

## Ex-Ante Evaluation

### 1. Name of the Project

Country: Republic of Tunisia

Project: Local Cities Water Supply Network Improvement Project

Loan Agreement: June 21, 2013

Loan amount: 10,871 million yen

Borrower: Office National de l'Assainissement (ONAS)

### 2. Background and Necessity of the Project

#### (1) Current State and Issues of the Sewage Sector in Tunisia

With average annual rainfall of just 500 mm, half of Tunisia's territory is belonging to semiarid zone. This means that the country relies heavily on underground water to satisfy their water demands—nearly 2/3 of demand as a whole—and that underground water sources serve as a precious water resource. The sewage water connection ratio is high (89.3% in 2010) in the area under jurisdiction of the Office National de l'Assainissement (ONAS), but still, local cities in inland areas suffer from aging sewage system pipes and drains constructed during 1970s and 1980s. There are increasing concerns over the impact of polluted water leaking from the aging facilities on underground water resources. Besides, the predicted population increase in Tunisia's urban areas is 1.3% (2008–2030), and water demand in the area is thought to rise from 450 million m<sup>3</sup> (2008) to 862 million m<sup>3</sup> (2030) accordingly. Therefore, further improvement of sewerage facilities to meet ever-increasing sewage water volume as a result of increasing water demand is a pressing issue in the Republic. In such a situation, reconstructing and expanding the country's sewage system has become an urgent issue from the perspective of improving sanitary conditions in the local community by preventing underground water contamination and better management of precious water resources.

#### (2) Development Policy for the Sewage Sector in Tunisia and Priority of the Project

The Tunisian government defined several goals under the 12th Five-Year Economic and Social Development Plan (Draft) (2012–2016), including improving sewage services and increasing sewage coverage to contribute to better public health and conservation of water resources. The sewage system development plan formulated by ONAS also places high priority on the Local Cities Water Environment Improvement Project (hereinafter referred to as "the Project"). The Project targets inland areas where socioeconomic infrastructure remains underdeveloped. Public demand for job creation in inland areas has been mounting since the Tunisian revolution in January 2011. The Tunisian government has therefore emphasized the quick success of the Project where about 270,000 man-days can be expected.

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

Under Japan's Country Assistance Policy for Tunisia formulated in October 2002, the environment and water resource development and management were defined as priority areas. Since JICA has prioritized environmental issues in its Rolling Plan, this Project is highly relevant to Japan and JICA's assistance policies. Since the Project contributes to social services in the inland areas, it is highly relevant to JICA's priority area of reducing disparities. So far, Japan has provided yen loans for the following Tunisian sewage sector projects: Water Supply and Sewage System Improvement Project In South-Tunisia (1994,

7.577 billion yen) and Sewage System Development Project in Four Cities (1996, 6.389 billion yen). After the Revolution, improving living conditions in inland areas became a pressing issue. Therefore, implementation of the Project, which helps create jobs and reduce disparities in inland areas, is considered supportive based on the G8 Deauville Partnership.

#### **(4) Other Donors' Activity**

With cofinancing from a French development agency, the Agence Française de Développement (AFD) and the European Investment Bank (EIB), reconstruction and expansion of sewage pipes and drains are taking place in fourteen out of Tunisia's twenty-four provinces. A German government-owned development bank, Kreditanstalt für Wiederaufbau (KfW) is also working an ongoing sludge management survey project for wastewater treatment plants, while the World Bank is supporting sewage system improvements mostly on the outskirts of the capital city of Tunis.

#### **(5) Necessity of the Project**

As stated above, conserving the underground water resources that serve as the country's primary water source and improving sanitary conditions in local communities are urgent needs in Tunisia. This Project is designated to tackle these issues and is highly relevant to the Republic's development policies as well as the aid policies of Japan and JICA; therefore, JICA's support in implementing the Project is highly necessary and relevant.

### **3. Project Description**

#### **(1) Project Objective**

The Project's objective is to improve the water environment by renovating the sewage system in the Local cities of the Republic of Tunisia, thereby contributing to improve living and hygiene conditions of the target areas.

#### **(2) Target Area**

Sfax, Bizerte, Zaghouan, Beja, Siliana, El Kef, Jendouba, Kasserine, Sidi Bouzid, and Kebili governorates (ten governorates in total)

#### **(3) Project Description**

- 1) Renovation and extension of wastewater treatment plants (international competitive bidding) and rehabilitation of wastewater plants (international competitive bidding)
- 2) Renovation and extension of sewage networks (domestic competitive bidding)
- 3) Construction of pump stations (domestic competitive bidding)
- 4) Supply of equipment for maintenance (international competitive bidding)
- 5) Consulting services (e.g. detailed design, supporting bidding, and supervision of construction work) (Short List)

#### **(4) Total Project Costs and Estimated Loan Amount**

14,209 billion yen (Yen Loan Amount: 10,871 billion yen)

#### **(5) Project Implementation Schedule**

Planned between March 2014 and September 2022 (total of 102 months). Project completion is defined as the commencement of facility services (October 2020).

**(6) Project Implementation Structure**

- 1) Borrower: Office National de l'Assainissement (ONAS)
- 2) Guarantor: Government of the Republic of Tunisia
- 3) Executing Agency: ONAS
- 4) Operation and Maintenance System: ONAS

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

- 1) Environmental and Social Consideration
  - i. Category: B
  - ii. Reason for Categorization: The project is not located in a sensitive characteristics, nor does it fall into sensitive sectors under the JBIC Guidelines for Confirmation of Environmental and Social Considerations (April 2002), and its potential adverse impact on the environment is not likely to be significant.
  - iii. Environmental Permits: Two of the five wastewater treatment plants targeted for expansion under the Project require Environmental Impact Assessment (EIA) reports. The reports will be prepared before the launch of the relevant construction work.
  - iv. Anti-pollution measures: Presents no problems since the water discharged from wastewater treatment plants will be treated and released according to domestic criteria. The Tunisian government works to recycle sludge into fertilizers for agricultural use, while conducting an ongoing survey to formulate medium- and long-term plans for sludge treatment with the help of KfW (to be completed during the third quarter of 2014).
  - v. Natural Environment: The project sites are not located in vulnerable areas such as national parks or their vicinity. Therefore, it is likely to have minimal adverse impact on the natural environment.
  - vi. Social Environment: Minimal land acquisition is expected to for the construction of new pump stations. However, public lands will be used as in principle. If acquisition of private land becomes unavoidable, the procedure for acquiring it will proceed according to the required steps stipulated under the country's domestic laws and ordinances.
  - vii. Other/Monitoring: ONAS will monitor environmental impact on a periodic basis based on the environmental monitoring plans included in the EIA. Tunisia's National Environment Protection Agency (ANPE) will oversee the environmental monitoring.
- 2) Promotion of Poverty Reduction: N/A
- 3) Promotion of Social Development: N/A

**(8) Collaboration with Other Schemes or Donors**

N/A (no collaboration with technical cooperation or grant aid)

**(9) Other Important Issues**

Preparation Survey results showed no mitigating effects on climate change (reducing GHG emissions). However, the Project can be considered which contributes to adaptation to climate change by improving the country's sewage systems. Because the Project aims to improve sanitary conditions by reducing water immersion during severe storm and preventing the release of untreated sewage water.

#### 4. Project Benefits

##### (1) Quantitative Benefits

###### 1) Evaluation Indicators (Operation and Effect Indicator)

Indicators	Baseline (Actual Value in 2011)	Target (2022) (Expected value 2 years after project completion)
Population for treated sewage water (Person) <sup>1</sup>	182,322	206,777
Facility capacity for polluted water treatment (m <sup>3</sup> /day)	20,570	31,646
Sewage coverage (%) <sup>2</sup>	88.3	93.9

Note 1: Total population of the area covered by the five wastewater treatment plants

Note 2: Average sewage water connection ratio for cities slated for pipe and drain improvements

###### 2) Internal Rate of Return

Based on the conditions below, the Economic Internal Rate of Return (EIRR) of the project was calculated as 6.2%.

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

Benefits: Revenue from sewage service fees<sup>3</sup>, water-saving benefits by using treated sewage water for agricultural purposes, reduction of healthcare spending by improving sanitary conditions, and reduction in the mortality rate of children under the age of five

Project Life: 20 years

Note 3: Since sewage service fees are determined according to residents' ability to pay, EIRR benefits are calculated based on revenue from sewage fees set at an amount that residents are willing to pay to help maintain and improve their living environment.

The Financial Internal Rate of Return (FIRR) was not calculated since the Project itself is not required to secure financial profitability. This is because the Project results in significant public benefits and because revenue from sewage service fees is politically constrained.

##### (2) Qualitative Effects

Prevent environmental pollution, improvement of urban and sanitary living conditions, and mitigation of climate change.

#### 5. External Factors and Risk Control

N/A

#### 6. Lessons Learned from Past Projects

- (1) From the results of Ex-Post Evaluation and the like of past similar projects (China's "Four Cities Water Supply Project"), JICA learned that it is necessary for deficit entities to set proper service fees in order to ensure financial sustainability.
- (2) Based on lessons learned, it is critical to monitor ONAS's efforts to increase sewage water fees and to improve fee collection ratio, and its financial status to ensure sustainability of the Project, as ONAS's operation is deficit.

#### 7. Plans for Future Evaluation

**(1) Indicators to Be Used**

- 1) Population for treated sewage water (people)
- 2) Facility capacity for polluted water treatment (m<sup>3</sup>/day)
- 3) Sewage coverage (%)

**(2) Timing of Next Evaluation:**

Two years after completion