

Ex-ante Evaluation

1. Name of the Project

Country: The Republic of Tunisia

Project: Greater Tunis Flood Control Project

(Loan Agreement: March 31, 2008; Loan Amount: 6,808 million yen; Borrower: The Government of the Republic of Tunisia)

2. Necessity and Relevance of JBIC's Assistance

Tunisia is a country where most of the land is either in a semi-arid or arid zone. However, during the rainy season (September–March), once every few years, the country falls victim to large-scale torrential rains. In northern and central parts of Tunisia, wadis (dry streams) become swollen, sometimes triggering a flood disaster in the surrounding area. In recent years, Tunisia has frequently experienced torrential rains, which may be considered an effect of climate change. In 2000, 2001 and 2003, particularly large floods triggered by heavy rains broke out in the greater Tunis area of northern Tunisia and the nearby lower river regions, causing widespread inundation damage. Additionally, as a result of rapid urbanization and the accelerated pace of development, as reflected in the reclamation of wadis for road development, housing construction in flood-prone districts, and so on, more and more areas are likely to be hit by flood damage. The torrential rains that occurred in September 2003 devastated the greater Tunis area. These probable torrential rains with a 100-year return period resulted in the death of four people and damage valued at around 45 billion yen. An area along a vast lakefront was inundated and traffic was cut off as roads became covered with water, paralyzing Tunisia's capital functions for more than two days.

Up to now, the government of Tunisia has implemented a number of flood control measures. For example, in the 11th Five-Year Economic and Social Development Plan (2007–2011), which is Tunisia's national development plan, urban flood control measures are adopted as a priority, and several urban flood control measures are planned, including construction of drainage channels and cleaning up of existing drainage channels. Based on the lessons learned in the 2003 flood that devastated the capital, in 2006, the Direction of Urban Hydraulic of the Ministry of Equipment, Housing and Land Management implemented the "Greater Tunis Flood Countermeasure Survey."

In this project, two drainage channels will be constructed: one in the Bardot district of Manouba Governorate, in the western part of the greater Tunis area, where the population and industries are concentrated and where urbanization has advanced; and the other linking Lake Sejoumi to the Melian River. The drainage facilities that existed in this area were built to withstand only floods that occur once in 10 years; they were unable to withstand the floods that inundated the capital in 2003, so now there is an urgent need to improve the drainage capacity of these existing facilities. Moreover, since the reverse flow from Lake Sejoumi caused flood damage over a vast area, experts have pointed out the need to construct a drainage channel that would lower the water level of the lake. These issues are discussed in the aforementioned survey, and they are also given high priority in the Five-Year Plan.

In the Medium-Term Strategy for Overseas Economic Cooperation Operations (FY2005–2007), JBIC has set forth "a foundation for sustained growth" and "global issues and peace-building" as priority areas; furthermore, for Tunisia, JBIC has also positioned "action on environmental issues" as a priority area. This project aims to construct drainage channels to alleviate damage caused by

torrential rains, which may be considered an effect of climate change, and thereby help improve the living conditions of local residents. Thus, the project's objective is consistent with JBIC's assistance policy, and so its support for the project is highly necessary and relevant. Moreover, in 1998, JBIC signed a loan agreement for the Inundation Protection Project and extended assistance to the flood control sector in Tunisia.

3. Project Objectives

This project aims to alleviate the flood damage in relevant areas by implementing the construction and the rehabilitation of drainage channels in the vicinity of Lake Sejoumi and the Melian River, as well as in the western part of the greater Tunis area; thereby improving the living conditions of local residents and stabilizing the local economy.

4. Project Description

(1) Target Area

Greater Tunis area

(2) Project Outline

- (a) Construction of a drainage channel connecting Lake Sejoumi and the Melian River
- (b) Construction and widening of drainage channels in the Bardot district
- (c) Consulting services (detailed design review, bidding assistance, construction monitoring and supervision)

(3) Total Project Cost / Loan Amount

9,147 million yen (Yen Loan Amount: 6,808 million yen)

(4) Schedule

April 2008–September 2014 (78 months). Project completion is defined as when civil work is completed.

(5) Implementation Structure

- (a) Borrower: The Government of the Republic of Tunisia
- (b) Executing Agency: Ministry of Equipment, Housing and Land Management
- (c) Operation and Maintenance System: Same as (b)

(6) Environmental and Social Consideration

- (a) Environmental Effects / Land Acquisition and Resident Relocation

(i) Category: B

(ii) Reason for Categorization

This project is not likely to have significant adverse impact on the environment due to the fact that the project sector and project characteristics are not likely to exert impact and the project is not located in a sensitive area under the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations" (established in April 2002). Thus, this project is classified as Category B.

(iii) Environmental Permit

The Environmental Impact Assessment (EIA) report concerning this project, while not required under the domestic laws of Tunisia, was prepared in August 2007.

(iv) Anti-Pollution Measures

With regard to the impact of the project on the environment during the construction, the executing agency will require the company in charge of construction to take appropriate mitigation measures.

(v) Natural Environment

The area targeted by this project is not located in or around sensitive areas, such as national parks, and so adverse impact on the natural environment is assumed to be minimal.

(vi) Social Environment

This project will involve the acquisition of about 5 ha of land and relocation of 2 households. The acquisition and relocation will be carried out in accordance with the domestic procedures of Tunisia.

(vii) Other/Monitoring

In this project, the executing agency will monitor air quality and noise during the construction, and if any problems are discovered, the agency will adopt appropriate mitigation measures.

(b) Promotion of Poverty Reduction

None

(c) Promotion of Social Development (gender perspective, measures for infectious diseases including AIDS, participatory development, consideration for persons with disabilities, etc.)

None

(7) Other Important Issues

This project is positioned as a project that aids adaptation to changes in climatic conditions.

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2003 actual)	Target (2016, 2 years after completion)
Highest annual water level in Lake Sejoumi (m)	10.5 m	9.23 m
Inundated area (ha) (50-year flood) (Note 1)	165 ha	22 ha
Maximum number of inundated houses (houses) (50-year flood)	6,500 houses	900 houses
Total amount of damage (million TD) (50-year flood)	30 million TD	0 million TD (Note 2)

Note 1: Calculated values assuming a 50-year flood (calculated by using simulations) were used.

Note 2: This project does not assume setting the inundated area and the number of inundated houses at zero in the case of a 50-year flood. However, because the inundation is kept below a water depth of 30 cm (a water level that will cause neither economic damage because of the way homes are built in Tunisia, nor egregious traffic barriers), it is believed that no economic loss will be incurred.

(2) Number of Beneficiaries

Approx. 670,000

(3) Internal Rate of Return (Financial and Economic Internal Rate of Return)

Based on the conditions indicated below, this project's economic internal rate of return (EIRR) is 19.4%.

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

(b) Benefit: Alleviation of economic burden caused by property damage, inundation and other types of damage

(c) Project Life: 50 years

6. External Risk Factors

Floods that exceed the scale assumed at the planning stage

7. Lessons Learned from Findings of Similar Projects Undertaken in the Past

In ex-post evaluations of similar projects conducted in other countries in the past, it is pointed out that "if a project involves land acquisition, it is necessary to confirm the progress made in the land acquisition and resident relocation plans not only at the time of appraisal but at the subsequent project implementation stage as well, and take appropriate measures as needed, such as urging the executing agency to make greater efforts and contemplating plan changes."

On this basis, it was decided that, in addition to securing ample preparation time for land acquisition, the project should confirm the resident relocation plan at an early stage. At the project implementation stage, appropriate measures are expected to be taken as the progress being made is confirmed, including urging the executing agency to make greater efforts and contemplating plan changes.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

(a) Highest annual water level in Lake Sejoumi (m)

(b) Inundated area (ha) (50-year flood)

(c) Maximum number of inundated houses (houses) (50-year flood)

(d) Total amount of damage (million TD) (50-year flood)

(e) Economic internal rate of return (%)

(2) Timing of Next Evaluation

Two years after project completion