

Document of
The World Bank

Report No: ICR00003586

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IBRD-73970)

ON A
PROPOSED LOAN

IN THE AMOUNT OF EUR 53.9 MILLION
(US\$ 66.8 MILLION EQUIVALENT)

TO THE
OFFICE NATIONAL DE L'ASSAINISSEMENT
(NATIONAL SEWERAGE BOARD)
WITH THE GUARANTEE OF THE REPUBLIC OF TUNISIA

FOR A
TUNIS WEST SEWERAGE PROJECT

APRIL 30, 2016

Global Practice Water GWADR
Country Department MNC01
MNA Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective 12/31/2015)
Currency Unit = Tunisian Dinar (TND)
TND 1.00 = US\$ 0.49231
US\$ 1.00 = TND 2.03125

FISCAL YEAR 2016

ABBREVIATIONS AND ACRONYMS

| | |
|--------|---|
| CAS | Country Assistance Strategy |
| CPF | Country Partnership Framework |
| CM | Cubic Meter |
| CRDA | <i>Commissariat Régional au Développement Agricole</i> |
| CSM | <i>Commission Supérieure des Marchés</i> |
| DO | Development Objectives |
| EIA | Environmental Impact Assessment |
| ESMP | Environmental and Social Management Plan |
| GOT | Government of Tunisia |
| ICR | Implementation Completion Report |
| INT | Integrity Vice Presidency |
| ISR | Implementation Status and Results Reports |
| MDT | Millions of Tunisian Dinars |
| M&E | Monitoring and Evaluation |
| O&M | Operation and Maintenance |
| ONAS | <i>Office National de l'Assainissement</i> |
| PAD | Project Appraisal Document |
| PCN | Project Concept Note |
| PDO | Project Development Objectives |
| QAG | Quality Assurance Group |
| QER | Quality Enhancement Review |
| SONEDE | <i>Société Nationale d'Exploitation et de Distribution des Eaux</i> |
| TA | Technical Assistance |
| WWTP | Wastewater Treatment Plant |

| | |
|----------------------------------|--|
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DATA SHEET

| A. Basic Information | | | | |
|--|--|-------------------|----------------------------|--------------------------|
| Country: | Tunisia | Project Name: | TN-Tunis West Sewerage | |
| Project ID: | P099811 | L/C/TF Number(s): | IBRD-73970 | |
| ICR Date: | 03/31/2016 | ICR Type: | Core ICR | |
| Lending Instrument: | SIL | Borrower: | GOVERNMENT OF TUNISIA/ONAS | |
| Original Total Commitment: | USD 66.80M | Disbursed Amount: | USD 61.20M | |
| Revised Amount: | USD 56.16M | | | |
| Environmental Category: A | | | | |
| Implementing Agencies: | | | | |
| Organization Name | Organization Role | Country | | |
| Office National de l'Assainissement (ONAS) | Borrower/Recipient Implementing Agency | Tunisia | | |
| First Name | Last Name | Title | | |
| Habib | Omrane | CEO | | |
| Preferred Language | Phone | Primary Email | | |
| French | (216-71) 343-200 | PDG@onas.nat.tn | | |
| Cofinanciers and Other External Partners: None | | | | |
| B. Key Dates | | | | |
| Process | Date | Process | Original Date | Revised / Actual Date(s) |
| Concept Review: | 03/20/2006 | Effectiveness: | 11/17/2006 | 11/17/2006 |
| Appraisal: | 05/22/2006 | Restructuring(s): | | 12/22/2011 12/21/2012 |
| Approval: | 07/06/2006 | Mid-term Review: | 01/10/2011 | 04/21/2011 |
| | | Closing: | 12/31/2011 | 06/30/2015 |

| C. Ratings Summary | |
|--------------------------------------|----------------|
| C.1 Performance Rating by ICR | |
| Outcomes: | Unsatisfactory |
| Risk to Development Outcome: | High |
| Bank Performance: | Unsatisfactory |
| Borrower Performance: | Unsatisfactory |

| C.2 Detailed Ratings of Bank and Borrower Performance (by ICR) | | | |
|---|----------------|--------------------------------------|----------------|
| Bank | Ratings | Borrower | Ratings |
| Quality at Entry: | Unsatisfactory | Government: | Unsatisfactory |
| Quality of Supervision: | Unsatisfactory | Implementing Agency/Agencies: | Unsatisfactory |
| Overall Bank Performance: | Unsatisfactory | Overall Borrower Performance: | Unsatisfactory |

| C.3 Quality at Entry and Implementation Performance Indicators | | | |
|---|----------------|-------------------------------|---------------------------|
| Implementation Performance | Indicators | QAG Assessments (if any) | Rating |
| Potential Problem Project at any time (Yes/No): | No | Quality at Entry (QEA): | Satisfactory ¹ |
| Problem Project at any time (Yes/No): | Yes | Quality of Supervision (QSA): | Satisfactory ¹ |
| DO rating before Closing/Inactive status: | Unsatisfactory | | |

| D. Sector and Theme Codes | | |
|---|----------|--------|
| | Original | Actual |
| Sector Code (as % of total Bank financing) | | |
| Wastewater Collection and Transportation | 50 | 50 |
| Wastewater Treatment and Disposal | 50 | 50 |
| Theme Code (as % of total Bank financing) | | |
| City-wide Infrastructure and Service Delivery | 25 | 25 |
| Pollution management and environmental health | 50 | 50 |
| Water resource management | 25 | 25 |

¹ The Project was subject to a QAG review in 2008, two years after appraisal. The official document from the QAG review could not be found in the project files; it was reported in a subsequent ISR that the QAG review had rated both the design and the supervision of the project fully satisfactory.

| E. Bank Staff | | |
|---------------------------|-----------------------------|------------------------|
| Positions | At ICR | At Approval |
| Vice President: | Hafez M. H. Ghanem | Christiaan J. Poortman |
| Country Director: | Marie Francoise Marie-Nelly | Theodore O. Ahlers |
| Practice Manager/Manager: | Steven N. Schonberger | Jonathan D. Walters |
| Project Team Leader: | Richard Abdounour | Mohammed Benouahi |
| ICR Team Leader: | Richard Abdounour | |
| ICR Primary Author: | Meleesa Naughton | |

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

The project will help achieve the following objectives:

- (i) Improve the quality of sanitation services in Greater Tunis, and preserve the achievements of the sector;
- (ii) Promote the reuse of treated wastewater in irrigation on a sustainable basis and in significant quantities, which is very important given the severity of water scarcity in Tunisia; and
- (iii) Enhance ONAS performance through financial and operational management capacity building.

Revised Project Development Objectives (as approved by original approving authority)

a) PDO Indicators

| Indicator | Baseline Value | Original Target Values (from approval documents) | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years |
|-------------------------------------|--|---|---------------------------------------|--|
| Indicator 1: | Volume of sewage collected and treated in the Greater Tunis Area (Mm3) | | | |
| Value (quantitative or qualitative) | 89.3 | 100.6 | N/A | 99.3 |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | No target values for this indicator in the PAD; target values are taken from ISRs. Though achievement rate is nominally 98% (Source: ONAS progress report), actual value only measures total volumes collected, which is not directly impacted by the Project, and does not reflect treatment aspects. At the time of writing, the WWTP is partially operational, and full completion expected in 2017 and should improve both collection and treatment rates. | | | |
| Indicator 2: | New connections in the areas targeted by the project (Sidi Hssine and El Agba in Tunis West) | | | |

| | | | | |
|-------------------------------------|--|---------------------------|-----|------------|
| Value (quantitative or qualitative) | N/A | N/A | N/A | N/A |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | Not relevant as this is not an output of the project, but of a parallel ONAS project financed by EIB (see section 2.3). There were no targets set, and the indicator was not monitored as part of supervision. | | | |
| Indicator 3: | Share (%) of yearly investments for replacement/ maintenance works over total sector investments | | | |
| Value (quantitative or qualitative) | N/A | N/A | N/A | N/A |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | There were no targets set, and this information was not monitored as part of project implementation. | | | |
| Indicator 4: | Volume of treated sewage effluent made available for water reuse in El Attar irrigation areas | | | |
| Value (quantitative or qualitative) | 30% | 35% of treated wastewater | N/A | 27% |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | This indicator and its target measures reuse across ONAS service in Greater Tunis Area, rather than project scope and outcome. In practice, El Attar WWTP was not completed and in service at close of project. No activities were planned to ensure quantity and quality of treated wastewater made available to farmers, or to coordinate with Agriculture counterparts. | | | |
| Indicator 5: | Client satisfaction rate as measured through periodic surveys | | | |
| Value (quantitative or qualitative) | N/A | N/A | N/A | N/A |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | There were no targets set. Client satisfaction surveys were never conducted. Customer relations improvements were not a part of the project, but could have been linked to the implementation of the customer management IT system, which was not completed at project closing. | | | |
| Indicator 6: | Ratio of staff per 1,000 connections. | | | |
| Value (quantitative or qualitative) | 4 | 2.9 | N/A | 2.32 |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | Achievement rate is 125%. However, this result cannot be directly attributed to the project as (i) there were no activities related to staff efficiency; (ii) reduction in staffing is mostly natural attrition; and (iii) it cannot be established that quality of service was maintained during the same period, and has probably deteriorated. | | | |
| Indicator 7: | Other financial indicators (Working Ratio) | | | |
| Value (quantitative or qualitative) | 84% | 76.4% | N/A | 93% |

| | | | | |
|---|---|------------|-----|------------|
| qualitative) | | | | |
| Date Achieved | 12/31/2005 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | Three indicators, working ratio, working capital ratio and accounts receivables, were to be monitored to improve planning for future financial resource needs and assessing different scenario for tariff revisions. These were monitored instead as legal covenants to measure financial sustainability of ONAS, and were not influenced by project activities. In the case of the working ratio, consisting of the ratio of operating expenses over operating revenues, it actually deteriorated over time, mainly reflecting that tariffs did not increase at a sufficient rate to improve cost-recovery. | | | |
| Indicator 8: | Other financial indicators (Working Capital Ratio) | | | |
| Value (quantitative or qualitative) | 0.74 | 1.00 | N/A | 1.24 |
| Date Achieved | 12/31/2005 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | <i>See Indicator 7</i> In the case of the working capital ratio, consisting of the ratio of current assets over current liabilities, it fluctuated between 1.01 and 1.29 in the last 5 years of the project. | | | |
| Indicator 9: | Other financial indicators (Accounts Receivable in days) | | | |
| Value (quantitative or qualitative) | 180 | 120 | N/A | N/A |
| Date Achieved | 12/31/2005 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | <i>See Indicator 7</i> In the case of the accounts receivable, the indicator was monitored until 2014. | | | |

b) Intermediate Indicators

| Indicator | Baseline Value | Original Target Values (from approval documents) | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years |
|---|--|--|--------------------------------|---|
| Indicator 1: | Percentage of work completed for the El Attar plant | | | |
| Value (quantitative or qualitative) | 0% | 100% | N/A | 85% |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | Achievement rate is 85%. (Source: ONAS completion report). Construction stalled in 2012/2013 due to major contractual dispute leading to international arbitration, and did not resume in time for project closing. The El Attar WWTP was therefore not completed and brought on-line at the time of closing. | | | |
| Indicator 2: | Implementation of studies, tools, and systems | | | |
| Value (quantitative or qualitative) | N/A | N/A | N/A | N/A |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |

| | | | | |
|-------------------------------------|---|------------|-----|------------|
| Comments (incl. % achievement) | No precise definitions or targets were set for this indicator, and it was never monitored. In practice, only the strategic study of sanitation in 100 cities of less than 10,000 inhabitants was completed, under separate funding. | | | |
| Indicator 3: | Settings of management performance objectives | | | |
| Value (quantitative or qualitative) | N/A | N/A | N/A | N/A |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | This indicator does not measure results from specific project activities, and did not have any defined reporting protocol. No targets were set, and the indicator was not monitored. | | | |
| Indicator 4: | Efficient customer management, better arrears recovery and revenue enhancement | | | |
| Value (quantitative or qualitative) | N/A | N/A | N/A | N/A |
| Date Achieved | 12/31/2006 | 12/31/2010 | N/A | 06/30/2015 |
| Comments (incl. % achievement) | Though this indicator aimed to measure results from the implementation of the customer management system, it did not have any defined reporting protocol. No targets were set, and the indicator was not monitored. | | | |

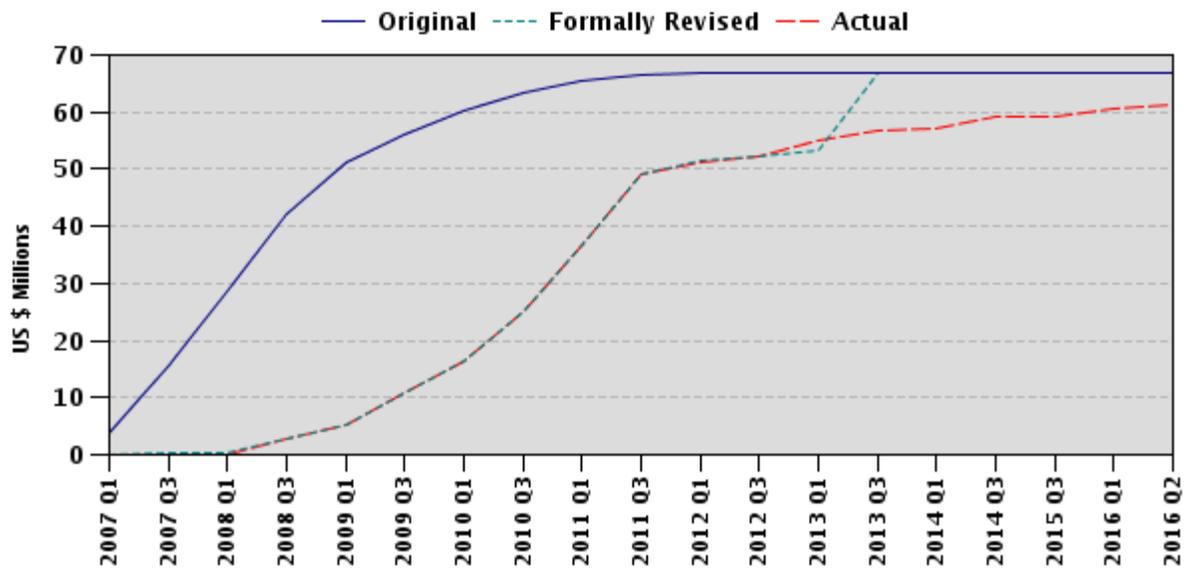
G. Ratings of Project Performance in ISRs

| No. | Date ISR Archived | DO | IP | Actual Disbursements (USD millions) |
|-----|-------------------|---------------------------|---------------------------|-------------------------------------|
| 1 | 10/27/2006 | Satisfactory | Satisfactory | 0.00 |
| 2 | 05/23/2007 | Moderately Satisfactory | Satisfactory | 0.17 |
| 3 | 11/30/2007 | Satisfactory | Satisfactory | 1.46 |
| 4 | 06/02/2008 | Satisfactory | Satisfactory | 3.79 |
| 5 | 12/30/2008 | Satisfactory | Satisfactory | 7.99 |
| 6 | 06/25/2009 | Satisfactory | Satisfactory | 12.55 |
| 7 | 04/26/2010 | Satisfactory | Satisfactory | 25.90 |
| 8 | 03/22/2011 | Moderately Satisfactory | Moderately Unsatisfactory | 49.02 |
| 9 | 11/29/2011 | Moderately Satisfactory | Moderately Satisfactory | 51.89 |
| 10 | 07/01/2012 | Moderately Satisfactory | Moderately Satisfactory | 54.62 |
| 11 | 01/02/2013 | Moderately Satisfactory | Moderately Unsatisfactory | 56.53 |
| 12 | 07/02/2013 | Moderately Satisfactory | Moderately Unsatisfactory | 56.96 |
| 13 | 01/01/2014 | Moderately Satisfactory | Moderately Unsatisfactory | 57.66 |
| 14 | 06/16/2014 | Moderately Unsatisfactory | Moderately Unsatisfactory | 59.12 |
| 15 | 12/08/2014 | Unsatisfactory | Unsatisfactory | 59.12 |
| 16 | 05/21/2015 | Unsatisfactory | Unsatisfactory | 59.30 |

H. Restructuring (if any)

| Restructuring Date(s) | Board Approved PDO Change | ISR Ratings at Restructuring | | Amount Disbursed at Restructuring in USD millions | Reason for Restructuring & Key Changes Made |
|-----------------------|---------------------------|------------------------------|----|---|---|
| | | DO | IP | | |
| 12/22/2011 | | MS | MS | 51.89 | Extension of Closing Date until December 31, 2012 |
| 12/21/2012 | | MS | MS | 56.53 | Extension of Closing Date until June 30, 2015 |

I. Disbursement Profile



1. Project Context, Development Objectives and Design

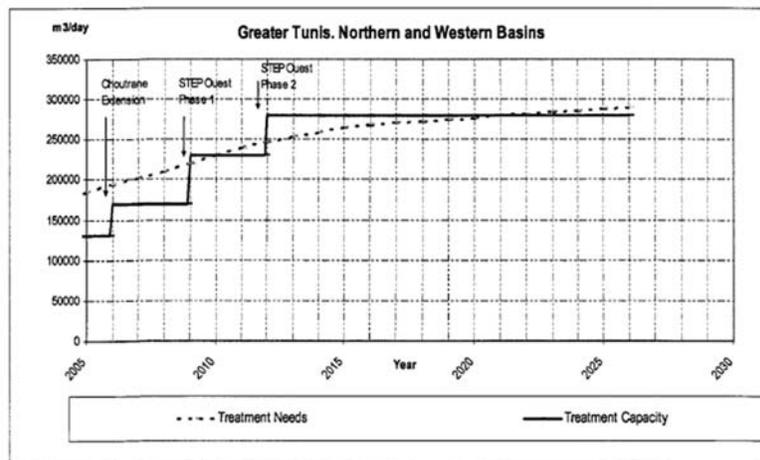
1.1 Context at Appraisal

1. **Country background:** At the time of project appraisal, Tunisia was in a phase of strong economic development, with year-on-year GDP growth rates averaging 5% in the early 2000's. Extreme poverty had fallen sharply in the second half of the 1990s, giving rise to a large middle class pressing for better quality of services, particularly in urban areas.

2. **Sector background:** Tunisia had (and still has) one of the highest rates of access to water and sanitation services in the MENA region, with 90% and 78% of the urban population of the country respectively served by SONEDE (the national water utility) and ONAS, (the national sanitation authority). ONAS is mandated to provide access to sanitation services in all urban areas of Tunisia. In 2004, ONAS collected and treated sewage in 152 municipalities (out of a total 263) with a connection rate of 85% in the areas under its jurisdiction. ONAS also managed 83 wastewater treatment plants (WWTP) where more than 92% of the sewage collected was treated. However, ONAS had low levels of operational efficiency, and had been running an operational deficit for several years. The policy of financing infrastructure, be it sanitation or other, with government subsidies and concessional finance, combined with the planned expansion of ONAS into new small towns, jeopardized the sector's achievements to date.

3. **Rationale for Bank Assistance:** The Bank had been a partner of ONAS since its creation in 1974; this was the Bank's 7th project with ONAS. There was a real need for relieving the wastewater treatment system in the Greater Tunis area, which was coming under increasing strain due to urban population growth. The wastewater treatment plant (WWTP) of Tunis West, due to become operational in 2010, was needed to keep up with wastewater treatment needs (Figure 1). In addition, the 2004 CAS had identified the need to make public utilities - including ONAS - more efficient, as well as to improve the regulatory framework and enhance private sector participation in infrastructure.

Figure 1: Planned treatment capacity for the Greater Tunis area (2006)



1.2 Original Project Development Objectives (PDO) and Key Indicators

4. As per the Loan Agreement (Schedule 2), the objectives of the Project were to assist the Borrower in: (i) improving the quality of sanitation services in Greater Tunis; (ii) promoting the reuse of treated wastewater in irrigation on a sustainable basis and in significant quantities; and (iii) enhancing its performance through financial and operational management capacity building. This wording was overall consistent with the Project Appraisal Document (PAD)².

5. The PAD Results Framework proposed the following outcome indicators to monitor the achievement of this threefold objective³:

- a. *The volume of sewage collected and treated in the Greater Tunis Area;*
- b. *The number of new connections in the areas targeted by the project (Sidi Hssine and El Agba in Tunis West);*
- c. *The share of yearly investments for replacement/ maintenance works over total sector investments;*
- d. *The client satisfaction rate;*
- e. *The ratio of staff per 1,000 connections.*

1.3 Revised PDO and Key Indicators, and reasons/justification

6. The PDO was not revised. The Results Framework was not formally revised.

1.4 Main Beneficiaries

7. The PAD identified a "primary target group" of beneficiaries living in the underserved low-income areas of Sidi-Hassine and El Agba. Though the project does not finance any direct access to sanitation, the sewerage component of the project would allow the transfer and the treatment of the sewage produced by the equivalent of 750,000 people, while also significantly reducing discharges of untreated wastewater in the environment. Its completion was expected to remove a major barrier to increasing sewerage connection rates for residents of these areas, who up until then had been left out due to the saturation of existing treatment capacity in Greater Tunis.

8. In addition to the above, and though it is not directly identified in the PAD, the Project was expected to improve water quality and environmental conditions in the Greater Tunis area, i.e. with indirect benefits for 2.25 million people at the time of appraisal (2.5 million at completion).

² The PAD's PDO was to: (i) Improve the quality of sanitation services in Greater Tunis, and preserve the achievements of sector; (ii) Promote the reuse of treated wastewater in irrigation on a sustainable basis and in significant quantities, which is very important given the severity of water scarcity in Tunisia, and (iii) Enhance ONAS performance through financial and operational management capacity building.

³ No supplemental letter concerning the PDO level indicators was found in project documentation. Annex 5 provides a full list of indicators used during Project implementation.

1.5 Original Components

Component 1 (Sewerage component): US\$ 70.15 million

9. The main item in this component was the construction of a WWTP in El Attar in the western part of Greater Tunis. The Project would finance the first phase of the WWTP, consisting of an installed capacity of 60,000 m³/day under secondary treatment. A second phase of the WWTP was planned to be built once the first phase was completed, with the objective of doubling its capacity, under a separate BOT-type financing (outside of the scope of the Project). The component also financed an intake system of 8 km of piping and two pumping stations to transfer raw sewage from urban areas to the WWTP, and a second system of 25.5 km of piping to transfer the treated wastewater to its discharge point at the Oued Meliane, including the installation of valves to enable farmers to connect and reuse the treated wastewater for irrigation. The component included Technical Assistance for construction supervision.

Component 2 (Institutional Building component): US\$ 1.75 million

10. This component included the following activities: (a) Strengthening of ONAS financial management; (b) Environmental management of the Project, including mitigation measure for sludge disposal as part of the El Attar WWTP operations; (c) The preparation of strategic technico-economic studies for sanitation for about 100 small towns of less than 10,000 inhabitants; and (d) the establishment of a customer management system, to be integrated with SONEDE's system, in order to avoid duplication of efforts and ensure better coordination between the two agencies.

Box 1: Original Component Description (as per the Loan Agreement)

Part A: Sewage Works in Great Tunis

Carrying out a sewerage program to: facilitate the transfer and treatment of sewage for about 750,000 people; extend the sewerage networks in Sidid Hassine and El Agba; and provide for a sustainable water reuse system; including:

1. The construction of about 60,000 m³ per day capacity sewage treatment plant in El Attar;
2. The construction of mains and water pumping stations system to transfer raw sewage to the treatment plant in El Attar;
3. Construction of mains network to transfer treated sewage to Oued Meliane with valves for connection to irrigation basins;
4. The establishment of a sludge disposal facility at the treatment plant in El Attar; and
5. Construction supervision through the provision of technical assistance.

Part B: Institution Building

Enhancing the Borrower's financial and operational management capacity, through the provision of technical assistance and training for:

1. The carrying out of the EMP;
2. The preparation of strategic economic and institutional studies for sanitation for about 100 small towns consisting of less than 10,000 inhabitants; and
3. The optimizing of arrears recovery and revenue enhancing programs through the establishment of a customers' management system.

1.6 Revised Components

11. The components were not formally revised.

1.7 Other significant changes

12. **Financing of strategic study.** The Activity 2.c. (the preparation of the strategic technico-economic studies for sanitation for about 100 small towns of less than 10,000 inhabitants) was financed under a separate grant from the African Development Bank. The study was completed in June 2014 and made recommendations concerning sanitation investments for 30 priority small towns, which are not currently served by ONAS.

13. **Extensions.** Initially designed for a duration of 5 and a half years, the Project was extended twice for a total duration of 9 years. The original closing date of the Project was first extended by one year, from December 31, 2011 until December 31, 2012; then a second time for an additional 30 months, from December 31, 2012 to June 30, 2015. All extensions were due to delays in the civil works of the El Attar WWTP. The project design, scope and scale were not changed during implementation.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

14. *There was a strong rationale to address a critical overload of the Greater Tunis wastewater treatment system.* Tunisia had achieved remarkable results in water supply and sanitation, in particular since the creation of the national water supply and sanitation utilities in the late 1960s and 1970s. In the Greater Tunis area, the majority of the wastewater collected was treated in a group of interconnected WWTPs in Northern Tunis⁴. However, by 2005 this system had come under increasing strain, as it was reaching capacity and would rapidly become chronically overloaded. To avoid significant adverse economic and environmental impacts, ONAS developed a master plan for wastewater collection, treatment and discharge which included the transfer of the treatment load of approximately 700,000 inhabitants in Tunis West from the existing Northern Tunis WWTP system to a new system in Western Tunis. A large new WWTP situated at El Attar, to be financed under the project, would be the first and critical step of that process, to provide significant relief to the Northern Tunis treatment system. In parallel an EIB-financed project⁵ in preparation at the time of project appraisal, aimed to extend the sewerage network's coverage in the Western portion of the Greater Tunis area and provide sewerage connections to 8000 households.

15. *Plans to finance the Project under a BOT scheme were abandoned in favor of a more conventional investment instrument.* Initially, the El Attar WWTP had been intended to be financed under a BOT scheme. As part of the World Bank-financed Greater Tunis Sewerage Project (1997-2005), a feasibility study had been conducted by ONAS in partnership with the World Bank to study this option. However, the lack of an adequate enabling institutional and legal environment for a BOT arrangement, combined with the urgency of near-saturation of wastewater treatment capacity in Tunis at the time of project preparation, led to the decision to finance a first phase of El Attar WWTP under a more conventional investment lending instrument. A second phase would be developed under a BOT arrangement in the future, to provide additional treatment capacity (60,000 m³) to the El Attar WWTP. Another WWTP would be built in El Allef, and also financed under a BOT scheme. Neither the second phase of El Attar nor El Allef had been tendered at the time of closing.

16. *The Project was prepared in only 3 months from PCN to Board Approval.* Once the decision to revert to conventional financing had been made, preparation was conducted in an extremely short timeframe by Bank standards, justified in large part by the urgency and readiness of the infrastructure component. Such expedited preparation did not allow sufficient time to address fundamental design inconsistencies, and did not take fully into account lessons learned for project design and objectives, in particular with regards to wastewater reuse and institutional strengthening. Based on the PCN and QER minutes, concerns about the capacity of ONAS to operate and maintain the WWTP were raised by

⁴ Choutrana I and II, Charguia, and the smaller Cotiere Nord

⁵ The ONAS IV Project, approved in 2006

(<http://www.eib.org/projects/pipeline/2004/20040151.htm?lang=fr>)

reviewers during preparation but project design was not altered as a consequence. The only modification of PDO agreed upon appraisal was to drop the objective of increasing benefits from tourism.

17. *Extensive prior design led to strong readiness at approval for the infrastructure component.* The infrastructure activities of Component 1 had been prepared by ONAS prior to Bank identification, as the BOT scheme was studied and preliminary designs were completed. As a direct consequence, project documentation and procurement were consistent with Bank procurement policy and ready to be launched prior to project approval. The El Attar WWTP was tendered out in June 2006, the month the Project was approved.

18. *Though project design and objectives were significantly driven by potential for wastewater reuse, it nevertheless did not include any activities to support reuse in irrigation.* The choice of the El Attar site was driven mainly by the potential for treated wastewater reuse in the area, with a significant impact on the economic balance of the project. In particular, the site made it necessary to pump large sewage volumes up 110 meters in altitude, leading to the addition of a second pumping station (SP2), the cost of which was supposed to be offset by the gravity-fed system designed to take treated wastewater down to irrigated areas nearby. As stated in the PAD, lessons learned from prior projects with ONAS emphasized the risks linked to low acceptability by farmers of treated wastewater, as well as inefficient inter-institutional coordination with the Ministry of Agriculture and its services, which had jurisdiction over irrigation in agriculture. Nevertheless, this was not taken to its logical conclusion, since appraisal conversely recommended not to include any wastewater reuse or irrigation component in the Project, as these were deemed to be outside of the purview of ONAS. The absence of any such activity under the project created a fundamental imbalance as it precluded any opportunity to leverage the way the WWTP was designed and the extra-cost incurred, nor did it support wastewater reuse which remained as an objective in the PDO throughout implementation.

19. *Institutional capacity-building consisted mostly of ad-hoc activities, which were not ready for implementation.* Though Project design identified the need to improve the efficiency and long-term capacity of ONAS, it did not provide a strong rationale for the proposed activities. The need to improve operational efficiency and customer service management in particular had been identified as a priority activity for this project and a parallel World Bank-financed SONEDE project⁶. This was reiterated in Sector Work undertaken by the World Bank in 2009⁷. This translated into the development of an integrated commercial management system between SONEDE and ONAS. This was necessary, since both ONAS's and SONEDE's billing systems had limited capacity and were antiquated, and due to the fact that ONAS depends on SONEDE's billing system for its revenue collection. SONEDE's processing of ONAS's revenue represents a time loss and means that ONAS does not have full control of its revenue streams and financial flows. However, this activity had not been fully designed at appraisal, and no accompanying organizational actions were planned to ensure the activity's sustainability. In parallel, the project intended to provide ONAS with an integrated model for financial projections to

⁶ Urban Water Supply Project (2005-ongoing)

⁷ World Bank (2009) Strategic Reflections on the Drinking Water and Sanitation in Tunisia.

support ONAS's management and planning decisions, a need that was not further defined or designed. Finally, the strategic study into ONAS expansion into 90 small towns of less than 10,000 resident aimed at (i) identifying appropriate technologies for investment and O&M of sewerage systems; (ii) determine the impact on ONAS's financial capacity if it expands into these small towns; and (iii) propose measures for counterbalancing the additional financial strains from expansion into small towns.

20. *Project design included an ambitious participatory approach, which nonetheless did not address farmers.* The project planned on using a participatory approach during implementation of Component 1, through (a) holding a workshop for environmental awareness and sensitization, and to identify gaps in sanitation and hygiene practices (b) establishing a project advisory group/ committee at the level of the municipalities concerned by the infrastructure works, which would act as an interface between the institutions concerned (ONAS, contractors, etc.) and the riparian populations and (c) for Monitoring and Evaluation, including beneficiary impact assessment and surveys. No participatory approaches targeted farmers from the irrigation areas identified for the potential reuse of treated wastewater for irrigation, as these would have had to be implemented by regional agricultural agencies.

21. *The main risks identified during project preparation were linked to (i) ONAS's weak institutional and financial capacity and (ii) the saturation of treatment capacity in Tunis.* On (i), the PAD's proposed mitigation measures such as to limit new investment in small towns, to increase tariffs and ensure financial sustainability, or to rehabilitate existing infrastructure. Though these are valid recommendations, no corresponding activities were formally included in project scope, nor were they addressed throughout project implementation. On (ii), capacity saturation did indeed materialize, leading to the current situation of chronic system overload, described earlier. In addition, the risk assessment did not identify (iii) governance risk (linked to fraud/ corruption) (iv) risks linked to the complexity of technical design (v) risks linked to ONAS's lack of capacity for contract management, and (vi) risks related to the lack of institutional coordination, in particular for wastewater reuse and access to sanitation.

22. *The Project was subject to a QAG review in 2008, two years after appraisal.* While the official document from the QAG review could not be found in the project files, it was reported in a subsequent ISR that the QAG review had rated both the design and the supervision of the project fully satisfactory.

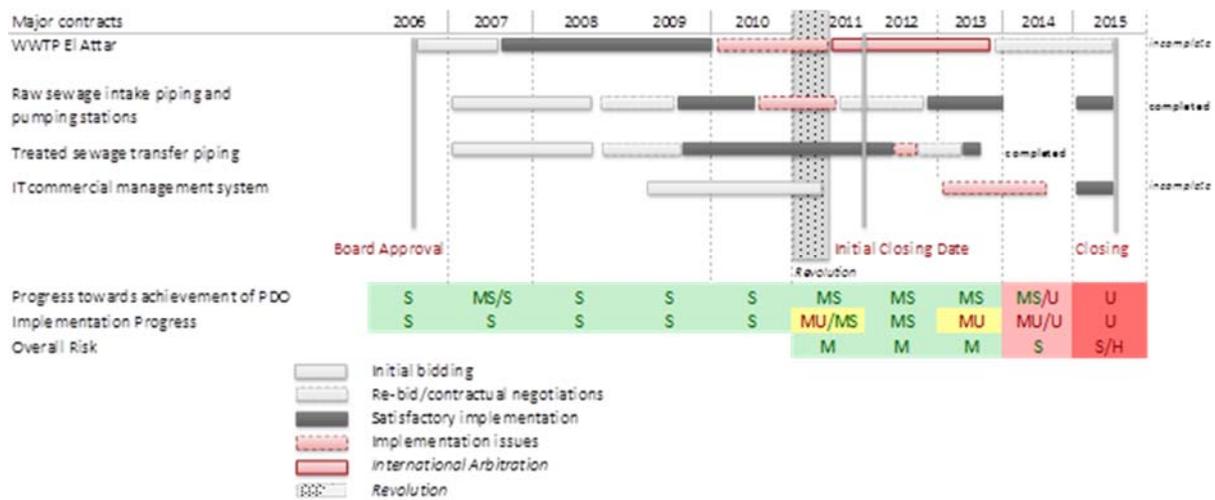
2.2 Implementation

23. *The Project's most critical activities, both under the infrastructure (El Attar WWTP) and institutional (customer management system and financial capacity-building), had not been completed by Project closing (see figure 2).* As of June 30, 2015, only the intake and transfer piping systems had been completed under the infrastructure component, as well as the strategic study under the institutional component (under separate financing), and various corollary technical assistance activities, representing less than half of project commitments. None of the remaining activities were completed by the Project's closing

date. The El Attar WWTP had been 80 percent completed - the same physical progress rate it had reached in 2011, prior to the dispute between ONAS and its contractor which went into international arbitration. The customer management system, also referred to as the IT billing system, suffered from significant delays, and only phase 1 (design) out of 4 was completed at closing. No progress was made on financial capacity building.

24. *The project was implemented over nine years between effectiveness in November 2006 and closing in June 2015.* The project was extended twice (see paragraph 14) but the PDO, M&E framework and project components were not restructured to reflect changes in the actual Project Development Objectives, activities and implementation. The MTR started in January 2011 but was interrupted by the revolution and only finalized in April 2011. Progress toward the Development Objective (DO) was rated between satisfactory and moderately satisfactory over most of the implementation period, aside from the last year when it was downgraded to Moderately Unsatisfactory, then to Unsatisfactory (Figure 2). The Project's Overall Risk was kept as moderate during most of the Project's implementation, except in January 2013 and in December 2014 when it was downgraded to Substantial, then High in May 2015 before the project closed (see figure 2).

Figure 2: Project ISR Ratings and progress on major contracts (2006-2015)



25. *While the El Attar WWTP contract (representing more than half of total project costs) was procured in less than a year, procurement delays particularly affected all other project activities.* Serious delays occurred for the procurement of the 8 km upstream sewage intake pipes and 25.5 km downstream treated wastewater transfer and discharge network. In both cases, the tenders had to be re-bid, due to (i) the bidder withdrawing from one of the contracts due to price increases; and (ii) ONAS' decision to use PVC (polyvinyl chloride) coated reinforced concrete pipes instead of PRV pipes, as a more technically appropriate solution for the raw sewage transfer. As a consequence, works started only in August/September 2009. In addition, the IT Commercial Information System contract also suffered from excessive delays, due to (i) the novel nature of this activity which made it more difficult for ONAS to establish adequate Terms of Reference; (ii) the administrative burden associated with the establishment of a joint contract between ONAS and SONEDE,

as well as; (iii) procurement, as the approval of the national tender board (*Commission Supérieure des Marchés*, or CSM) was substantially delayed due to fiscal issues, registration constraints, team changes once the contract was signed, etc.

26. *After quick initial implementation of works, contractual risks linked to a single civil works company which defaulted, became a major implementation issue.* A single local civil works firm, GTM, was involved as a partner in the three main infrastructure contracts for Component 1, which were all part of the same result chain. These contracts included (i) the construction of the El Attar WWTP; (ii) the construction of the sewage intake pipes and pumping stations and (iii) the construction of the treated sewage transfer network. In November 2010, structural deficiencies affecting one third of the intake network were found when tests were conducted, after almost 73 percent of the network had been laid out, and 27 percent of it paid for. Further deficiencies appeared in the other contracts, and when ONAS tried to trigger the bank guarantee of the firm, these turned out to be forged. As the Bank team referred the issue to INT for investigation, the firm went into de facto default, therefore putting Component 1 as a whole - which represents 90 percent of project commitments - at risk.

27. *Contractual conflicts and structural deficiencies in the layout of the intake and transfer networks were resolved.* Following ONAS's practice, this activity had been procured through two separate contracts: one for the supply of the pipes and one for the layout. This made it difficult to assess responsibility for the infiltrations and subsequent repairs, as this could have been a problem of quality of pipes, of poor layout, or both. As this triggered the chain of events that led the civil works firm GTM to default on its obligations, the situation was ultimately resolved through the hiring of a competent subcontractor, who proceeded to repair the existing piping and complete any residual civil works. Testing was completed in 2015, and the contracts were successfully completed by Project closing.

28. *Conversely, the contract for the construction of the El Attar WWTP went into international arbitration.* Once the civil works firm GTM defaulted on its obligations, and the extent of the structural deficiencies of its work were known, ONAS did not manage to reach similar resolution with the WWTP construction consortium leader, EMIT (Italy). Instead, ONAS levied a series of contractual penalties, before it proceeded to cancel the contract. EMIT disputed the cancellation and took the case to international arbitration at the International Chamber of Commerce (ICC). The ruling was initially expected in early 2013, but was only received in November 2013, and voided the contract cancellation, requesting that ONAS refund the various guarantees and penalties that were called, and that the ongoing construction contract should remain between ONAS and EMIT, as the sole responsible party for finishing the works. The arbitration led to a formal suspension of all works related to the WWTP from June 2011 to November 2013, followed by a long period of slow negotiations between ONAS and EMIT.

29. *WWTP works resumed only after Project closing.* Agreement on re-starting works for the WWTP was obtained in-principle only in January 2015, and detailed arrangements were finalized under a signed agreement in June 2015. Works effectively resumed after the

project had closed, in September 2015. In essence, no works were implemented for over 4 years on the WWTP, of which 20% remained to be completed at Project closing. One wastewater treatment line was completed in January 2016, achieving partial operation of the plant (at approximately one-third of its capacity). The WWTP is expected to be fully operational in mid to late 2017.

30. *The Project was significantly extended once due to the WWTP arbitration, but an additional extension was not granted by the Bank.* The initiation of arbitration led ONAS to request, and receive, a 30 months extension of the closing date, until June 30, 2015. Once arbitration was concluded, and in-principle agreement to resume works was obtained in January 2015, this triggered a request, in March 2015, for an additional extension of the Closing Date, and restructuring of the project, which included a revision of the PDO and Results Framework. Therefore, in the absence of a reasonable guarantee that the WWTP would be completed, in the form of resumption of works on the WWTP prior to closing, the extension was not granted and the restructuring was dropped.

31. *Contractual issues also led to multiple suspensions of the implementation of the integrated IT billing system for ONAS and SONEDE, of which only the first phase was completed by Project closing.* The update of the IT billing system was the most important activity of Component 2 in terms of its financial weight and strategic relevance. Though the activity is based on a diagnostic that remains valid, it proved difficult to implement in practice, due to design complexities (having an IT system that is common to both ONAS and SONEDE), and lack of capacity for technical supervision of the development of such a complex IT product, in a sector as fast-moving as IT. In addition, constraining regulations required several lengthy approvals by the CSM for any contractual changes (e.g. staffing). Furthermore, implementation suffered from contractual issues, as the two firms forming the consortium that won the bid for developing the system went into a lengthy dispute after one of the firms was bought off by another larger company, leaving the other to take on more responsibilities - the dispute was only resolved in late 2014. Only the design phase was completed by the end of the project, with the latter, more significant phases of testing, piloting and deployment still on-going after project closing, under separate financing.

Table 1: Main implementation milestones of major contracts under the project

| CONTRACT | <i>Main implementation milestones</i> |
|-----------------|--|
| WWTP El Attar | <p>July 26, 2007: Contract signed.</p> <p>May 10, 2011: Conciliation meeting and conflict over date of works completion and payment.</p> <p>June 7, 2011: EMIT goes to ICC with arbitration case.</p> <p>November 22, 2013: ICC arbitration decision issued.</p> <p>May 2014: First meeting after arbitration between ONAS and EMIT (after payment from ONAS to EMIT).</p> <p>January 2015: Agreement on re-starting works.</p> <p>Agreement for finalization of works signed in June 2015, and works resumed in September 2015.</p> <p>A first treatment line of the WWTP was completed (1/3 of its capacity) and became operational in January 2016 - full capacity estimated to be achieved by December 2016, and sludge treatment in 2017.</p> |

| | |
|---|--|
| Raw sewage intake piping and pumping stations | <p>August 2010: ONAS detects problems with new network.</p> <p>November 2010: field tests confirm hydraulic problems/. Leakage.</p> <p>January 2011 mission: ONAS informs the MTR WB mission of leakage problems.</p> <p>October 2011: Bank gives no objection to ONAS's solution of subcontracting a firm which has recognized expertise in complex pipe layout for repairing the faulty portions and finishing the layout.</p> <p>Works finalized in December 2013. Testing and contract completion in 2015.</p> |
| Treated sewage transfer piping | <p>Works finalized by mid-2012 but contract cancelled in September 2012 as GTM did not perform pressure tests and repavement of the road along the pipeline. Contracts awarded to two companies to finalize these activities as subcontractors in April 2013. Works finalized in June 2013.</p> |
| IT commercial management system | <p>IT system installation started in December 2011 but was interrupted in February 2012 as the consortium requested a change in the consultants' team. Contract resumed again in February 2013, then stalled again in May 2014 due to a dispute between consortium members, which was resolved in December 2014. IT system now estimated to be completed in 2018.</p> |

32. *Parallel efforts to favor wastewater reuse for the fulfillment of its development objectives never materialized.* The project relied on a Ministry of Agriculture-led project for the reuse of treated wastewater from El Attar WWTP for irrigation. The PAD mentions intentions of using the treated wastewater made available by the WWTP to irrigate an area of 2000 ha for agriculture. The Ministry of Agriculture did request World Bank assistance in 2008-2009 for a new wastewater reuse project, which included the study of the possibility of reusing the treated wastewater from El Attar WWTP for the irrigation of 3200 ha of olive trees and cereals in the Mornaguia area. In particular, the design of the treated wastewater pipe was based on the front-end engineering plans drafted under project preparation. However, in 2012 project preparation stalled due to implementation delays, and the request was formally dropped in 2015. Any plans to date to support wastewater reuse are still at the design stage.

33. *Technical assistance was not leveraged to its full potential.* Technical Assistance for Component 1 was contracted on an intermittent, time-based contract for 40 man-months between 2008 and 2011. Initially, the Borrower was reluctant to rely on external TA, and the contract was only signed in 2008. At project closing, only half of the available time under the contract was used, despite the major difficulties faced during implementation.

34. *The participatory approach was not implemented.* The PAD included activities related to (a) environmental awareness-raising and sensitization; (b) the establishment of a project advisory group/ committee at the level of the municipalities concerned by the infrastructure works to act as an interface between the institutions concerned (ONAS, contractors, etc.) and the riparian populations; and (c) participatory Monitoring and Evaluation, including beneficiary impact assessment and surveys. None of these activities were implemented, with the exception of regular meetings at the commune of Sidi Hassine.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

35. *At design stage, and throughout implementation, the M&E framework was disconnected from project activities and did not properly capture project outcomes.* Only one out of the seven indicators of the project's M&E framework, the "Volume of treated sewage effluent made available for water reuse in El Attar irrigation areas", was designed to monitor a direct output of the project, though it failed to capture the actual outcome of promoting reuse in irrigation under the PDO. The remaining indicators failed to capture direct outcomes of the project, and instead either measured progress made by parallel activities (e.g. "New connections in the areas targeted by the project", which measured the outputs of the EIB-financed project, which was distinctly outside the project scope) or monitored general indicators relevant to ONAS's corporate strategy without clear links to the project activities (e.g. " Staff / thousand connections" or "volume of sewage collected and treated in the Greater Tunis Area" which were insufficient proxies of project outcomes). The M&E framework was never refined or restructured during project implementation. See Annex 5 for further details on M&E design and monitoring throughout implementation.

36. *M&E was rated Satisfactory throughout implementation despite its structural limitations which precluded any direct measurement of project performance.* The M&E rating was based on the regular reporting of ONAS's own overall technical and financial key performance indicators, rather than the indicators of the PAD's M&E framework, which were never monitored in full, or complementary indicators which could measure project outcomes. As a result, Aide-Memoires and ISRs reported only the values of the sub-selection of PAD indicators that came from ONAS's key performance indicators. In addition, some changes were made punctually without being recorded in a formal restructuring. Deviations from the PAD indicators were highlighted only in the early years of project implementation⁸ and did not subsequently lead to any restructuring.

37. *ONAS has not incorporated any additional indicators as a result of the project, beyond its standard set of financial and technical KPIs.* As neither the main infrastructure nor institutional components were fully completed, utilization of M&E was not immediately relevant at project closing. Nevertheless, plans to restructure the M&E framework were developed in the last six months of implementation, to drop irrelevant indicators, add indicators that directly measured the outcome of WWTP completion in terms of treatment capacity, and define reporting mechanisms. The restructuring was dropped as the project was not extended. However, the preparation of the restructuring led to the identification of adequate and specific indicators of sewage volumes collected and treated in the Northern Tunis system, to measure the direct outcome of the project. A quick look at initial measurements, including the month of January 2016 when El Attar became partially operational, shows a year-on-year decrease of 10 percent. Though still inconclusive until more data can be compiled, this seems to indicate that should the project be completed, it would indeed provide significant relief to the Northern Tunis system.

⁸ ISR Sequence 3, November 2007

2.4 Safeguard and Fiduciary Compliance

Safeguards

38. *Compliance with Social Safeguards.* The Involuntary Resettlement safeguard policy (OP/BP 4.12) was triggered by the project; social safeguards compliance was rated Moderately Satisfactory throughout the project. The land which needed to be acquired for the construction of the El Attar WWTP and the two pumping stations represented a total of 74 hectares. All of the plots required belonged to the State, including the area for the pipes used for the transfer of raw and treated sewage to and from the WWTP, and the pumping stations. In the case of the WWTP, the land was being leased by the state to a farming cooperative, the SMVDA. A Land Acquisition Plan was prepared; the SMVDA cooperative agreed to have its lease revised and its rent lowered, and to return the plots of land back to the State. These plots were then classified as public domain and affected to ONAS in 2007.

39. *Compliance with Environmental Safeguards.* The project was classified as a Category A Project under the environmental evaluation safeguard policy (OP/BP 4.01). This classification was linked to the construction of the El Attar WWTP and the vulnerability of the receiving water bodies, the Oued Meliane and the Gulf of Tunis. An Environmental Impact Assessment (EIA) was prepared, and public consultations took place on February 27, 2006. The Loan Agreement included a legal covenant to revise the Environmental Impact Evaluation to include a sludge disposal facility at the WWTP, which was complied with in 2007.

40. *Environmental Management during implementation.* Component 2 included activities related to Environmental Management for the project, in particular the operation of the new WWTP and mitigation measures for sludge disposal. During the construction phase, ONAS recruited a consultant to supervise the environmental aspects related to construction in the implementation of Component 1. An Environmental Management Plan was designed for the operational phase of the WWTP. As a result, it was recommended to carry out (i) a number of studies related to the risks posed by the management of gas and sludge in the WWTP site; (ii) designing an emergency plan for the WWTP and related facilities; and (iii) designing guidelines on hygiene and safety in the WWTP and related facilities. These activities were procured by Project closing, but had not been initiated and were therefore not completed.

41. *Strengthening ONAS's environmental monitoring capacity.* The Environmental Management Plan called for a reinforcement of ONAS' environmental management capacity through the creation of an internal Environmental Monitoring Cell within ONAS, staffed with an environmental specialist, two technicians and an assistant, and dedicated to monitoring the compliance upstream and downstream of the El Attar WWTP. The cell was created but remains inadequately staffed, as there is only one Environmental Specialist, available on a part-time basis (he also dedicates time to ONAS's other ongoing projects and operations)⁹. The equipment for the environmental cell financed by the Project (cars,

⁹ More recently, an additional technician was affected to this cell.

lab material, IT equipment) has been procured and delivered to ONAS but is currently not being used by the Environmental Monitoring cell.

Fiduciary compliance

42. *Though procurement was compliant with World Bank policy, it suffered from excessive delays and did not properly capture underlying risks.* No major procurement issue was raised during implementation as the largest contracts had been committed by 2012. Procurement was rated Satisfactory or Moderately Satisfactory until it was downgraded to Moderately Unsatisfactory from January 2013 onwards due to the contractual issues, for the most part linked to the construction company's de facto default. Nonetheless, procurement generally suffered from delays in excess of a year for almost all activities of the project, aside from the El Attar WWTP, which was procured in less than a year. Furthermore, several project risks arose as a result of how contracts were procured:

- Several contracts were won by consortia with no designated lead company. This posed a risk in case of default by the other winning company or companies within the consortia, as there was no clear contractual hierarchy for contractual responsibilities. This ended up being a major risk in the case of three contracts: the El Attar WWTP construction contract, the raw sewage transfer contract, as well as for the Commercial Information System contract.
- As is standard practice, bidding companies were evaluated separately for each contract under the project. Had bidding companies' technical and financial capacity been assessed for *all* the contracts they were competing for under the project, it may have been possible to detect that the local civil works company (GTM), which eventually defaulted on its responsibilities, did not have the technical and financial capacity required to carry out all the contracts it was vying for.

43. *Financial management was generally compliant, despite chronic financial reporting delays.* Financial Management was rated Satisfactory or Moderately Satisfactory for most of duration of the project. There were no major deviations from FM guidelines, though audit reports were often submitted by ONAS with some delay, due in large part to its dependence on revenue figures provided by the water utility, SONEDE, which it often only received one year after close of its fiscal year. More recently, ONAS audit reports highlighted chronic difficulties in asset inventory, which resulted in a qualified opinion in the 2013 report, and an audit action plan which was put in place in 2015. Fiduciary risk was therefore rated Substantial when it was introduced in the ISR system (May 2015), also linked to procurement and contract management difficulties. The project's loan agreement also included covenants for maintaining the financial stability of ONAS by keeping the ratio of (i) operating expenses to operating revenue; (ii) assets to liabilities; and (iii) accounts receivables under predefined thresholds, and for ONAS to take measures if these ratios were not in conformity with the standards set out in the Loan Agreement. These ratios were generally complied with, though they were not systematically reported by ONAS.

44. *Disbursements.* As of June 30, 2015, at Project closing, disbursements reached a total of Euro 43.6 million, or 81 percent of the Euro 53.9 million Bank loan. They increased

to Euro 45.3 million, or 84 percent, when the loan closed on October 31, 2015, after a four-month grace period. An undisbursed amount of Euro 8.6 million (US\$ 9.5 million equivalent) was subsequently cancelled.

2.5 Post-completion Operation/Next Phase

45. *The El Attar WWTP became partially operational in January 2016, and is scheduled to become fully operational in 2017.* At project closing, the raw sewage intake pipes and pumping stations, and treated sewage transfer network had been completed, whereas the El Attar WWTP had not been completed. ONAS subsequently proceeded to continue negotiating with the construction firm, and finance the remaining works for the finalization of the WWTP with its own funding. Following the arrangement agreed upon in June 2015, works are now being carried out by the construction firm, with a new subcontractor for civil works. The WWTP is partially operational since January 2016, at one third of its planned nominal capacity. The wastewater treatment processes are expected to be completed, and the WWTP operating at full capacity, by December 2016. The sludge management processes would however only be completed by June 2017. ONAS plans to directly manage the infrastructure built as part of Component 1. In accordance with the Greater Tunis Sanitation Master Plan, completed in 2014, ONAS plans on doubling the capacity of the WWTP in the future, through a planned BOT scheme.

46. *At the time of writing, partial operation of the WWTP has already significantly reduced environmental discharges and perceptibly relieved the Northern Tunis WWTP system.* The operational (partially installed) capacity of the WWTP is 25,000 cubic meters (CM) per day; based on data from January 2016, this translated into a median treated volume of 17,000 CM per day. Environmental discharges to the Sejoumi Sebkha are estimated to be around 15,000 to 20,000 CM/day. Visual observations have confirmed that the El Attar WWTP has contributed to reduce environmental discharges significantly. On some days, when the El Attar WWTP operated at full capacity, operators have observed perceivable improvements in the performance of the Northern Tunis system. Nevertheless, impacts on the environment and prevalence of mosquitoes, as well as sustained improvements in the performance of the wastewater treatment system, will have to be assessed more thoroughly after at least one full year of operation.

47. *Though the treated wastewater transfer was completed, there are no plans or actions in place to ensure uptake by farmers.* At the close of the project, there is no firm institutional arrangement in place or planned to develop the reuse of the wastewater treated by the El Attar WWTP, and made available to farmers through the transfer system. Without a strong enabling environment, there is a significant risk that additional costs generated by project design for potential reuse not be sufficiently offset by increased farmer uptake.

48. *Institutional capacity-building activities would not be completed until 2018, and there are no firm plans to reorganize and train ONAS staff accordingly.* The development of the integrated Commercial Management System for ONAS and SONEDE, which is now set to be finalized in 2018, is due to be financed under the on-going Northern Tunis Sanitation Project. There are no plans to organize ONAS' customer service, billing or other

relevant departments around the new tool's enhanced functions, and train staff accordingly. Similarly, there are no firm plans yet to continue with the activity of the integration of ONAS's financial decision-making. The human resources allocated to Environmental Monitoring remain insufficient, and at the time of project closing there is no firm institutional arrangement in place to increase environmental monitoring capacity in ONAS. The strategic study for expansion of sewerage in small towns was completed under separate financing and is being used to inform the next phase of planning for ONAS.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Relevance of Objectives: Substantial

49. *The project remains a key component of the Greater Tunis sanitation master plan, which aims to address a critical shortfall in wastewater collection and treatment capacity.* In the low-income area of Sidi Hacine in the western suburbs of Tunis, access to sewerage is lower than in the rest of Tunis, and ONAS's inability to provide proper treatment in the area has been a barrier to planned additional urban development. The sewage which is collected has to be transferred to the Northern Tunis system of WWTPs, located 40-45 km away, itself largely saturated and underperforming. In addition, a significant portion of raw sewage, estimated to be approximately 20,000 cubic meters per day, is discharged directly into the environment. This has generated adverse environmental impacts, in particular in the Sejoumi Sebkhah, as well as health hazards due to chronic proliferation of mosquitoes in the area. In May 2015, the Tunisian Prime Minister visited the area and declared that its environmental remediation would become a national priority. That goal would be achieved chiefly through the completion of the El Attar WWTP, which would capture the load of the western suburbs of Tunis from the Northern Tunis system of WWTPs as well as eliminate raw sewage discharge in the environment.

50. *The project remains consistent with current Bank strategic orientations.* The project's objectives of improving sanitation access and water reuse were relevant in light of the 2004 Country Assistance Strategy (CAS), and remained so in light of the Country Partnership Strategy (CPS) for the period FY10-FY13, and the Interim Strategy Note (ISN) for the period FY13-FY14, both of which called on the need to improve the quality of services delivery, as well as water management and environmental resilience in the face of climate change impacts. More recently, the Country Partnership Framework under preparation for the period FY16-FY20, continues to emphasize improved access and quality of services, while at the same time promoting SOE reform and private sector participation in infrastructure development and management, which are now part of ONAS's strategy to build its long-term financial sustainability.

Relevance of Design and Implementation: Modest

51. *The PDO was over-ambitious and partially disconnected from project activities.* Indeed, the PDO is linked to increase of access to sanitation, promotion of wastewater reuse, and institutional capacity-building, which are not direct outcomes of Project activities, but rather mirrored ONAS's overall strategy, and were dependent on actions outside the scope of the project. Though the completion of the El Attar WWTP and collection system would have improved wastewater treatment, increase of access to sanitation was dependent on a separate EIB-financed project in the Western suburbs of Tunis. In addition, the PDO did not properly capture the impact of the WWTP on the overall wastewater collection and treatment system in Greater Tunis, nor any environmental remediation. Furthermore, promotion of reuse was highly dependent on

larger policy reforms and stakeholder consultations, and were not served by any specific activities under the project, or through other supporting instruments and sector dialogue, despite its significant weight in the design of the WWTP system. Finally, institutional performance improvements were not supported by strategic sector reform actions, rather by a piecemeal approach that lacked full client ownership.

52. *Project outcomes were inadequately monitored and evaluated.* Only one out of seven PDO indicators directly measured a project outcome, though with strong limitations; increased availability of treated wastewater for reuse would measure outcome of WWTP completion, but only partially measures achievement of “promoting the reuse of treated wastewater in irrigation on a sustainable basis and in significant quantities”. Other financial (e.g. working ratio) and operational (e.g. customer satisfaction) performance indicators somewhat measured “enhancing its performance”, but were not directly linked to any project activities.

53. *The PDO and components were not restructured to correct structural design shortcomings.* Despite the long implementation period and evolving situation, the PDO was never simplified to better reflect outcome of financed activities, and the M&E framework was never restructured accordingly. In addition, activities to support increased reuse by farmers were never considered for financing, despite significant investments under the project to make treated wastewater available, including the elevated WWTP site requiring additional pumping and its extended transfer network to connect local irrigation perimeters.

3.2 Achievement of Project Development Objectives

PDO01: Improve the quality of sanitation services in Greater Tunis: Modest

54. *As the main output of the project, the El Attar WWTP, was substantially, yet not entirely completed at the closing of the Bank Loan, the project has not improved sanitation services yet.* Improvement in the quality of sanitation was essentially designed to be achieved by the completion of the El Attar WWTP, which would have provided critical additional collection and treatment capacity to relieve the overloaded Northern Tunis wastewater system and eliminate environmental discharges of raw sewage. At the closing of the Bank Loan in June 2015, the WWTP was 80 percent completed, a level of completion it had actually achieved in 2012, when works were suspended due to the dispute and corresponding international arbitration. Despite this major external shortcoming, ONAS has demonstrated commitment to find full resolution, and reached a formal agreement with the contractor in June 2015. Works have now resumed on the WWTP, which is partially operational and has started to have positive impacts in Western Tunis in January 2016 (see section 2.5), and is likely to be fully operational by 2017 (see section 4).

55. *As a result, the achievements of the sector actually decreased over the course of project implementation.* The volume of treated wastewater in the Greater Tunis area increased from 86.9 Mm³/ year to 99.3 Mm³/year, but not enough to keep up with the increase in collected sewage, which went from 87.9 Mm³/ year to 117 Mm³/ year over the

same period. As a result, wastewater treatment in the Greater Tunis area (as a percentage of collected wastewater) decreased from 98.75% to 84.9% between 2005 and 2015. This was in great part due to the non-completion of the El Attar WWTP, which was not operational by the end of the project; if it had been operational, it would have extended capacity by an additional 60Mm³ in its first phase (under the present project) - enough capacity to treat all wastewater currently collected, and allow flexibility for previously deferred rehabilitation of existing infrastructure.

PDO02: Promote the reuse of treated wastewater in irrigation on a sustainable basis and in significant quantities: Modest.

56. *At the time of project closing, reuse infrastructure was built but treated wastewater was yet to be made available to farmers, as the WWTP had not been completed. The infrastructure for conveying treated wastewater through agricultural areas was built and completed under the project, but could not be used as the WWTP had not been completed and no wastewater could be treated. In addition, no activities were undertaken by the Ministry of Agriculture to equip nearby agricultural land with water reuse facilities, meaning that even if the WWTP had been operational by the end of the project, water reuse for irrigation would not have been possible. Nevertheless, should (i) a more enabling environment for reuse be achieved, and (ii) farmers be actively consulted, through better inter-institutional coordination, the project infrastructure built under the project does allow for reuse to actually take place at some point in the future.*

57. *There was no investment in actions outside of the scope of ONAS to foster an enabling environment for reuse. Since ONAS's role is limited to making treated wastewater available for reuse, whereas the Ministry of Agriculture has the mandate to equip irrigated areas for water reuse, achievement of PDO relied heavily on a separate project which the Ministry of Agriculture had planned to undertake in parallel at the time of project design, in order to equip 3200 ha of land for irrigation with water use in the Mornaguia area, close to the El Attar WWTP. The PDO was not restructured to adjust to the evolving situation, even after it became clear that the parallel project by the Ministry of Agriculture was not going to go ahead. There is also no evidence of demand from farmers for water reuse in the area, and no firm plans in place for water reuse in the area close to the treated wastewater transfer pipeline. A feasibility study is being completed by the Ministry of Agriculture, although at this stage it is not clear whether these areas are included in the current five-year plan for water reuse.*

PDO03: Enhance ONAS performance through financial and operational management capacity building: Modest

58. *The main outputs supporting this PDO were not completed under the project. The integration of a financial model, which aimed to provide a dynamic support to decision-making, was never fully design, nor procured. The modernization of ONAS's customer service management system consisted of the deployment of a new IT billing system, in conjunction with SONEDE. Only its design phase was completed at project closing, consisting of around 10 percent overall progress, as the more significant testing, piloting*

and deployment phases, as well as equipment purchase and corresponding reorganization, are still on-going under separate financing, and are expected to be completed in 2018.

59. *The performance of ONAS did not improve over the implementation period.* The operational performance of ONAS decreased substantially as its treatment capacity could not keep up with the increase in wastewater collected, in large part due to the non-completion of this project. In addition, its financial situation deteriorated over the same period as its operational deficit increased, as well as the corresponding operational state subsidy, which amounted to one third of its revenue in 2012. The number of staff per thousand customers, decreased steadily over the period, from 4 to 2.34 employees per 1000 customers, though this was due to a ban on new hires (in place since 2004) and was not linked to any activities in the project.

3.3 Efficiency

Efficiency: Modest.

60. *As most outputs under the project were not completed by Project closing, and given significant factors of inefficiency, project efficiency is estimated to be negligible.* At appraisal, the economic analysis of the project demonstrated its projected efficiency as a consequence of three types of benefits derived from the construction of the El Attar WWTP: (i) increase in tourism in beaches around the Gulf of Tunis resulting from improved environmental conditions; (ii) increased wastewater reuse by farmers; and (iii) improved sanitation in the Western suburbs of Tunis. At project closing, it is difficult to quantify the economic efficiency of the Project as the above benefits did not materialize due to the non-completion of project activities; nor could they be accounted for as directly resulting from this project. In addition, several factors have likely significantly deteriorated the expected efficiency of the project. The choice of the El Attar site (see section 2) made it necessary to pump large sewage volumes up 110 meters in altitude, leading to the additional cost of a second pumping station (SP2), and additional energy expenditures, while it is unlikely that any benefits from reuse materialize given the absence of accompanying institutional measures. Significant project delays have doubled the time necessary for Project completion, resulting in significant transaction and administrative costs. Finally, the economic balance of the project is further deteriorated by the sunk costs of some of the built infrastructure. ONAS has initiated a diagnostic of potential structural deficiencies to determine which structures would need to be demolished and rehabilitated (e.g. the sludge digesters) prior to the WWTP becoming fully operational. The cost overrun for the completion of the El Attar WWTP is estimated to be 15 percent of the initial contract, not accounting for any major rehabilitation that could be needed.

3.4 Justification of Overall Outcome Rating

61. *The rating is Unsatisfactory.* The relevance of objectives is substantial, but the relevance of design, in contrast, is modest as the PDO was over-ambitious, inadequately monitored and evaluated, disconnected from project activities, and never restructured during implementation. In addition, none of the three parts of the PDO were achieved

through the project's activities, in particular because none of the major outputs were completed by project closing, despite substantial completion of works on the El Attar WWTP as soon as 2012, thus leading to an overall PDO achievement rating of modest. Efficiency is considered to be modest as a direct consequence of modest achievement of outputs. Overall, given that the three sub-ratings are modest, the overall outcome rating is unsatisfactory.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

62. *The project targeted some of the most underserved and poorest areas in the Greater Tunis area.* A desk-based beneficiary assessment undertaken in 2015 showed that the population of Tunis West, which benefited from sewerage connections under the EIB-financed project and is set to benefit from wastewater treatment when the El Attar WWTP becomes operational, has a slightly higher level of poverty than the rest of Tunis: more than 14 percent of the population in these areas benefits from income-based social programs, compared to an average of 12 percent in the Greater Tunis area. No specific gender activities were identified, implemented or monitored in the project, though it is expected that women will benefit from the completion of improved wastewater collection and treatment, and better environmental conditions in the western suburbs of Tunis in particular.

(b) Institutional Change/Strengthening

63. *The Project did not significantly contribute to institutional strengthening, despite a strong emphasis under the PDO.* Component 2 was dedicated to institutional strengthening, with the Commercial Information System representing the bulk of the financing. While the project design set out to improve commercial and financial management, and had some ambition to change the utility's approach to customer orientation (as evidenced by the inclusion of an indicator on 'periodic customer satisfaction surveys' in the M&E framework), these activities lagged behind during implementation as the focus was mostly on the infrastructure component, and resolving the major difficulties it faced. At project closing, it is unlikely that the project had a long-term impact on capacity and institutional development. However, the issue of institutional development is a pressing one, as many of ONAS managers and technical specialists are approaching retirement; these individuals' knowledge and expertise will need to be captured and passed on to ensure a smooth transition.

(c) Other Unintended Outcomes and Impacts (positive or negative)

64. Unintended negative impacts include the cumulated negative environmental impact of raw sewage discharge, which continues to affect the population of West Tunis (which suffers from regular overflow of wastewater in the streets) as well as the water bodies into which the wastewater is currently discharged (the Sebkheth Sejoumi and the Gulf of Tunis). This is due to the chronic overload of the Northern Tunis wastewater system in the past

few years. Such negative impacts led in particular to a substantial increase in the proportion of mosquitoes in surrounding inhabited areas, and the city of Tunis at large, which in turn generated increasing grievances from the population and further risk to the reputation of ONAS. As a result, GoT proceeded to develop a broad action plan to remedy the situation, including a strong commitment to resume works and complete the El Attar WWTP. The situation has somewhat improved since the El Attar WWTP became partially operational in January 2016 (see section 2.5), and is expected to improve further once the WWTP is fully operational in 2017.

4. Assessment of Risk to Development Outcome

Rating: High

65. *The risk to development outcome remains high with regards to any prospect of full achievement of PDO in coming years.* This is due to residual uncertainties pertaining to (i) the significant remaining investment needs for the completion of the El Attar WWTP and the overall improvement of the Greater Tunis wastewater treatment system, (ii) the lack of an enabling environment for the promotion of wastewater reuse in irrigation, and (iii) the continued delay of actions to improve the financial and operational performance of ONAS.

66. *Nonetheless, a number of actions are on-going to mitigate those risks.* In particular, ONAS has secured complementary bilateral donor funding, and works have resumed on the El Attar WWTP. It is now partially operational, and is expected to be completed in two stages, with its treatment process fully operational by December 2016, and its sludge management processes completed in 2017. This should enable ONAS to accelerate its overall program to improve sanitation in Greater Tunis by resuming its initially planned extensions, as well as long-delayed rehabilitation programs. In addition, the Bank continues to support ONAS in through parallel instruments. Under the Northern Tunis wastewater project, ONAS is expanding its capacity to provide treated wastewater for reuse, while it is also piloting a demonstration pilot and establishing a new level of dialogue with its Agriculture counterparts. With AFFI and PPIAF funding for financial, technical, institutional, and communication advisory, it is piloting the delegation of a portion of its infrastructure to the private sector, to improve its operational efficiency and level of service. These actions, and others, are detailed in the table below.

Table 2: On-going risk mitigation actions

| Risks | <i>On-going Mitigation actions</i> |
|---|---|
| <p><u>Improved wastewater treatment</u> Significant remaining investment needs for the completion of the El Attar WWTP Overall improvement of the Greater Tunis wastewater treatment system</p> | <p><u>Finalization of el Attar WWTP</u> ONAS is financing the remaining works for the finalization of the WWTP using its own funds. Works are being carried out by the same construction firm, with new subcontractors for civil works. WWTP is partially operational since January 2016 (wastewater treatment line only) and should be fully completed and operational in 2017 (water treatment and sludge processing). Once El Attar WWTP will be completed, this will give ONAS flexibility to proceed with major rehabilitations needed in the Northern Tunis System. ONAS plans to extend El Attar and build supplementary WWTP (El Allef, Tunis North), potentially under BOT schemes, should further enhance its treatment capacity, in line with its Master Plan.</p> |
| <p><u>Wastewater reuse in agriculture</u> No firm plans have been made for water reuse for irrigation from the WWTP in Mornaguia, in spite of the infrastructure being built as part of the project. While Tunisia's current policy aims to increase water reuse for irrigation, and a study has just been completed for the</p> | <p><u>Pilot efforts to promote reuse under Bank-funded Northern Tunis wastewater project.</u> Northern Tunis Project includes (i) construction of a basin with improved treated wastewater quality, to promote reuse in the Borj Touil area; and (ii) a reuse pilot in the Sidi Amor area to build up inter-institutional coordination. Efforts to date have led to (i) demonstration of potential for treated wastewater reuse, including awareness raising of</p> |

| | |
|--|--|
| <p>rehabilitation of the Mornaguia perimeter. General lack of an enabling environment for the promotion of wastewater reuse in irrigation, due to (i) constrained legal framework, (ii) weak inter-institutional coordination, (iii) uncertainty of treated wastewater quality, (iv) inefficient economic incentives, and (v) low farmer awareness and uptake.</p> | <p>farmers; (ii) constructive dialogue between Agriculture services and ONAS to leverage infrastructure being built, as well as open avenues for experimentation with new cultures; and (iii) improved prospects for the rehabilitation of existing; irrigation perimeters in the vicinity of ONAS WWTPs.</p> |
| <p><u>ONAS performance</u> Persistent delay of actions to improve the financial and operational performance of ONAS, include tariff freeze, hiring freeze, complex procurement procedures, ageing infrastructure with low rehabilitation rates - exacerbated by consequences of 2011 Revolution.</p> | <p><u>ONAS PPP program and other</u> ONAS is piloting the delegation of a portion of its infrastructure to the private sector, with Bank transaction and other advisory support. Northern Tunis will be the first pilot, with the perspective of (i) significant infrastructure upgrade and O&M improvements; and (ii) freeing up resources to strengthen other service areas. Completion of IT billing system, and initiation of corollary organizational changes, should improve revenue management significantly. Recent tariff increase (7% per year since 2014) has slightly improved financial prospects. Hiring freeze was lifted and ONAS is proceeding with recruitment of first wave of 150 technicians.</p> |

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Unsatisfactory

67. *Appraisal built on significant readiness of the infrastructure component, as well as pressing need for institutional capacity-building.* The procurement package for the El Attar WWTP built on existing studies and preliminary designs produced during preparation of an eventual BOT setup, and was finalized in parallel with appraisal. This was done under an expedited preparation process, justified by the perceived readiness of the project and urgent need for improved sanitation in the Greater Tunis area. In the end, the contract was tendered out in June 2006, the month the Project was approved. In addition, the Bank had correctly identified the pressing need to support ONAS in its response to a potentially expansion of its mandate to smaller cities, and to increased demand for sanitation and environmental services, with increasingly constrained resources, all of which had led to several years of deteriorated efficiency and cost-recovery.

68. *Nonetheless, project design focused almost entirely on infrastructure, while providing little in the way of institutional reform and sustainability.* At appraisal, emphasis was on readiness of procurement packages for the WWTP construction, and ancillary intake and transfer networks. Conversely, little consideration was given to support the enabling environment for wastewater reuse, despite explicit lessons learned to do so. In addition, concerns about the capacity of ONAS were raised by reviewers during project preparation but project design was not altered as a consequence, and none of the “soft” activities were fully designed or ready for implementation. Procurement of the major “soft” package, consisting of the IT billing system, started only two years after project approval, lasted two years from bidding to signing, and then was suspended for a year as staffing changes required additional administrative steps. Furthermore, the very short preparation time for the project (3 months between the PCN in March 2006 and appraisal in June 2006) was perhaps not sufficient to ensure client ownership of all the project's activities, particularly agreement on objectives and consistent design of activities under the institutional component.

69. *Overall, appraisal failed to highlight some of the design inconsistencies that weighed down the project's capacity to achieve its objectives.* While the official QAG documentation could not be found by the team in project files, there are records that the Project was assessed as Satisfactory by QAG¹⁰. This assessment failed to identify (i) the disconnect between the project PDO and M&E indicators, that were inadequate and not directly connected to the activities of the project, but rather mirrored ONAS's strategy, and (ii) the limitations of proposed activities, that did not fully build on lessons learned (which were stated in the PAD), and did not directly or entirely contribute to the PDO.

¹⁰ ISR Sequence 5, December 2008

(b) Quality of Supervision

Rating: Unsatisfactory

70. *Supervision due diligence was performed regularly throughout the project, though it failed to reflect project difficulties appropriately in performance ratings.* Supervision was proactive during the 9 year of project implementation, with frequent missions well documented by Aide-Memoires and in detailed ISRs. Though the planned MTR date was repetitively postponed from mid-2008 to early 2011, with no clear justification, MTR took place in January 2011¹¹. Procurement delays and poor project performance, however, did not translate into downgraded ratings in due time. Prior to MTR in early 2011, despite significant procurement delays and implementation difficulties which appeared as soon as 2010, DO and IP ratings remained satisfactory. Implementation progress was only downgraded to MU in 2013, once it became clear that a final decision on the international arbitration would be significantly delayed. Achievement of Development Objective remained rated MS until late 2014, despite evidence that neither its reuse nor institutional components would be achieved, and increasing risks that its main infrastructure component would not be completed.

71. *As a result, the Bank did not take timely action to restructure the project and support its full achievement of PDO.* Despite its over-ambitious objectives, inadequate M&E framework and structural design imbalance, as well as numerous subsequent implementation difficulties, the project was never considered for a restructuring to either adjust its scope and design, to include complementary policy and institutional support and refine its M&E framework, or simplify its objectives and reduce expectations based on negative contextual evolutions, such as the 2011 Revolution or reduce investment from Agriculture on wastewater reuse. Under its current results framework, had the El Attar WWTP been completed, the Project would nevertheless not have achieved its full objectives, nor would it have been possible to accurately measure its performance.

72. *Nonetheless, the Bank proactively supported ONAS to resolve technical and contractual issues.* The Bank was first informed of the potential default of the local civil works firm, GTM, after the January 2011 MTR mission, in the midst of the 2011 Revolution. Subsequently the Bank (i) referred the matter of the fraudulent guarantees to INT; and (ii) worked with ONAS, with the support of procurement and legal specialists, to find a satisfying contractual arrangements to hire a new subcontractor to remedy structural deficiencies of the work of the defaulting civil works firm. This process lasted over a year of negotiations, until resumption of works on the intake and transfer infrastructure, in late 2012 and 2013 respectively. In addition, in the second half of the project, the Bank brought in an external IT expert to support supervision of the joint ONAS and SONEDE contract to implement the Commercial Information System. Though this came to too late in the process to ensure completion of activities beyond phase 1 (design), it was critical in kick-starting contract implementation and ensuring that it was on the right track towards completion by 2018.

¹¹ MTR mission was suspended due to the Revolution events, and was only completed in April 2011.

73. *As the Bank was limited in its options to find resolution on the El Attar dispute, it monitored the situation closely, and supported ONAS to achieve resumption of works prior to Closing, even if unsuccessfully so.* The Bank was unable to prevent the dispute that led the lead contractor on the El Attar contract to take its case to international arbitration. It found its options to intervene strictly limited, and once the arbitration decision was rendered, ONAS found itself bound by unfavorable terms, including a prolonged resolution period (estimated to be 26 additional months) which was incompatible with project duration. Though the Bank found its scope for intervention strictly limited in terms of contract management, it continued to monitor the situation closely, in particular ONAS actions to reach an agreement and resume works on the El Attar WWTP. It quickly determined that only resumption of works on the WWTP would provide reasonable guarantee that the WWTP would be completed, and would be a condition for the extension and restructuring of the project, which were requested in March 2015. Despite strong ONAS proactivity and commitment, and in consultation with legal and procurement experts, the Bank determined that it was unlikely that works would resume in time, and therefore the extension was not granted and the restructuring was dropped. The Bank nonetheless continues to monitor works progress and its impact on wastewater treatment in the Greater Tunis area, and to support ONAS capacity-building activities, under the various active instruments that underpin its long-standing partnership with ONAS.

(c) Justification of Rating for Overall Bank Performance

74. The Bank performance is considered *Unsatisfactory* based on the combined assessments of quality at entry and quality of implementation.

5.2 Borrower Performance

(a) Government Performance: Unsatisfactory

75. *The absence of an efficient enabling environment was a major constraint for ONAS to achieve the PDO.* The Government of Tunisia (GoT), as loan's guarantor, was not directly involved in implementation. This evaluation therefore covers the institutional environment in which ONAS operates rather than direct actions by GoT. ONAS is mandated to manage Tunisia's wastewater collection and treatment infrastructure, with the explicit objective to protect its hydrological environment from any sources of pollution. Under ONAS' successive master plans for wastewater management in the Greater Tunis, such an ambitious mandate requires an environment conducive to successful outcomes of the different projects and partners supporting this program. Nonetheless, several policies and regulations restricted ONAS' capacity to implement the project effectively. A prolonged tariff freeze led to a significant deterioration of its financial situation, only partially compensated by ad hoc tariff increases since 2010. A prolonged hiring freeze restrained ONAS' ability to hire and train new and younger staff, and to ensure proper transmission of expertise and institutional memory in the face of ageing and progressively retiring staff. While ONAS management remained stable during the changes associated with the 2011 Revolution, ONAS had three successive CEOs at its helm in the 12 months

prior to Project closing. More broadly, the multiplication of procurement procedures, namely the duplication of Bank procedures with complex national procedures, requiring repetitive approvals by a national tender board, generated significant and chronic delays, and constrained ONAS' flexibility to manage contracts facing major difficulties. Furthermore, the absence of a conducive legal framework for wastewater reuse and systematic coordination mechanisms among wastewater reuse stakeholders, in particular public Agriculture services and ONAS, are not conducive to any increase in farmers' uptake of treated wastewater which would be made available by the El Attar plant.

(b) Implementing Agency Performance: Unsatisfactory

76. *Despite the absence of an enabling environment, the impact of the 2011 revolution, and severe contractual difficulties, ONAS maintained its commitment to complete the infrastructure financed under the project, even if unsuccessfully so.* ONAS extensive experience in implementing World Bank projects, and this was the seventh World Bank project implemented by ONAS¹². Within a non-conducive environment (see previous point), it had to contend with a variety of implementation issues, some of which it proactively brought to resolution, while others, such as the WWTP construction contract and the commercial information system contract, it was not able to resolve in time, or at all. In particular, it contended with the following issues:

- *Outside of its control:* the changes in the political situation in Tunisia had a profound effect on the Tunisian economy and institutional decision-making, and may have exacerbated procurement delays and contract management issues.
- *Partly outside of its control:* ONAS handled faced many contractual difficulties during the implementation of the project. In the case of the works contracts, it successfully resolved the consequences of the default of the local civil works company with regards to the intake and transfer networks, while it was unable to resolve the dispute with the contractor in charge of the construction of the WWTP.
- *Partly within its control:* though the fraudulent practices and subsequent default of GTM were outside of its control, the main contractor for the WWTP construction actually proposed to replace GTM prior to its default, which was accepted by ONAS, but could not be implemented due to the refusal of GTM to sign the contract amendment. ONAS subsequently levied contractual penalties and proceeded to cancel the entire contract, which prompted the dispute and international arbitration. Though it was not possible at the time to foresee the potential consequence of such a decision, ONAS could have explored alternative acceptable options to reach resolution.
- *Fully within its control:* ONAS did not fully leverage Technical Assistance (TA), despite the Bank's advice to increase its role in the implementation of Component 1. More intensive use of TA could have enabled ONAS to detect structural deficiencies earlier in the construction process.

77. *Agriculture counterparts and stakeholders were not sufficiently engaged with to establish the conditions for increased uptake of treated wastewater by farmers.* ONAS

¹² ONAS was created in 1974 as an implementation agency of Bank-funded sanitation project, and has continuously managed Bank-funded projects for the past 40 years.

operated under the premise that its mandate did not go beyond collecting wastewater, treating it, and transferring it for controlled discharge. Nonetheless, since the treatment and transfer system were designed to maximize availability to farmers for reuse, which induced significant additional pumping costs, ONAS could have more proactively worked with Agriculture counterparts and farmers to identify legal, institutional and behavioral barriers to reuse, agree on corresponding actions to enable increased reuse under the project, and work with stakeholders on the implementation of these actions. Similar approaches are currently being developed under the Northern Tunis wastewater project.

(c) Justification of Rating for Overall Borrower Performance

78. The overall borrower performance is considered *Unsatisfactory*, which reflects the combined performance of the Government and the implementing agency.

6. Lessons Learned

79. *At the sector level, the Bank should not shy away from addressing binding institutional and sectoral constraints, particularly when success is contingent on significant reforms.* The sanitation sector in Tunisia underwent significant reform in the 80s and 90s, with undeniable success, yet has since been unable to adjust to address new and increasing challenges. Rapid urbanization and a continuously expanding scope have over-extended ONAS and now threaten to undo the successes of the past - while there seems to be little impetus to change the current institutional model. Increasing water scarcity puts the spotlight on wastewater reuse, while the dialogue between Agriculture and Sanitation remains broken down, and past regulatory constraints remain unchanged. All the while, access to additional human and financial resources remains intractable as there is no appetite for any change to the current system. These fundamental issues cannot be addressed through financial ratios, IT systems or infrastructure alone, absent any dialogue for further reform.

80. *In particular, given the strong influence of potential reuse on project design, a constructive dialogue with Agriculture counterparts should be more systematic.* Though the institutional constraints to the establishment of a more conducive enabling environment for reuse were well-known and identified, namely the risks related to uptake of treated wastewater by farmers, remediation measures were deemed outside of the purview of the Borrower and therefore outside of the scope of the project. More attention should be given to the complexity of the results chain of the reuse of treated wastewater which was, and still is contingent on broad sector dialogue with multiple institutional partners (Agriculture, Environment, Health, etc.). In such situations, the Bank should proactively work upstream on broad institutional coordination and support to reform, be it through the project or another instrument, and avoid building complex project design on passive expectations of reform. In the Northern Tunis Wastewater Project, faced with intractable difficulties establishing dialogue with institutional partners, a local pilot was designed in the Sidi Amor area to enable small-scale reuse by identified farmers and working on its binding constraints, namely (i) providing adequate and reliable water quality and monitoring tools to alleviate farmer concerns with water quality; (ii) develop inter-institutional coordination mechanisms at a local scale to sustain pilot achievements; and (iii) leverage demonstration of successful reuse to justify need for regulatory and institutional changes.

81. *Institutional capacity building should be built on a clear path for change towards a sustainable model for sanitation services.* The organization of the sector around a national public utility, and its financing through the water bill, with a significant state subsidy for O&M (around 30 to 40 % of revenues over the years), have not changed since the inception of ONAS. More attention should be given to the theory of change underpinning SOE reform and institutional capacity-building. The project stopped short of questioning the adequacy of actions taken by ONAS to improve its performance, let alone questioning the financial and operational model in the sanitation sector, and reverted to limited tools such as monitoring of financial covenants and financing of ad hoc institutional activities. The Bank should engage more directly with its partners on the future of the sector, and plan reform accordingly. The Bank is now supporting an ambitious

agenda to delegate part of its services, including the Northern Tunis area, to the private sector, through a modern PPP scheme. In parallel, it is developing a note on the strategic orientations of ONAS to support sector dialogue and identify areas for further analytical work, in coordination with other donors who are investing in organizational changes in the sector. The Bank should ensure that it is developing a broader agenda for SOE reform so that the conditions for sustained project success.

82. *At the project level, even if major infrastructure procurement packages are ready, the Bank should allow sufficient preparation time to ensure that project objectives are clear, and that project design is consistent.* Many of the factors which have led to the unsatisfactory outcome of the project were present at design, were correctly identified, and yet were not properly addressed. The disconnect between PDO, M&E and project activities could have been immediately corrected, either by refining the project's ambitious objectives, or by expanding project activities as necessary - though there was little time to discuss such changes. The Bank could more systematically leverage instruments such as advanced preparation or advanced procurement to lift undue constraints on project preparation. Conversely, should time remain a strong constraint, the Bank should be more consistent in its design and monitoring of legal instruments to ensure that project design is appropriately refined or restructured during implementation. The preparation of the Northern Tunis Wastewater project in 2010 partially took into account these lessons. The PDO and results framework were carefully calibrated, and issues that were not resolved at appraisal were subject to specific covenants which were strictly monitored (e.g. review of the modelling of the submarine outfall) - though bigger sectoral shortcomings over reuse were only addressed after MTR.

83. *Candid project ratings are key to timely proactivity to address project shortfalls and manage problem projects effectively.* Throughout implementation, and until the last stages of the project, project ratings did not appropriately reflect emerging issues and risks. This deprived the teams, as well as management, of the critical responsibility to candidly assess the project's continuing capacity to achieve its development outcome, identify and report emerging issues and risks through ISRs and project ratings, and recommend proactive actions such as restructuring or cancellation. In particular, rating downgrades, when warranted, should occur early enough to address project shortcomings, mobilize management support appropriately, and enable additional fiduciary, safeguards or legal support in a timely and effective manner. Furthermore, the Bank should provide consistent and systematic guidance on problem project management, and ensure a safe space for discussion, to more effectively support teams when dealing with such projects, to in turn support client dialogue and ensure full ownership of recommended corrective measures. The implementation of such proactivity was key in addressing portfolio difficulties in the water sector in the Maghreb countries in 2014 and to date.

84. *More systematic procurement and contract management guidance and support could prevent major contractual shortcomings, and mitigate their impacts.* Though procurement was generally compliant throughout implementation, and strong proactivity on procurement and contract management issues were partially effective, an earlier, broader and more effective approach could have prevented some of the larger issues that

affected implementation and hindered achievement of PDO. Bidders responding to multiple bids under the same project should be closely evaluated to determine whether the accumulation of bids would strain their financial and/or technical capacity to deliver, and whether this would increase implementation to an unsustainable level in case of default (both of which were true under this project). Furthermore, country-wide systemic procurement difficulties, resulting from the cumbersome duplication of Bank and national procedures, should be forcefully addressed at the national policy level, rather than at the project-level. The Bank is addressing this by (i) technical assistance and sector dialogue with the national tender board starting in 2015; and (ii) establishment of new procurement standards.

85. *A project-specific technical assistance is instrumental for efficient and effective project implementation, and for building capacity within the implementing agency if strategically used.* Even in utilities with recognized experience like ONAS, implementation of large infrastructure contracts requires strengthened capacities to monitor and sustain progress. In particular, better leverage of TA could have provided more sustained monitoring and control of works and raised issues with structural quality of civil works much earlier in the process. A TA team needs to bring specialized skills, and has to work from the very start of project implementation, though it should not become a substitute for internal coordination or staff. Instead, TA is an instrument to improve project coordination and to develop new skills, methods, and dashboard and steering tools—and translate “on the job” operational knowledge into streamlined approaches to address business needs. This would be a timely and valuable resource to improve ONAS’ overall capacity to implement donor-funded projects, as now demonstrated under the Northern Tunis wastewater project where two separate firms were recruited and are heavily involved in the supervision of the land and marine works respectively, as well as equivalent TA support by firms for the supervision of the implementation of the project land and marine ESMPs respectively.

86. *The Bank should reflect on the appropriateness of the institutional incentives and instruments at its disposal to better estimate and manage its risks, especially when a project is subject to a combination of significant events.* The Project suffered successively from (i) a fraudulent firm which defaulted on its obligations under the three major works contracts financed by the project, (ii) an international arbitration which led to a 4 year suspension of works on the main El Attar WWTP contract, and (iii) a Revolution and its aftermath which produced high institutional instability and paralyzed decision-making for a long period. These severely hampered corrective actions undertaken by ONAS, and undermined the confidence in the capacity of the project to reach its objectives. As most Bank instruments, such as extensions, restructuring, additional financing, etc. are contingent on some level of satisfactory performance or confidence in such capacity to correct course, it is paradoxically more complex to leverage such instruments for those projects that need them the most.

87. *In particular, the Bank was unable to adopt a consistent approach to deal with contractual issues involving international arbitration, and address their consequences on project timeline.* Bank policy and resources were only partially effective in supporting

efforts by ONAS to resolve contract management issues, and in the case of the WWTP contract, failed to prevent the recourse to international arbitration or properly evaluate its consequences, and support ONAS in its response and resulting actions. Arbitration took two years, and resulted in 26 additional months to complete the works, going far beyond the project's initial implementation period, and considerably straining its acceptable risk threshold. Such a major difficulty should have triggered a more consistent approach from the start, including more active technical and fiduciary support, as well as broader levels of consultation (within the Bank as well as jointly with ONAS and GOT) and ownership of risk assessments and proposed mitigation measures.

7. Comments on Issues Raised by Borrower/Implementing Agency

88. *The Government and Borrower requested that the severity of the ratings be reduced, since disbursements had reached significant levels, and given the proactivity in addressing issues within their control.* The Government pointed to the implementation status report which were satisfactory until June 2014. The Borrower clarified that the promotion of treated wastewater reuse and institutional capacity-building were not perceived as central objectives of the project, which mainly aimed to increase the wastewater treatment capacity in the Greater Tunis area to respond to fast-growing demand. In particular, the promotion of reuse was not a fundamental component of the WWTP's design, rather a component of the national strategy to address water scarcity. Overall, the Borrower had always focused on the main infrastructure components which it deemed to be the extent of its mandate, and which it hopes to complete in the next twelve months despite the Bank's decision not to extend its financing and let the Loan close on June 30, 2015.

89. *With regards to the promotion of reuse, the Borrower reiterated that it had accomplished everything that was under its control.* Further actions for the promotion of reuse, including participatory approaches were deemed to be under the purview of the Ministry of Agriculture and its regional agencies. As stated in the PAD, and in the conclusions above, the infrastructure for the discharge of treated wastewater was built, and includes access points that are available for farmers. The access points were discussed with the CRDA of Manouba during the feasibility study for the Mornaguia irrigation perimeter rehabilitation and extension. This study has been completed, and the bidding documents are ready. Once this is implemented, the CRDA can take appropriate actions to foster connection by farmers to the access points, and reuse of the treated wastewater.

90. *The Government was key in early 2015 to support and sponsor resolution of the dispute with the contractor for the construction of the WWTP.* Government support accelerated once the in-principle agreement was signed in January 2015. GoT intervened directly in May 2015 to develop a broad action plan to remedy the situation, including a strong commitment to resume works and complete the El Attar WWTP. This led to full agreement signed by all concerned parties in June 2015, under GoT sponsorship. The contract was subsequently amended to reflect the exclusion of GTM and agreement on cost-sharing, and works resumed in September 2015.

91. A summary of the Borrower's completion report, as well as the Borrower's comment on the present ICR, are included in Annex 4.

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent) (1)

| Components | Appraisal Estimate (USD millions) | Actual/Latest Estimate (USD millions) | Percentage of Appraisal |
|--------------------------|--------------------------------------|---|----------------------------|
| Component 1 | 70.15 | 76.49 | 109% |
| Component 2 | 1.75 | 4.5 | 257% |
| Total Financing Required | 71.9 | 80.99 | 109% |

(b) Financing (1)

| Source of Funds | Type of Cofinancing | Appraisal Estimate (USD millions) | Actual/Latest Estimate (USD millions) | Percentage of Appraisal |
|--|------------------------|--|--|----------------------------|
| Borrower | | 5.10 | 7.95 | 156% |
| International Bank for Reconstruction and Development | | 66.80 | 70.50 | 106% |
| Total | | 71.9 | 78.45 | 109% |

(1) Total project costs (in MDT) based on ONAS's latest progress report (dated June 30, 2015). The US\$ amount equivalent is based on the average exchange rate for the years loan payments were made. No changes were made to the total loan amount, which was in Euros.

Annex 2. Outputs by Component

This section provides (a) an overview of the use of funds during implementation and (b) data on the outputs for each of the components of the project.

(a) Use of funds

| | Disbursed | Historical |
|---------------------|----------------------|----------------------|
| | EUR | USD |
| Committed | 53,900,000.00 | 70,766,799.45 |
| <i>Cancelled</i> | <i>8,582,614.67</i> | <i>9,731,397.64</i> |
| Disbursed | 45,317,385.33 | 61,035,401.81 |
| Works | 32,332,983.97 | 43,732,634.42 |
| Goods | 12,226,814.02 | 16,353,990.15 |
| Consultant Services | 622,837.34 | 814,027.24 |
| Front end fee | 134,750.00 | 134,750.00 |

(b) Data on project outputs

| | Appraisal Estimate (USD Million) | Actual/Latest Estimate (USD millions) | Percentage of appraisal | Physical realization |
|---|-------------------------------------|--|-----------------------------|-------------------------|
| Tunis West Sewage Treatment Plant | 37.40 | 36.82 | 98% | 80% |
| Raw Sewage Transfer (16-km adduction line of 2 x 8-km parallel pipes of 1.2 meters diameter in PRV) | 8.40 | 11.01 | 131% | 100% |
| Treated Sewage Transfer (25.5-km concrete pipe transfer network with valves) | 13.13 | 17.91 | 136% | 100% |
| Two Pumping Stations for Raw Sewage Transfer (400 l/s and 200 l/s) | 9.58 | 9.47 | 99% | 100% |
| On-Site Sludge Disposal Facility | 0.50 | 1.00 | 200% | 0% (study completed) |
| Strategic study for cities with less than 10,000 residents | 0.42 | - | 0% (financed separately) | 100% |
| Support to integration of financial management system | 0.17 | 0.73 | 430% | 0% |
| Commercial Management System | 0.83 | 2.58 | 311% | 10% |
| Environmental Management | 0.33 | 1.19 | 362% | 100% |

Annex 3. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

| Names | Title | Unit | Responsibility/ Specialty |
|-------------------------------|-----------------------------------|-------------|------------------------------|
| Lending | | | |
| Mohamed Benouahi | Task Team Leader | MNSSD | |
| Dominique Bichara | Sr. Counsel | LEGAM | |
| Marie Khoury | Financial Management Specialist | WFALA | |
| Georges Raphael Khoury-Haddad | Procurement Specialist/Consultant | MNAPC | |
| Andreas Wildt | Procurement Specialist | MNAPC | |
| Khalid Boukantar | Program Assistant | MNSSD | |
| Hocine Chalal | Environmental Specialist | MNSSD | |
| Tiguist Fisseha | Environmental Specialist | MNSSD | |
| Ahmed El Hamri | Financial Analyst | WFALA | |
| Supervision/ICR | | | |
| Slaheddine Ben-Halima | Sr. Procurement Specialist | AFCS2 | |
| Abdeljaouad Benhaddou | Consultant | MNSSD - HIS | |
| Khalid Boukantar | Program Assistant | GTIDR | |
| Xavier Chauvot De Beauchene | Sr. Water & Sanitation Spec. | GWADR | |
| Zakia B. Chummun | Language Program Assistant | GWADR | |
| Claudine Kader | Program Assistant | GWADR | |
| Moez Makhlouf | Consultant | MNAFM | |
| Fatiha Amar | Program Assistant | GWADR | |
| Larbi Khroug | Consultant | GWADR | |
| Mohamed F. Djerrari | Consultant | MNSSD - HIS | |
| Jaafar Sadok Friaa | Program Leader | SACPK | |
| Thamer Hussein | Water & Sanitation Spec. | MNSSD - HIS | |
| Walid Dhouibi | Procurement Specialist | GGO05 | |
| Salim Benouniche | Lead Procurement Specialist | MNAPC | |
| Claire Kfourri | Sr. Water & Sanitation Spec. | GWADR | |
| Mohamed Ghourabi | Safeguards Consultant | | |
| Georges Raphael Khoury-Haddad | Consultant | EASIS - HIS | |
| Mohamed Larbi Khrouf | HQ Consultant ST | GWADR | |
| Philippe Marin | Sr. Water & Sanitation Spec. | GWADR | |
| Mohamed Mehdi | HQ Consultant ST | MNAFM - HIS | |

(b) Staff Time and Cost

| Stage of Project Cycle | Staff Time and Cost (Bank Budget Only) | |
|------------------------|--|---|
| | No. of staff weeks | USD Thousands (including travel and consultant costs) |
| Lending | | |
| FY06 | | 220.00 |
| FY07 | | 8.70 |
| FY08 | | 0.00 |
| Total: | | 228.70 |
| Supervision/ICR | | |
| FY06 | | 0.00 |
| FY07 | | 64.82 |
| FY08 | | 63.87 |
| Total: | | 128.69 |

Annex 4. Summary of Borrower's ICR and/or Comments on Draft ICR

ONAS submitted a Completion Report for the project in November 2015. The document was coordinated by ONAS's *Planification* Department, in charge of Project implementation and relations with donors. A first draft was submitted by ONAS in October 2015 and expanded to include additional elements and lessons learned in November 2015. Below is a summary of the main points and additional elements which ONAS's Completion Report highlighted.

Contractual difficulties and project completion

- Component 1 of the Project faced difficulties linked to (i) the default of one of the companies involved in the consortium in charge of building the WWTP; and (ii) the international arbitration case between ONAS and the lead company in the consortium, during which work on the WWTP was suspended.
- Work resumed on September 15th, 2015 after lengthy negotiations with the lead company and the contract was amended to include two subcontractors to carry out engineering works. ONAS plans on the WWTP being partly functional in January 2016, and fully functional at the end of the year. A new Technical Assistance contract for the supervision of the WWTP works is in the process of being tendered; this will be an intermittent role.
- The project recommended the construction of a 20 ha sludge single-use landfill for the WWTP, with a drying process under greenhouse and storage of residue. Studies for the construction of the landfill (the overall cost of which is estimated at US\$ 20 million) were carried out under the Project, but the landfill itself was outside of the scope of the Project, and will be financed separately. A study had also been carried out for the construction of a temporary landfill (overall cost estimated at USD 0.5 million), which will also be built under a separate financing.

Lessons learned

- Working with consortia was detrimental to the implementation of the Project, notably in the case of two major contracts (for the WWTP and the Commercial Information System). This caused major delays and contractual issues. ONAS recommends that future contracts between ONAS and other parties should take the form of a lead company with subcontractors rather than a consortium with no clear hierarchy.
- At project appraisal, some key studies were missing, notably the studies for the sludge single-use landfill which then led to major delays during the implementation of the Project. This is also the case of the activities related to the Commercial Information System and the Financial Integration Model.
- ONAS needs to consolidate reinforce its departments in charge of project supervision and implementation.

- Procurement processes are complex and protracted. ONAS needs to train its staff on procurement guidelines; thresholds for ‘No Objection’ and prior review.
- ONAS recommends that the Technical Assistance/ consultants for the supervision of the works should be continuous and permanent throughout project implementation.
- ONAS proposed to finance the following activities under IBRD Loan 7917-TUN (Northern Tunis Wastewater project, which closes on 06/30/2017):
 - The realization of a temporary sludge monofill on the El Attar WWTP site
 - Strengthening of monitoring mechanisms for the Environmental and Social Management Plan of Tunis West
 - The Commercial Information System
 - The Financial Integration Model

Tunis West Sewerage Project (IBRD 73970) - Implementation Completion and Results Report
Comments from ONAS (National Sewerage Board - Office National de l'Assainissement)

Matrix of Comments

| <i>Paragraph Number</i> | <i>Comments from ONAS</i> | <i>Bank's Response</i> |
|---|--|--|
| 9. <i>Under Section 1.5: Original Components. Component 1 (Sewerage component): US\$70 million</i> | Les valves, servant pour le raccordement futur du périmètre irrigué, ont été installées dans le cadre du projet. | Described in Section II. |
| 12. <i>Under Section 1.7 : Other significant changes</i> | L'étude stratégique pour l'assainissement d'environ 100 petites villes de moins de 10 000 habitants a été réalisée dans le cadre d'un don octroyé auprès de la BAD. | Described in Section 2. |
| 15. <i>Section 2: Key Factors Affecting Implementation and Outcomes. Under Section 2.1: Project Preparation, Design and Quality at Entry</i> | Aucune décision n'a été prise sur la forme de la commande de la deuxième phase de la station El Attar. | Noted. |
| 16. <i>Section 2: Key Factors Affecting Implementation and Outcomes. Under Section 2.1: Project Preparation, Design and Quality at Entry</i> | Il n'existait pas d'incohérences de conception et le projet a été évalué selon les normes de la Banque mondiale. | These elements were clarified in the text. The text does not imply that due procedure was not followed. |
| 18. <i>Section 2: Key Factors Affecting Implementation and Outcomes. Under Section 2.1: Project Preparation, Design and Quality at Entry</i> | La conception du système de transfert des eaux brutes comprend deux stations de pompages, imposées pour des considérations techniques compte tenu de l'altitude du site de la station d'épuration. La dite conception n'a pas changé entre l'évaluation et la mise en œuvre. Il n'y a pas de déséquilibre fondamental en relation avec la station de pompage SP2. Aussi, la conception du système de transfert des eaux épurées sur un linéaire d'environ 25,5 km a été imposée par le point de rejet des eaux usées traitées au niveau d'Oued El Maleh. La réutilisation des eaux usées traitées est une conséquence du système de transfert compte tenu de l'existence des périmètres sur le chemin du transfert. Cette configuration a suscité les services du Ministère de l'Agriculture l'exploitation des eaux épurées dans le périmètre de Mornaguia. L'étude d'aménagement du périmètre irrigué est finalisée et les | The text recognizes the reuse infrastructure has been built, it was the understanding of the evaluators that the altitude of the plant was at least partially determined to enable potential reuse. At the moment of the evaluation, there is no indication that a full system, including inter institutional coordination, is or will be in place in the near future. |

| | | |
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| | <p>vannes pour le raccordement futur sont installées sur le système de transfert dans le cadre du projet.</p> <p>Il est à préciser que l'achèvement des composantes infrastructures vont sûrement permettre, tel que stipulé dans le document d'évaluation, la promotion de la réutilisation des eaux usées traitées dans le périmètre de Mornaguia.</p> | |
| <p>21. <i>Section 2: Key Factors Affecting Implementation and Outcomes.</i> <i>Under Section 2.1: Project Preparation, Design and Quality at Entry</i></p> | <p>(iii) Les risques de gouvernance (liés à la fraude/corruption) : L'ONAS n'a pas connu de risques liés à la gouvernance.</p> <p>(iv) Les risques liés à la complexité de la conception technique : La conception technique n'est pas complexe et l'ONAS a réalisé des projets similaires sur le plan technique.</p> <p>(v) Les risques associés à l'absence de capacité en gestion de contrats de l'ONAS : L'ONAS réalise en moyenne 100 projets par an et possède les capacités humaines qui lui permettent de gérer les contrats dans de bonnes conditions.</p> | <p>The text makes reference to the main types of risks that were highlighted during appraisal.</p> |
| <p>32. <i>Section 2: Key Factors Affecting Implementation and Outcomes</i> <i>Under Section 2.2: Implementation</i></p> | <p>La promotion n'est pas en phase d'étude.</p> <p>L'étude du périmètre irrigué dans la zone de Mornaguia à partir des eaux usées traitées de la station d'épuration Tunis Ouest est finalisée. Des vannes ont été installées aux points de captage le long de la conduite de transfert des eaux usées traitées.</p> | <p>These elements were clarified in the text.</p> |
| <p>33. <i>Section 2: Key Factors Affecting Implementation and Outcomes</i> <i>Under Section 2.2: Implementation</i></p> | <p>L'assistance technique a été employée durant toute la mise en œuvre du projet d'infrastructure. La partie non consommée était réservée essentiellement pour l'achèvement des digesteurs, la mise au point de l'installation pendant la mise en service de tout le système et la réception des installations.</p> | <p>These elements were clarified in the text. Further use of the TA is a positive development.</p> |
| <p>36. <i>Section 2: Key Factors Affecting Implementation and Outcomes</i> <i>Under Section 2.3: Monitoring and Evaluation, Design, Implementation and Utilization</i></p> | <p>Les changements n'ont pas été identifiés dans l'ICR.</p> | <p>The changes are described in Annex 5.</p> |
| <p>41. <i>Section 2: Key Factors Affecting Implementation and Outcomes</i> <i>Under Section 2.4: Safeguards and Fiduciary Compliance</i></p> | <p>Le matériel a été affecté pour le besoin de la cellule de veille environnementale.</p> | <p>These elements were clarified in the text.</p> |
| <p>42. <i>Section 2: Key Factors Affecting Implementation and Outcomes</i> <i>Under Section 2.4: Safeguards and Fiduciary Compliance</i></p> | <p>Les passations des marchés ont été effectuées selon les directives de la Banque mondiale. Dans les contrats avec des consortia, il y'a toujours un chef de file qui représente le consortia</p> | <p>These elements were clarified in the text.</p> |

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| <p>45. <i>Section 2: Key Factors Affecting Implementation and Outcomes Under Section 2.5: Post-completion Operation/Next Phase</i></p> | <p>Le Plan Directeur d'Assainissement du grand Tunis ne définit pas la formule de la commande (BOT, DB, shopping list ...).</p> | <p>These elements were clarified in the text.</p> |
| <p>47. <i>Section 2: Key Factors Affecting Implementation and Outcomes Under Section 2.5: Post-completion Operation/Next Phase</i></p> | | <p>These elements were clarified in the text.</p> |
| <p>48. <i>Section 2: Key Factors Affecting Implementation and Outcomes Under Section 2.5: Post-completion Operation/Next Phase.</i></p> | <p>Une technicienne supérieure a renforcé la cellule et l'ONAS ne cessera de la renforcer eu égard à la nouvelle politique environnementale dans la réalisation des projets et la nouvelle réglementation Tunisienne des marchés publics qui incite les acheteurs publics au respect des exigences environnementales.</p> | <p>Noted. The continued strengthening of the environmental management unit within ONAS is a positive development.</p> |
| <p>51. <i>Section 3: Assessment of Outcomes Under Section 3.1: Relevance of Objectives, Design and Implementation</i></p> | <p>Le PDO ne peut être évalué d'une manière objective qu'après l'achèvement du projet. Le projet visant le renforcement de l'infrastructure d'assainissement à Sidi Hassine, financé par la BEI, est achevé et les résultats sont positifs. Il a permis à la population résidente dans le bassin de Sidi Hassine l'accès aux services d'assainissement et l'amélioration des conditions hygiènes et vitales dans la région. La situation environnementale sera davantage améliorée après la mise en valeur et l'aménagement de Sebkhath Sedjoui, en phase d'étude par les services du Ministère de l'Équipement, de l'Habitat et de l'Aménagement du territoire. Le projet d'assainissement de Tunis Ouest commence à donner les résultats escomptés après la mise en service d'une partie de la station d'épuration, une très petite période après l'arrêt du financement et la clôture du prêt</p> | <p>This clarification is noted and has been taken into account in the evaluation, which recognizes the ongoing positive development.</p> |
| <p>60. <i>Section 3: Assessment of Outcomes Under Section 3.3: Efficiency</i></p> | <p>Au moment de l'évaluation du projet, la conception du système de transfert des eaux brutes comprend deux stations de pompes, imposées pour des considérations techniques compte tenu de l'altitude du site de la station d'épuration. Il n'y a ni un déséquilibre fondamental, ni un coût supplémentaire engendré par la réalisation de la station de pompage SP2</p> | <p>The text recognizes the reuse infrastructure has been built, it was the understanding of the evaluators that the altitude of the plant was at least partially determined to enable potential reuse.</p> |
| <p>64. <i>Section 3: Assessment of Outcomes Under Section 3.5: Overarching Themes, Other Outcomes and Impacts</i></p> | <p>Suite à l'assainissement urbain de la zone Sidi Hcine et la mise en service partielle de la station d'épuration El Attar, la situation environnementale et hygiénique est nettement améliorée.</p> | <p>This positive development is noted and reflected in section 4.</p> |

| | | |
|--|---|--|
| | Il n'a plus de débordements d'eaux usées à l'intérieur ou à l'extérieur de la zone. | |
| 65. <i>Section 4: Assessment of Risk to Development Outcomes</i> | Le projet a été arrêté et clôturé par la Banque mondiale avant son achèvement. L'ONAS et le Gouvernement Tunisien sont déterminés à son achèvement pour atteindre les objectifs escomptés. | These elements were clarified in the text. |
| 66. <i>Section 4: Assessment of Risk to Development Outcomes</i> | Sur la station d'épuration El Attar, seuls les digesteurs ne sont pas achevés. Le traitement des boues se fait actuellement par un séchage solaire dans les lits de séchage. | These elements were clarified in the text. |
| Table 2: <i>On-going risk mitigation actions</i> | L'ONAS n'a pas interrompu son programme d'extension et de réhabilitation que ce soit sur Tunis Nord d'une façon particulière ou sur le grand Tunis d'une façon générale. Remplacer station d'épuration Mornaguia par station d'épuration El Attar. | Noted. |
| 75. <i>Section 5: Assessment of Bank and Borrower Performance Under Section 5.2: Borrower Performance</i> | La procédure à appliquer (directives de la Banque ou procédure nationale) est le ressort du PPM convenu. Il n'y a pas de duplication dans les procédures de passation des marchés. | These elements were clarified in the text. |
| 76. <i>Section 5: Assessment of Bank and Borrower Performance Under Section 5.2: Borrower Performance</i> | L'ONAS était déterminé à achever le projet et a souvent proposé des scénarii à EMIT, chef de file du consortia. Néanmoins, les problèmes financiers de GTM ainsi que les problèmes internes entre les deux partenaires ont toujours constitué un blocage pour aboutir à des solutions fiables. L'ONAS, conscient de l'enjeu, a donné l'accord à EMIT pour achever le projet moyennant l'intégration d'un sous-traitant pour la partie génie civil. Malgré qu'elle soit chef de file, EMIT n'a pas trouvé de solution avec son partenaire GTM. L'ONAS a toujours associé l'assistance technique dans la phase construction. Le différend entre ONAS et le consortia de la station d'épuration est purement juridique et il est en dehors de la responsabilité et obligations de l'assistance technique. | These elements were clarified in the text. These elements were clarified in the text. |
| 77. <i>Section 5: Assessment of Bank and Borrower Performance Under Section 5.2: Borrower Performance</i> | L'ONAS a toujours collaboré avec la Direction Générale de Génie Rural et le Commissariat Régional de Développement Agricole de la Manouba pour la mise en œuvre du périmètre irrigué de Mornaguia. Des vannes ont été installées en étroite collaboration avec le CRDA pour une future utilisation pour desservir le périmètre en eaux usées traitées. | These elements were clarified in the text. |

Annex 5. M&E indicators - design and monitoring throughout implementation

| Indicators monitored during project implementation | PAD | ONAS KPI | Monitoring in ISRs | SMART | Conclusion |
|--|-----|----------|---|--------------|---|
| PDO indicators | | | | | |
| Volume of treated sewage effluent made available for water reuse in El Attar irrigation areas | Yes | No | Throughout project implementation (value remained zero) | Limited | Relevant to the reuse component of the PDO, though indicator does not capture its full extent. |
| Volume of sewage collected in Greater Tunis | No | Yes | Throughout project implementation | No | Monitors general ONAS activity, not clear which direct project outcome it captures. |
| Volume (mass) of BOD pollution load removed by treatment plant under the project. | No | No | Only for ISR #11 (January 2013) | No | <i>Environmental remediation is not an explicit objective.</i> |
| New connections in the areas targeted by the project (Sidi Hssine and El Agba in Tunis West) | Yes | No | Not monitored | No | <i>Not linked to specific project activities - could have been monitored as intermediate indicator</i> |
| Customer satisfaction, as measured by periodic surveys | Yes | No | Not monitored | Limited | <i>Linked to institutional component of PDO and customer management system activity, though not clear how activity contributes to indicator</i> |
| Share (%) of yearly investments for replacement/maintenance works over total sector investments | Yes | No | Not monitored | No | Monitors general ONAS activity, not clear which direct project outcome it captures. |
| Ratio of staff per 1,000 connections. | Yes | Yes | Throughout project implementation | | |
| Working Ratio | No | Yes | Throughout project implementation | No | Linked to financial covenant, not to PDO or project activities. |
| Other key financial indicators | Yes | Yes | Throughout project implementation | | |
| Intermediate indicators | | | | | |
| Percentage of works completed for El-Attar plant | No | No | Throughout project implementation | Yes | Enabled regular measurement of physical progress of works. |
| Implementation of studies, tools and systems; Setting of management performance objectives; efficient customer management, better areas recovery and revenue enhancement | Yes | No | Not monitored | Inconclusive | This series of indicators was not defined any further than mention in PAD, and not monitored. |

Annex 6. List of Supporting Documents

World Bank (2006) ICR Greater Tunis Sewerage Project

World Bank (2009) Réflexion stratégique sur l'eau potable et l'assainissement en Tunisie.

ONAS (2015) Tunis West Project Completion Report