終了時評価調査結果要約表（英文）

<table>
<tr><td colspan="3">I. Outline of the Project</td></tr>
<tr><td colspan="2">Country：Arab Republic of Egypt</td><td>Project title：The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO</td></tr>
<tr><td colspan="2">Issue/Sector：Water Supply</td><td>Cooperation scheme：Technical Cooperation Project</td></tr>
<tr><td colspan="2">Division in charge：
Global Environment Department</td><td>Total Cost（as of the terminal evaluation）：335,370 thousand yen</td></tr>
<tr><td rowspan="2">Period of Cooperation</td><td rowspan="2">(R/D)：
1 Nov 2006 - 30 Oct 2009</td><td>Partner Country’s Responsible Agency：
HCWW (Holing Company of Water and Wastewater)
Partner Country’s Implementing Agency：
SHAPWASCO (Sharkiya Potable Water and Sanitation Co.)</td></tr>
<tr><td>Supporting Organization in Japan：
Osaka Municipal Waterworks Bureau</td></tr>
<tr><td colspan="3">1. Background of the Project
In Egypt a reform of water and wastewater utilities has been undertaken since 1990s to tackle inefficient management and accumulated debts. Aiming at improving financial health of the sector, management of respective utilities has been transferred form direct control under governorate administrations to newly established public companies.
However, the majority of utilities are still far from achieving cost-recovery, and SHAPWASCO, which provides water supply service in Sharkia governorate, is not an exception. It has been suffering from financial deficit due to high ratio of unaccounted-for water (UFW) and inefficient operation and maintenance of water facilities, and low water tariff. Thus, Sharkia Potable Water and Sanitation Company (hereinafter referred to as “SHAPWASCO”) and Holding Company for Water and Wastewater (hereinafter referred to as “HCWW”) requested Japanese Technical Cooperation in the field of reduction of UFW and optimization of operation and maintenance of water supply facilities.
To meet these needs on capacity development of SHAPWASCO, Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched the preparatory study team in June 2006 and Record of Discussion of the Project was signed in September 2006. The Project between SHAPWASCO and JICA was launched in November 2006 with the duration of three years.

2. Project Overview
(1) Overall Goal
Management capacity of operation and maintenance of water supply facilities is improved in Sharkia Governorate.
(2) Project Purpose
Management capacity of operation and maintenance of water supply facilities is improved in target areas.
(3) Outputs
1）Unaccounted-for water (UFW) ratio is reduced in the pilot project sites.
2）Operation and maintenance capacity of water supply facilities is strengthened.</td></tr>
</table>

(4) Inputs（as of the terminal evaluation）

【Japanese side】

Experts Dispatched : 10 persons、total 71.37M/M

Equipment Provided : total 59,145thousand yen

Operational Expenses : total 66,066 thousand yen

Training in Japan : 5persons

【Egyptian side】

Counterpart Personnel : 91 persons

Facilities for Project Operations :

The Egyptian side secured sufficient office spaces within the SHAPWASCO for the Japanese Experts.

Operational Expenses : total LE 15,210 thousand (243,000 thousand yen）

II. Evaluation Team

Members of Evaluation Team	(1) Japanese side Mr. Izumi Tanaka, Team Leader, JICA Mr. Yoshiki Omura, Water Supply Planning, JICA Mr. Hiromu Matsuda, Water Supply Management, Osaka Municipal Waterworks Bureau Mr. Tomohiro Kawase, Study Planning, JICA Mr. Yoshie Yamamoto, Evaluation Analysis, Global Link Management (2) Egyptian side Mr. Nagi Labib, Hihya Water Treatment Plant, SHAPWASCO Mr. Mahdi Elewa, Water Department in Hihya Sector, SHAPWASCO	
Period of Evaluation	7 Feb 2009 - 25 Feb 2009	Type of Evaluation：Terminal Evaluation

III. Results of Evaluation

1. Project Performance

（1）Achievement of Project Purpose

As of February 2009, the evaluation teams conclude that the Project Purpose has been achieved to an Excellent (A) level.

The performance Indicator (PI) for evaluation of the project purpose was set at percentage of the measured production to the total estimated production of water. Measurements of water flows and supply have been already undertaken and recorded at two model WTPs at Abassa and Zagazig. By the end of the Project period, it is expected that all seven (7) water treatment plants (WTP) will have flow meters installed and would be able to calculate the identified PI.

As for UFW reduction activities, in addition to the three pilot project areas that were added at the time of mid-term monitoring, two more areas have already been selected for implementation during the project period. Moreover, the Team confirmed that enabling environment is being fostered for expansion of UFW activities.Incorporation of SOP activities into work routine and their expansion to other facilities have has been confirmed by the Team as well.

（2）Achievement of Outputs

The levels of the achievement of two outputs are judged as Excellent (A).

＜Output 1：Unaccounted-for water (UFW) ratio is reduced in the pilot project sites.＞

The achievement level of Output 1 is Excellent (A). While the Project still needs to (1) implement UFW activities in three pilot project areas and two newly added areas; (2) formulate an action plan for UFW reduction activity for the Governorate; and (3) to formulate a long-term distribution pipe replacement plan for preventive works, this Output is expected to be achieved by the end of the Project.

＜Output 2：Operation and maintenance capacity of water supply facilities is strengthened.＞

Overall achievement level of Output 2 is Excellent (A). While the Project still needs to further strengthen application of SOPs not only at the model facilities but other facilities, this Output is expected to be achieved by the end of the Project.

2. Summary of Evaluation Results

（1）Relevance：Excellent（A）

The Project's relevance is very high (Excellent: A) vis-à-vis the national policies of Egypt, needs of the target group, and the JICA's Country Assistance Program.

In Egypt, efficiency and equality in the use of water have become the most important issues in the water sector and the reduction of UFW ratio from the present national average of 34% is considered as an urgent issue under the National Water Resources Plan (NWRP) of the Ministry of Water Resources and Irrigation.

In the Governorate of Sharkia, the Potable Water and Sanitation Company (SHAPWASCO)'s financial situation has been constricted due to multiple factors, such as limited revenue from extremely low tariff, heavy burden of personnel costs, high production costs of water due to inefficient operation of facilities, high UFW ratio, and poorly managed facilities stemmed from serious lack of basic information on production and supply of water and on customer information. The Project's intention to contribute indirectly to the improvement of SHAPWASCO's financial health through supporting building of capacities to improve management capacity of operation and maintenance and reduction of UFW ratio was therefore found in line with the needs of SHAPWASCO.

Technical relevance was also found high. this Project was found to be the first trial in Egypt to tackle both leakage detection and improvement of operation and maintenance of water supply facilities at the same time. This was made possible as Japan has one of the highest level of skills and technologies in leakage control and operating and management of water supply facilities.

（2）Effectiveness：Excellent（A）

The Project Purpose "Management capacity of operation and maintenance of water supply facilities is improved in target areas" has been achieved to an Excellent (A) extent verified with high levels of achievements in all Outputs. Coupled with strong leadership demonstrated by the chairman, appropriate supply of necessary devices and equipment and high regards for the Japanese expertise in tackling UFW and operation and maintenance of water supply facilities were the contributing factors.

（3）Efficiency：Good（B）

Overall, the level of efficiency of the Project was Good (B) even though concerns were addressed with the timing of dispatches of Japanese experts. As for Egyptian side, it would have been much more desirable to have younger engineers assigned to the Project rather than the ones at senior members. Also, there were a few major turn-over of core personnel.

（4）Impact： N/A

At the time of the evaluation, it was not possible to confirm the Project's impact primarily due to absence of verifiable indicator to measure the level of achievements of Overall Goal. While no specific performance indicators were set during the project implementation to measure, there seems to have been a general agreement that the same PI indicator, percentage of the measured production to the total estimated production of water, as that of the Project Purpose was to be applied. The Team confirmed that this PI was understood as increased numbers of WTPs that could correctly measure through installation of flow meters and keep records on such measurements. Having already achieved the maximum level at 7 WTPs, this PI was found to be no use to measure the achievement level. Therefore, the Team was left with no appropriate indicators.

UFW ratio for the whole of Sharkia Governorate is estimated around 30 percent if similar trend of incidence in the pilot project areas covering one city and seven markaz where nearly 70 percent of the total population of the governorate concentrated. Target ratio of reduction to be achieved within 3 to 5 years upon project completion will be determined by the end of the Project.

（5）Sustainability：Good（B）

High level of commitment has been indicated by HCWW and SHAPWASCO, therefore, continued support is highly likely to be ensured.

The current institutional arrangement does not allow all the staff members who have been trained to effectively continue activities on UFW and SOP. Quite a few core members are assigned to the Project from the sections/departments which are not necessarily linked to UFW and SOP activities and training and are on one-year contract. Moreover, SHAPWASCO may face some difficulties in continuing both UFW and SOP activities effectively with absence of good middle management.

When it comes to financial sustainability, SHAPWASCO has demonstrated strong commitments and the HCWW continues to allow budget allocation to the UFW and SOPs activities implementation and it is highly likely that budget will continue to be ensured by SHAPWASCO. However, the Team does not have sufficient data and concrete evidence to affirm budgetary commitments and plans for continuation of UFW and SOP activities.

Counterparts who have been assigned and trained to respective activities of SOPs and UFW have demonstrated sufficient level of knowledge and skills to sustain activities on their own. However, for further application of the Project Outputs beyond the project pilot areas and facilities, they still need to have close supervision, on and off technical guidance, or experts who could provide technical advices.

3. Conclusion of Evaluation

Project Purpose is expected to be achieved with steady progress of respective outputs by the project completion in October 2009. With regards to the Five Evaluation Criteria, Project's relevance and

effectiveness were found excellent (A) while efficiency and sustainability were found good (B). It was not possible to evaluate the Project's impact primarily due to absence of verifiable indicator to measure the level of achievements of Overall Goal.

Given the evaluation results on the Project, the Project should be terminated with fruitful results in October 2009 as scheduled.

4. Recommendations

（1） Recommendations Towards the End of the Project Term

(1) Finalization of Action Plan for UFW Activities both within Target Areas and the Whole Governorate: Japanese experts have conducted a questionnaire survey to assess capacity of a total of 15 UFW teams including the team at the headquarters that have already been established. Analysis of this capacity assessment is being done. With its results, it is expected that an action plan for UFW reduction activity covering not only the target areas but also the whole governorate shall be developed. This should be accompanied by possible terms of reference of UFW Department and its staffing plan.

(2) Linking Distribution Pipe Replacement Plan and the Master Plan: SHAPWASCO is in the process of developing a master plan that covers the period between 2012 and 2037. This will be presented by HCWW to the Minister for Housing, Utilities and New Urban Development for consideration of the future capital investment plan. It is, therefore, imperative to have strategic linkages between a distribution pipe replacement plan that is to be prepared by the Project and an upcoming Master Plan.

(3) Benchmark a Target UFW Ratio for Overall Goal: Performance indicators and data sources to measure achievement level of the Overall Goal were not clearly identified during the project implementation. As a supporting objectively verifiable indicator, a target ratio of UFW reduction needs to be set and planned to be achieved within 3 to 5 years upon project completion.

(4) Follow-up on Incident in Ibrahimiya Markaz: No faulty meters were replaced at a pilot project area in Ibrahimiya Markaz. Reasons as to why this was not done are not clear but need to be identified. Its effects on the accuracy of data acquired on UFW ratio and leakage ratio are not known but should be verified.

(5) Completion of Installation and Operationalization of Flow-Meters: This should be addressed at the earliest for the remaining five locations and should be completed by August 2009.

（2） Recommendations After The Project Term

(1) Taking Another Approach to UFW Ratio Reduction: Further Efforts to replace distribution network should be given priorities as a proven measure to reduce leakages. Budget for capital investment should be secured for execution of the pipe replacement plan.

(2) Implementation of UFW Action Plan: Allocation of budget, personnel, equipment and other requirements necessary for the execution should be secured to execute an UFW Action Plan, which is to be developed by the end of the Project.

(3) Sharing of Expertise: SHAPWASCO has acquired useful data and experience through the Project's activities during the Project period. Such expertise should be shared and disseminated. One platform is to utilize a committee that a chairman of SHAPWASCO has given a task to establish a committee so

as to share applications of SOP with other companies in the country. Similar mechanism should be considered on UFW.

5. Lessons Learned

(1) The training conducted for SHAPWASCO senior members in neighboring Jordan where JICA has long assisted the Water Authority of Jordan on development of capacities to tackle non-revenue water has proven to be quite effective. Observations made in Jordan have led to significant steps for SHAPWASCO to construct a training yard on leakage detection in Hihya and to steps to establish designated departments on UFW and SOP. This represents a greater training opportunity to observe and learn from an organization in other countries that face similar constraints and challenges but has a longer history to demonstrate what possible measures could be undertaken.

(2) It has been confirmed during the Project that significant portions of UFW are being generated at household connections. If a similar project with UFW activities is to be designed, strategies should be developed as countermeasures to reduce leakages not only at distribution networks but at household connections.