

JBIC ODA Loan Project Mid-Term Review

Time of Mid-Term Review Field Survey: May 2006

Project Title: Kingdom of Morocco “Agadir Water Supply Project”

[Loan Outline]

Loan Amount/Contract Approved Amount/Disbursed Amount: 6,412 million yen/6,622 million yen/4,688 million yen (as of May 2006)

Loan Agreement: February 2001 (fifth year following conclusion of L/A)

Final Disbursement Date: June 2008

Executing Agency: Office National de l’Eau Potable (ONEP) (National Office of Potable Water)

[Project Objective]

This project aims for the stable supply of water to the residents of Agadir in the southwestern part of Morocco by means of improving water supply facilities, thereby contributing towards improving the livelihoods of the residents.

Consultants: Nippon Jogesuido Sekkei Co., Ltd. ·TEAM MAROC S.A. (Japan ·Morocco) (JV)

Contractors: OMCE(Morocco) ·SOGEA MAROC S.A.(Morocco) ·SOGETRAMA (Morocco) (JV), SEHI(Morocco) ·SOGEA MAROC S.A(Morocco). ·SOGEA SATOM S.A. (Morocco) (JV), etc.

Item	Results of ex-ante evaluation	Ex-post evaluation results as estimated at time of mid-term review
<p>[Relevance] (1) National policy level</p> <p>(2) Policy level</p> <p>(3) Planning level</p>	<p>(1) In Morocco’s Five-Year National Development Plan (2000-2004) development of the water sector was set as one of the priority policies and improvement of the water provision rate in both urban and regional areas was aimed for in order to address the increasing demand for water.</p> <p>(2) In both the Master Plan for the Potable Water Supply Sector (approved by the Government of Morocco in 1999) and the Urban Portable Water Supply Plan signed between the Office National de l’Eau Portable (ONEP) as part of the investment program (2000-2004) of ONEP (National Office of Potable Water) and the Moroccan Government, the improvement of water supply facilities in Agadir was positioned as being of the highest priority.</p> <p>(3) Agadir is the central city in the southwestern part of Morocco, and had been accorded an important position both as a tourist city representative of the country and the base of the fishing industry. In recent years, the demand for water in Agadir had grown rapidly. It was predicted that in the year 2004 the demand for water would reach the level of the existing water supply capacity, and expanding the city’s water supply capacity has become a pressing challenge. This project aimed to cope with the increasing demand for water in the future by installing new water supply facilities in the water supply regions centered around the urban areas of Agadir (two provinces and eight communes within the greater Agadir area). As such, this project had a high level of priority.</p>	<p>(1) Following the completion of the Five-Year National Development Plan (2000-2004), no new five-year long-term development plan has been formulated in Morocco. For the immediate future, it has been decided that provisional development policies will be denoted through the finance bills of each year. Some of the goals listed in the 2005 finance bill include improving the peoples’ access to basic services and correcting regional disparities by means of developing regional areas. In addition, in the National Initiative for Human Development (INDH) which was announced by His Majesty King Mohammed VI in May 2005, mention was made of improving access to fundamental social services, including water.</p> <p>(2) Improving access to drinkable water through the ongoing improvement of existing water supply infrastructure is listed in ONEP’s current investment program (2006-2009) as well.</p> <p>(3) In the Master Plan for the Urban Development of Agadir there are plans for large-scale development in the suburbs of Agadir. It is also expected within this plan that the demand for water in the city will increase in the future. The Regie Autonome Multiservice d’ Agadir (RAMSA) (Agadir Multiservice Utility), which provides water supply services to greater Agadir, estimates that even after completion of this project the demand for water will outstrip the water supply capacity sometime around the year 2015. In order to ensure new water resources, the Moroccan Government is planning to conduct the development of a new dam (Tamri Dam Construction Project) in addition to the Moulay Abdellah Dam which was completed in 2002; the plan is to expand the water supply capacity by 700l/s. Accordingly, this project continues to be recognized as being necessary.</p>

[Effectiveness]

(1) Operation and Effect indicators

Quantitative effects

Target values (as of 1999)

	2000	2005	2010	2015	2020
Population in the project area (1,000 people)	643	758	894	1,021	1,165
Population served (1,000 people)	444	546	688	837	1,025
Maximum water supply volume (m ³ /day)	87,610	106,099	132,106	157,334	185,760
Average water supply volume (m ³ /day)	73,008	88,387	110,074	131,069	154,829
Average water demand (m ³ /day)	72,927	88,281	109,914	130,915	154,635
Accounted-for water rate (%)	78	78	78	78	78
Percentage of Population Served(%)	72	72	77	82	88
Average water supply per capita (l/person/day)	164.6	162.0	159.9	156.6	151.0

(Note) At the time of appraisal, the addition of 700l/s in supply capacity through the first phase of the new water purification plant (2004 through this project) accompanying the completion of the Moulay Abdellah Dam in 2002, as well as the addition of 700l/s in supply capacity through the second phase of the water purification plant (2018) accompanying the completion of the Tamri Dam in 2020 were set as prerequisites.

(1) Operation and Effect Indicators

Quantitative effects

Actual values (2001-2006)

	2001	2002	2003	2004	2005	2006
Population in the project area (1,000 people)	637	658	679	700	721	743
Population served (1,000 people)	456	512	556	600	644	669
Maximum water supply volume (m ³ /day)	86,950	88,682	94,853	100,213	106,627	104,480
Average water supply volume (m ³ /day)	72,458	73,901	79,044	83,511	88,656	87,067
Average water demand (m ³ /day)	74,448	75,815	81,023	85,018	91,492	89,759
Accounted-for water rate (%)	80	79	80	81	79	80
Percentage of Population Served (%)	72	78	82	86	89	90
Average water supply per capita (l/person/day)	159	144	142	139	138	130

Target values (2007-2025)

	2007	2008	2009	2010	2015	2020	2025
Population in the project area (1,000 people)	765	788	812	836	946	1,071	1,182
Population served (1,000 people)	696	725	745	778	899	1,028	1,158
Maximum water supply volume (m ³ /day)	113,153	116,939	120,859	124,185	140,948	162,237	185,986
Average water supply volume (m ³ /day)	94,294	97,449	100,725	103,488	117,456	135,197	154,988
Average water demand (m ³ /day)	97,211	100,463	103,850	106,688	121,089	139,379	159,782
Accounted-for water rate (%)	80	80	80	80	80	80	80
Percentage of Population Served (%)	91	92	93	93	95	96	98
Average water supply per capita (l/person/day)	135	134	135	133	131	132	134

- The effects of the project itself have yet to appear on account of the fact that the project is not yet completed. If one performs a comparison with 2005, one would see that the figure for actual performance for the population in the project area of 721,000 people (average growth rate of 3.2% from 2000-2005) fell below the figure from the initial plan of 758,000 people (average growth rate of 3.4% from 2000-2005) by approximately 37,000 people. However, the figure from the initial plan for the population served of 546,000 people (average rate of growth of 4.2% from 2000-2005) were exceeded by the actual performance figure of 644,000 (average rate of growth of 9.1% from 2001-2005) by some 98,000 people. As a result of this, for the percentage of population served, the actual performance figure of 89% exceeded the 72% figure in the initial plan by 17 percentage points.

Moreover, the initially planned figure for the average water supply volume was 88,387m³/day, compared to the actual performance of 88,656m³/day, and the figure for the average water demand in the initial plan was 88,281m³/day compared to the actual performance figure of 91,492m³/day, meaning that both indicators went largely as planned. While the planned and actual performance figures for the average water supply volume were almost identical, the actual performance for the population served and the percentage of population served exceeded the planned figures. As a result, for the average water supply per capita, the actual performance figure of 138 l/day fell below the initially planned figures of 162 l/day.

	<p>Qualitative effects Reductions in water-related diseases</p>	<p>(2) Factors which may influence the effectiveness and impact</p> <p>1) Construction of the Ait Hammou Dam which serves as a water resource has been completed (scheduled for March 2002). The Moulay Abdellah Dam (previously known as the Ait Hammou Dam) which serves as a water resource for this project was completed in March 2002 as originally scheduled. The maximum water storage capacity for the dam is 108.9 million m³, and as of June 2006 the water storage rate was at a favorable 85%.</p> <p>2) Appropriate environmental considerations are given along the route for the water-conducting pipe facilities There were concerns over the impact that the construction work during the project period would have on the area along the route for laying the water-conducting pipes, which is the native habitat of rare trees (Sapotaceae), as well as the impact on wild birds. In an environmental impact assessment conducted in June 2006 by environmental experts, consideration was given to limiting the impact on the aforementioned rare species as far as possible (altering the layout for laying the water delivery pipes, partial felling of plants limited to the smallest area possible). As of now, overall no significant negative impacts have been observed.</p> <p>3) Land acquisition Contracts and compensation for land acquisition have already been concluded with 57 landowners over private land. By means of a contract with ONEP, no land acquisition occurred in the tourist areas within Taghazout (land owned by the developer Sonaba). ONEP has come to pay rental fees for nationally owned land.</p> <p>4) Impact from the water intake facility on downstream areas In the riverbeds in the Tamri River Basin downstream from the water intake facility, there are small-scale agricultural farms that grow crops such as bananas and maize. Moreover, in the villages in the downstream areas, underground water is used as water resources for the water system. After the completion of this project, water discharged from the Moulay Abdellah Dam upstream into the Tamri River will be sucked up by the water intake facility and delivered to Agadir. At the time of planning for this project it was determined that no particular effects on the water supply of the downstream villages were likely to occur following project completion. Yet at the same time, in the environmental impact evaluation implemented for the Moulay Abdellah Dam during planning it was advised that a detailed environmental study be performed concerning the impact on the downstream area. As a result of this, ONEP is currently reviewing measures concerning the appropriate preservation and distribution of water for agriculture and residents in the downstream areas after project completion. These reviews are being performed together with other concerned institutions such as the Ministry of Agriculture, Rural Development and Sea Fisheries and the Agence de Bassin Hydraulique de Souss Massa, which is in charge of the management of water resources. Moreover, ONEP implemented a study related to the environmental and social impacts of this project from May to June, 2006. Based on the results of this study, a checklist for environmental conservation measures was created, and there are also plans to implement periodic monitoring up until the time of project completion. Furthermore, other activities that are scheduled to be conducted include a second environmental and social impact study in December 2006, confirmation of the results of the aforementioned study, and the formulation of an environmental monitoring plan for after project completion.</p> <p>(3) Factors which may influence the sustainability Operation and maintenance capacity of the executing agency ONEP is in charge of the operation and maintenance for this project. ONEP is a public corporation that operates water purification and delivery facilities within Morocco and supplies water to small to mid-sized cities and rural villages on a basis of financial self-sufficiency. It produces roughly 80% of the drinking water in the country. This public corporation already has experience in terms of the operation and maintenance of water supply facilities identical to those in this project. In addition to this, its financial status is stable, and for these reasons no particular problems are observed regarding the operation and maintenance after project completion.</p>
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Information for reference		
[Efficiency] (1) Outputs	(1) Outputs (a) Construction of water intake and conducting facilities • Water intake facility 1 • Primary pump stations (intake pump station) Facility capacity: 894l/s (4) • Surge tank 1,000m ³ (500m ³ x 2) • Water conducting pipes (intake facility—surge tank) 3,651m • Water conducting pipes (surge tank—purification plant) 5,508m (b) Construction of water purification plant Facility capacity: 700 l/s Coagulating sedimentation rapid filtration method (c) Improvement of water distribution facilities • Secondary pump stations Facility capacity: 700l/s (4) • Water conducting pipes(purification plant—secondary pumps) 40,800m • Water conducting pipes (secondary pumps-reservoir) 17,050m (d) Power lines 8.7km (e) Access roads 8.7km (f) Consulting services 40M/M	(1) Outputs (a) Construction of water intake and conducting facilities • Water intake facility Same as left • Primary pump stations (intake pump station) Same as left • Surge tank Same as left • Water conducting pipes (intake facility—surge tank) Same as left • Water conducting pipes (Surge tank—purification plant) Same as left (b) Construction of water purification plant Same as left (c) Improvement of water distribution facilities • Secondary pump stations Same as left • Water conducting pipes (purification plant—secondary pumps) Same as left • Water conducting pipes (Secondary pumps—RAMSA reservoir) Same as left (d) Power lines 4.8km (e) Access roads Became out of scope of the project as it will be installed through the budget of the Ministry of Equipment (f) Consulting services 50M/M
(2) Project period	(2) February 2001—April 2004 (40 months) (Note) The period lasts from signing of the L/A through project completion	(2) February 2001-March 2007 (scheduled) (74 months) (Reasons for the delay) • The commencement of construction work was delayed more than a year from the initial schedule due to revisions to the contract lot format, re-bidding for parts of the water delivery pipes (secondary pumps—RAMSA reservoir), delays in the bid evaluation process, and others. • Moreover, even after construction work commenced, progress was slowed down due to revisions to the plan related to problems over soil quality, revisions to the design for the water intake facility, primary pump station, and the layout for laying the water delivery pipes, and other issues.
Lessons Learned and Recommendations	Recommendations Regarding the possibility of impacts on things such as agricultural activities and village water supply in the downstream areas caused by the water intake facility, ONEP (together with concerned organizations) is currently reviewing measures concerning the appropriate preservation and distribution of water for agriculture and residents in the downstream areas. It is necessary for JBIC as well to confirm that the appropriate measures are being taken in the future.	
Indicators set for use at time of ex-post evaluation	N/A	(Operation indicators) (1) Agadir water supply zone (=the area supplied with water by RAMSA*) • Population served (people) • Daily maximum water supply volume (m ³ /day) • Daily average water supply volume (m ³ /day) • Daily average water demand (m ³ /day) • Accounted-for water rate (%) or Unaccounted-for water rate (%) (2) Water purification plant • Daily maximum water supply volume (m ³ /day) • Daily average water supply volume (m ³ /day) • Rate of Facility utilization (%) (3) Water conducting and delivery pipes (each section) • Average water delivery rate (L/S) • Water leakage rate (%) • Water quality *Regie Autonome Multiservice d' Agadir (RAMSA) (Effect indicators) Agadir water supply zone (=the area supplied with water by RAMSA) • Percentage of Population Served (%) (based on population) • Water supply per capita(l/person/day) • Health indicators such as with the water-related disease infection rate