

Egypt

Ex-Post Evaluation of Japanese Grand Aid Project
“The Project for Improvement of Water Supply System at the Northern Pyramids Area
in Giza City”

Yukiko Sueyoshi, Global Link Management Inc.

1. Project Description



Project Location



El Rameya Water Distribution Station

1.1 Background

Giza city, in which the target area of the Project is located, is adjacent to Cairo, the capital of Egypt, across the Nile River and is a part of the Greater Cairo Region. With recent improvement of access to central Cairo, there had been a rapid population inflow to Giza City with a population increase rate of 3.5%. However the development of infrastructure was lagging behind the rapid population increase compared to the Cairo. The Northern Pyramid area had been experiencing slow development of the water supply system despite the fact that it was a densely populated area with a population of 400,000 in 2003. The water distribution pipes had already been laid at the project site except for some areas. However, the project site was located at the end of Giza City’s existing water transmission and distribution network, meaning that much of the clean water supplied to the network was consumed upstream prior to reaching the project site. The water supply pressure of 0.5-1.0 kg/cm² was extremely low, and the water supply volume of 50-100 liters/person/day was insufficient and unavailable in some parts during peak hours.

To supplement the insufficient water supply, groundwater from local well was used to top up the water supply to the distribution network in this area. However, the excessive pumping of groundwater had led to an increase of the salt content of well water which was not suitable for drinking, forcing residents to rely on water trucks or water venders to obtain drinking water.

1.2 Project Outline

The objective of this Project is to provide stable and safe water for the population in Northern Pyramids Area in Giza City by improving the existing water supply system. The Location Map and the Project Outline are shown in Figure 1 and Table 1.

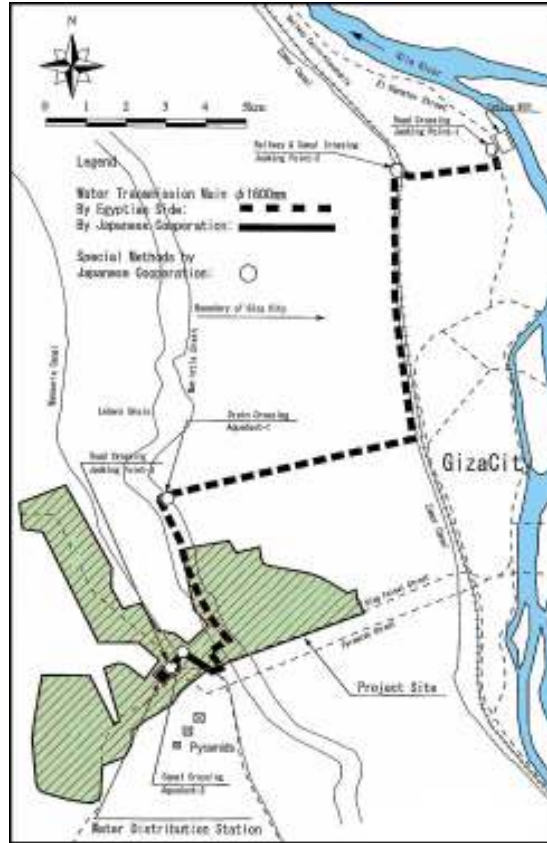


Figure 1 Location Map

Table 1 Project Outline

Grant Limit / Actual Grant Amount	4,331 million yen / 4,270 million yen
Exchange of Note Date	June, 2003
Implementing Agency	<p>During the project Period;</p> <ul style="list-style-type: none"> -Giza Governorate (Executive Agency) -General Organization for Greater Cairo Water Supply :GOGCWS (Operation and Maintenance Agency) <p>After the project Completion;</p> <ul style="list-style-type: none"> -Greater Cairo & Alexandria Portable Water and Wastewater Organization : CAPWO (Executive Agency) -Giza Water and Waste Water Company: GWWC (Operation and Maintenance Agency)
Project Completion Date	September, 2005
Main Contractor	Dai Nippion Construction
Main Consultant	Yachiyo Engineering Co., Ltd.
Basic Design	“The basic design study report on the project for improvement of water supply system in the northern pyramids area in Giza City in the Arab Republic of Egypt”, Yachiyo Engineering Co., Ltd., July, 2000

	–November, 2001
Detailed Design	September, 2002 –March, 2003
Related Project	JICA, “Water Supply Technology Training Improvement Project”, (1997-2002)

2. Outline of the Evaluation Study

2.1 External Evaluator

Yukiko Sueyoshi, Global Link Management Inc.

2.2 Duration of Evaluation Study

Duration of the Study: November, 2009 – September, 2010

Duration of the Field Study: January 19, 2010- January 25, 2010, May 24, 2010-May 31, 2010

2.3 Constraints During the Evaluation Study

No particular limitation was identified.

3. Results of the Evaluation (Overall Rating: A)

3.1 Relevance (Rating: a)

3.1.1 Relevance with the Development Plan of Egypt

At the time of planning¹, the provision of public service including water and sewer works was an urgent issue because of increasing of population in the urban area. Fourth Five Year Plan (1998-2002) stated that the construction of 70 reservoirs and 700km networks were upheld as important issues for development of social and economical infrastructure.

At the time of ex-post evaluation, the Sixth Five Year Plan (2007-2011) states that the quality of life of every citizen is enhanced through the development of potable water and sanitation. In particular, it is also stated that increasing current production capacity of portable water from 21.9 million m³ / day in 2006 to 27.8 million m³ / day in 2011, and also expanding water distribution network from 29.2 thousand km in 2006 to 36.1 thousand km in 2011.

3.1.2 Relevance with Development Needs of Egypt

At the time of planning, the water system in Giza City was being improved in accordance with ‘the Master Plan for Water Supply for Giza City²’. Especially, the Northern Pyramid area had been experiencing slow development of the water supply system, and its service was in very poor condition because of (i) its location at the end of

¹ At the time of Basic Design in 2000 and 2001

² Formulated in 1987 with German assistance

water distribution network and (ii) a densely populated area. The water supply pressure in the Northern Pyramid area of 0.5-1.0 kg/cm² was extremely low, and water was unavailable in some parts during peak hours.

At the time of ex-post evaluation, as a result of the Project, all wells in the target area were taken out and a water supply system with enough volume to meet lifestyle needs was put in place. However, population increase remains high, as well as the demand for water supply in Giza city. According to the Giza Water and Wastewater Company (hereinafter refers as ‘GWWC’), the continuous increase in population will cause the demand for water to exceed the supply by 2012 creating the necessity of a new water supply system. Therefore, the Project has been relevant with development needs to the water supply at the times of both planning and ex-post evaluation.

3.1.3 Relevance with Japan’s ODA Policy

At the time of planning, one of the priorities areas³ of the Japan’s ODA policy towards Egypt (2000) was to upgrade economic infrastructure. Assistance for water sector was included in this priority area.

This Project has been highly relevant with the country’s development plan, development needs, as well as Japan’s ODA policy, therefore its relevance is high.

3.2 Efficiency (Rating: b)

3.2.1 Project Outputs

The Project scope at the planning stage was as follows. All facilities were constructed almost as planned. The project Output is shown in Table 2.

Table 2 Output (planned and actual)

Component	Planned	Actual
Japanese side		
a)Distribution Station	Capacity of 30,000m ³ /day	As planned but location was changed. The reason for change is as follow.
b)Transmission Main	Conveyance pipe of total length of approximately 2.72km	Almost as planned (+0.27). The length of pipe was extended because of the relocation of the Distribution Station.
c)Road and Railway Crossing	Embaba Road Cross, Railway Cross, Desert Road Cross	As planned
d) Aqueduct	Mariotia Drain Cross Mansoria Canal Cross	Almost as planned. The reason for change is as follow.
Egyptian Side		

³ The Country Assistance Program has four priority areas; 1) Economic / social infrastructure and promotion of industry, 2) Poverty countermeasures, 3) Environmental conservation and improvement of the living environment, 4) Human resources development, improvement of education, and 5) Promotion of trilateral cooperation (South-South cooperation).

e)Transmission Pipe	1,600mm in diameter 25Km	Changed. The reason for change is as follow. 1,000mm in diameter Route1:25km Route2:29km
f)Distribution Pipe	38Km	Changed. The reason for change is as follow. 121Km

The difference in the planned output and the actual one was due to the following reasons, which is beyond the project's control.

a) Distribution Station: The distribution station was relocated (about 350m west of the Alexandria Desert Road) due to new construction plans for a museum to be erected on the originally scheduled site (about 100m west of the Alexandria Desert Road).

d) Aqueduct: Two aqueducts, Mariotia Drain Cross and Mansoria Canal Cross, were constructed as planned. As for Mariotia Drain Cross, there were a main canal and a branch canal at the time of planning, however, the branch canal was reclaimed before the construction started. Thus, the length of pipe was reduced from 61.5m to 35m.

e) Transmission Pipe: For financial reasons within the Government of Egypt, the 1,600mm ductile iron transmission pipe which was planned to be purchased with foreign money was replaced with a 1,000mm ductile iron transmission pipe that could be produced domestically. As a result, the transmission pipe line was divided into two routes, Route 1(approx. 25km) and Route 2(approx. 29km). Route 2 was completed in December 2005, however, Route 1 was finished behind schedule in July 2007 due to the following reasons; 1) delay of budget allocation as a result of the water sector reform, and 2) the original route was relocated because of construction of a new highway.

f) Distribution Pipe: The target year was originally set in the year 2010, while the Egyptian side changed it to 2040. In view of water supply demand by 2040, distribution piping within the target area has been extended to roughly 121 km, of which 118 km (approx. 97%) has been completed to this date.



Entrance of El Rameya Water Distribution Station



Mansoria Canal Cross

3.2.2 Input

3.2.2.1 Project Cost

The Japanese grant ceiling amount at planning was 4,331 million yen. The Japanese grant disbursement was 4,270 million yen, and its portion was decreased by 7 % of the planned cost (93% of the planned cost). On the other hand, the Egyptian cost at planning was 5,100 million yen⁴. However, it was difficult to figure out the actual cost because of following reasons; 1) the project target year of the distribution piping was extended and 2) the construction cost of Route 2 could not be submitted from the Egyptian side during the ex-post evaluation survey.

3.2.2.2 Project Period

The planned project period was 28 months. The actual project period was between September 2002 (signing of Exchange of Notes/commencement of detailed design) to September 2005 (commencement of operation) with a total period of 29 months (103% of the planned period).

At the beginning of the commencement of operation, the distribution amount of water was insufficient particularly at the peak season⁵ because the water had been supplied with only Route 2. As for the Route 1, some of the external factors pushed back construction, which was completed in July 2007. This is due to the following reasons: 1) the institutional change with the aim of rationalization had been pursued by the Central Government⁶, leading to an insufficient budget allocation for the construction, and 2) change of the planning construction route due to the construction plan of the new highway.

Although the project period was longer than planned, the project cost was lower than planned, therefore the efficiency of the Project is fair.

3.3 Effectiveness (Rating: a)

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation Indicators⁷

(1) Enhancement of water distribution capacity in the target area

Water distribution capacity in the project area is shown in Table 3. Prior to the Project,

⁴Exchange rate as of planning (3.84LE=1USD, 112.42 JPY=1USD)

⁵ According to the inspection report, it was estimated that only 77% of the planned distribution amount would be supplied in the project target area at the peak time (summer season) in 2006.

⁶In 2004, the government announced a rationalization plan aimed at consolidation and privatization of the water sector. Under the Ministry of Housing, Utilities and Urban Development (MOH), 24 holding companies and its affiliated companies were established in 2004, responsible for mainly O&M for the facilities. In September 2005, CAPWO was established with an aim to allocate budget and implement projects in Cairo and Alexandria.

⁷At the ex-post evaluation, only data in 2009 is available in GWWC.

the water supply amount was insufficient from the Embaba Water Treatment Plant (WTP) to the project areas, thus additional water supply had been provided from the El Rameya Wells and the Jolie Ville Wells which contained high Total Dissolved Solids (TDS) and chloride. At the time of ex-post evaluation, the maximum water distribution capacity was 200,000 m³ per day in 2009, which exceeded the target of 164,370 m³ per day for 2010 (114 % of the target), and these two wells were abolished. This is because the water production capacity of Embaba WTP has been continuously expanded from 700,000 m³ per day in 2000 to 1,100,000 m³ per day in 2010. It is planned that the WTP will be expanded by 200,000 m³ per day per year by CAPWO after 2010.

Table 3 Water Distribution Capacity in the Project Areas

Indicator (unit)	Baseline 2000	Target 2010	Actual 2009
Maximum Water Distribution Capacity (m ³ /day)	31,000 Water resource; Embaba WTP El Ramaya Well Jolie Ville Well	164,370 Water resource; Embaba WTP	200,000 Water resource; Embaba WTP

Source: Baseline and target data are from the Basic Design Report. Actual data in 2009 is from GWWC.

(2) Improvement of Population Served, Average Water Usage per Person and Water Pressure

Table 4 illustrates the population served, the average water usage per person and water pressure.

Table 4 Population Served, Average Water Usage per Person and Water Pressure

Indicators(unit)	Baseline 2000	Target 2010	Actual 2009
Population served(person)	391,200	684,800	750,000 ⁸
Average water usage per person (ℓ/person·day)	50-100	240	188
Water Pressure(kg/cm ²)	0.5-1.0	2.0	1.5

Source: Baseline and target data are from the Basic Design Report. Actual data in 2009 is from GWWC.

The actual total population served as of 2009 climbed to about 750,000 persons, which exceeded the target of 684,800 persons. It is estimated that the population served will increase after the completion of distribution piping construction which GWWC is being undertaken. The Project has successfully been providing water supply service to 100% of the target population in the area to this date.

The average water usage per person in 2009 was 188 ℓ/day, which was below the target of 240 ℓ/day. The water pressure in 2009 was 1.5 g/cm² which was also below the target. According to GWWC, this is due to 1) continuous expansion of water service areas due to

⁸ The original project area had been expanded after the project completion. To date, no accurate population data in 2009 is available in Egypt. The figure is estimated by the Giza Water Company based on the number of water taps in the Northern Pyramid area.

increase of population, 2) high leakage ratio from aged water pipes. However, considering that the Embaba WTP and the distribution pipe has been expanded through the effort of Egyptian side, the average water usage per person and the water pressure is expected to increase in the near future.

(3) Improvement of Water Supply Hours

According to GWWC, although the water supply services in some areas were cut off at peak season before the Project, it has been able to provide for 24 hours after the project completion.

Figure 2 is results of beneficiary survey⁹ on water supply hours in the project target area, and shows all households now have nearly 24 hour water supply. These households suffered a lot of water interruption prior to the Project. 77.9% of households had water supply for only 6 hours or less daily prior to the Project. This figure varied among different areas¹⁰. Where, the third area had the worst situation reporting that the majority of households had water supply for 6 hours or less only every day. On the other hand, the best situation was in the first area, where 53% had nearly 24 hours water supply and 37 % had water supply for less than 6 hours. While drastic improvement is observed for the forth area, 88 % of the households had water supply for only 6 hours daily, 8 % did not have water supply at all and only 5 % had water supply for 7-11 hours. Therefore, the water supply hour in the target area has been significantly improved after the project completion.

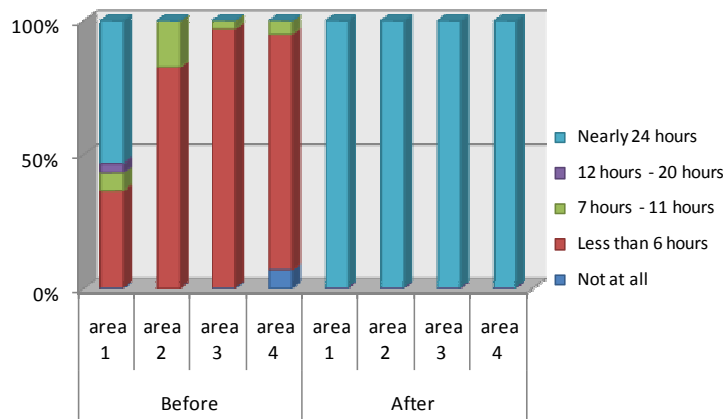


Figure 2 Water Supply Hours

Source: Beneficiary survey

⁹A beneficiary survey on the effects and impact of this Project was conducted during this ex-post evaluation exercises. Interview survey was implemented to the water users, in total 140 households (602 household members), in the project target area.

¹⁰ Based on the existing distribution network, the project site is divided into four service areas as shown in the Figure 1. (Area1: Area along Desert Road, Area2: North of King Faisal Street (East Side), Area3: North of King Faisal Street (West Side), Area4: El Rameya and Pyramid Hills Housing Complexes)

3.3.2 Qualitative Effects

3.3.2.1 Improvement of Usage of Domestic Wells

Prior to the Project, to ensure water supply volume and pressure, poor quality water from wells unsuitable for drinking was supplied into the water delivery network. It was anticipated that the number of those using unsuitable water would decrease through the Project. At the time of ex-post evaluation, due to the stable supply of safe water, all low quality wells within the target area were abolished after the project completion.

3.3.2.2 Improvement of Water Quality

Before the Project, poor quality water from wells unsuitable for drinking has been supplied in the target area due to insufficient amount of water from the water treatment plant. At the time of ex-post evaluation, the Health Offices in Pyramids area are conducting monthly water quality check of about 30 water tanks in the area. Those inspection items include pH, smell and turbidity, and the result of inspection is considered normal.

According to the results of beneficiary survey, almost all the respondents answered water qualities such as taste, smell and pressure have been improved after the project completion. Customers' satisfaction on water quality is shown in Figure 3.

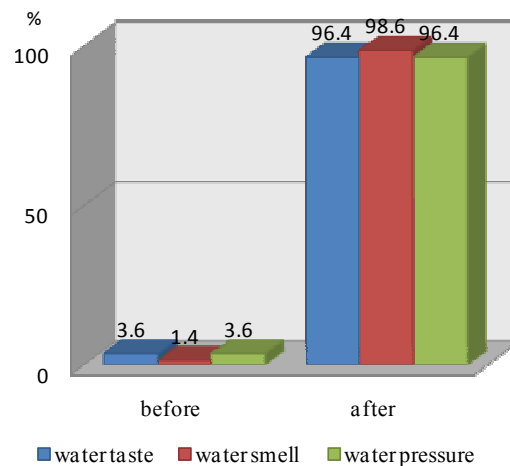


Figure 3 Customers' Satisfaction on Water Quality

Source: Beneficiary survey

3.3.3 Utilization of Facilities

Although two transmission pipes (Route 1 and Route 2) were planned to cross the Mariotia Aqueduct, only Route 2 was crossing this aqueduct because the original route was relocated due to construction of a new highway, and approval from Giza city was not obtained (see 3.2.1).

It is concluded that almost all the facilities have been utilized effectively due to following reasons; 1) the original route had to change due to circumstances beyond the project's control, 2) the planned amount of water has been provided in the project target area, and 3) CAPWO has been undertaking development plan for expansion of water supply capacity and piping network, and it is expected that the Mariotia Aqueduct will be utilized through future projects.

This Project has largely achieved its objectives, therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

3.4.1.1 Reduction of water purchasing from vendors

Pursuant to implementation of the Project, a change occurred in the style of water procurement among the citizens. As the only water source in the target area had been wells, there was no choice other than to purchase drinking water. As shown in the Figure below, prior to 2003, 77.9% of the population had been purchasing water from vendors. Presently, that number is zero. Meanwhile, a portion of the population in the target area has stated that they were water drawing laborers up until 2003. However, since tap water has become available and wells have been abolished, this number has reached zero. Means of obtaining water is shown in Figure 4.

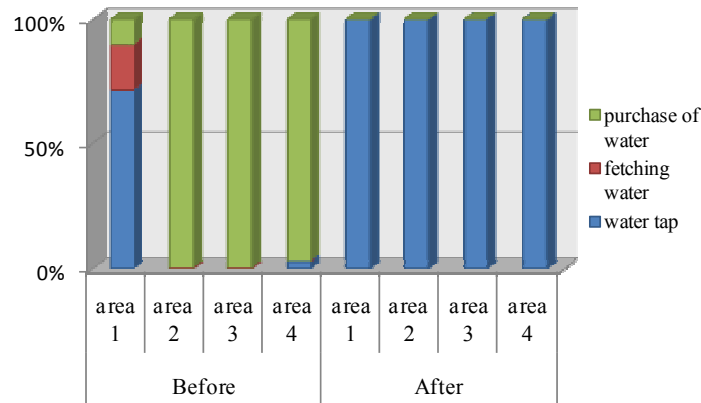


Figure 4 Means of Obtaining Water

Source: Beneficiary survey

3.4.1.2 Reduction of cases of water-borne diseases

Interviews with beneficiaries in the area confirmed that prior to the Project, poor quality well water had been used, leading to water-borne diseases such as diarrhea and infectious illnesses especially among children and the elderly, who have a lower immune system. However, after the installation of taps in each household provided by the Project, it is reported that cases of water-borne diseases have greatly been reduced. Accordingly, interviews with the Health Directorate in Pyramids area and the Health Office in the project target area confirmed that generally the health of the residents in the North Pyramid area are normal, there are no specific health problems, such as epidemics of diarrhea or toxic diseases which could be related to water problem¹¹. It would appear that

¹¹The local health center does not have sufficient disease-specific reports and evidence to indicate these improvements which can be attributed to this Project.

this water supply Project is one contributing factor to reduce cases of water-borne diseases.

3.4.2 Other Impacts

3.4.2.1 Impacts to the Natural Environment

No particular environmental impacts due to the Project were reported. Regarding impact on water resources, interviews with GWWC confirmed that the increase in usage of reservoir resulting from the rising demand is minimal in comparison to flow volume of the Nile River, thus any impact on stream conditions is insignificant.

3.4.2.2 Land Acquisition and Resettlement

Being close to the Great Pyramids, consideration was taken in the planning stages of the distribution station as not to disturb the scenery for tourists. The original site of the distribution station had to be changed because a new museum scheduled to be erected on that site. This change proceeded with no difficulties, with help from the Egyptian army and other stakeholders. There was no resettlement of houses in this Project.

It is concluded that the Project has contributed to the following direct effects as planned; 1) the reduction of water purchasing from vendors; 2) reduction of cases of water-borne diseases. No negative impact is reported so far.

3.5 Sustainability (Rating: a)

3.5.1 Structural Aspects of Operation and Maintenance

At the point of planning and implementing the Project, General Organization for Greater Cairo Water Supply (hereinafter refers as 'GOGCWS') was responsible for the operation and maintenance of the water supply facilities constructed under the Project. A presidential decree established the GWWC in 2004, as part of the water sector reform policy adopted by the central government. At this time, executive agency of the Project was transferred from Giza Governorate to the present CAPWO, operation and maintenance agency was transferred from GOGCWS to GWWC. At the time of ex-post evaluation, it was made clear to conduct all operation and maintenance of waterworks for the entire city of Giza. Thus, there are no foreseen problems regarding the management structure to sustain facilities built for the Project.

El Rameya Water Distribution Station, one of field agency under GWWC, is in charge of the daily operation and maintenance of the distribution station. This station has allocated sufficient number of staff based on the recommendation from the Japanese consultant at time of the project completion. From 2006 to 2010, the number of staff of the distribution station increased by 20 person from 11 person including 2 additional staff

in the newly-created post of emergency for 24 hours.

Table 5 Breakdown of the Water Distribution Station Staff

	Responsibility	Number of staff As of Nov. 2006	Number of staff As of Mar. 2010
Operation; 24 hours	Engineer for Pump Station from 8:00 am to 3:00 pm	1	2
	Staffs for Pump Station	3	4
	Staffs for chlorine system	3	4
Maintenance	Mechanical staff	2	4
	Electrical staff	2	4
	Emergency staffs for 24 hours	0	2
Total		11	20

Source: Data in 2006 are from the Inspection Report, and actual data in 2010 is from GWWC.

3.5.2 Technical Aspects of Operation and Maintenance

Daily operation and maintenance is conducted by El Rameya Distribution Center technicians. To this date, there have been no reports of any problems of concern. This distribution stations requires the same or easier level of maintenance as other existing distribution stations constructed under the Japanese grand aid projects and thus many of the technicians are familiar with Japanese specifications. Operation and trouble-shooting manuals are provided in simple English and Arabic flowcharts. It has also been confirmed that maintenance is inspected, and distribution logged and reported to GWWC on a regular basis.

3.5.3 Financial Aspects of Operation and Maintenance

The current financial arrangement does not allow GWWC to effectively increase their profits because the water tariff is determined by the social policy of the government. Thus, accumulation of deficit remains to be a challenge at the all water companies in Egypt. While increase of water tariff has been introduced by the central government after the project completion, it is yet unclear as to what extent this would help their financial health of the water sector. Interviews at GWWC confirmed that subsidies from the government (Ministry of Finance) remain to be imperative for GWWC to operate and maintain water supply services, and it is highly likely that budget allocation will be continued¹².

According to GWWC, the average collection rate of water charge remains 60% in Giza city. For improvement of the financial status, GWWC has focused on the efforts to strengthen the efficient water tariff billing and timely revenue collection for all water users including measures against illegal connection. Moreover, the leakage ratio in the Giza city is estimated over 20%, and the unaccounted water is thought beyond its figure. To improve the efficiency of water supply works, GWWC has established a new

¹² Sufficient data and concrete evidence to affirm budgetary commitments are not provided by the Water Company because the financial status is disclosed to the public.

department of water leakage reduction in 2009, and intensified the actions to reduce water leakage, such as leak detection work, replacement of the aged pipe, on-site-training for leakage detection. Although sufficient number of skilled staff (20 persons) has been allocated, financial support has not been enough for replacement of existing aged pipes which is one of major countermeasure to reduce water leakage.

According to GWWC, there are no foreseen problems regarding the operation and maintenance cost to provide water supply service to the target area. According to Pyramid Area Water Distribution Station, no failures or incidents of major concern on the daily maintenance budget have been reported to this date, and funding for spare parts and facility management is being amply provided by GWWC.

3.5.4 Current Status of Operation and Maintenance

As a result of direct observation, there is no problem in the operation and maintenance of the water supply portion such as distribution station, pump station, electric control rooms. One exception, however, was a leak found in one of the pumps, for which the valve will be exchanged in the very near future, as it has been confirmed that the spare part has already been purchased from a company in Japan.

No major problems have been observed in the operation and maintenance system, therefore sustainability of the Project is high.



Leaking water pump



Operation chart (Arabic)

4. Conclusion, Recommendations and Lessons Learned

4.1 Conclusion

This Project has been highly relevant with Egypt's national policies and its development needs both at the time of planning and at ex-post evaluation, and the

Japanese ODA policy at the time of planning. The Project has achieved its objectives, and its effectiveness is high. Regarding efficiency, the project period slightly exceeded the planned, but the project cost was within the planned length. Therefore, the evaluation for efficiency is moderate. Sustainability of this Project is high although there are some follow up items. In light of the above, this Project is evaluated to be highly satisfactory (A).

4.2 Recommendations

4.2.1 Recommendation to the Egypt

-To CAPWO

Utilization of Facilities (Effectiveness)

To this date, almost all facilities have been utilized effectively in order to provide water service in the project target area. Although two transmission pipes (Route 1 and Route 2) were planned to cross the Mariotia Aqueduct, only Route 2 was crossing this aqueduct. CAPWO has been undertaking development plan for expansion of the water supply capacity and the distribution networks to catch up with the continual growth in demand, and it is recommended to consider that the Mariotia Aqueduct should be utilized through future project for expansion of networks.

-To GWWC

Enhancement of leakage reduction control (Sustainability)

Since the leakage ratio has been estimated as high as over 25 % in Giza city, unaccounted water control is one of the major technical issues for improvement of its water supply management, and GWWC has been making efforts to reduce unaccounted water particularly since 2009. Therefore, it is recommended that countermeasure to tackle unaccounted water (i.e. leakage detection, replacement of defective water meters, and adjustment of water pressure etc) should be strengthened for the effective use of water resources.

Enhancement of water collection (Sustainability)

There is room for improve of the collection of water charge in Giza city since its collection rate remains about 60%. Since an improvement of water supply services is crucial for an improvement of a water tariff collection rate, billing and collection operation including measures against illegal connection should be strengthened in the whole areas.

4.2.2 Recommendation to JICA

Sharing experience from the technical cooperation on the un-accunted water

JICA implemented the technical cooperation for improvement of the unaccounted water control at the Sharkiya Potable Water and Sanitation Company, and the company has acquired useful data and experience through the project's activities. Such experience should be shared and disseminated not only GWWC also all water companies in Egypt. JICA should consider providing necessary information in order to disseminate the expertise introduced by Japanese experts.

4.3 Lessons Learned

For improvement of water supply service, it is necessary that the whole service (i.e. water intake, water treatment, water transmission and water distribution) should be enhanced in parallel. In this Project, substantial components of the water supply services were implemented by Egyptian side, however, the institutional change with the aim of rationalization had been pursued by the Central Government during the project period, leading to delay of construction. Further, there were two agencies for implementation and maintenance, and both agencies were reorganized during the water sector reform. Therefore, the project records and data for indicators were not kept together by one agency. This made difficult to collect project-related information at the time of ex-post evaluation.

In light of efforts to enhance aid efficiency and to monitor the project effectiveness by both donor and partner countries, it is desirable for executive agencies of both countries to clarify responsibilities for monitoring and supervision through regular reporting and meeting in case of reorganization or exchange of the executive agencies during and after the project.

Third Party Opinion

Prof . Dr. Ehab M. Rashed
Prof. of Sanitary Engineering
Cairo University- Faculty of Engineering

The ex-post evaluation was performed about four years after the project completion, focusing on its relevance, efficiency, effectiveness, impact and sustainability. In my opinion, the report made by the Japanese consultant is very comprehensive based on the evaluation criteria, and those results are highly agreeable. As indicated in this report, the project has successfully been providing water supply service to 100 % of the target population in the area and expanded to serve surrounding areas. The water quality has been improved very well. Therefore, the effectiveness of this project is high. This project has also made a large impact on the served people. One is the decrease of water born diseases in the project area. Since people living this area used

wells which were not suitable for drinking water, forcing residents to rely on water trucks or water venders to obtain drinking water, and this sometime resulted in the waterborne diseases. Therefore, the impact on the health and sanitary condition in this area is high. For this project, there are no major problems observed in O&M system, because most of facility under this project requires the same or easier level of maintenance techniques as other existing distribution stations constructed under the Japanese grand aid projects, so it can be concluded the project is highly sustainable.

It is also worthy to note that the Japanese consultant was working with Egyptian consultants to gather necessary data and information regarding the project from the official document review, the field interviews with relevant organizations and the beneficiary survey in the target area, therefore, the reliability of data and information are thought to be high.

Regarding the recommendation to Egypt "To CAPWO" stated in the report, this is sure that CAPWO has been under taking development plan for expansion of water supply capacity to catch up with the continual growth in demand. Nowadays, CAPWO is under construction of new capacity of Embaba WTP. For the other recommendation on the enhancement of leakage reduction control which exceeds 25 % in Giza city, Giza Water Company should take necessary actions for the effective use of water resources and share experience of Sharkiya Water Company for Improvement of the un-accounted water control.