of riverside land (the area in between embankments) that is one level higher than the low-water channel (the course of the river under normal conditions).

Maximum number of houses inundated in a year (houses)	10,975	0
Annual maximum stream flow (m ³ /second)	The executing agency will continue the observations.	

2) Internal Rates of Return

Based on the conditions indicated below, the Economic Internal Rate of Return (EIRR) of the Project is 29.1%. Financial Internal Rate of Return (FIRR) is not calculated.

[EIRR]

Cost: Project cost (excluding tax), operation and maintenance expenses

Benefits: The value of flood damage reduction

Project life: 50 years

(2) Qualitative Effects: Improvement of the living environment of the local residents

5. External Factors and Risk Control

Deterioration of political and economic conditions in Tunisia and around the target area of the Project, delays in project implementation due to natural disasters and other factors.

6. Results of Evaluations and Lessons Learned from Past Projects

(1) Results of Evaluation of Similar Projects

A lesson has been learnt from the ex-post evaluation results of the “Flood Control Project in Urban Areas” of Tunisia and other sources. By examining the changes to external conditions (the scale of the flood that occurred in 2003) closely and in a timely manner, and providing effective feedback for the detailed design of the said project, the damage caused by the torrential rain in 2007 was minimized. Furthermore, lessons from the ex-post evaluation results of the “Lower Agusan Development Project (Flood Control Component - Phase II)” of the Philippines and other sources indicate the necessity of providing proper explanations to local residents and holding public hearings at an early stage, in order to build a consensus smoothly between the executing agency and the people concerned on issues such as land acquisition.

(2) Lessons Applicable to the Project

Based on the above lessons, the Project will take flexible and timely measures when there is a change in external conditions, and will take care to ensure that effective feedback is provided for the detailed design. Concerning the land acquisition and resettlement of the residents, the Ministry of Agriculture has taken early action by holding meetings to inform the residents during the preparatory survey. Residents are also informed during cadastral surveys and environmental impact assessment studies.

7. Plan for Future Evaluation

(1) Indicators to be Used for Future Evaluation

- 1) Maximum area inundated by floods in a year (ha)
- 2) Maximum number of houses inundated in a year (households)
- 3) Annual maximum stream flow (m³/second)

(2) Timing: Two years after project completion

(End)