

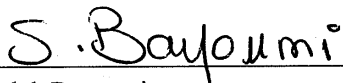
## **ATTACHMENT**

1. Minutes of Meeting of 1 <sup>st</sup> JCC Meeting .....	A1-1
2. Minutes of Meeting of 2 <sup>nd</sup> JCC Meeting .....	A2-1
3. Minutes of Meeting of 3 <sup>rd</sup> JCC Meeting .....	A3-1
4. Minutes of Meeting of 4 <sup>th</sup> JCC Meeting .....	A4-1
5. Minutes of Meeting of 5 <sup>th</sup> JCC Meeting .....	A5-1
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7. Minutes of Meeting of Project Team Meetings for Phase-1 .....	A7-1
8. Minutes of Meeting of Project Team Meetings for Phase-2 .....	A8-1
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## **1 Minutes of Meeting of 1<sup>st</sup> JCC Meeting**

**Minutes of Meeting**  
**on**  
**The First Joint Coordination Committee**  
**for**  
**The Project for Improvement of Management Capacity of**  
**Operation and Maintenance for SHAPWASCO**  
**in the Arab Republic of Egypt**

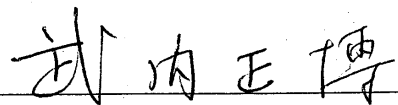
Cairo, December 3, 2006



Dr. Salah Bayoumi

Chairman

Sharkiya Potable Water and Sanitation Company  
(SHAPWASCO)



Mr. Masahiro Takeuchi

Chief Advisor

Project for Improvement of Management  
Capacity of Operation and Maintenance for  
SHAPWASCO  
JICA



Prof. Dr. Abdel Kawi Khalifa

Chairman

Holding Company for Water and Wastewater  
(HCWW)

Upon the commencement of the Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO (hereinafter referred to as "the Project"), the first Joint Coordination Committee (hereinafter referred to as "JCC") for the Project was held on December 3, 2006 in Cairo. The Japanese expert team headed by Mr. Masahiro Takeuchi, Chief Advisor of the Project, presented the Inception Report which describes implementation policy of the Project. JCC members approved the report in principle.

The major points discussed and agreed are summarized as follows:

#### 1. Establishment of Technical Committee

As in Inception Report, for the smooth implementation of the Project, the Japanese expert team proposed to set up a Technical Committee (hereinafter referred to as "TC") where technical matters or particularities of project activities will be discussed/coordinated and preparatory consultation will be made prior to JCC which will make a conclusive decision. TC will be chaired by SHAPWASCO Chairman.

The members of TC shall include the following:

- SHAPWASCO : Chairman
- HCWW : Representative
- Head of UFW team at SHAPWASCO headquarters
- Head of SOP team at SHAPWASCO headquarters
- Japanese experts : All the Japanese experts present in Egypt at the time of TC meeting
- JICA Egypt office : Representative

JCC members agreed basically on the proposal of setting up Technical Committee and that the project team, jointly led by Project manager (Chairman of SHAPWASCO) and Chief Advisor, will work out the details of TC.

#### 2. Counterpart Training in Japan and Work Schedule

A question was raised whether there was flexibility on training programming and the project work schedule such as phasing of activity, details of activity and so forth.

It was explained by JICA and understood by all the parties that every training opportunity held in Japan is comprehensively programmed and coordinated through diplomatic channel between Egyptian and Japanese governments on annual basis, considering nation-wide training needs.

Regarding the Project work schedule, such modification shall be confirmed by consultation with JICA headquarters.

S.B.





**List of Participant**

[Egyptian side]

Prof. Dr. Abdel Kawi Khalifa	Chairman of HCWW
Dr. Salah Bayoumi	Chairman of SHAPWASCO
Mrs. Samira Necola	Representative of NOPWASD

[Japanese side]

Mr. Masahiro Takeuchi	Expert for Water supply planning/Chief Advisor
Mr. Noboru Saeki	Expert for Water treatment 1
Mr. Keizo Kimura	Expert for Water treatment 2
Mr. Mohamed Nagi	Facilitator of the Project team
Mr. Yoshiki Omura	Leader, Monitoring team of JICA
Mr. Makoto Asai	Study planning, Monitoring team of JICA
Mr. Masakatsu Komori	Deputy Resident Representative, JICA Egypt office
Ms. Izumi Shoji	Assistant Resident Representative, JICA Egypt office
Dr. Ashraf M. El-Abd	Project officer, JICA Egypt office

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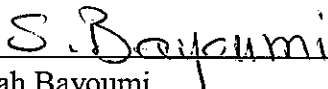
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## **2 Minutes of Meeting of 2<sup>nd</sup> JCC Meeting**

**Minutes of Meeting**  
**on**  
**The Second Joint Coordination Committee**  
**for**  
**The Project for Improvement of Management Capacity of**  
**Operation and Maintenance for SHAPWASCO**  
**in the Arab Republic of Egypt**

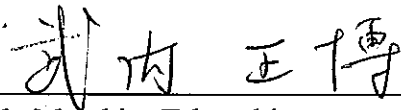
Cairo, June 10, 2007



Dr. Salah Bayoumi

Chairman

Sharkiya Potable Water and Sanitation Company  
(SHAPWASCO)



Mr. Masahiro Takeuchi

Chief Advisor

The Project for Improvement of  
Management Capacity of Operation  
and Maintenance for SHAPWASCO  
JICA



Prof. Dr. Abdel Kawi Khalifa

Chairman

Holding Company for Water and Wastewater  
(HCWW)



In the course of Phase-2 of the Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO (hereinafter referred to as “the Project”), the second meeting for Joint Coordination Committee (hereinafter referred to as “JCC”) for the Project was held on June 10, 2007 in Cairo.

The Japanese expert team headed by Mr. Masahiro Takeuchi, Chief Advisor of the Project, presented Project Design Matrix-1 (PDM1) and Plan of Operation-1 (PO1) as attached which are the first revision of PDM0 and PO0 confirmed between the Egyptian side and Japanese side on June 13, 2006.

The team explained the contents of PDM1 and PO1 to the committee members. After discussions, PDM1 and PO1 have been approved by the committee.

#### Attachments

1. Project Design Matrix-1 (PDM1)
2. Plan of Operation-1 (PO1) for UFW Reduction Activity
3. Plan of Operation-1 (PO1) for SOP Activity
4. Comparison table between PDM0 and PDM1 (summary)

S.B.  



**List of Participant**

[Egyptian side]

Prof. Dr. Abdel Kawi Khalifa	Chairman of HCWW
Dr. Salah Bayoumi	Chairman of SHAPWASCO
	Representative of NOPWASD
Mr. Mahmoud Motawea	Assistant Secretary General of Sharkia Governorate

[Japanese side]

**JICA Expert Team**

Mr. Masahiro Takeuchi	Expert for Water supply Planning/Chief Advisor
Mr. Masatoshi Seno	Expert for Unaccounted-for Water
Mr. Akihiko Okazaki	Expert for Leakage Detection
Mr. Noboru Saeki	Expert for Water Treatment 1
Mr. Keizo Kimura	Expert for Water Treatment 2/Mechanical Equipment
Mr. Mitsuhiro Omori	Expert for Hydraulic Analysis for Network
Mr. Nobuyuki Iijima	Expert for Hydrogeology
Mr. Takashi Hara	Expert for Water Quality Control
Mr. Mohamed Nagi	Facilitator of the Project Team
Dr. Mohamed Sobhy	Senior Engineer for UFW Reduction Activity
Mr. Mohamed Khalaf	Senior Engineer for SOP Activity

**JICA Egypt Office**

Mr. Katsuhiko Ozawa	Resident Representative, JICA Egypt office
Ms. Izumi Shoji	Assistant Resident Representative, JICA Egypt office
Dr. Ashraf M. El-Abd	Project officer, JICA Egypt office

S.B. M.S. J.D.

**Project Design Matrix-1 (PDMI)**

**Project Title: The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO**

**Target Area : Sharkia Governorate, Egypt**

**Target Group : Staff of SHAPWASCO**

**Duration : FY2006 – FY2009**

**Final Beneficiaries : People in Sharkia Governorate**


**Date : June 10, 2007**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p><b>[Overall Goal]</b> Management capacity of operation and maintenance of water supply facilities is improved in Sharkia Governorate.</p>	<p>1. Performance indicators in the field of management capacity of operation and maintenance are improved for all branches in the Governorate.</p>	<p>SHAPWASCO quarterly report submitted to HCWW</p>	
<p><b>[Project Purpose]</b> Management capacity of operation and maintenance of water supply facilities is improved in target areas.<sup>(1)</sup></p>	<p>1. Performance indicators in the field of management capacity of operation and maintenance are improved in target areas.<sup>(2)</sup></p> <p>2. Activities on UFW and SOPs are incorporated into the routine work.</p>	<p>SHAPWASCO quarterly report submitted to HCWW</p> <p>Project Progress Report Questionnaire survey Organization chart</p>	<p>Sector policy of the Egyptian government will not drastically change on management of water supply services.</p>
<p><b>[Outputs]</b> 1. Unaccounted-for water (UFW) ratio is reduced in the pilot project areas.</p>	<p>1-1 Water balance analysis can be conducted properly for the pilot project areas.</p> <p>1-2 UFW ratio (initial) is reduced from xx% to xx% in the pilot project areas. UFW ratio (initial) will be set by August 2007.</p> <p>1-3 Leakage (real loss) ratio (initial) is reduced from xx% to xx% in the pilot project areas. Leakage ratio (initial) will be set by August 2007.</p> <p>1-4 At least three (3) members of each UFW team of Zagazig City and Hihya Markaz acquire leakage detection survey techniques.</p> <p>1-5 At least one (1) member of each UFW team of other Markazes related to the pilot project areas acquires leakage detection survey techniques.</p>	<p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Test by JICA Expert Project Progress Report</p> <p>Test by JICA Expert Project Progress Report</p>	

S.B. [Signature]



	Activities	Inputs		Important Assumption
		Japanese Side	Egyptian Side	
1	Unaccounted-for water (UFW) ratio is reduced in the pilot project areas.			Employees who received trainings by the Project will continuously work for SHAPWASCO.
1-1	General			
(1)	Analyzing the current situation on UFW			
(2)	Selecting candidate areas for pilot project areas			
(3)	Organizing UFW reduction teams			
(4)	Formulating an action plan for UFW reduction			
(5)	Conducting water conservation campaign			
(6)	Formulating long-term pipe replacement plan for preventive works			
(7)	Holding workshops and seminars			
1-2	Actions			
U1	Conducting training of C/P staff at Mostrod Training Center	1. Experts - Chief Advisor - UFW reduction specialist - Leakage detection trainer - Water treatment specialist - Hydraulic engineer for network analysis - Electrical engineer - Mechanical engineer - Hydro-geologist - Water quality control specialist	1. Counterparts - Project director - Project manager - UFW teams - SOP teams	Personnel transfer of executive management will not affect the implementation of the Project.
U2	Conducting leakage (minimum night flow : MNF) survey for candidate areas			
U3	Determining six (6) pilot project areas	2. Equipment and materials	2. Office space and facilities for experts	Funds from NOPWASD and SHAPWASCO in related to the Project will be allocated as planned.
U4	Preparing GIS drawings			
U5	Learning experiences of Jordan UFW reduction project	3. Trainings	3. Equipment	
U6	Making field survey of distribution network			
U7	Surveying installation conditions of water meters and conducting meter readings	4. Local cost	4. Necessary information	
U8	Measuring metering error for working meters and water wastage in the house			
U9	Conducting MNF survey			
U10	Making water balance analysis before repair works			
U11	Conducting leakage detection survey			
U12	Repairing leaking parts			
U13	Conducting MNF survey (including meter readings) after repair works			
U14	Making water balance analysis after repair works and its evaluation			
			5. Local cost All the cost for repairing leakage in distribution network of the pilot project areas	

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Activities	Inputs		Important Assumption
	Japanese Side	Egyptian Side	
<p><b>2 Operation and maintenance capacity of water supply facilities is strengthened</b></p> <p><b>2-1 General</b></p> <p>(1) Surveying current conditions of water supply facilities</p> <p>(2) Selecting Model Facilities (MF)</p> <p>(3) Organizing SOP/MF teams</p> <p>(4) Holding workshops and seminars</p> <p><b>2-2 Actions</b></p> <p>S1 Preparing basic system drawings</p> <p>S2 Preparing unified forms of O&amp;M records and reports</p> <p>S3 Measuring intake / production water volume at 7 WTPs</p> <p>S4 Developing SOPs for model facilities</p> <p>S5 Examining water distribution control practice in the network</p> <p>S5-1 Pilot project for distribution control in small areas</p> <p>S5-2 Hydraulic analysis of water supply and distribution</p> <p>S6 Applying SOPs in O&amp;M</p> <p>S7 Developing SOPs for the remaining facilities</p> <p>S8 Formulating O&amp;M plans</p> <p>S9 Developing water quality control program</p> <p>S10 Developing well inventory forms and monitoring well stations</p> <p><b>2-3 Monitoring achievement of SOP</b></p>		<p>6. Others</p> <ul style="list-style-type: none"> <li>- Civil works, electrical works and other necessary works for the installation of flow meters</li> <li>- Measurement of flow rate by the flow meters</li> <li>- Monitoring of wells</li> <li>- MNF survey and countermeasure works for other areas than the pilot project areas</li> </ul>	
			<b>Pre-Conditions</b>

S.B

Abbreviations:

O&M : Maintenance and operation  
 BPS : Booster pumping station  
 HCWW : Holding Company for Water and Wastewater  
 SHAPWASCO : Sharkia Potable Water and Sanitation Company

FMRP : Fe/Mn removal plant  
 MF : Model facilities

WTP : Water treatment plant  
 HQ : Headquarters  
 NOPWASD : National Organization for Potable Water and Sanitary Drainage

OJT : On-the-job training  
 SOP : Standard Operational Procedure



**Plan of Operation-1 (PO1) for UFW Reduction Activity**  
**Project Name : The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO**  
**Duration : November 2006 - October 2009 (3 years)**

Item	2006												2007												2008												2009									
	Phase-1			Phase-2			Phase-3			Phase-4			Phase-1			Phase-2			Phase-3			Phase-4			Phase-1		Phase-2		Phase-3		Phase-4															
	11	12		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10									
<b>1 Unaccounted-for water (UFW) ratio is reduced in the pilot project areas.</b>																																														
<b>1-1 General</b>																																														
(1) Analysing the current situation on UFW																																														
(2) Organizing UFW teams at HQ, Zagazig City and all the markazes																																														
(3) Selecting candidate areas for pilot project areas																																														
(4) Conducting water conservation campaign																																														
(5) Formulating and executing long-term pipe replacement plan for preventive works																																														
(6) Holding Workshops and Seminars																																														
<b>1-2 Actions</b>																																														
Action U1 Conducting training of C/P staff at Mostorod Training Center																																														
Action U2 Conducting leakage (MNF) survey for candidate areas																																														
Action U3 Determining six (6) pilot project areas																																														
Action U4 Preparing GIS drawings																																														
Action U5 Learning experiences of Jordan UFW reduction project																																														
Action U6 & U7 Making field survey of distribution network (Action U6) / Surveying installation conditions of water meters and conducting meter readings (Action U7)																																														
Action U8 Measuring metering error for working meters and water wastage in the house																																														
Action U9 & U10 Conducting leakage (MNF) survey (Action U9) / Making water balance analysis before repair works (Action U10)																																														
Action U11 Conducting leakage detection survey																																														
Action U12 Repairing leaking parts																																														
Action U13 Conducting leakage survey (including meter readings) after repair works																																														
Action U14 Making water balance analysis after repair works and its evaluation																																														

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**Plan of Operation-1 (PO1) for SOP Activity**  
**Project Name : The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO**  
**Duration : November 2006 - October 2009 (3 years)**

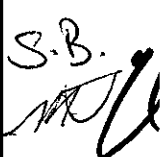
Item	2006												2007												2008												2009											
	Phase-1			Phase-2			Phase-3			Phase-4			Phase-1			Phase-2			Phase-3			Phase-4			Phase-1			Phase-2			Phase-3			Phase-4														
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10												
<b>2</b>	<b>Operation and maintenance capacity of water supply facilities is strengthened.</b>																																															
<b>2-1</b>	<b>General</b>																																															
(1)	Surveying the current conditions of water supply facilities																																															
(2)	Selecting Model Facilities (MF)																																															
(3)	Organizing SOP/MF teams																																															
(4)	Holding Workshops and Seminars																																															
<b>2-2</b>	<b>Actions</b>																																															
Action S1	Preparing basic system drawings																																															
Action S2	Preparing unified forms of O&M records and reports																																															
Action S3	Measuring intake / production water volume at 7 WTPs																																															
Action S4	Developing SOPs for Model Facilities																																															
Action S5	Examining water distribution control practices in the network																																															
S5-1	Pilot project for distribution control in small areas																																															
S5-2	Hydraulic analysis of water supply and distribution																																															
Action S6	Applying SOPs in O&M																																															
Action S7	Developing SOPs for the remaining facilities																																															
Action S8	Formulating O&M plans																																															
Action S9	Developing water quality control program																																															
Action S10	Developing well inventory forms and monitoring well stations																																															
<b>2-3</b>	<b>Monitoring achievement for SOP</b>																																															

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## Comparison between PDM0 and PDM1

**Project Title : The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO**  
**Target Area : Sharkia Governorate, Egypt**      **Target Group : Staff of SHAPWASCO**      **Duration : FY2006 – FY2009**  
**Final Beneficiaries : People in Sharkia Governorate**      **Date : June 10, 2007**

Narrative Summary	Objectively Verifiable Indicators		Remarks
	PDM0	PDM1	
<p><b>[Overall Goal]</b> Management capacity of operation and maintenance of water supply facilities is improved in Sharkia Governorate.</p> <p><b>[Project Purpose]</b> Management capacity of operation and maintenance of water supply facilities is improved in target areas.<sup>(1)</sup></p> <p><b>[Outputs]</b> 1. Unaccounted-for water (UFW) ratio is reduced in the pilot project areas.</p> <p>2. Operation and maintenance capacity of water supply facilities is strengthened.</p>	<p>1. Performance indicators in the field of management capacity of operation and maintenance are improved for all branches in the Governorate.</p> <p>1. Performance indicators in the field of management capacity of operation and maintenance are improved in target areas.<sup>(2)</sup></p> <p>2. Activities on UFW and SOPs are incorporated into the routine work.</p> <p>1-1 Volume of unaccountable-for water can be properly measured.</p> <p>1-2 Unaccounted-for water ratio is reduced compared with the baseline data obtained at the beginning of the Project.</p> <p>2-1 Manuals for management of O&amp;M are developed and updated.</p>	<p>1. Same as PDM0</p> <p>1. Performance indicators in the field of management capacity of operation and maintenance are improved in target areas.<sup>(2)</sup></p> <p>2. Same as PDM0</p> <p>1-1 Water balance analysis can be conducted properly for the pilot project areas.</p> <p>1-2 UFW ratio (initial) is reduced from xx% to xx% in the pilot project areas. UFW ratio (initial) will be set by August 2007</p> <p>1-3 Leakage (real loss) ratio (initial) is reduced from xx% to xx% in the pilot project areas. Leakage ratio (initial) will be set by August 2007</p> <p>1-4 At least three (3) members of each UFW team of Zagazig City and Hiliya Markaz acquire leakage detection survey techniques.</p> <p>1-5 At least one (1) member of each UFW team of other Markazes related to the pilot project areas acquires leakage detection survey techniques.</p> <p>2-1 Manuals for management of O&amp;M and water quality control are developed and updated as SOPs by the following SOP packages<sup>(3)</sup> for plant components and for three activity categories, i.e. operation, maintenance and water quality control for each model facilities.                      - Not less than twenty (20) SOP packages at WTP                      - Not less than five (5) SOP packages at FMRP, BPS and well stations.</p>	<p>PI is set in PDM1 Refer to Note (2)</p> <p>New Faqus WTP shall be handed over from NOPWASD to SHAPWASCO in due course.</p>

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## Comparison between PDM0 and PDM1

Narrative Summary	Objectively Verifiable Indicators		Remarks
	PDM0	PDM1	
<p>2-2 The plan for the management of O&amp;M is developed.</p> <p>2-3 Level of applying knowledge and skills acquired through OJT</p>	<p>2-2 O&amp;M Plan is developed at more than one (1) model WTP.</p> <p>2-3 SOP/HQ and SOP/MF members acquire the ability to apply knowledge and skills of SOP. - More than eighty percent (80%) of them pass the paper and field operation tests prepared by JICA Experts.</p> <p>2-4 Basic system drawings of the facilities are prepared and updated at five (5) model facilities (2 WTPs, 1 FMRP, 1BPS and 1 well station) which represent the facilities of SHAPWASCO.</p> <p>2-5 For the application of SOPs to the field operation, class room training and OJT to the operators are conducted at all the five (5) model facilities.</p> <p>2-6 Water quality control system applying the new HCWW regulation is prepared.</p> <p>2-7 Well inventory is prepared with a standard form and the first round of investigation is conducted for all the SHAPWASCO well stations.</p> <p>2-8 Hydraulic analysis is done for not less than two pilot project areas.</p>	<p>New Faqus WTP shall be handed over from NOPWASD to SHAPWASCO in due course.</p>	
<p>Note</p> <p>(1) Target areas for output 1 are the pilot project areas specified by the Project in Zagazig City, Zagazig Markaz, Hihya Markaz, Diarb Nigm Markaz, Diarb Nigm Markaz and Ibrahimiya Markaz, respectively.</p> <p>(2) Specific indicators are selected from those in quarterly report to HCWW, such as the percentage of metered connections, the percentage of working meters, etc.</p>	<p>Note</p> <p>(1) Target areas for output 1 are the pilot project areas specified by the Project in Zagazig City, Zagazig Markaz, Hihya Markaz, Diarb Nigm Markaz and Ibrahimiya Markaz, respectively. Target areas for output 2 are all the water supply facilities except compact units.</p> <p>(2) Following PI has been selected as a specific indicator. - Percentage of measured water production (%), etc.</p> <p>(3) Plant component includes the plant processes such as intake, raw water pumps, sedimentation, etc. SOP package is a set of SOPs for operation, maintenance and water quality control activities of each plant component.</p>		

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*[Signature]*

## Comparison between PDM0 and PDM1

Project Activities	
PDM0	PDM1
1 Unaccounted-for water (UFW) ratio is reduced in the pilot project areas.	1 Unaccounted-for water (UFW) ratio is reduced in the pilot project areas.
1-1 Analyze the current situation on UFW and prepare an action plan for UFW reductions	1-1 General
1-2 Select pilot project areas	(1) Analyzing the current situation on UFW
1-3 Organize UFW reduction teams	(2) Selecting candidate areas for pilot project areas
1-4 Prepare pipe network drawings of the pilot project areas	(3) Organizing UFW reduction teams
1-5 Survey actual conditions of UFW, analyze contents of UFW and measure UFW ratio in the pilot project area	(4) Formulating an action plan for UFW reduction
1-6 Conduct on-the-job training for SHAPWASCO staff on leakage detection	(5) Conducting water conservation campaign
1-7 Implement pipe repairing and commercial loss reduction programs	(6) Formulating long-term pipe replacement plan for preventive works
1-8 Conduct public awareness campaign for water saving	(7) Holding workshops and seminars
1-9 Conduct post-evaluation of UFW ratio	1-2 Actions
	U1 Conducting training of C/P staff at Mostrod Training Center
	U2 Conducting leakage (minimum night flow : MNF) survey for candidate areas
	U3 Determining six (6) pilot project areas
	U4 Preparing GIS drawings
	U5 Learning experiences of Jordan UFW reduction project
	U6 Making field survey of distribution network
	U7 Surveying installation conditions of water meters and conducting meter readings
	U8 Measuring metering error for working meters and water wastage in the house
	U9 Conducting MNF survey
	U10 Making water balance analysis before repair works
	U11 Conducting leakage detection survey
	U12 Repairing leaking parts
	U13 Conducting MNF survey (including meter readings) after repair works
	U14 Making water balance analysis after repair works and its evaluation

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# Comparison between PDM0 and PDM1

Project Activities	
PDM0	PDM1
<p><b>2 Operation and maintenance capacity of water supply facilities is strengthened</b></p> <p>2-1 Survey current conditions of water supply facilities</p> <p>2-2 Conduct monitoring of wells</p> <p>2-3 Organize standard operational procedures (SOPs) team</p> <p>2-4 Establish the system for water quality control</p> <p>2-5 Establish the system to measure the quality of water production and transmission</p> <p>2-6 Study on optimum water distribution main with network hydraulic analysis and plan district-metering-zone (DMZ)</p> <p>2-7 Prepare SOPs for WTP, Fe/Mn removal plants and pumping stations</p> <p>2-8 Prepare textbooks for SOPs training</p> <p>2-9 Conduct on-the-job training for SHAPWASCO staff on SOPs</p> <p>2-10 Conduct workshop / seminars for SOPs</p> <p>2-11 Monitor the performance indicator regarding operation and maintenance and achievement level of staff performance</p>	<p><b>2 Operation and maintenance capacity of water supply facilities is strengthened</b></p> <p><b>2-1 General</b></p> <p>(1) Surveying current conditions of water supply facilities</p> <p>(2) Selecting Model Facilities (MF)</p> <p>(3) Organizing SOP/HQ and SOP/MF teams</p> <p>(4) Holding workshops and seminars</p> <p><b>2-2 Actions</b></p> <p>S1 Preparing basic system drawings</p> <p>S2 Preparing unified forms of O&amp;M records and reports</p> <p>S3 Measuring intake / production water volume at 7 WTPs</p> <p>S4 Developing SOPs for model facilities</p> <p>S5 Examining water distribution control practice in the network</p> <p>S5-1 Pilot project for distribution control in small areas</p> <p>S5-2 Hydraulic analysis of water supply and distribution</p> <p>S6 Applying SOPs in O&amp;M</p> <p>S7 Developing SOPs for the remaining facilities</p> <p>S8 Formulating O&amp;M plans</p> <p>S9 Developing water quality control program</p> <p>S10 Developing well inventory forms and monitoring well stations</p> <p><b>2-3 Monitoring achievement for SOP</b></p>

Abbreviations:

O&M : Maintenance and operation	WTP : Water treatment plant	OJT : On-the-job training
BPS : Booster pumping station	FMRP : Fe/Mn removal plant	SOP : Standard Operational Procedure
SHAPWASCO : Sharkia Potable Water and Sanitation Company	HQ : Headquarters	NOPWASD : National Organization for Potable Water and Sanitary Drainage
	MF : Model facilities	

### **3 Minutes of Meeting of 3<sup>rd</sup> JCC Meeting**

**MINUTES OF MEETING  
BETWEEN THE MID-TERM MONITORING TEAM AND  
AUTHORITIES CONCERNED OF THE GOVERNMENT OF  
THE ARAB REPUBLIC OF EGYPT, AND**

**MINUTES OF MEETING  
ON  
THE THIRD JOINT COORDINATION COMMITTEE**

**FOR  
THE PROJECT FOR IMPROVEMENT OF MANAGEMENT CAPACITY  
OF OPERATION AND MAINTENANCE FOR SHAPWASCO  
IN THE ARAB REPUBLIC OF EGYPT**

The Mid-Term Monitoring Study Team (hereinafter referred to as “the Team”) organized by the Japan International Cooperation Agency (hereinafter referred to as “JICA”) visited the Arab Republic of Egypt from 27<sup>th</sup> February to 6<sup>th</sup> March 2008 for confirming the progress of activities and the achievement of project purpose on the Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO (hereinafter referred to as “the Project”).

During its stay in Egypt, the Team carried out site survey on the ground and exchanged ideas on the progress of the Project with SHAPWASCO and JICA expert team (hereinafter referred to as “the Expert Team”).

The Team, SHAPWASCO as the counterpart and the Expert Team had a series of discussions and came to understanding concerning the matters referred to in the part I of the document attached hereto.

At the same time, the third Joint Coordination Committee (hereinafter referred to as “JCC”) for the Project was held on 4<sup>th</sup> of March 2008 in Cairo. On this occasion, the Team reported the result of discussions mentioned above to the committee members, and the Expert Team headed by Mr. Masahiro Takeuchi, Chief Advisor of the Project, proposed Project Design Matrix-2 (PDM2) and Plan of Operation-2 (PO2) as the second revision of the original

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PDM0 and PO0 that were agreed between the Egyptian side and the Japanese side on 13<sup>th</sup> of June 2006.

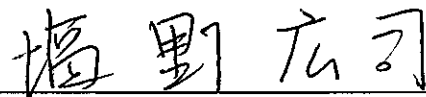
With the explanation of the revision by the Expert Team, JCC has approved the proposed PDM2 and PO2. The main points revised from PDM1 and PO1 to PDM2 and PO2 are referred to in the part II of the document attached hereto.

Cairo, 4<sup>th</sup> of March 2008



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Dr. Salah Bayoumi  
Chairman  
Sharkia Potable Water and Sanitation Company  
(SHAPWASCO)



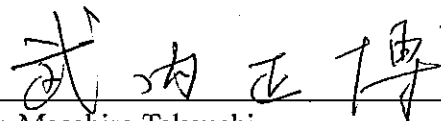
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Mr. Hiroshi Shiono  
Leader  
The Mid-Term Monitoring Study Team,  
JICA



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Prof. Dr. Abdel Kawi Khalifa  
Chairman  
Holding Company for Water and Wastewater  
(HCWW)



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Mr. Masahiro Takeuchi  
Chief Advisor  
The Project for Improvement of  
Management Capacity of Operation and  
Maintenance for SHAPWASCO,  
JICA

## THE ATTACHED DOCUMENT

### PART I

#### 1. Staff allocation

In accordance with the fact that the responsibility of operation and maintenance work for water treatment plants in Sharkia Governorate has been completely transferred to SHAPWASCO since January 2008; however four water treatment plants are still operated by contractors, the Team requested SHAPWASCO to post necessary staff in order to make it sure that these water treatment plants be properly operated particularly after the contractors finish their work. In addition to that, the Team requested additional UFW/HQ team member(s) and AutoCAD operator should be placed in the headquarters to carry out SOPs activities.

In response to the requests, SHAPWASCO stated that necessary staff should be allocated to avoid problems associated with operation and maintenance work as well as SOPs.

#### 2. Supervision of construction worker

Through site surveys on UFW reduction activities, the Team noticed that branching works of installing house connection done by small contractors/plumbers might cause leakage problems due to lack of skills. Therefore, the Team suggested that providing training for such small contractors/plumbers could improve the quality of construction works that contributes to decreasing leakage points.

SHPWASCO understood the situation and proposed to have water conservation campaign include workshop for plumbers.

#### 3. Objectively verifiable indicators for project purpose

The Team, SHAPWASCO and the Expert Team agreed that the current indicators for project purpose were not specified and needed how to be calculated for the coming final evaluation on the Project.

In this context, the modified indicators were crafted and proposed by the Expert Team in PDM2 (ANNEX 2).

#### 4. UFW pilot project site

Referring to the Minutes of Meetings agreed between both the Egyptian side and the Japanese side on 13<sup>th</sup> June, 2006, SHAPWASCO requested that the pilot projects be implemented in Menia Alqamah Markaz, Bilbais Markaz and Abu Hamad Markaz. SHAPWASCO explained that the existing UFW Headquarters Team should play a key role to develop UFW activities throughout the Sharkia Governorate, and is required to build their capacity of planning and management of UFW activities in the Markaz level. In other words, the UFW Headquarters Team will face this new challenge of managing UFW activities.

Therefore, the UFW Headquarters Team needs more opportunities to experience such planning and management works with the support of the Expert Team, which allow them to take a lead of disseminating UFW activities in the future.

Considering the situation facing SHAPWASCO, the Team understood the necessity and impact of such extension. At the same time, the Team confirmed that the progress of UFW activity in the Project has gone well according to Plan of Operation, and did not find any major constraints associated with personnel and budget that SHAPWASCO should prepare.

In this context, the Team stated that the request had to be considered by JICA headquarters and the result of the consideration would be informed SHAPWASCO through JICA Egypt Office.

#### 5. Planning of UFW reduction activities

Both the Egyptian side and the Japanese side agreed that formulating a plan of disseminating UFW reduction activities should be added as one of the Project activities.

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## PART II

### 1. Revision of PDM

The Expert Team explained to the JCC committee members the main revisions in PDM2 from PDM1 as follows:

#### (1) Objectively Verifiable Indicators for "Project Purpose" were revised as follows:

##### Item 2 (added)

Setting indicators for optimum electricity and chemicals consumption and manpower standard working hours is conducted at model facilities for SOP activity.

##### Item 3 (previous item 2 in PDM1)

The objectively verifiable indicator as previous item 2 was changed to item-3 and subdivided into the following two (2) items:

- Activities on UFW reduction are expanded to other sites than the pilot project sites.
- Activities on SOPs are expanded to other facilities than the model facilities.

#### (2) Objectively Verifiable Indicators for Output-1 (Unaccounted-for water (UFW) ratio is reduced in the pilot project sites) were revised.

Targets for the reduction of UFW ratio and leakage (real loss) ratio have been set after the completion of Pilot Project-1 in Zagazig City-East as follows provided that those ratios might be reviewed in June 2008:

##### Item 1-2

An average UFW ratio (initial) is reduced from 35% to 20% in the pilot project sites.

##### Item 1-3

An average leakage (real loss) ratio (initial) is reduced from 30% to 15% in the pilot project sites.

#### (3) Following activity was added in "1-1 General" for UFW reduction activity for achieving the Output-1:

##### Item (7)

Formulating a plan for expanding UFW reduction activity to other Markazes than the pilot project areas

#### (4) A pilot project area means Zagazig city or Markazes where a pilot project is conducted and a pilot project site means the site where a pilot project is conducted. Based on this definition, the related wordings in PDM2 were revised.

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2. Revision of PO

The Expert Team explained to the JCC committee members the main revisions in PO2 from PO1 as follows:

(1) Following activity was added in "1-1 General" for UFW reduction activity:

As item (7)

Formulating a plan for expanding UFW reduction activity to the other Markazes than the pilot project areas

(2) A pilot project area means Zagazig city or Markazes where a pilot project is conducted and a pilot project site means the site where a pilot project is conducted. Based on this definition, the related wordings in PDM2 were revised.

ANNEX 1: List of Participants in JCC

ANNEX 2: Project Design Matrix-2 (PDM2)

ANNEX 3: Plan of Operation-2 (PO2) for UFW Reduction Activity

ANNEX 4: Plan of Operation-2 (PO2) for SOP Activity

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**List of Participants****[Egyptian side]**

Prof. Dr. Abdel Kawi Khalifa	Chairman of HCWW
Mr. El Sayed Naser	Vice Chairman of HCWW
Mr. Mamdouh Raslan	Vice Chairman of HCWW
Dr. Salah Bayoumi	Chairman of SHAPWASCO Representative of NOPWASD

**[Japanese side]****JICA Mid-Term Monitoring Study Team**

Mr. Hiroshi Shiono	Leader
Mr. Yoshiaki Omura	Water supply development
Mr. Hiromu Matsuda	Water supply management
Mr. Tsuyoshi Kanda	Study planning

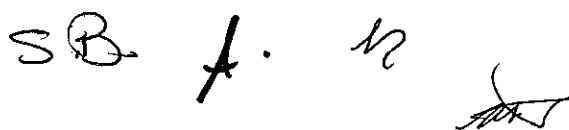
**JICA Expert Team**

Mr. Masahiro Takeuchi	Chief advisor/water supply planning
Mr. Masatoshi Seno	Unaccounted-for water
Mr. Keizo Kimura	Water treatment/mechanical equipment
Dr. Ashraf Ahamed	Electrical equipment
Mr. Nobuyuki Iijima	Hydrogeology
Mr. Mitsuhiro Omori	Coordinator of the project
Mr. Mohamed Nagi	Facilitator of the project team
Dr. Mohamed Sobhy	Senior engineer for UFW reduction activity
Mr. Mohamed Khalaf	Senior engineer for SOP activity

**JICA Egypt Office**

Mr. Katsuhiko Ozawa	Resident representative
Mr. Kenshiro Tanaka	Assistant resident representative

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**Project Design Matrix-2 (PDM2)**

**Project Title: The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO**

**Target Area : Sharkia Governorate, Egypt**

**Target Group : Staff of SHAPWASCO  
Final Beneficiaries : People in Sharkia Governorate**

**Duration : FY2006 – FY2009  
Date : March 4, 2008**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p><b>[Overall Goal]</b> Management capacity of operation and maintenance of water supply facilities is improved in Sharkia Governorate.</p>	<p>1. Performance indicators in the field of management capacity of operation and maintenance are improved for all branches in the Governorate.</p>	<p>SHAPWASCO quarterly report submitted to HCWW</p>	
<p><b>[Project Purpose]</b> Management capacity of operation and maintenance of water supply facilities is improved in target areas.</p>	<p>1. Performance indicators in the field of management capacity of operation and maintenance are improved in target areas. 2. Setting indicators for optimum electricity and chemical consumption and standard working hours is conducted at model facilities for SOP activity. 3. Activities on UFW and SOPs are incorporated into the routine work. - Activities on UFW reduction are expanded to other sites than the pilot project sites. - Activities on SOPs are expanded to other facilities than the model facilities.</p>	<p>SHAPWASCO quarterly report submitted to HCWW <u>Monthly Report for O&amp;M Project Progress Report</u> <u>Monthly Report for O&amp;M Project Progress Report</u> Questionnaire survey Organization chart</p>	<p>Sector policy of the Egyptian government will not drastically change on management of water supply services.</p>
<p><b>[Outputs]</b> 1. Unaccounted-for water (UFW) ratio is reduced in the pilot project sites.</p>	<p>1-1 Water balance analysis can be conducted properly for the pilot project sites. 1-2 An average UFW ratio (initial) is reduced from 35% to 20% in the pilot project sites. 1-3 An average leakage (real loss) ratio (initial) is reduced from 30% to 15% in the pilot project sites. 1-4 At least three (3) members of each UFW team of Zagazig City and Hihya Markaz acquire leakage detection survey technique. 1-5 At least one (1) member of each UFW team of other Markazes related to the pilot projects acquires leakage detection survey technique.</p>	<p>Project Progress Report Project Progress Report Project Progress Report Test by JICA Expert Project Progress Report Test by JICA Expert Project Progress Report</p>	

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Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p>2. Operation and maintenance capacity of water supply facilities is strengthened.</p>	<p>2-1 Basic system drawings of the facilities are prepared and updated at five (5) model facilities (2 WTPs, 1 FMRP, 1 BPS and 1 well station) which represent the facilities of SHAPWASCO.</p> <p>2-2 Manuals for management of O&amp;M are developed and updated as SOPs by the following SOP packages for plant components and for three activity categories, i.e. Operation, Maintenance and Water Quality Control for each model facility.</p> <ul style="list-style-type: none"> <li>- Not less than twenty (20) SOP packages at WTP</li> <li>- Not less than five (5) SOP packages at FMRP, BPS and well stations.</li> </ul> <p>2-3 For the application of SOPs to the field operation, class room training and OJT to operators are conducted at all the five (5) model facilities.</p> <p>2-4 Not less than eighty (80) percent of SOP/HQ and SOP/MF members acquire the ability to apply knowledge and skills of SOP.</p> <p>2-5 O&amp;M Plan is developed at not less than one (1) WTP.</p> <p>2-6 Water quality control program applying the new HCWW regulation is prepared.</p> <p>2-7 Well inventory is prepared with a standard form and the first round of investigation is conducted for all the SHAPWASCO well stations.</p> <p>2-8 Hydraulic analysis is done for not less than two pilot project areas.</p>	<p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Test by JICA Expert Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p>	

Note (1) Following PI has been selected as a specific indicator.

- Percentage of measured water production (%), etc.

Volume of measured production water / total volume of produced water

Volume of measured production water: means total volume of measured produced water in stations equipped with meters working in cubic meter

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	Activities	Inputs		Important Assumption
		Japanese Side	Egyptian Side	
1	Unaccounted-for water (UFW) ratio is reduced in the pilot project sites.			Employees who received trainings by the Project will continuously work for SHAPWASCO.
1-1	General			
(1)	Analyzing the current situation on UFW	1. Experts	1. Counterparts	
(2)	Organizing UFW reduction teams	- Chief Advisor	- Project director	
(3)	Selecting candidate areas for pilot project sites	- UFW reduction specialist	- Project manager	
(4)	Formulating an action plan for UFW reduction activity	- Leakage detection trainer	- UFW teams	
(5)	Conducting water conservation campaign	- Water treatment specialist		
(6)	Formulating long-term pipe replacement plan for preventive works	- Hydraulic engineer for network analysis		Personnel transfer of executive management will not affect the implementation of the Project.
(7)	Formulating a plan for expanding UFW reduction activity to the other Markazes than the pilot project areas	- Electrical engineer		
(8)	Holding workshops and seminars	- Mechanical engineer	2. Office space and facilities for experts	
		- Hydro-geologist	3. Equipment	
		- Water quality control specialist		
1-2	Actions	2. Equipment and materials	4. Necessary information	Funds from NOPWASD and SHAPWASCO in related to the Project will be allocated as planned.
U1	Conducting training of C/P staff at Mostrod Training Center	3. Trainings	5. Local cost	
U2	Conducting leakage (minimum night flow : MNF) survey for candidate areas	4. Local cost	All the cost for repairing leakage in distribution network of the pilot project areas	
U3	Determining nine (9) pilot project sites		6. Others	
U4	Preparing GIS drawings		- Civil works, electrical works and other necessary works for the installation of flow meters	
U5	Learning experiences of Jordan UFW reduction project		- Measurement of flow rate by the flow meters	
U6	Making field survey of distribution network		- Monitoring of wells	
U7	Surveying working conditions of water meters and conducting meter readings		- MNF survey and countermeasure works for other areas than the pilot project areas	
U8	Measuring metering error for working meters and water wastage in the house			
U9	Conducting MNF survey			
U10	Making water balance analysis before repair works			
U11	Conducting leakage detection survey			
U12	Repairing leaking parts			
U13	Conducting MNF survey (including meter readings) after repair works			
U14	Making water balance analysis after repair works and its evaluation			

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Activities	Inputs		Important Assumption
	Japanese Side	Egyptian Side	
<p>2 Operation and maintenance capacity of water supply facilities is strengthened</p> <p>2-1 General</p> <p>(1) Surveying current conditions of water supply facilities</p> <p>(2) Selecting Model Facilities (MF)</p> <p>(3) Organizing SOP/MF teams</p> <p>(4) Formulating an action plan for SOP activity</p> <p>(5) Holding workshops and seminars</p> <p>2-2 Actions</p> <p>S1 Preparing basic system drawings</p> <p>S2 Preparing unified forms of O&amp;M records and reports</p> <p>S3 Measuring intake / production water volume at seven (7) WTPs</p> <p>S4 Developing SOPs for model facilities</p> <p>S5 Examining water distribution control practice in the network</p> <p>S5-1 Pilot project for distribution control in small areas</p> <p>S5-2 Hydraulic analysis of water supply and distribution</p> <p>S6 Applying SOPs in O&amp;M</p> <p>S7 Developing SOPs for the remaining facilities</p> <p>S8 Formulating O&amp;M plans</p> <p>S9 Developing water quality control program</p> <p>S10 Developing well inventory forms and monitoring wells</p> <p>2-3 Monitoring achievement of SOP</p>			
			<b>Pre-Conditions</b>

Abbreviations:

O&M : Maintenance and operation  
 BPS : Booster pumping station  
 HCWW : Holding Company for Water and Wastewater  
 SHAPWASCO : Sharkia Potable Water and Sanitation Company

FMRP : Fe/Mn removal plant  
 MF : Model facilities  
 WTP : Water treatment plant  
 HQ : Headquarters  
 NOPWASD : National Organization for Potable Water and Sanitary Drainage

OJT : On-the-job training

SOP : Standard Operational Procedure

NOPWASD : National Organization for Potable Water and Sanitary Drainage

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Plan of Operation-2 (PO2) for UFW Reduction Activity

Project Name : The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO

Duration : November 2006 - October 2009 (3 years)

Item	2006												2007												2008												2009											
	Phase-1			Phase-2			Phase-3			Phase-4			Phase-1			Phase-2			Phase-3			Phase-4			Phase-1			Phase-2			Phase-3			Phase-4														
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10												
1	Unaccounted-for water (UFW) ratio is reduced in the pilot project areas.																																															
1-1	General																																															
(1)	Analysing the current situation on UFW																																															
(2)	Organizing UFW teams at HQ, Zagazig City and all the markazes																																															
(3)	Selecting candidate areas for pilot project sites																																															
(4)	Formulating an action plan for UFW reduction activity																																															
(5)	Conducting water conservation campaign																																															
(6)	Formulating and executing long-term pipe replacement plan for preventive works																																															
(7)	Formulating a plan for expanding UFW reduction activity to other Markazes than the pilot project areas																																															
(8)	Holding Workshops and Seminars																																															
1-2	Actions																																															
Action U1	Conducting training of C/P staff at Mostorod Traing Center																																															
Action U2	Conducting leakage (MNF) survey for candidate areas																																															
Action U3	Determining six (6) pilot project sites																																															
Action U4	Preparing GIS drawings																																															
Action U5	Learning experiences of Jordan UFW reduction project																																															
Action U6 & U7	Making field survey of distribution network (Action U6) / Surveying installatio. conditions of water meters and conducting meter readings (Action U7)																																															
Action U8	Measuring metering error for working meters and water wastage in the house																																															
Action U9 & U10	Conducting leakage (MNF) survey (Action U9) / Making water balance analysis before repair works (Action U10)																																															
Action U11	Conducting leakage detection survey																																															
Action U12	Repairing leaking parts																																															
Action U13	Conducting leakage survey (including meter readings) after repair works																																															
Action U14	Making water balance analysis after repair works and its evaluation																																															

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Plan of Operation-2 (PO2) for SOP Activity

Project Name : The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO  
 Duration : November 2006 - October 2009 (3 years)

Item	2006												2007												2008												2009											
	Phase-1			Phase-2			Phase-3			Phase-4			Phase-1			Phase-2			Phase-3			Phase-4			Phase-1			Phase-2			Phase-3			Phase-4														
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10												
2	Operation and maintenance capacity of water supply facilities is strengthened.																																															
2-1	General																																															
(1)	Surveying the current conditions of water supply facilities																																															
(2)	Selecting Model Facilities (MF)																																															
(3)	Organizing SOP/MF teams																																															
(4)	Formulating an action plan for SOP activity																																															
(5)	Holding Workshops and Seminars																																															
2-2	Actions																																															
Action S1	Preparing basic system drawings																																															
Action S2	Preparing unified forms of O&M records and reports																																															
Action S3	Measuring intake / production water volume at seven (7) WTPs																																															
Action S4	Developing SOPs for Model Facilities																																															
Action S5	Examining water distribution control practice in the network																																															
SS-1	Pilot project for distribution control in small areas																																															
SS-2	Hydraulic analysis of water supply and distribution																																															
Action S6	Applying SOPs in O&M																																															
Action S7	Developing SOPs for the remaining facilities																																															
Action S8	Formulating O&M plans																																															
Action S9	Developing water quality control program																																															
Action S10	Developing well inventory forms and monitoring wells																																															
2-3	Monitoring achievement for SOP																																															

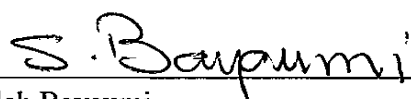
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## **4 Minutes of Meeting of 4<sup>th</sup> JCC Meeting**

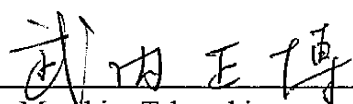
**Minutes of Meeting**  
**on**  
**The Fourth Joint Coordination Committee**  
**for**  
**The Project for Improvement of Management Capacity of**  
**Operation and Maintenance for SHAPWASCO**  
**in the Arab Republic of Egypt**

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Cairo, 10<sup>th</sup> July 2008



Dr. Salah Bayoumi  
Chairman  
Sharkiya Potable Water and Sanitation Company  
(SHAPWASCO)



Mr. Masahiro Takeuchi  
Chief Advisor  
The Project for Improvement of  
Management Capacity of Operation  
and Maintenance for SHAPWASCO  
JICA



Prof. Dr. Abdel Kawi Khalifa  
Chairman  
Holding Company for Water and Wastewater  
(HCWW)

In the course of Phase-3 of the Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO (hereinafter referred to as “the Project”), the fourth meeting for Joint Coordination Committee (hereinafter referred to as “JCC”) for the Project was held on 10<sup>th</sup> July 2008 in Cairo.

The Japanese expert team headed by Mr. Masahiro Takeuchi, Chief Advisor of the Project, presented Project Design Matrix-3 (PDM3) and Plan of Operation-3 (PO3) as attached which are the third revision of PDM0 and PO0 confirmed between the ~~Egyptian-side and the Japanese-side on 13<sup>th</sup> June 2006.~~

The team explained the contents of PDM3 and PO3 to the committee members. After discussions, PDM3 and PO3 have been approved by the committee.

#### Attachments

1. Project Design Matrix-3 (PDM3)
2. Plan of Operation-3 (PO3) for UFW Reduction Activity
3. Plan of Operation-3 (PO3) for SOP Activity

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**List of Participant**

**[Egyptian side]**

Holding Company for Water & Wastewater (HCWW)

Prof. Dr. Abdel Kawi Khalifa	Chairman
Mr. Mamdouh Raslan	Vice Chairman
Mr. El Sayed Nasr	Vice Chairman

Sharkia Potable Water and Sanitation Company (SHAPWASCO)

Dr. Salah Bayoumi	Chairman
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**[Japanese side]**

JICA Expert Team

Mr. Masahiro Takeuchi	Expert for Water supply Planning/Chief Advisor
Mr. Akihiko Okazaki	Expert for Leakage Detection
Mr. Keizo Kimura	Expert for Water Treatment/Mechanical Equipment
Mr. Mohamed Nagi	Facilitator of the Project Team
Dr. Mohamed Sobhy	Senior Engineer for UFW Reduction Activity
Mr. Mohamed Khalaf	Senior Engineer for SOP Activity

JICA Egypt Office

Mr. Tetsuo Takahashi	Assistant Resident Representative
Mr. Nour El-Din Hussein	Project Officer

S. B. E.

**Project Design Matrix-3 (PDM3)**

**Project Title: The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO**

**Duration : FY2006 – FY2009**  
**Date : 9<sup>th</sup> July 2008**

**Target Area : Sharkia Governorate, Egypt**  
**Target Group : Staff of SHAPWASCO**  
**Final Beneficiaries : People in Sharkia Governorate**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p><b>[Overall Goal]</b>                      Management capacity of operation and maintenance of water supply facilities is improved in Sharkia Governorate.</p>	<p>1. Performance indicators in the field of management capacity of operation and maintenance are improved for all branches in the Governorate.</p>	<p>SHAPWASCO quarterly report submitted to HCWW</p>	
<p><b>[Project Purpose]</b>                      Management capacity of operation and maintenance of water supply facilities is improved in target areas.</p>	<p>1. Performance indicators in the field of management capacity of operation and maintenance are improved in target areas.                      2. Setting indicators for optimum electricity and chemical consumption and manpower standard working hours is conducted at model facilities for SOP activity.                      3. Activities on UFW and SOPs are incorporated into the routine work.                      - Activities on UFW reduction are expanded to other sites than the pilot project sites.                      - Activities on SOPs are expanded to other facilities than the model facilities.</p>	<p>SHAPWASCO quarterly report submitted to HCWW                      Monthly Report for O&amp;M Project Progress Report                      Monthly Report for O&amp;M Project Progress Report                      Questionnaire survey                      Organization chart</p>	<p>Sector policy of the Egyptian government will not drastically change on management of water supply services.</p>
<p><b>[Outputs]</b>                      1. Unaccounted-for water (UFW) ratio is reduced in the pilot project sites.</p>	<p>1-1 Water balance analysis can be conducted properly for the pilot project sites.                      1-2 An average UFW ratio (initial) is reduced by 13 points in the pilot project sites.                      1-3 An average leakage (real loss) ratio (initial) is reduced by 13 points in the pilot project sites.                      1-4 At least three (3) members of each UFW team of Zagazig City and Hihya Markaz acquire leakage detection survey technique.                      1-5 At least one (1) member of each UFW team of other Markazes related to the pilot projects acquires leakage detection survey technique.</p>	<p>Project Progress Report                      Project Progress Report                      Project Progress Report                      Test by JICA Expert                      Project Progress Report                      Test by JICA Expert                      Project Progress Report</p>	

*SIP*

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p>2. Operation and maintenance capacity of water supply facilities is strengthened.</p> <p style="text-align: right;">S-P</p>	<p>2-1 Basic system drawings of the facilities are prepared and updated at five (5) model facilities (2 WTPs, 1 FMRP, 1 BPS and 1 well station) which represent the facilities of SHAPWASCO.</p> <p>2-2 Manuals for management of O&amp;M are developed and updated as SOPs by the following SOP packages for plant components and for three activity categories, i.e. Operation, Maintenance and Water Quality Control for each model facility.</p> <ul style="list-style-type: none"> <li>- Not less than twenty (20) SOP packages at WTP</li> <li>- Not less than five (5) SOP packages at FMRP, BPS and well stations.</li> </ul> <p>2-3 For the application of SOPs to the field operation, class room training and OJT to operators are conducted at all the five (5) model facilities.</p> <p>2-4 Not less than eighty (80) percent of SOP/HQ and SOP/MF members acquire the ability to apply knowledge and skills of SOP.</p> <p>2-5 O&amp;M Plan is developed at not less than one (1) WTP.</p> <p>2-6 Water quality control program applying the new HCWW regulation is prepared.</p> <p>2-7 Well inventory is prepared with a standard form and the first round of investigation is conducted for all the SHAPWASCO well stations.</p> <p>2-8 Hydraulic analysis is done for not less than two pilot project areas.</p>	<p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Test by JICA Expert Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p>	

Note (1) Following PI has been selected as a specific indicator.

- Percentage of measured water production (%), etc.

Volume of measured production water / total volume of produced water

Volume of measured production water: means total volume of measured produced water in stations equipped with meters working in cubic meter



Activities	Inputs		Important Assumption
	Japanese Side	Egyptian Side	
<p><b>1 Unaccounted-for water (UFW) ratio is reduced in the pilot project sites.</b></p> <p><b>General</b></p> <p>(1) Analyzing the current situation on UFW</p> <p>(2) Organizing UFW reduction teams</p> <p>(3) Selecting candidate areas for pilot project sites</p> <p>(4) Formulating an action plan for UFW reduction activity</p> <p>(5) Conducting water conservation campaign</p> <p>(6) Formulating long-term pipe replacement plan for preventive works</p> <p>(7) Formulating a plan for expanding UFW reduction activity to the other Markazes than the pilot project areas</p> <p>(8) Holding workshops and seminars</p> <p><b>1-2 Actions</b></p> <p>U1 Conducting training of C/P staff at Mostrod Training Center</p> <p>U2 Conducting leakage (minimum night flow : MNF) survey for candidate sites</p> <p>U3 Determining nine (9) pilot project sites</p> <p>U4 Preparing GIS drawings</p> <p>U5 Learning experiences of Jordan UFW reduction project</p> <p>U6 Making field survey of distribution network</p> <p>U7 Surveying working conditions of water meters and conducting meter readings</p> <p>U8 Measuring metering error for working meters and water wastage in the house</p> <p>U9 Conducting MNF survey</p> <p>U10 Making water balance analysis before repair works</p> <p>U11 Conducting leakage detection survey</p> <p>U12 Repairing leaking parts</p> <p>U13 Conducting MNF survey (including meter readings) after repair works</p> <p>U14 Making water balance analysis after repair works and its evaluation</p>	<p>1. Experts</p> <ul style="list-style-type: none"> <li>- Chief Advisor</li> <li>- UFW reduction specialist</li> <li>- Leakage detection trainer</li> <li>- Water treatment specialist</li> <li>- Hydraulic engineer for network analysis</li> <li>- Electrical engineer</li> <li>- Mechanical engineer</li> <li>- Hydro-geologist</li> <li>- Water quality control specialist</li> </ul> <p>2. Equipment and materials</p> <p>3. Trainings</p> <p>4. Local cost</p>	<p>1. Counterparts</p> <ul style="list-style-type: none"> <li>- Project director</li> <li>- Project manager</li> <li>- UFW teams</li> <li>- SOP teams</li> </ul> <p>2. Office space and facilities for experts</p> <p>3. Equipment</p> <p>4. Necessary information</p> <p>5. Local cost</p> <p>All the cost for repairing leakage in distribution network of the pilot project areas</p> <p>6. Others</p> <ul style="list-style-type: none"> <li>- Civil works, electrical works and other necessary works for the installation of flow meters</li> <li>- Measurement of flow rate by the flow meters</li> <li>- Monitoring of wells</li> <li>- MNF survey and countermeasure works for other areas than the pilot project areas</li> </ul>	<p>Employees who received trainings by the Project will continuously work for SHAPWASCO.</p> <p>Personnel transfer of executive management will not affect the implementation of the Project.</p> <p>Funds from NOPWASD and SHAPWASCO in related to the Project will be allocated as planned.</p>



Activities	Inputs		Important Assumption
	Japanese Side	Egyptian Side	
<p>2 Operation and maintenance capacity of water supply facilities is strengthened</p> <p><b>2-1 General</b></p> <p>(1) Surveying current conditions of water supply facilities</p> <p>(2) Selecting Model Facilities (MF)</p> <p>(3) Organizing SOP/MF teams</p> <p>(4) Formulating an action plan for SOP activity</p> <p>(5) Holding workshops and seminars</p> <p><b>2-2 Actions</b></p> <p>S1 Preparing basic system drawings</p> <p>S2 Preparing unified forms of O&amp;M records and reports</p> <p>S3 Measuring intake / production water volume at seven (7) WTPs</p> <p>S4 Developing SOPs for model facilities</p> <p>S5 Examining water distribution control practice in the network</p> <p>S5-1 Pilot project for distribution control in small areas</p> <p>S5-2 Hydraulic analysis of water supply and distribution</p> <p>S6 Applying SOPs in O&amp;M</p> <p>S7 Developing SOPs for the remaining facilities</p> <p>S8 Formulating O&amp;M plans</p> <p>S9 Developing water quality control program</p> <p>S10 Developing well inventory forms and monitoring wells</p> <p><b>2-3 Monitoring achievement of SOP</b></p>			
			<b>Pre-Conditions</b>

Abbreviations:

O&M : Maintenance and operation  
 BPS : Booster pumping station  
 HCWW : Holding Company for Water and Wastewater  
 SHAPWASCO : Sharkia Potable Water and Sanitation Company

FMRP : Fe/Mn removal plant  
 MF : Model facilities

WTP : Water treatment plant  
 HQ : Headquarters  
 NOPWASD : National Organization for Potable Water and Sanitary Drainage

OJT : On-the-job training  
 SOP : Standard Operational Procedure

Plan of Operation-3 (PO3) for UFW Reduction Activity

Project Name : The Project for Improvement of Management Capacity of Operation and Maintenance for SIAPWASCO

Duration : November 2006 - October 2009 (3 years)

Item	2006												2007												2008												2009											
	Phase-1			Phase-2			Phase-3			Phase-4			Phase-1			Phase-2			Phase-3			Phase-4			Phase-1			Phase-2			Phase-3			Phase-4														
	11	12	1	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10											
1	Unaccounted-for water (UFW) ratio is reduced in the pilot project areas.																																															
I-1	General																																															
(1)	Analysing the current situation on UFW																																															
(2)	Selecting candidate areas for pilot project sites																																															
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(7)	Formulating a path for expanding UFW reduction activity to the other Markazes than the pilot project areas																																															
(8)	Holding Workshops and Seminars																																															
I-2	Actions																																															
Action U1	Conducting training of C/P staff at Mostorod Training Center																																															
Action U2	Conducting leakage (MNF) survey for candidate sites																																															
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Action U4	Preparing GIS drawings																																															
Action U5	Learning experiences of Jordan UFW reduction project																																															
Action U6 & U7	Making field survey of distribution network (Action U6) / Surveying working conditions of water meters and conducting meter readings (Action U7)																																															
Action U8	Measuring metering error for working meters and water wastage in the house																																															
Action U9 & U10	Conducting leakage (MNF) survey (Action U9) / Making water balance analysis before repair works (Action U10)																																															
Action U11	Conducting leakage detection survey																																															
Action U12	Repairing leaking parts																																															
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Action U14	Making water balance analysis after repair works and its evaluation																																															

Pilot Project Areas : P1=Zagazig City/East, P2=Hiliya Markaz, P3=Zagazig City/West, P4=Zagazig Markaz, P5=Ibrahimiya Markaz, P6=Diarb Nigm, P7=Abu Hamad Markaz, P8=Menia Alqamali Markaz, P9=Elbilbas Markaz

Plan of Operation-3 (PO3) for SOP Activity

Project Name : The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO  
 Duration : November 2006 - October 2009 (3 years)

Item	2006												2007												2008												2009											
	Phase-1		Phase-2		Phase-3		Phase-4		Phase-5		Phase-6		Phase-7		Phase-8		Phase-9		Phase-10		Phase-11		Phase-12		Phase-13		Phase-14		Phase-15		Phase-16		Phase-17		Phase-18													
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10												
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 S.B.  
*[Handwritten initials]*

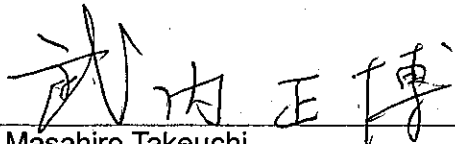
**5 Minutes of Meeting of 5<sup>th</sup> JCC Meeting**

**MINUTES OF MEETING  
ON  
THE FIFTH JOINT COORDINATION COMMITTEE  
FOR  
THE PROJECT FOR IMPROVEMENT OF MANAGEMENT CAPACITY  
OF  
OPERATION AND MAINTENANCE FOR SHAPWASCO  
IN THE ARAB REPUBLIC OF EGYPT**

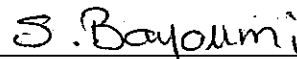
The Japan International Cooperation Agency (hereinafter referred to as "JICA") and authorities of the Arab Republic of Egypt concerned (hereinafter referred to as "Egyptian side") held the fifth Joint Coordination Committee (hereinafter referred to as "JCC") meeting and had a series of meetings for confirming the joint terminal evaluation report for "The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO in the Arab Republic of Egypt" (hereinafter referred to as "the Project"). The joint terminal evaluation report and list of participants of the meeting are attached in the Appendix.

Both JICA and Egyptian sides agreed upon documentation of this Minutes of Meetings in order to confirm the mutual understandings reached through the discussions as attached hereto.

Cairo, 23<sup>rd</sup> February 2009



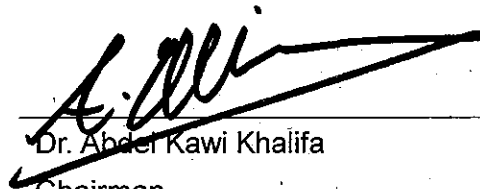
Mr. Masahiro Takeuchi  
Chief Advisor  
The Project for Improvement of  
Management Capacity of Operation and  
Maintenance for SHAPWASCO,  
JICA



Dr. Salah Bayoumi  
Chairman  
Sharkia Potable Water and Sanitation  
Company  
(SHAPWASCO)



Mr. Izumi Tanaka  
Leader  
The Terminal Evaluation Team,  
JICA



Dr. Abdel Kawi Khalifa  
Chairman  
Holding Company for Water and  
Wastewater  
(HCWW)

## THE ATTACHED DOCUMENT

### I. Report of results of the joint terminal evaluation of the Project

The Project organized the 5th JCC meeting on 23 February 2009 which was attended by the joint terminal evaluation team, Egyptian authorities and JICA experts. The joint terminal evaluation team was composed of Japanese members dispatched from JICA headquarters and representatives of Egyptian authorities. The list of participants is attached as Annex-1.

Firstly in the presentation of the JCC meeting, Dr. Salah Bayoumi, chairman of SHAPWASCO, briefly explained the achievement of the Project. Secondly, Japanese members of the joint terminal evaluation team explained the framework of the terminal evaluation and presented the results of the joint terminal evaluation.

JCC participants made comments on the achievement and the results of the report. Dr. Abdel Kawi Khalifa, the representative of Egyptian authorities confirmed the importance of disseminating the outcomes of the Project to other water companies as well as appreciated JICA for the support.

- ANNEX-1 List of attendants of JCC Meeting
- ANNEX-2 Agenda of JCC Meeting and Open Workshop
- ANNEX-3 Joint Evaluation Report

List of Participant**[Egyptian side]**

Dr. Abdel Kawi Khalifa	Chairman, HCWW
Eng. Mandouh Raslan	Deputy Chairman, HCWW
Eng. Al Sayed Nasr	Deputy Chairman, HCWW
Dr. Salah Bayoumi	Chairman, SHAPWASCO

**[Japanese side]**JICA Terminal Evaluation Team

Mr. Izumi Tanaka	Team Leader,	Adviser Middle East and Europe Dept., JICA
Mr. Yoshiki Omura	Water Supply Planning,	Senior Advisor on Water Supply and Sanitation JICA
Mr. Hiromu Matsuda	Water Supply Management,	Chief of Section, Department of Engineering, Osaka Municipal Waterworks Bureau
Mr. Tomohiro Kawase	Study Planning,	Program Officer Water Resources Management I, Water Resources and Disaster Management Group, Global Environment Dept., JICA
Ms. Yoshie Yamamoto	Evaluation Analysis,	Researcher Social Development Department Global Link Management

JICA Expert Team

Mr. Masahiro Takeuchi	Chief Advisor/Water Supply Planning
Mr. Masatoshi Seno	Deputy Chief Advisor/UFW Reduction
Mr. Mithuhito Omori	Coordinator/ Hydraulic Analysis for Network
Mr. Keizo Kimura	Water Treatment 2 & Mechanical Equipment
Mr. Mohamed Nagi	Facilitator of the Project Team

Embassy of Japan

Mr. Hiroshi Ishihara	First Secretary
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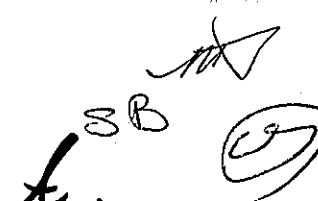
JICA Egypt Office

Mr. Nour El-Din Hussein	Senior Program Officer
Mr. Abdelfatah Mohamed	Public Relations Advisor

**Joint Coordination Committee and  
Open Workshop for Presentation and Discussions on  
Latest Achievement of the Project**

- ◆ Date and Time : 23<sup>rd</sup> (Monday) February 2009, from 9:00 to 15:30
- ◆ Place : Grand Hayatt Hotel – Laylaty-1 Hall

Time	Program	Speaker
<b>[Joint Coordination Committee]</b>		
9:00 – 9:10	Opening speech	Chairman of HCWW
9:10 – 9:55	Explanation of the result of Terminal Evaluation Survey	JICA Terminal Evaluation Team
9:55 – 10:00	Signing on M/M for Terminal Evaluation Survey	
10:00 – 10:30	<i>Coffee break Registration of attendants in the seminar</i>	
<b>[Open Workshop]</b>		
10:30 – 10:35	Opening speech	Chairman of Holding Company for Water and Wastewater (HCWW)
10:35 – 10:40	Brief Speech	Leader of JICA Terminal Evaluation Team
10:40 – 10:50	<b>[Part-1]</b> Brief Explanation of the Project	Chairman of SHAPWASCO
10:50 – 11:20	<b>[Part-2]</b> Current situation of UFW reduction activities in Jordan	Mr. Waleed Sukkar Director of UFW Department Water Authority of Jordan
11:20 – 11:30	Q & A	
11:30 – 12:10	<b>[Part-3]</b> Latest achievements of UFW reduction activity and Result of Pilot Project areas	Project Manager and UFW Team of SHAPWASCO
12:10 – 12:40	<i>Coffee break</i>	
12:40 – 13:20	<b>[Part-4]</b> Latest achievement for SOP activity and Applying SOPs in O & M	Project Manager and SOP Team of SHAPWASCO
13:20 – 13:50	Q & A	UFW & SOP
13:50 – 14:00	Closing speech	Chairman of SHAPWASCO
14:00 – 15:00	<i>Lunch</i>	


  
 SB



**MINUTES OF MEETING  
BETWEEN  
THE JAPANESE AND EGYPTIAN TERMINAL EVALUATION TEAMS  
ON  
THE JAPANESE TECHNICAL COOPERATION  
FOR  
THE PROJECT FOR IMPROVEMENT OF MANAGEMENT CAPACITY OF OPERATION AND  
MAINTENANCE FOR SHAPWASCO  
IN THE ARAB REPUBLIC OF EGYPT**

The Japanese Terminal Evaluation Team organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), which is headed by Izumi Tanaka, Advisor, JICA Middle East and Europe Department, visited the Arab Republic of Egypt from 15<sup>th</sup> February 2009 to 24<sup>th</sup> February 2009.

The Japanese Terminal Evaluation Team and Egyptian Evaluation Team formulated the Joint Evaluation Team (hereinafter referred to as "the Team"), for the purpose of evaluating the achievement of the Japanese Technical Cooperation for the Project for "Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO in the Arab Republic of Egypt" (hereinafter referred to as "the Project").

As a result of review and analysis of the activities and achievements of the Project, followed by a series of discussions, both parties agreed upon the descriptions of the joint terminal evaluation report and to forward to respective Governments the report attached hereto.

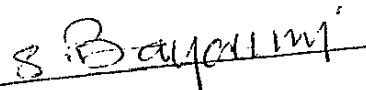
Cairo, 23 February 2009



Mr. Izumi Tanaka  
Leader  
The Terminal Evaluation Team,  
JICA



Dr. Abdel Kawi Khalifa  
Chairman  
Holding Company for Water and Wastewater  
(HCWW)



Dr. Salah Bayoumi  
Chairman  
Sharkia Potable Water and Sanitation  
Company  
(SHAPWASCO)

JOINT EVALUATION REPORT  
ON JAPANESE TECHNICAL COOPERATION  
FOR  
THE PROJECT FOR IMPROVEMENT OF MANAGEMENT CAPACITY  
OF OPERATION AND MAINTENANCE FOR SHAPWASCO  
IN THE ARAB REPUBLIC OF EGYPT

S. Bayoumy

A. Elwi

February 2009

①

## Abbreviation and Acronym

BPS	Booster Pumping Station
C/P	Counterpart
FMRP	Fe/Mn Removal Plant
GIS	Geographical Information System
GOE	Government of Egypt
HCWW	Holding Company for Water and Wastewater
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
kW	kilo Watt
L or lit	Liter
LCD	Liter per Capita per Day
LE	Egyptian Pound
M/D	Minutes of Discussion
MF	Model Facilities
mL	mill-liter
MNF	Minimum Night Flow
M/P	Mater Plan
MWI	Ministry of Water Resources and Irrigation
NOPWASD	National Organization for Potable Water Supply & Sanitary Drainage
OJT	On the Job Training
O/M or O&M	Operation and Maintenance
PCM	Project Cycle Management
PDM	Project Design Matrix
SHEGAWASD	Sharkia Economic General Authority of Water & Sanitary Drainage
SHAPWASCO	Sharkia Potable Water and Sanitation Company
SOP	Standard Operational Procedure
TA	Technical Assistance
TOT	Training of Trainers
UFW	Un-accounted for Water
USAID	The United States Agency for International Development
WB	World Bank
WHO	World Health Organization
WTP	Water Treatment Plant
WWSPR	Water and Wastewater Sector Policy Reform

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## 1. Introduction

### 1-1. Objective of the Evaluation

The Japanese Terminal Evaluation Team, organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") visited the Arab Republic of Egypt from 15<sup>th</sup> February to 24<sup>th</sup> February 2009 for the purpose of evaluating the implementation and the achievements on the Japanese Technical Cooperation for the Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO in the Arab Republic of Egypt (hereinafter referred to as "the Project").

The Project is being conducted for 3 years between November 2006 and October 2009. Terminal evaluation study has been implemented about eight months before the project's termination. Objectives of the evaluation are as follows:

- 1) To grasp the inputs of Egyptian and Japanese sides to the Project and summarize the Achievements of the Project.
- 2) To execute a comprehensive evaluation on the achievements of the Project from the viewpoints of five criteria of evaluation (Relevance, Effectiveness, Efficiency, Impact and Sustainability).
- 3) To make recommendations on the Project and draw lessons from the Project for other technical cooperation.

### 1-2. Members of the Joint Evaluation Team

The evaluation and the recommendations on the Project were made by the following members of the Joint Evaluation Team (hereinafter referred to as "the Team"):

[Egyptian Side]

Name	Job Title	Occupation
Mr. Nagi Labib	Manager	Hihya Water Treatment Plant, SHAPWASCO
Mr. Mahdi Elewa	Manager	Water Department in Hihya Sector, SHAPWASCO

[Japanese Side]

Name	Responsibilities	Job Title
Mr. Izumi Tanaka	Team Leader	Adviser Middle East and Europe Dept., JICA
Mr. Yoshiki Omura	Water Supply Planning	Senior Advisor on Water Supply and Sanitation JICA
Mr. Hiromu Matsuda	Water Supply Management	Chief of Section, Department of Engineering, Osaka Municipal Waterworks Bureau
Mr. Tomohiro Kawase	Study Planning	Program Officer Water Resources Management I, Water Resources and Disaster Management Group, Global Environment Dept., JICA
Mr. Yoshie Yamamoto	Evaluation Analysis	Researcher Social Development Department Global Link Management

### 1-3. Schedule of the Study

No.	Date		JICA Official Member (Mr. Tanaka, Mr. Omura, Mr. Matsuda, and Mr. Kawase)	Consultant (Ms. Yamamoto)	Accommodation
	Day	Month/Day			
1	2/7	sat	/	17:25-00:05 NRT-SIN(NH 901)	
2	2/8	sun		02:20-07:05 SIN-CAI(SQ 492) 08:20 MTG with JICA Office Move to Zagazig 13:00 MTG with Japanese experts	-ZAGAZIG
3	2/9	mon		Interview to Japanese Experts 09:00 Mr. Takeuchi 10:30 Mr. Omori 13:00 Mr. Seno 14:30 Mr. Kimura	
4	2/10	tue		Interview to project staff of SHAPWASCO 09:00 Chairman, SHAPWASCO 10:45 Mr. Alaa 13:30 Mr. Gamal 14:15 Mr. Salama 15:00 Dr. Abd El Halim 16:00 Mr. Shafi	
5	2/11	wed		Interview to project staff of SHAPWASCO 09:00 Ms Walaa Mhd Ali, Walaa Mahmoud 09:40 Mr. Nagi, Facilitator 11:10 Ms Heba Mohamed 13:00 Mr. Abud El Sayed 13:00 Mr. Mostafa M Mostafa MTG with Japanese Experts	
6	2/12	thu		Move to Cairo 11:00 Interview to NOPWASD 15:00 Interview to Mr. Oswood, WWSPR Consultant	
7	2/13	fri		Data compilation & Analysis	-CAIRO
8	2/14	sat		17:25-00:05 NRT-SIN(NH 901)	Data compilation & Analysis
9	2/15	sun	02:20-07:05 SIN-CAI(SQ 492) 10:30 MTG with JICA Office 12:00 Internal MTG (servey report by Ms. Yamamoto & Discussion on draft of evaluation report)	CAIRO	
10	2/16	mon	10:00 Mr. Mamdouh Raslan, HCWW AM Move to Zagazig MTG with Japanese experts Discussion with project staff of SHAPWASCO on draft of evaluation report	ZAGAZIG	
11	2/17	tue	Joint Evaluation Committee		
12	2/18	wed	Field Survey (Leakage detection site at Abu Hamad, Abbasa Water Treatment Plant, Hihya Leakage Training Yard, Qannayat Fe/Mn Water Plant)		
13	2/19	thu	Field Survey (SHAPWASCO Central Laboratory) Discussion with project staff of SHAPWASCO		
14	2/20	fri	Internal MTG	ZAGAZIG	
15	2/21	sat	Internal MTG PM Move to Cairo	CAIRO	
16	2/22	sun	MTG with PEMA (Project Evaluation and Macroeconomic Analysis) Preparation of JCC	CAIRO	
17	2/23	mon	Sign of M/M at JCC 3rd Open Workshop	CAIRO	
18	2/24	tue	Report to embassy of Japan and JICA office 19:15-00:25 CAI-DXB (EK 924)	-	
19	2/25	wed	02:50-16:40 DXB- KIX(JL 5090)	-	



## 2. Outline 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 from 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.

### 2-1. Background of the Project

### 2-2. Summary of the Project

Project Name	The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO in the Arab Republic of Egypt
Related Organizations	Sharkia Potable Water and Sanitation Co. (SHAPWASCO) Holding Company for Water and Wastewater (HCWW)
Date of Signing (R/D)	September 20, 2006
Cooperation Period	November 2006 - October 2009 (3 years)
Cooperation Scheme	Technical Cooperation Project

The Objectives and Outputs of the Project stated in the latest Project Design Matrix (PDM) officially signed at 4th Joint Coordinating Committee on 10th July 2008 as follows (See Annex-3) for details:

#### Overall Goal

Management capacity of operation and maintenance of water supply facilities is improved in Sharkia Governorate.

#### Project Purpose

Management capacity of operation and maintenance of water supply facilities is improved in target

areas.

### 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.

### Activities

#### 1-1 General

- (1) Analyzing the current situation on UFW
- (2) Organizing UFW reduction teams
- (3) Selecting candidate areas for pilot project sites
- (4) Formulating an action plan for UFW reduction activity
- (5) Conducting water conservation campaign
- (6) Formulating long-term pipe replacement plan for preventive works
- (7) Formulating a plan for expanding UFW reduction activity to the other Markaz than the pilot project areas
- (8) Holding workshops and seminars

#### 1-2 Actions

- (U1) Conducting training of C/P staff at Mostrod Training Center
- (U2) Conducting leakage (minimum night flow: MNF) survey for candidate areas
- (U3) Determining nine (9) pilot project sites
- (U4) Preparing GIS drawings
- (U5) Learning experience of Jordan UFW reduction project
- (U6) Making field survey of distribution network
- (U7) Surveying working conditions of water meters and conducting meter readings
- (U8) Measuring metering error for working meters and water wastage in the house
- (U9) Conducting MNF survey
- (U10) Making water balance analysis before repair works
- (U11) Conducting leakage detection survey
- (U12) Repairing leaking parts
- (U13) Conducting MNF survey (including meter readings) after repair works
- (U14) Making water balance analysis after repair works and its evaluation

#### Output 2

##### 2-1 General

- (1) Surveying current conditions of water supply facilities
- (2) Selecting Model Facilities (MF)
- (3) Organizing Standard Operational Procedure (SOP)/MF teams
- (4) Formulating an action plan for SOP activity

- (5) Holding workshops and seminars

#### 2-2 Actions

- (S1) Preparing basic system drawings
- (S2) Preparing unified forms of O&M records and reports
- (S3) Measuring intake / production water volume at seven (7) water treatment plants (WTPs)
- (S4) Developing SOPs for model facilities
- (S5) Examining water distribution control practice in the network
  - (S5-1) Pilot project for distribution control in small areas
  - (S5-2) Hydraulic analysis of water supply and distribution
- (S6) Applying SOPs in O&M
- (S7) Developing SOPs for the remaining facilities
- (S8) Formulating O&M plans
- (S9) Developing water quality control program
- (S10) Developing well inventory forms and monitoring wells

#### 2-3 Monitoring achievement of SOP

### 2-3. Plan of Operation

The PO is shown in Annex 2. It has been revised repeatedly by the Project and is being implemented thereby.

## 3. Methodology of the Final Evaluation

### 3-1. Methodology of Evaluation

In accordance with the JICA Project Evaluation Guideline of January 2004, the final evaluation of the Project was conducted in the following process:

**Step 1:** The Project design is summarized in the Project Design Matrix<sup>1</sup> (PDM) as agreed upon by both Egyptian and Japanese sides at the inception of the Project. However, the Government of Egypt and JICA agreed to revise the PDM as indicators needed to be clarified further at the time of the mid-term evaluation in February 2008. Based on the PDM3, Project achievements were assessed vis-à-vis the newly set Objectively Verifiable Indicators. The level of inputs and activities were evaluated in comparison with the output levels. PDM3 is attached as Annex 3.

**Step 2:** Analysis was conducted on the factors that promoted or inhibited the Project's

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<sup>1</sup> Within the latest JICA Evaluation Guideline of 2004, the term Logical Framework, or LogFrame has been introduced in place of Project Design Matrix (PDM). However since the Project continued referring to this tool as PDM throughout the Project Period, this Report will use the term PDM. "JICA Project Evaluation Guideline (revised: January 2004)," Office for Evaluation and Post-Project Monitoring, JICA.

achievement levels including matters relating to both the project design and project implementation process.

**Step 3:** An assessment of the Project results was conducted based on the five evaluation criteria: "relevance", "effectiveness", "efficiency", "impact", and, "sustainability".

**Step 4:** Recommendations for the Project stakeholders and lessons learned were formulated.

The definition of the five evaluation criteria that were applied in the analysis for the final evaluation is given in Table 1 below.

**Table 1: Definition of the Five Evaluation Criteria for the Final Evaluation**

Five Evaluation Criteria		Definitions as per the JICA Evaluation Guideline
1.	<b>Relevance</b>	Relevance of the Project is reviewed by the validity of the Project Purpose and Overall Goal in connection with the Egyptian government's water sector development policy and the needs of the target group and/or ultimate beneficiaries in Egypt.
2.	<b>Effectiveness</b>	Effectiveness is assessed to what extent the Project has achieved its Project Purpose, clarifying the relationship between the Project Purpose and Outputs.
3.	<b>Efficiency</b>	Efficiency of the Project implementation is analysed with emphasis on the relationship between Outputs and Inputs in terms of timing, quality and quantity.
4.	<b>Impact</b>	Impact of the Project is assessed in terms of positive/negative, and intended/unintended influence caused by the Project.
5.	<b>Sustainability</b>	Sustainability of the Project is assessed in terms of institutional, financial and technical aspects by examining the extent to which the achievements of the Project will be sustained after the Project is completed.

Both quantitative and qualitative data were gathered and utilized for analysis. Data collection methods used for the evaluation were as follows:

- Literature/Documentation Review;
- Questionnaires (Counterparts, Experts);
- Key Informant Interviews (Counterparts, Japanese Experts, a vice president of the Holding Company of Water and Waste Water (HCWW), and a consultant of the USAID-funded project; and,
- Direct Observations

### 3-2. Constraints on the Evaluation Methodology

There was a limitation of the evaluation methodology regarding data collection and analysis: The Project did not have specific definitions and targets for some activities. This has placed the Team in a position to rely heavily on records of activities collected through stakeholder interviews and some reports produced by the Japanese experts. Moreover, performance indicators and data

sources to measure achievement level of the Overall Goal were not clearly identified during the project implementation. Subsequently, quantitative data that would have benchmarked the Project's achievements of Overall Goal were not periodically collected by either the Japanese or Egyptian side, and thus were not fully available during the evaluation exercise.

#### **4. Record of Project Implementation**

The evaluation teams reviewed the progress of the Project in accordance with the PDM3.

##### **4-1. Inputs**

###### **4.1.1 Japanese Side**

###### **a) Experts Dispatched**

A total of 10 experts in 10 areas of expertise were assigned for a total of 71.37 months by end January 2009. These short term experts were dispatched in the areas of (1) Chief Advisor; (2) UFW reduction specialist; (3) Leakage Detection Trainer; (4) Water Treatment Specialist; (5) Hydraulic Engineer for Network Analysis; (6) Electrical Engineer; (7) Mechanical Engineer; (8) Hydro-geologist; and, (9) Water Quality Control Specialist; and, (10) Coordinator. The detailed list of Japanese experts is shown in Annex 5.

###### **b) Training in Japan**

A total of 5 SHAPWASCO staff members participated in 5 training courses on water sector management held in Japan for the total of 67 days under the Counterpart Training Scheme. The detailed list of the Egyptian participants is shown in Annex 6.

###### **c) Equipment Provided**

Equipment necessary for SOP and UFW activities such as leak detection devices, ultrasonic water flow meters, and office equipment necessary for GIS application, worth a total of JPY 59.1 million equivalents were procured in Japan. The detailed list of equipment provided is shown in Annex 7.

###### **d) Operational Expenses**

As of end January 2009, a total of JPY 66 million was allocated for the operational expenses of the Project by the Japanese side. The details of the operational expenses are shown in Annex 8.

#### **4.1.2 Egyptian Side**

##### **a) Appointment of Counterpart Personnel**

91 were assigned as the counterparts of the Project by the Egyptian side. 16 were assigned for SOP activities. While three have been replaced, one left the post and has not yet been replaced. The list of the counterpart personnel as of January 2009 is attached as Annex 9.

##### **b) Provision of Facilities for Project Operations**

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

##### **c) Cost-sharing of Operational Expenses**

Operational cost-sharing with the Egyptian side has been promoted since the beginning of the Project. As of January 2009, a total of LE 15,210,000 or JPY 243 million equivalent was provided by the Egyptian side for; construction of leak detection yard at Hihya and the central laboratory, and necessary construction for UFW activities. It should be noted, however, this includes LE 11 million for construction of the central laboratory that was initiated by SHAPWASCO. The details on cost sharing in direct operational expenses by the Egyptian side for the Project are shown as Annex 10. In addition to this amount, the salaries for counterparts and supporting staff who are engineers and technicians were paid for by the Egyptian side.

#### **4-2. Activities Implemented**

Most of the Project's activities, as specified under the PDM and the Project's Plan of Operations (PO), have been implemented. As achievements of significant part of the activities could be evaluated due to selected verifiable indicators of Outputs, summaries of activities are noted in respective Output under the following 'Achievement of Outputs'.

**5. ACHIEVEMENT OF OUTPUTS**

The levels of the achievement of two outputs are judged as Excellent (A). According to the indicators on PDM, the achievements of Outputs are:

**5-1. Achievement of Output 1**

Output 1:	Objectively Verifiable Indicators
Unaccounted-for water (UFW) ratio is reduced in the pilot project sites.	1-1. Water balance analysis can be conducted properly for the pilot project sites; 1-2. An average UFW ratio (initial) is reduced by 13 points in the pilot project sites; 1-3. An average leakage ratio (initial) is reduced by 13 points in the pilot project sites; 1-4. At least three (3) members of each UFW team of Zagazig City and Hihya Markaz acquires leakage detection survey technique; 1-5. At least one (1) member of each UFW team of other Markaz related to the pilot projects acquires leakage detection survey technique.

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.

Conducting water balance analyses could help identification of appropriate measures to reduce UFW ratios. Analyses were conducted for all six initial pilot project areas and are expected to be finalized by June 2009 for the three added areas. As for a Zagazig City East area a physical loss from leakages such as from water mains and water pipes amounted to 28.3 percent of water supply. It showed dramatic decrease to 9.7 percent upon repairs of faulty meters, cleaning of meters and repairs of leakages. On the other hand, changes on operating loss stemmed from apparent loss from non-responsive meters was almost negligible. As the similar results from water balance analyses were obtained for other five pilot areas, leakage reduction measures were proven to be the most effective to reduce UFW ratios in the pilot areas.

**Table 2: UFW Ratio**

No	Pilot Project Area	# of Household Subscribers	Estimated Served Population <sup>2</sup>	UFW Ratio (%)		
				Before repairing of leakages (1)	After repairing of leakages (2)	(2)-(1) (Percentage Point)
1	Zagazig City East	501	3,006	34.9	16.2	18.7
2	Hihya Markaz	1,414	8,484	24.9	15.6	9.4
3	Zagazig City West	600	3,600	32.6	17.3	15.4
4	Zagazig Markaz	2,012	12,072	35.2	12.2	23.1
5	Ibrahimiya Markaz	1,025	6,150	24.6	10.4	14.2
6	Diarb Nigm Markaz	1,800	10,800	23.3	16.1	7.1
7	Abu Hamad Markaz	1,119	6,714	Water balance analysis is to be completed by May 2009.		
8	Menia Alqumah Markaz	880	5,280	Water balance analysis is to be completed by June 2009.		
9	Bilbeis Markaz	Pilot area is being selected		Water balance analysis is to be completed by June 2009.		
	TOTAL	9,351	56,106	29.2	14.7	14.5

As indicated in the above Table 2, an average percentage point reduction of UFW ratio was at 14.5 for the initial six pilot project areas. Water balance analyses for the remaining three areas, namely Abu Hamad Markaz, Menia Alqumah Markaz, and Bilbeis Markaz, are to be completed between May and June 2009. However, it should be noted that the water balance analysis for Ibrahimiya Markaz was conducted without replacing faulty meters for the reasons being under investigation.

**Table 3: Leakage Ratio**

No	Pilot Project Area	# of Household Subscribers	Estimated Served Population	Leakage Ratio (%)		
				Before repairing of leakages (1)	After repairing of leakages (2)	(2)-(1) (Percentage Point)
1	Zagazig City East	501	3,006	28.3	7.6	20.7
2	Hihya Markaz	1,414	8,484	18.0	8.6	9.4
3	Zagazig City West	600	3,600	31.3	14.1	17.3
4	Zagazig Markaz	2,012	12,072	34.8	11.8	23.0
5	Ibrahimiya Markaz	1,025	6,150	28.4	13.5	14.9
6	Diarb Nigm Markaz	1,800	10,800	20.1	13.6	6.5
7	Abu Hamad Markaz	1,119	6,714	Water balance analysis is to be completed by May 2009.		
8	Menia Alqumah Markaz	880	5,280	Water balance analysis is to be completed by June 2009.		
9	Bilbeis Markaz	Pilot area is being selected		Water balance analysis is to be completed by June 2009.		
	TOTAL	9,351	56,106	26.1	11.1	15.1

As indicated in the above Table 3, an average percentage point reduced of leakage ratio was at 15.1 for the initial six pilot project areas. Water balance analyses for the remaining three areas, namely Abu Hamad Markaz, Menia Alqumah Markaz, and Bilbeis Markaz, are to be completed between May and June 2009. However, it should be noted that the water balance analysis for Ibrahimiya Markaz was conducted without replacing faulty meters for the reasons being under investigation.

<sup>2</sup> Size of household is estimated at 6.



A total of eight UFW members from the core teams of Zagazig City East area and Hihya Markaz were given training on leakage detection survey techniques directly by the Japanese experts. Six were given a practical exam in June 2008 and were found to have demonstrated sufficient level of knowledge and skills. While the remaining two members did not take this exam, their skill levels are believed to be at par by the Japanese experts. Moreover four UFW team members at HQ have been equipped with skills sufficient even to train other SHAPWASCO staff members. Therefore, a total of twelve members, nine more than planned number, of the UFW teams have acquired sufficient level of skills on detection survey technique.

Each UFW team established at each pilot Markaz has four staff members and the Japanese experts provided the training. Practical test was given to UFW team members in all the pilot areas except for Zagazig City East and Hihya. 11 members have demonstrated sufficient skills level of leakage detection survey technique. This is more than intended target of seven. As there are two additional areas that are to implement UFW activities by the end of the Project, a total of additional eight members of these two UFW teams are expected to acquire the same level of proficiency.

5-2. Achievement of Output 2

Output 2:	Objectively Verifiable Indicators
Operation and maintenance capacity of water supply facilities is strengthened	<p>2-1. Basic system drawings of the facilities are prepared and updated at five (5) model facilities (2 WTPs, 1 FMRP, 1 BPS and 1 well station) which represent the facilities of SHAPWASCO;</p> <p>2-2. Manuals for management of O&amp;M are developed and updated as SOPs by the following SOP packages for plant components and for three activity categories, i.e. Operation, Maintenance and Water Quality Control for each model facility.</p> <ul style="list-style-type: none"> <li>- Not less than twenty (20) SOP packages at WTP</li> <li>- Not less than five (5) SOP packages at FMRP, BPS and well stations.</li> </ul> <p>2-3. For the application of SOPs to the field operation, class room training and OJT to operators are conducted at all the five (5) model facilities;</p> <p>2-4. Not less than eighty (80) percent of SOP/HQ and SOP/MF members acquire the ability to apply knowledge and skills of SOP</p> <p>2-5. O&amp;M Plan is developed at not less than one (1) WTP</p> <p>2-6. Well inventory is prepared with a standard form and the first round of investigation is conducted for all the SHAPWASCO well stations.</p> <p>2-7. Hydraulic analysis is done for not less than two pilot project areas.</p>

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.

Staff members at various water supply facilities have had no prior experiences to observe system drawings of the facilities where they work let alone preparing it on their own. They were trained to draw basic system drawing by hand which were then made into Auto-CAD drawings. Such completed drawings are now being placed at the facilities in order to enable them to check and apply for their daily operation and maintenance work. Computers were procured and placed at each facility so that the senior managers could readily refer to Auto-CAD drawings.

By the time of final evaluation, 34 SOP packages were developed for WTPs; 20 for iron and manganese removal plants; 9 for booster pump stations and 8 for well stations. The number of

SOP packages is significantly greater than the planned. Such SOPs are continued to be updated and revised by incorporating feedbacks from operators. SOP packages were intentionally not made into books but were compiled into box files for easy and prompt revision on required contents. Use of visuals and simple terms were promoted in order for operators to use at facilities. Use of visual was quite new and was found effective mode of communicating essence of SOPs.

OJT training was also conducted both at all the five model facilities and at Qenayat iron and manganese removal plant. Since January 2008 OJT on coagulation and filtration which are both primary process of water treatment were conducted and completed. Having witnessed visible effects of application of SOPs through OJTs, classroom type of training were not conducted and changed to OJT.

Three members of the SOP team at HQ were given paper exam in February 2009. The results demonstrated that all have acquired sufficient level of knowledge. They are now in the process of preparing paper tests to the senior management of model facilities. Operators will later be tested by observation. While all the exams have not yet been conducted by the time of final evaluation, it is highly likely that more than 80 percents of staff members are to pass the exams.

Comprehensive understanding of procedures, work amounts, timing and staffing of entire operation and maintenance works throughout the year is required to develop operation and maintenance plans. Equipment lists, annual work schedule, daily operational schedules of equipments and emergency procedures have been developed at Abbasa WTP. They could be replicated and utilized at other WTPs.

Having given a direction on water quality control from HCWW on improvement of accountability in water quality test data, the Project came up with: 1) draft SOPs for water quality analysis; 2) develop water quality control management program/procedures for both Zagazig and Abbasa WTPs; and 3) introduce regular auditing system with a check list of chemicals and equipment at laboratory which will be reported to the headquarter.

All the data on 315 well stations in the one city and 11 markaz have been collected and the well inventory was prepared with a standard form. Regular monitoring has been undertaken on regular basis and database has been updated accordingly. Using four groundwater level meters installed in FY2007 and portable meters, usage and groundwater level have been measured and analyzed. These data were translated into a groundwater level contour map which has already been drawn.

Hydraulic analyses serves as a tool to check the level of water pressures, identify areas of improvements on water supply networks and to check validity of distribution pipe replacement plans that are either being implemented or in pipeline. Hydraulic analyses have been conducted at two areas in Hihya markaz and Zagazig City (Area 4 in Zagazig City East). Three SHAPWASCO

counterparts have already been given sufficient skills to undertake analyses. They will lead other staff members to study the network data which has already been put into database and to draw an appropriate distribution pipe replacement plan in the remaining project period.

Three (3) essential technology transfer trainings were planned with participation of 10 engineers and 25 technicians at each session. The first training was conducted in February 2006 with 14 engineers and 40 technicians. The second training received 13 engineers and 27 technicians. The third was conducted between December 2006 and February 2007 for 11 engineers and 50 technicians. A total of 38 engineers and 117 technicians were trained. For the first training, 5 engineers and 16 technicians totaling 21 were invited from the Northern Governorates Water Administration. For the second and the third training, engineers and technicians from 6 middle and southern governorates with pilot areas participated. 11 engineers and 27 technicians took part in training for all the three training which was higher than the planned target.

## 6. ACHIEVEMENT OF THE PROJECT PURPOSE

Project Purpose	Objectively Verifiable Indicators
Management capacity of operation and maintenance of water supply facilities is improved in target areas.	<ol style="list-style-type: none"> <li>1) Performance indicators in the field of management capacity of operation and maintenance are improved in target areas;</li> <li>2) Setting indicators for optimum electricity and chemical consumption and manpower standard working hours is conducted at model facilities for SOP activity;</li> <li>3) Activities on UFW and SOPs are incorporated into the routine work.               <ul style="list-style-type: none"> <li>- Activities on UFW reduction are expanded to other sites than the pilot project sites.</li> <li>- Activities on SOPs are expanded to other facilities than the model facilities.</li> </ul> </li> </ol>

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

Selection of Performance Indicators (PI) was done during the mid-term monitoring mission. PI was set at percentage of the measured production to the total estimated production of water. 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. By the end of the Project period, it is expected that all seven (7) WTPs will have flow meters installed and would be able to calculate the identified PI.

Measurements of water flows and supply have been undertaken and recorded at two model WTPs at Abassa and Zagazig. As a result, SHAPWASCO was able to obtain sufficient data to set indicators for electricity and chemical consumption. For Zagazig WTP, they were set at 0.28 kWh/m<sup>3</sup> for electricity; 26.7g/m<sup>3</sup> for aluminum sulfate and 5.37g/m<sup>3</sup> for chlorine respectively. These indicators were then compared to those of the Hihya WTP that was constructed under the Japanese Grant Program for identification of areas of improvement and setting of optimum indicators. Currently collection and compilation of data on standard working hours are being undertaken at various water supply facilities and are to be completed by the end of the Project.

As for UFW reduction activities, in addition to the three pilot project areas in Abu Hamad Markaz, Menia Alqumah, and in Bilbeis Markaz that were added at the time of mid-term monitoring, two more areas in Zagazig Markaz and Ibrahimiya Markaz 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: 1) Flow meter installation pits were constructed with concrete in all pilot candidate areas in one city and seven markaz and ready for starting activities; 2) Data on leakages in all target areas are being collected and have been put into the database which could be used as a tool to develop pipe replacement plan; 3) All 12 members of core UFW team at HQ, Zagazig East and Hihya have equipped with sufficient expertise to train other SHAWASCO staff members; and 4) Construction of a leakage detection training yard at Hihya has been initiated by SHAPWASCO and is expected to provide platform of further training not only for all other staff members at target areas but in all over the Governorate.

Incorporation of SOP activities into work routine and their expansion to other facilities have been confirmed by; 1) Filter washing method has already been incorporated into routine work at two model WTPs and has been started its application at another WTP in Kafr Saqr; 2) Monitoring on chemical consumption has been undertaken and data is being regularly collected; 3) Monitoring on flow data and data is being regularly collected at both model WTPs and at El Huseinia; 4) On the Job Training on chlorine usage control was conducted and SOPs were then developed at Kenayat iron and manganese removal plant. Moreover, the Chairman of HCWW has already distributed a draft copy of SOPs to other water companies which are expected to be applied throughout the country.

## **7. Implementation Process**

### **7-1. Progress of activities in terms of the PDM**

All activities have been carried out as planned on the whole. Some of Outputs will be completed by the end of the Project (October 2009).

Transfer of technology has been made appropriately through the day-to-day activities and various trainings. The Egyptian counterparts have improved their skills and knowledge in their respective technical areas, and benefited from the Japanese leak detection technologies and devices that have clear comparative advantages.

### **7-2. Project Management**

The management system within the Project was appropriate. Under the strong leadership of the chairman, both the senior members of counterparts and the Japanese experts have participated actively in the management of the Project. In order to monitor the progress, they have had almost bi-weekly project team meetings.

From the Japanese side, a mid-term monitoring mission was dispatched in February 2008 to monitor progress of the Project and to provide some technical inputs. A review meeting was organized with key stakeholders to confirm progress, to modify PDM2, and to exchange views. Three meetings of Joint Coordination Committee (JCC) were held as planned and the last one was conducted during the Mid-term Evaluation in March 2008 to grant permission to develop PDM3.

## **8. Evaluation Results by the Five Evaluation Criteria**

Followings are the summaries of the evaluation results based on five evaluation criteria described in 3-1. Details are indicated in Annex 13.

### **8-1. Relevance**

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.

Egypt is an arid country covering an area of approximately 1 million km<sup>2</sup> of which its population occupies only 5.5 percent. Its available annual per capita renewable water resources is believed to be well under the water poverty line of 1,000 m<sup>3</sup> and is expected to reach less than 600 m<sup>3</sup> by 2025. With continued surge of population which is expected to reach 95 million by 2025 from 72 million in 2005 coupled with scarcity of water resources, water shortage is expected to further worsened. The decreasing water availability limits the growth potential of industry, tourism and agriculture, with negative consequences for the overall economic development of the country. 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.

Egypt had tackled water and wastewater sector reform throughout 1990s, however, its accumulated debts amounted to US\$1.3 billion by 2003. Donors, particularly the United States Agency for International Development (USAID), had started providing assistance to improvement of efficiency and business management of the sector. All the economic general authorities of water and sanitary drainage water under the Ministry of Housing, Utilities and New Urban Development were transferred to be managed by HCWW in September 2004. For both HCWW and Potable Water and Sanitation Companies such as SHAPWASCO, improving business management remains to be the most critical agenda. Therefore, improvements in management capacity of operation and maintenance and development of its capacities needed to be given urgent attentions.

In the Governorate of Sharkia, responsibilities to operation and maintain all the water and wastewater businesses were transferred from the Sharkia Economic General Authority of Water & Sanitary Drainage (SHEGAWASD) to Sharkia Potable Water and Sanitation Company (SHAPWASCO). Just as other portable water and sanitation companies, 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 Egyptian government has provided subsidies to SHAPAWASCO. 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. Moreover, the responsibilities to reduce UFW ratios and to operation and maintain water facilities lies with engineers and technicians of SHAPWASCO. The Project was found to be in line with the SHAPWASCO's needs for skilled engineers and technicians.

Improvement and expansion of public services is identified as priority development issues in JICA's plan for country-specific program implementation for Egypt. Thus, there is consistency between project purpose, overall goal and Priority in Japan's foreign aid policy and JICA's policy.

Technical relevance was also found high. While a few other donors had provided Egypt with technical assistance on equipment and skill development on leakage detection, this Project was found to be the first in its kind in Egypt to tackle both leakage detection and improvement of operation and maintenance of water supply facilities. 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.

## 8-2. Effectiveness

The effectiveness of the Project is 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.

## 8-3. Efficiency

Overall, the level of efficiency of the Project was Good (B). Concerns were addressed with the timing of dispatches of Japanese experts. Due to necessity to have a new contract drawn in each fiscal year it was made difficult for the Japanese experts to stay in Egypt during this entire period between March and May. While assigning an Egyptian facilitator had kept the Project's momentum going, absence of Japanese experts during such time remains to be a concern. A total of 77 person-months were allocated for over the three year project period. An average period of each expert per year was at 2.5 person-months which were found to be insufficient to provide satisfactory level of skill transfers. In particular, either assignments periods or the numbers of experts who should work on expansion of SOP applications beyond the model facilities should have been increased.

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 (i.e. section/department heads) who have already tremendous workloads. There were a few major turn-over of core personnel. Assistant head of UFW team at the headquarters resigned who had been trained by Japanese experts and would have been a key driving force for proliferation of UFW activities. There was also a case of one and only Auto CAD operator resigned from a post which has not yet been filled till now.

## 8-4. Impact

Overall Goal	Objectively Verifiable Indicators
Management capacity of operation and maintenance of water supply facilities is improved in Sharkia Governorate	Performance indicators in the field of management capacity of operation and maintenance are improved for all branches in the Governorate.

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.

It is not a role of the Team to select PI during the final evaluation exercise, however, there are two possible indicators that should be closely looked at and collected even beyond the project period to measure the level of achievement of Overall Goal. These are: 1) Through application of improvement on frequencies of filter washing at five WTPs, nearly 9 million m<sup>3</sup> of water could be saved which is equivalent to cost reduction of 6.9 million LE per year; and 2) 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.

The level of impact of the Project was found Excellent (A) for the remaining factors. With regards to any unintended positive impacts emerging from Project implementation, the Team noted the followings:

- (1) There was an increased visibility of SHAPWASCO particularly in the eyes of HCWW and other companies through presentations both at open seminars and workshops on UFW and SOP. This has led to (a) strengthened relationships with the Ministries, Sharkia Governorate's local government and the HCWW; (b) appointment of a chairman as a member of the committee for evaluating tenders and offers on leak detection in Cairo Governorate; and, (c) a set-up of a committee by SHAPWASCO for HCWW to follow up on application of SOPs at other companies in the country.
- (2) There have been cases of proliferation of knowledge and skills on SOPs to other Governorates. A draft copy of SOPs have already been distributed by a Chairman of HCWW to other portable water and wastewater companies in the country for replication of success being made at SHAPWASCO. Moreover, installation of flow meters is also being replicated.
- (3) SHAPWASCO had taken initiative to construct a training yard for water leakage detection at Hihya which would provide appropriate training platform initially for its own engineers and technicians and later others from outside of the Governorate.
- (4) Relationships with the communities have been strengthened through public awareness companies and activities

No unintended negative impacts have been reported so far.

#### 8-5. Sustainability

The Team found that current water sector policy direction, institutional, financial and technical sustainability of the Project results, after the completion of the Project, is 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. Creation of two departments/sections respectively on UFW and SOP is being considered under the strong leadership of the SHAPWASCO chairman. If these departments were to be created with trained counterparts assigned to conduct necessary training and activities, sustainability of UFW and SOP activities would highly likely be ensured. While the Team acknowledges that positive steps are being considered, no concrete mechanism has yet been institutionalized. Moreover, if there is any change in leadership of SHAPWASCO, particularly at chairman's position, 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, there are a few challenges. It is difficult to make any assumptions on SHAPWASCO's budget as the Government has had a plan to cease allocation of subsidies to water companies in 2008. Accumulation of deficit remains to be a challenge both at HCWW and water companies like SHAPWASCO. While increase of user charges has just been introduced in January 2009 from one of the lowest in the world at LE 0.26 per m<sup>3</sup>, it is yet unclear as to what extent this would help financial health of the water sector. Subsidies from the government remain to be imperative for SHAPWASCO to operation and maintain water supply facilities. 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. They remain to have vital roles in training SHAPWASCO staffs. 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.

## 8-6. 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.

## 8-7. Recommendations

The purpose of this project has been accomplished on the whole. Most activities have been implemented as described in PDM and the most quantitative and qualitative performance indicators are being achieved. Small portion of activities are behind schedule. In order to enhance further reduction of UFW and applications of SOPs, the Team the following recommendations before and after the end of the project were:

### 8-7-1. 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.

*S. Bayarini*

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*A. Me*

*(Signature)*

- (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.

#### 8-7-2. 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.

#### 8-8. 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.

*S. Bayraktar*

*A. W.*

## **ANNEX 1 List of Stakeholders Consulted by the Evaluation Mission**

### **(1) The Japanese side**

#### **<Experts>**

Mr. Masahiro Takeuchi	Chief Advisor/Water Supply Planning
Mr. Masatoshi Seno	Deputy Chief Advisor/UFW Reduction
Mr. Mithuhito Omori	Coordinator/ Hydraulic Analysis for Network
Mr. Keizo Kimura	Water Treatment 2 & Mechanical Equipment

#### **<Egyptian Experts>**

Mr. Mohamed Nagi	Facilitator
Eng. Mostafa M Mostafa	Senior Engineer (UFW Reduction Activities)

### **(2) The Egyptian side**

#### **< Sharkia Potable Water and Sanitation Company (SHAPWASCO) >**

Dr. Salah Bayoumi	Project Manager, Chairman
Mr. Alae El Din Mohamed	Head, HQ UFW Team
Mr. Abdel Shafi Abdel Aziz Mohamed	Head, HQ SOP Team
Mr. Gamal Abd El Hameed Morsi	Head, Well Monitoring
Mr. Salama Mahmod Abd AL	Head, Zagazig Team
Dr. Abd El Halim	Head, GIS
Ms Walaa Mohamed Ali	Member, HQ UFW Team
Ms Walaa Hamdi Mahmoud	Member, HQ UFW Team
Ms Heba Mohmous Mohamed	Member, HQ SOP Team
Mr. ABD Allah El Sayed	Member, HQ SOP Team

#### **< National Organization for Portable Water Supply & Sanitary Drainage (NOPWASD)>**

Mr. Rafat Badawy	Head, Project Implementation in Lower Egypt
Eng Wafaa Sayed	Project Impementation and Monitoring
Ms. Nabil Ramzy	Public Relations (Interpreter)

#### **< Holding Company for Water and Wastewater>**

Mr. Mamdouh Raslan	Vice Chairman
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### **(3) Other Organizations**

Mr. David Osgood	Chief of Party, Water and Wastewater Sector Policy Reform (WWSPR)
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Plan of Operation-3 (PO3) for SOP Activity

Project Name : The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO

Duration : November 2006 - October 2009 (3 years)

Item	2006			2007			2008			2009		
	Phase-1 11 12 1 2 3	Phase-2 4 5 6 7 8 9 10 11 12 1 2 3	Phase-3 4 5 6 7 8 9 10 11 12 1 2 3	Phase-4 4 5 6 7 8 9 10								
2	Operation and maintenance capacity of water supply facilities is strengthened.											
2-1	General											
(1)	Surveying the current conditions of water supply facilities											
(2)	Selecting Model Facilities (MF)											
(3)	Organizing SOP/MF teams											
(4)	Formulating an action plan for SOP activity											
(5)	Holding Workshops and Seminars											
2-2	Actions											
Action S1	Preparing basic system drawings											
Action S2	Preparing unified forms of O&M records and reports											
Action S3	Measuring intake / production water volume at seven (7) WTPs											
Action S4	Developing SOPs for Model Facilities											
Action S5	Examining water distribution control practice in the network											
S5-1	Pilot project for distribution control in small areas											
S5-2	Hydraulic analysis of water supply and distribution											
Action S6	Applying SOPs in O&M											
Action S7	Developing SOPs for the remaining facilities											
Action S8	Formulating O&M plans											
Action S9	Developing water quality control program											
Action S10	Developing well inventory forms and monitoring wells											
2-3	Monitoring achievement for SOP											

**ANNEX 3 Project Design Matrix 3 (PDM3)**

**Project Title: The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO**

**Target Area : Sharkia Governorate, Egypt**

**Target Group : Staff of SHAPWASCO**

**Duration : FY2006 – FY2009**

**Final Beneficiaries : People in Sharkia Governorate**

**Date : July 9, 2008**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p><b>[Overall Goal]</b> Management capacity of operation and maintenance of water supply facilities is improved in Sharkia Governorate.</p>	<p>1. Performance indicators in the field of management capacity of operation and maintenance are improved for all branches in the Governorate.</p>	<p>SHAPWASCO quarterly report submitted to HCWW</p>	
<p><b>[Project Purpose]</b> Management capacity of operation and maintenance of water supply facilities is improved in target areas.</p>	<p>1. Performance indicators in the field of management capacity of operation and maintenance are improved in target areas.</p>	<p>SHAPWASCO quarterly report submitted to HCWW</p>	<p>Sector policy of the Egyptian government will not drastically change on management of water supply services.</p>
	<p>2. Setting indicators for optimum electricity and chemical consumption and manpower standard working hours is conducted at model facilities for SOP activity.</p>	<p>Monthly Report for O&amp;M Project Progress Report</p>	
	<p>3. Activities on UFW and SOPs are incorporated into the routine work. - Activities on UFW reduction are expanded to other sites than the pilot project sites. - Activities on SOPs are expanded to other facilities than the model facilities.</p>	<p>Monthly Report for O&amp;M Project Progress Report Questionnaire survey Organization chart</p>	
<p><b>[Outputs]</b> 1. Unaccounted-for water (UFW) ratio is reduced in the pilot project sites.</p>	<p>1-1 Water balance analysis can be conducted properly for the pilot project sites.</p>	<p>Project Progress Report</p>	
	<p>1-2 An average UFW ratio (initial) is reduced by 13 points in the pilot project sites.</p>	<p>Project Progress Report</p>	
	<p>1-3 An average leakage ratio (initial) is reduced by 13 points in the pilot project sites.</p>	<p>Project Progress Report</p>	
	<p>1-4 At least three (3) members of each UFW team of Zagazig City and Hihya Markaz acquire leakage detection survey technique.</p>	<p>Test by JICA Expert Project Progress Report</p>	
	<p>1-5 At least one (1) member of each UFW team of other Markazes related to the pilot projects acquires leakage detection survey technique.</p>	<p>Test by JICA Expert Project Progress Report</p>	



<p>1. Operation and maintenance capacity of water supply facilities is strengthened.</p>	<p>2-1 Basic system drawings of the facilities are prepared and updated at five (5) model facilities (2 WTPs, 1 FMRP, 1 BPS and 1 well station) which represent the facilities of SHAPWASCO.</p> <p>2-2 Manuals for management of O&amp;M are developed and updated as SOPs by the following SOP packages for plant components and for three activity categories, i.e. Operation, Maintenance and Water Quality Control for each model facility.</p> <ul style="list-style-type: none"> <li>- Not less than twenty (20) SOP packages at WTP</li> <li>- Not less than five (5) SOP packages at FMRP, BPS and well stations.</li> </ul> <p>2-3 For the application of SOPs to the field operation, class room training and OJT to operators are conducted at all the five (5) model facilities.</p> <p>2-4 Not less than eighty (80) percent of SOP/HQ and SOP/MF members acquire the ability to apply knowledge and skills of SOP.</p> <p>2-5 O&amp;M Plan is developed at not less than one (1) WTP.</p> <p>2-6 Water quality control program applying the new HCWW regulation is prepared.</p> <p>2-7 Well inventory is prepared with a standard form and the first round of investigation is conducted for all the SHAPWASCO well stations.</p> <p>2-8 Hydraulic analysis is done for not less than two pilot project areas.</p>	<p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Test by JICA Expert Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p>
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Note (1) Following PI has been selected as a specific indicator.

- Percentage of measured water production (%), etc.

Volume of measured production water / total volume of produced water

Volume of measured production water: means total volume of measured produced water in stations equipped with meters working in cubic meter

## ANNEX 4 Evaluation Grid

### PERFORMANCE

PERFORMANCE		Information/data to be collected		Information sources	
Topics	Questions	Input record		Progress reports Experts, counterparts	Progress reports Experts, counterparts
Input	<p>Was the input from the Egyptian side provided as planned? (counterparts, offices and equipment, project cost, etc.)</p> <p>Was the input from the Japanese side provided as planned? (experts, counterpart training, equipment, project cost, etc.)</p>	<p>Indicator 1-1: Water balance analysis can be conducted properly for the pilot project sites. (Target: Unspecified)</p> <p>Indicator 1-2: An average UFW ratio (initial) is reduced by 13 points in the pilot project sites. (Target: 13 points in all project sites)</p> <p>Indicator 1-3: An average leakage ratio (Initial) is reduced by 13 points in the pilot project sites. (Target: 13 points at model facilities)</p> <p>Indicator 1-4: At least three (3) members of each UFW team of Zagazig City and Hihya Markaz acquire leakage detection survey technique. (Tests for verification conducted by the end of the Project.)</p> <p>Indicator 1-5: At least one (1) member of each UFW team of other Markazes related to the pilot projects acquires leakage detection survey technique. (Target: Completed by the end of the Project.)</p>	<p>Input record</p> <p>Input record</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Test by JICA Expert</p> <p>Project Progress Report</p>	<p>Progress reports Experts, counterparts</p> <p>Progress reports Experts, counterparts</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p>	<p>Progress reports Experts, counterparts</p> <p>Progress reports Experts, counterparts</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p>
Achievement of the "Outputs"	<p>Has the Output 1 been achieved? "The preparation for the formulation of the Project is completed."</p> <p>Has the Output 2 been achieved? "SHAPWASCO Engineers and Technicians acquire essential concept and technology for NRW reduction."</p>	<p>Indicator 2-1: Basic system drawings of the facilities are prepared and updated at five (5) model facilities (2 WTPs, 1 FMRP, 1 BPS and 1 well station) which represent the facilities of SHAPWASCO. (Target: Updated by the end of the Project.)</p> <p>Indicator 2-2: Manuals for management of O&amp;M are developed and updated as SOPs by the following SOP packages for plant components and for three activity categories, i.e. Operation, Maintenance and Water Quality Control for each model facility. - Not less than twenty (20) SOP packages at WTP - Not less than five (5) SOP packages at FMRP, BPS and well stations. (Target: Completed by the end of the Project.)</p> <p>Indicator 2-3: For the application of SOPs to the field operation, class room training and OJT to operators are conducted at all the five (5) model facilities. (Target: Completed by the end of the Project.)</p>	<p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p>	<p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p>	

Achievement of the "Outputs"	<p>Has the Output 2 been achieved? "SHAPWASCO Engineers and Technicians acquire essential concept and technology for NRW reduction."</p>	<p>Indicator 2-4: Not less than eighty (80) percent of SOP/HQ and SOP/MF members acquire the ability to apply knowledge and skills of SOP. (Target: Tests by the Japanese Experts completed by the end of the Project.)</p> <p>Indicator 2-5: O&amp;M Plan is developed at not less than one (1) WTP. (Target: Completed by the end of the Project.)</p> <p>Indicator 2-6: Water quality control program applying the new HCWW regulation is prepared. (Target: Completed by the end of the Project.)</p> <p>Indicator 2-7: Well inventory is prepared with a standard form and the first round of investigation is conducted for all the SHAPWASCO well stations. (Target: Completed by the end of the Project.)</p> <p>Indicator 2-8: Hydraulic analysis is done for not less than two pilot project areas. (Target: Completed by the end of the Project.)</p>	<p>Test by JICA Expert</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p> <p>Project Progress Report</p>	<p>Document review Questionnaire, interviews</p> <p>Document review Questionnaire, interviews</p> <p>Document review Questionnaire, interviews</p> <p>Document review Questionnaire, interviews</p> <p>Document review Questionnaire, interviews</p>
Achievement of the Project Purposes	<p>By the end of the Project, will management capacity of operation and maintenance of water supply facilities be improved in target areas?</p>	<p>Performance indicators in the field of management capacity of operation and maintenance are improved in target areas. (Target: Unspecified)</p> <p>Setting indicators for optimum electricity and chemical consumption and manpower standard working hours is conducted at model facilities for SOP activity. (Target: Unspecified.)</p> <p>Activities on UFW and SOPs are incorporated into the routine work.</p> <ul style="list-style-type: none"> <li>- Activities on UFW/reduction are expanded to other sites than the pilot project sites.</li> <li>- Activities on SOPs are expanded to other facilities than the model facilities.</li> </ul> <p>(Target: Activities of both UFW reduction and SOPs will be fully expanded in target areas by the end of the Project)</p>	<p>SHAPWASCO quarterly report submitted to HCWW</p> <p>Monthly Report for O&amp;M</p> <p>Project Progress Report</p>	<p>Document review Questionnaire, interviews</p> <p>Document review Questionnaire, interviews</p> <p>Document review Questionnaire, interviews</p>
Achievement of the Overall Goal	<p>Within 5 years after the completion of the Project, will management capacity of operation and maintenance of water supply facilities be improved in Sharkia Governorate?</p>	<p>Performance indicators in the field of management capacity of operation and maintenance are improved for all branches in the Governorate. (Target: Unspecified)</p>	<p>SHAPWASCO quarterly report submitted to HCWW</p>	<p>Document review Questionnaire, interviews</p>

**IMPLEMENTATION PROCESS**

Topics		Questions		Information/data to be collected		Means	
Activities	Have the "Activities" of the Project been implemented as planned throughout the Project period?	Progress of the "Activities"	Inception report, project reports, Experts, counterparts	Document review Questionnaire, Interviews			
Transfer of technology	Was there any problem in the process of transfer of technology from the Japanese experts?	How the transfer of technology has been carried out.	Progress reports Experts, counterparts	Document review Questionnaire, Interviews			
Decision-making process	What was the decision-making process in revision of activities and direction, selection of staff, etc.?	Process of decision-making and its challenge	Inception report, progress reports Experts, counterparts, JICA Egypt Office	Document review Questionnaire, Interviews			
Monitoring	When and how the decisions on revisions of the workplan were made?	Process of decision-making and its challenge	Inception report, progress reports Experts, counterparts, JICA EgyptOffice	Document review Questionnaire, Interviews			
	How has the Project been monitored? Was the result of monitoring utilized in the Project activities?	System of monitoring. How the result of monitoring is used?	Progress reports Experts, counterparts	Document review Questionnaire, Interviews			
Communication	Did the Japanese experts and Egyptian counterparts communicate well?	How and How often the Project members communicate each other. How they reacted to the change of the plan. How they coordinate themselves to solve problems. How trust has been built between the Project members. How the Counterparts participated in the Project and took initiative.	Experts, counterparts	Questionnaire, Interviews			
	Did the Japanese experts and Egyptian counterparts communicate well with beneficiaries (i.e. consumers, communities)?	level of participation in project activities, frequency, style and contents of communication	Experts, counterparts, local communities, JICA Egypt Office, JICA HQ	Questionnaire, Interviews			
	Did the Japanese partner organizations (JICA Egyptian Office and Headquarters) support the project well? Was the communication good?	Frequency, style and content of communication. How they reacted to the change of the plan.	Experts, counterparts, JICA Egypt Office, JICA HQ	Questionnaire, Interviews			
	Does the Project communicate well with HWCC, NOPWASD and other concerned agencies?	Frequency, style and content of communication. How they reacted to the change of the plan.	Experts, counterparts Egyptian partner organizations	Questionnaire, Interviews			
Counterpart	Were the CPs assigned appropriately?	Number of CPs assigned, background, previous positions and skill levels of CPs	Inputs Records Experts, counterparts	Questionnaire, Interviews			
	Do the Egyptian project leaders actively participate in the project management?	Ownership and participation of the Egyptian counterpart staff members	Progress reports, Experts, counterparts	Document review Questionnaire, Interviews			
Ownership	Has the Egyptian input (budget, personnel, office and equipment) to the Project been appropriate?	mode and methodologies of project implementation, responsiveness on changes of the Plan of Operation, approaches for joining problem solution, method of developing working relationships	Experts' activity reports, Progress reports, Experts, counterparts	Document review Questionnaire, Interviews			
	Do the Egyptian project members take proactive participation in the Project activities?	level of participation in project activities, frequency, style and contents of participation	Progress reports, Experts, counterparts	Document review Questionnaire, Interviews			
Others	Have there been any difficulties experienced due to contract-based management system?	mode and methodologies of project implementation, responsiveness on changes of the Plan of Operation, approaches for joining problem solution, method of	Progress reports Experts, counterparts	Document review Questionnaire, Interviews			
	Is there any challenge in the process of project implementation?	Issues that came up in the process of Project implementation. Causes and solutions.	Progress report Experts, counterparts	Document review Questionnaire, Interviews			

5 Evaluation Criteria

1. RELEVANCE

Topics	Questions	Evaluation Results	Information sources	Means
Needs	Are the Project Purpose and the Overall Goal relevant to the needs of Egypt?	Problems and challenges identified for the Water Sector in Egypt	Water Sector policy document, HWCC's master plan, SHAPWASCO's Experts, Counterparts	Document review Questionnaire, interviews
Priority	Are the Project Purpose and the Overall Goal relevant to the needs of the target groups?	Needs of the target group, namely SHAPWASCO and GWA officers	Related documents Experts, Counterparts	Document review Questionnaire, interviews
Strategy	Is the Project relevant with the development policy of Egypt? Is the Project relevant to the Japan's country assistance policy for Egypt?	National development policy in Egypt Japan's development assistance policy (ODA charter, etc.), JICA's assistance policy for Egypt and priority areas.	Related research documents national policy documents Related research documents Documents of MOFA, JICA	Document review
Others	Has the Project taken up a good strategy to take challenges identified for the water sector in Egypt? (i.e. approach, selection of the target areas) Does Japan has comparative advantage in this technical area? Was the selection of the Egyptian Counterpart organization and target groups right? Was there any change in the environment of the Project (political, economic and social conditions) since the Ex-ante Evaluation in August 2006?	How the accumulated know-how in Egypt and Japan has been utilized. Whether the Project applied methods and techniques that were relevant to the situation of Egypt. History and achievement of JICA's assistance in similar areas. Selection process of the Counterpart organizations and the target groups Information on change of political, economic and social conditions.	Project documents Experts, Counterparts Project documents JICA documents Experts, Counterparts Related research documents Experts and parties concerned Progress reports Experts, counterparts	Document review Questionnaire, interviews Document review Questionnaire, interviews Document review Questionnaire, interviews Document review Questionnaire, interviews

2. EFFECTIVENESS

Topics	Questions	Information/data to be collected	Information sources	Means
Achievement of the Project Purpose	Will the "Project Purpose" be achieved by the end of the Project based on the inputs, outputs and the progress of the activities?	Project performance, Degree of achievement of the Project Purposes	Progress reports Experts, counterparts	Document review Questionnaire, interviews
Causality	Were the two "Outputs" only prerequisites for the achievement of the "Project Purposes"? Are there any other activities that would have been necessary for achievement of the "Project Purposes"? Have the changes in outputs influenced achievement of the Project Purpose in any way? Are there any factors that particularly contributed to achievement of the Project Purpose? Are there any factors that particularly impeded achievement of the Project Purpose?	Consequences between the Output and the Project Purposes Consequences between the Output and the Project Purposes Contributing factors Impeding factors	Progress reports Experts, counterparts Progress reports Experts, counterparts Progress reports Experts, counterparts Progress reports Experts, counterparts	Document review Questionnaire, interviews Document review Questionnaire, interviews Document review Questionnaire, interviews Document review Questionnaire, interviews
Causality	To what extent 'important assumptions' from the Output to the 'Project Purpose' were relevant to achievement of the Project Purposes?	Effect of the Important Assumptions and other factors	Progress reports Experts, counterparts	Document review Questionnaire, interviews Document review Questionnaire, interviews

3. EFFICIENCY

3. EFFICIENCY		Information/data to be collected			Information sources		Means	
Topics	Questions	Information/data to be collected	Information sources	Information sources	Information sources	Information sources	Information sources	Means
Input	Were the Egyptn and Japanese input appropriate? How and why changes in inputs were decided? How did such changes influence the Project? Are the equipment actively utilized?	Record of Input Records of Inputs How the equipment utilized (record of experiments etc.)	Progress reports Experts, counterparts Progress reports Experts, counterparts	Progress reports Experts, counterparts Progress reports Experts, counterparts Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews
Achievement of Outputs	Were the four Outputs achieved? Were there any factors hindering fulfillment of Outputs?	Achievement of Outputs Achievement of Outputs	Progress reports Experts, counterparts Progress reports Experts, counterparts	Progress reports Experts, counterparts Progress reports Experts, counterparts Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews
Causality	Were the "Activities" sufficient for the achievement the "Outputs"? Did the factors described as the "important Assumption" occur? If they did not. (i.e. the economic condition deteriorated; or some project staff left), how did the Project approach the issue? • "Employees who received trainings by the Project will continuously work for SHAPWASCO." • "Personnel transfer of executive management will not affect the implementation of the Project." • "Funds from NOPWASD and SHAPWASCO in related to the Project will be allocated as planned."	Record of Activities and achievement of the Outputs Record of Activities. Record of Input	Progress reports Experts, counterparts Progress reports Experts, counterparts	Progress reports Experts, counterparts Progress reports Experts, counterparts Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews
Timing	Were the "Activities" carried out timely? How did the Project cope with timing issues of the Inputs (i.e. equipment and project area preparation)	Record of Activities responsiveness in problem solving	Progress reports Experts, counterparts Progress reports Experts, counterparts	Progress reports Experts, counterparts Progress reports Experts, counterparts Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews
Others	Do you think that the current project management system has worked well for the Project? Do you think that the experiences of the Project are being utilized in other Arab countries? Did the Project use lessons learned from other similar projects in other countries managed by the Japanese partner organizations?	Record of Activities Lessons from other similar projects in Arab Lessons from other similar projects	Progress reports Experts, counterparts JICA Egypt Office, JICA HQ Report of other relevant projects Experts, JICA	Progress reports Experts, counterparts Progress reports Experts, counterparts Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews	Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews Document review Questionnaire, Interviews

4. IMPACT

Topics	Questions	Information/data to be collected	Information sources	Means
Achievement of the Overall Goal "NRW of SHAPWASCO is reduced."	Will the Overall Goal be achieved within five years after the end of the Project based on the result of inputs, outputs and activities, and achievement of the Project Purposes?	Achievement, Effect of Important Assumptions, contributing and impeding factors	Experts, counterparts	Questionnaire, interviews, Document review
	Are there any factors that would impede achievement of the Overall Goal?	Achievement, Effect of Important Assumptions, contributing and impeding factors	Experts, counterparts	Questionnaire, interviews
Causality	Is the consequence from the Project Purposes to the Overall Goal logically designed?	Structure of the Project, Effect of Important Assumptions, contributing and impeding factors	PDM2, Progress reports	Questionnaire, interviews, Document review
	Are there any positive and negative impacts on political, social or cultural aspects, except for the Overall Goals? Are there any positive and negative impacts on economy?	Examples	Experts, counterparts	Questionnaire, interviews
Impact	Are there any positive and negative impacts on HR development in the field of water resource management in the neighbouring Arab countries?	Examples	Experts, counterparts, JICA Egypt Office	Questionnaire, interviews
	Did the Project equally benefit people from different background (social class, ethnicity, gender, etc.)?	Examples	Project documents Experts, counterparts, JICA Egypt Office	Questionnaire, interviews
	Are there any impacts on technological advancement in the water sector in Egypt?	Examples	Experts, counterparts, JICA Egypt Office	Questionnaire, interviews
	Are there any positive and negative impacts on environmental protection?	Examples	Experts, counterparts, JICA Egypt Office	Questionnaire, interviews
	Are there any negative effects brought about by the Project? Does the Project take measures to mitigate them?	Examples	Experts, counterparts, JICA Egypt Office	Questionnaire, interviews

5. SUSTAINABILITY

Topics	Questions	Information/data to be collected	Information sources	Means
Political and regulatory aspects	<p>Will the policy directions of the water sector be maintained by the Egyptian government after the end of the Project?</p> <p>Have regulations and legal framework been developed in the water sector to enable the government to pursue its policy directions ?</p> <p>Is there a mechanism to enable proliferation of the Outputs of the Project to the remaining areas after the end of the Project?</p>	<p>Policy and strategy of the Egyptian government</p> <p>Regulations/decrees/ laws concerning the water sector</p> <p>SHAPWASCO's working plan, staffing plan, budget, Policy and strategic directions of the Egyptian Government</p>	<p>Experts, counterparts, JICA Egypt Office</p> <p>Experts, counterparts, JICA Egypt Office</p> <p>Experts, counterparts</p>	<p>Questionnaire, interview</p> <p>Questionnaire, interviews, Document review</p> <p>Questionnaire, interviews</p>
Institutional and financial aspects	<p>Does the SHAPWASCO have capacities to continue to take UFW countermeasures both in the target areas and in the remaining areas?</p> <p>Does the SHAPWASCO have capacities to continue to develop and apply SOPs both in the target areas and in the remaining areas?</p> <p>Has the SHAPWASCO embraced sufficient level of ownership of the Project?</p> <p>Has the SHAPWASCO secured necessary budget for its operation for UFW countermeasures?</p> <p>To what extent would we be able to expect budgetary increase for UFW reduction and SOPs? Has there been any measures taken to ensure budgetary allocation?</p>	<p>SHAPWASCO's policy direction, staffing and budget, working plan</p> <p>SHAPWASCO's direction, staffing and budget, working plan, commitment</p> <p>organizational structure, staffing and budget, working plan, SHAPWASCO's policy direction</p> <p>annual budget allocation to the upcoming UFW department</p> <p>SHAPWASCO's policy direction</p>	<p>Other aid agencies, Experts, counterparts</p> <p>Other aid agencies, Experts, counterparts</p> <p>Other aid agencies, Experts, counterparts</p> <p>Experts, counterparts</p> <p>SHAPWASCO, Other aid agencies, Experts, counterparts</p>	<p>Questionnaire, interviews</p> <p>Questionnaire, interviews</p> <p>Questionnaire, interviews</p> <p>Questionnaire, interviews</p> <p>Questionnaire, interviews</p>
Technical aspects	<p>Are the equipment provided by the Project actively utilized and maintained?</p> <p>Are the techniques and methodologies of skill transfer used by the Project being accepted? (i.e Level of skills, social and cultural appropriateness )</p> <p>Are the equipments being appropriately used and maintained?</p>	<p>How the equipment is utilized and maintained.</p> <p>How the manuals developed by the Project are utilized by the engineers and technicians anies.</p> <p>How the manuals developed by the Project are utilized by the engineers and technicians anies.</p>	<p>Progress reports</p> <p>Experts, counterparts</p> <p>Progress reports</p> <p>Experts, counterparts</p> <p>Progress reports</p> <p>Experts, counterparts</p>	<p>Document review, Questionnaire, interviews</p> <p>Document review, Questionnaire, interviews</p> <p>Document review, Questionnaire, interviews</p>
Social, Cultural and Environmental aspects	<p>Should the Project have been more concerned with the socially vulnerable groups (the poor, women, etc)? Has there been any instances that such lack of concerns hinder the achievements of impacts?</p> <p>Is it probable that the impact of the Project be hindered due to lack of concerns for environment?</p>	<p>Examples of impeding factors</p> <p>Examples of impeding factors</p>	<p>Experts, counterparts</p> <p>JICA Egypt Office</p> <p>Experts, counterparts</p> <p>JICA Egypt Office</p>	<p>Document review</p> <p>Questionnaire, interviews</p> <p>Document review</p> <p>Questionnaire, interviews</p>
Other aspects	<p>Are there any factors hindering ensuring sustainability?</p>	<p>Examples of impeding factors</p>	<p>Experts, counterparts</p> <p>JICA Egypt Office</p>	<p>Document review</p> <p>Questionnaire, interviews</p>



ANNEX 5 List of Japanese Experts

Name	Field	Dispatch Period	Man/Month FY2006	Man/Month FY2007	Man/Month FY2008 (by Jan 09)	Company/University
Masahiro Takeuchi	Chief Advisor/Water Supply Planning	2006.11.28~2007.1.11 2007.2.15~2007.3.16 2007.4.20~2007.6.18 2007.10.16~2007.11.29 2008.2.8~2008.3.8 2008.5.16~2008.7.14 2008.11.19~2008.12.22 2009.2.3~2009.2.28	2.50	4.50	3.13	Yachiyo Engineering Co.,Ltd.
Masatoshi Seno	Deputy Chief Advisor/Unaccounted-for Water Reduction	2006.12.2~2007.1.25 2007.2.25~2007.3.16 2007.4.20~2007.6.18 2007.8.1~2007.8.30 2007.10.1~2007.11.29 2008.2.8~2008.3.8 2008.5.16~2008.6.16 2008.7.4~2008.8.8 2008.10.10~2008.11.23 2009.1.11~2009.2.24	2.50	6.00	4.20	Yachiyo Engineering Co.,Ltd.
Akihiko Okazaki	Leakage Detection	2007.5.1~2007.6.14 2007.7.20~2007.9.17 2007.11.5~2007.12.19 2008.6.6~2008.8.19	0.00	5.00	2.50	Fuji Subsurface Informations LTD.
Noboru Saeki	Water Treatment 1	2006.11.28~2007.1.11 2007.2.15~2007.3.16 2007.5.1~2007.6.14 2007.8.1~2007.9.14 2007.11.15~2007.12.14 2008.5.16~2008.6.14 2008.8.2~2008.8.31	2.50	4.00	2.00	Yachiyo Engineering Co.,Ltd.
Keizo Kimura	Water Treatment 2 & Mechanical Equipment	2006.11.28~2007.1.11 2007.2.15~2007.3.16 2007.5.16~2007.7.14 2007.8.17~2007.10.30 2008.1.9~2008.3.8 2008.5.30~2008.7.16 2008.10.10~2008.11.23	2.50	6.50	3.10	Yachiyo Engineering Co.,Ltd.
Mithuhito Omori	Hydraulic Analyses for Network	2007.5.20~2007.10.16	0.00	5.00	0.00	Yachiyo Engineering Co.,Ltd.
Ashraf A. Ahmed	Electrical Equipment	2007.8.1~2007.9.29 2008.2.8~2008.3.8 2008.7.15~2008.8.13	0.00	3.00	1.00	Personal
Nobuyuki Iijima	Hydrogeology	2007.5.1~2007.6.29 2008.2.8~2008.3.8	0.00	3.00	0.00	Yachiyo Engineering Co.,Ltd.
Takashi Hara	Water Quality Control	2007.5.16~2007.6.29 2007.9.17~2008.10.31 2006.12.2~2007.12.31 2007.2.15~2007.3.16 2007.4.20~2007.5.19	0.00	3.00	0.00	Yachiyo Engineering Co.,Ltd.
Mithuhito Omori	Coordinator	2008.2.15~2008.3.15 2008.5.16~2008.6.14 2009.1.19~2009.2.28	2.00	2.00	1.43	Yachiyo Engineering Co.,Ltd.

ANNEX 6 List of Training Participants in Japan

Name	Field	Period	Training Course Title	Hosting Institution	Position when accepted	Present position
Mr. Alae El-Din Mohammed	UFW	2007/2/6~ 2007/2/20	Counterpart Training in Japan / Improved Management of entity for Water	To learn the technology for UFW reduction activities in Japan / Waterworks Bureau, Yokohama City and Saitama City, FUJI TECOM INC.	Head of UFW/HQ Team	Head of UFW/HQ Team
Mr. Abd El Shafi	SOP	2007/2/6~ 2007/2/20	Counterpart Training in Japan / Improved Management of entity for Water	To learn the technology for water supply management in Japan / Waterworks Bureau, Yokohama City and Saitama City	Head of SOP/HQ Team	Head of SOP/HQ Team
Dr. Salah Bayoumi	Project Leader	2008/1/18~ 2008/1/25	Counterpart Training in Japan / Improved Management of entity for Water	To learn the experience for UFW reduction activities and water supply management in Japan / Waterworks Bureau, Kitakyushu City	Chairman of SHAPWASCO	Chairman of SHAPWASCO
Mr. Salah Abd El Hak	UFW	2009/1/20~ 2009/2/3	Counterpart Training in Japan / Improved Management of entity for Water	To learn the technology for UFW reduction activities in Japan / Waterworks Bureau, Osaka City, Yokohama City and Saitama City, FUJI TECOM INC.	Water Department manager for Huseinia Sector	Water Department manager for Huseinia Sector
Mr. Samir Mohamed Ghareib	SOP	2009/1/20~ 2009/2/3	Counterpart Training in Japan / Improved Management of entity for Water	To learn the technology for water supply management in Japan / Waterworks Bureau, Osaka City, Yokohama City and Saitama City	Plant Manager for Abbasa water treatment plant	Plant Manager for Abbasa water treatment plant

## ANNEX 7 List of Equipment Procured by the Japanese Side

Sl No.	Date of Buying	Fiscal Year	Equipment (Specification)	Price (Thousand Yen)	Installation Place	Usage of the Equipment
1	3/3/2007	2006	Water Leak detector HUJI TECOM HG-10A II	1,693	Store Room in SHAPWASCO	in use Counterpart
2	3/3/2007	2006	Digital sound detector HUJI TECOM FSB-8D	133	Store Room in SHAPWASCO	in use Counterpart
3	3/3/2007	2006	Hammer drill Hitachi PR-25B	14	Store Room in SHAPWASCO	in use Counterpart
4	3/3/2007	2006	Drill bid	13	Store Room in SHAPWASCO	in use Counterpart
5	3/3/2007	2006	Boring bar L=1m	24	Store Room in SHAPWASCO	in use Counterpart
6	3/3/2007	2006	Acoustic rod LS-1.5	75	Store Room in SHAPWASCO	in use Counterpart
7	3/3/2007	2006	Ultrasonic flow meter Fuji Electric FLV	4,750	Site	in use Counterpart
8	3/12/2007	2006	Generator Cobota	119	Store Room in SHAPWASCO	in use Counterpart
9	3/14/2007	2006	Pickup Mitsubishi 2500CC/4WD	5,680	Zagazig Water Treatment Plant	in use Counterpart
10	12/14/2006	2006	Copy and Fax machine WorkCentre Pro128	946	JICA Expert Office	in use Counterpart
11	12/13/2006	2006	Personal computer DELL D620 (Notebook)	448	JICA Expert Office	in use Counterpart
12	5/13/2007	2007	Portable ultrasonic flow meter Fuji Electric Potaflow-X (φ200-φ6000)	4,053	Store Room in SHAPWASCO	in use Counterpart
13	5/13/2007	2007	Portable ultrasonic flow meter Fuji Electric Potaflow-X (φ50-φ400)	3,941	Store Room in SHAPWASCO	in use Counterpart
14	5/13/2007	2007	Water pressure recorder HUJI TECOM FJN501	503	Store Room in SHAPWASCO	in use Counterpart
15	5/30/2007	2007	Pipe and cable locator HUJI TECOM PL-960	1,360	Store Room in SHAPWASCO	in use Counterpart
16	5/30/2007	2007	Metal locator HUJI TECOM F-90M	315	Store Room in SHAPWASCO	in use Counterpart
17	5/30/2007	2007	Leak sound detector HUJI TECOM LC-2500	4,760	Store Room in SHAPWASCO	in use Counterpart
18	5/18/2008	2007	Ultrasonic flow meter GE AT868	15,120	Site	in use Counterpart
19	5/30/2007	2007	Non metallic pipe vibrator TOKIO RHYTHM	174	Store Room in SHAPWASCO	in use Counterpart
20	1/12/2008	2007	Water level indicator CTI science RT510-W	2,521	Site	in use Counterpart
21	1/12/2008	2007	Data logger Hioki 3639 Pulse Rogger	378	Site	in use Counterpart
22	1/12/2008	2007	Data transfer device Hioki 3912 Communication Base	145	Site	in use Counterpart
23	5/6/2007	2007	Personal computer DELL D520 (Notebook)	222	JICA Expert Office	in use Counterpart
24	5/6/2007	2007	Personal computer HP Compac DX7800 (Desktop)	413	JICA Expert Office	in use Counterpart
25	4/19/2007	2007	Software Water Cad	2,291	JICA Expert Office	in use Counterpart
26	5/6/2007	2007	Software AutoCad 2007	479	JICA Expert Office	in use Counterpart
27	7/1/2008	2008	Digital sound detector HUJI TECOM FSB-8D	66	Store Room in SHAPWASCO	in use Counterpart
28	7/1/2008	2008	Water Leak detector HUJI TECOM HG-10A II	847	Store Room in SHAPWASCO	in use Counterpart
29	7/1/2008	2008	Leak sound detector HUJI TECOM LC-2500	2,380	Store Room in SHAPWASCO	in use Counterpart
30	7/1/2008	2008	Pipe and cable locator HUJI TECOM PL-960	680	Store Room in SHAPWASCO	in use Counterpart
31	7/1/2008	2008	Metal locator HUJI TECOM F-90M	157	Store Room in SHAPWASCO	in use Counterpart
32	7/1/2008	2008	Acoustic rod LS-1.5	37	Store Room in SHAPWASCO	in use Counterpart
33	7/1/2008	2008	Boring bar L=1m	28	Store Room in SHAPWASCO	in use Counterpart
34	7/1/2008	2008	Hammer drill Hitachi PR-25B	68	Store Room in SHAPWASCO	in use Counterpart
35	7/1/2008	2008	Drill bid	65	Store Room in SHAPWASCO	in use Counterpart
36	7/1/2008	2008	Non metallic pipe vibrator TOKIO RHYTHM	87	Store Room in SHAPWASCO	in use Counterpart
37	7/1/2008	2008	Portable ultrasonic flow meter Fuji Electric Potaflow-X (φ200-φ6000)	2,187	Store Room in SHAPWASCO	in use Counterpart
38	7/1/2008	2008	Portable ultrasonic flow meter Fuji Electric Potaflow-X (φ50-φ400)	1,659	Store Room in SHAPWASCO	in use Counterpart
39	7/1/2008	2008	Water pressure recorder HUJI TECOM FJN501	252	Store Room in SHAPWASCO	in use Counterpart
40	6/16/2008	2008	Generator Cobota	63	Store Room in SHAPWASCO	in use Counterpart
Total				59,145		

ANNEX 8 Local Cost Expenses Covered by JICA

(Unit: Japanese Yen)

Items	FY2006 ①	FY2007 ②	FY2008(Plan) (Contract Price) ②	FY2008 (as of Jan 30) ③	Total (①+②+③)
1 General Cost	3,756,000	16,484,000	11,124,000	8,603,000	28,843,000
1.1 Staff Cost	1,972,150	8,122,936	5,335,915	4,653,000	14,748,086
1.2 Equipment Maintenance Cost	0	0	0	0	0
1.3 Consumable Cost	81,220	188,551	249,700	279,000	548,771
1.4 Travel Expense	0	274,834	103,140	0	274,834
1.5 Communication Cost	0	0	0	0	0
1.6 Document Preparation Cost	0	163,789	100,000	87,000	250,789
1.7 Rental Cost	1,702,640	7,263,221	5,255,500	3,584,000	12,549,861
1.10 Facility Maintenance Cost	0	0	0	0	0
1.11 Local Training Cost	0	0	0	0	0
1.14 Miscellaneous Cost	0	472,057	80,220	0	472,057
4 Equipment Cost (JICA Expert's Equipment)	7,066,000	14,341,000	8,573,000	8,574,000	29,981,000
6 Equipment Cost (Other Equipment)	7,046,000	0	0	0	7,046,000
8 Report Preparation Cost (Printing and Binding)	75,000	12,000	46,000	0	87,000
9 Report Preparation Cost (Except Printing and Binding)	29,000	19,000	47,000	0	48,000
10 Local Consultant Cost	0	0	0	0	0
11 Local NGO Cost	0	0	0	0	0
12 Construction Cost	0	0	0	0	0
Total	18,033,000	30,856,000	19,790,000	17,177,000	66,066,000

## ANNEX 9 List of Assignment of Personnel

C/P Name	Title	Field	Working Period
Salah Bayoumi	Chairman/Headquarters	Management	2006.11 ~
<UFW Team>			
Alaa El Din Mohamed	Head of UFW Team/Headquarters	Management	2006.11 ~
Wala Mohamed Ali	Assistant for head of UFW team/Headquarters	Engineer	2007.10 ~
Wala Hamdi	Assistant for head of UFW team/Headquarters	Engineer	2007.10 ~
Tamer Kamel	Assistant for head of UFW team/Headquarters	Engineer	2008.4 ~
Mohamed Saad	Assistant for head of UFW team/Headquarters	Engineer	2008.4 ~2008.12
Salama Mahmoud Abd El Aal	Supervisor/ Head of Zagazig UFW Team/Zagazig City(East)	Distribution management	2006.11 ~
Mohamed Mohamed Bakr	Supervisor/Zagazig City(East)	Distribution management	2006.11 ~
Medhat Moneir Mahhmoud	Supervisor/Zagazig City(East)	Distribution management	2006.11 ~
Mohamed Hafez Lotfy	Supervisor/Zagazig City(East)	Distribution management	2006.11 ~
Emad Ahmed Abd El Kader	Engineer/Awlad Saqr	Distribution management	2006.11 ~
Bendary Hassan Bendaryhy	Engineer/Awlad Saqr	Distribution management	2006.11 ~
Hegazy El Sayed Ali	Engineer/Awlad Saqr	Distribution management	2006.11 ~
Saeed Abd El Salam Ahmed	Engineer/Awlad Saqr	Distribution management	2006.11 ~
Sebaey Mohamed Rabee	Engineer/Faqus	Distribution management	2006.11 ~
Mostafa Mohamed Mosabah	Supervisor/Faqus	Distribution management	2006.11 ~
El Sayed Abd El Aziz Soliman	Supervisor/Faqus	Distribution management	2006.11 ~
Salah El Dien Abbas	Supervisor/Faqus	Distribution management	2006.11 ~
Samir Mahmoud Abd El Hameed	Engineer/Zagazig City(West)	Distribution management	2006.11 ~
Mahmoud Mohamed El Hariry	Supervisor/Zagazig City(West)	Distribution management	2006.11 ~
Nabil Fathy El Sayed	Supervisor/Zagazig City(West)	Distribution management	2006.11 ~
Gorge Abd El Maseeh	Supervisor/Zagazig City(West)	Distribution management	2006.11 ~
Fahmy Mohamed Khalf Allah	Engineer/Kafr Saqr	Distribution management	2006.11 ~
Mohamed Ibrahim Mohamed	Supervisor/Kafr Saqr	Distribution management	2006.11 ~
Mahmoud Awad Abd Allah	Supervisor/Kafr Saqr	Distribution management	2006.11 ~
Osman Mansour Mohamed	Supervisor/Kafr Saqr	Distribution management	2006.11 ~
El Sayed Abd El Reheem	Engineer/Abu Kabier	Distribution management	2006.11 ~
Abd El Wahab Mohamed Ali	Supervisor/Abu Kabier	Distribution management	2006.11 ~
Mahrous Gergis Romees	Supervisor/Abu Kabier	Distribution management	2006.11 ~
Mahmoud Mohamed Gabaly	Supervisor/Abu Kabier	Distribution management	2006.11 ~
Asma'a Mohamed Farag	Engineer/Zagazig Markaz	Distribution management	2006.11 ~
Mohamed Mohamed Sabry	Supervisor/Zagazig Markaz	Distribution management	2006.11 ~
El Sayed Farag Ahmed	Supervisor/Zagazig Markaz	Distribution management	2006.11 ~
Ibrahim Bayoumi Mohamed	Supervisor/Zagazig Markaz	Distribution management	2006.11 ~
Mohamed Mohamed Nour	Engineer/Minia Al Qamah	Distribution management	2006.11 ~
Adel Mahmoud Saleh	Supervisor/Minia Al Qamah	Distribution management	2006.11 ~
Ibrahim Fathy El Sadany	Supervisor/Minia Al Qamah	Distribution management	2006.11 ~
Sayed Hashem El Emary	Supervisor/Minia Al Qamah	Distribution management	2006.11 ~
Mostafa Abd Allah Ghanaiem	Supervisor/ Head of Abu Hamad UFW Team	Distribution management	2006.11 ~
Taher Mansour Metwaly	Supervisor/Abu Hamad	Distribution management	2006.11 ~
Mohamed Mahmoud Radwan	Supervisor/Abu Hamad	Distribution management	2006.11 ~
Youssry Abd El Monem Hassan	Supervisor/Abu Hamad	Distribution management	2006.11 ~
Mahdy Fathy ahmed	Supervisor/ Head of Hihya UFW Team	Distribution management	2006.11 ~
Gamal Mohamed Hussein	Supervisor/Hihya	Distribution management	2006.11 ~

El Hady Ahmed El Taher	Supervisor/Hihya	Distribution management	2006.11 ~
Saeed Abd El Rahman Hefny	Engineer/Mashtool El Sooq	Distribution management	2006.11 ~
Mohamed Ahmed Ali Hozayen	Supervisor/Mashtool El Sooq	Distribution management	2006.11 ~
Abd El Baset Mostafa Mohamed	Supervisor/Mashtool El Sooq	Distribution management	2006.11 ~
Soliman Hassan Soliman	Supervisor/Mashtool El Sooq	Distribution management	2006.11 ~
Salah Abd El Haq	Engineer/El Husainia	Distribution management	2006.11 ~
Mohamed Abd El Moneam Hashem	Supervisor/El Husainia	Distribution management	2006.11 ~
El Sayed Ibrahim Ali	Supervisor/El Husainia	Distribution management	2006.11 ~
Mohamed Abd El Aal Mohamed	Supervisor/El Husainia	Distribution management	2006.11 ~
Abd Allah Abd El Mgeed	Supervisor/Ibrahmyia	Distribution management	2006.11 ~
Samir Mohamed Ahmed Farag	Supervisor/Ibrahmyia	Distribution management	2006.11 ~
Ramadan Abd Allah	Supervisor/Ibrahmyia	Distribution management	2006.11 ~
Mohamed Ragab	Supervisor/Ibrahmyia	Distribution management	2006.11 ~
Mostafa Ali El Sayed Khalil	Engineer/Bilbais	Distribution management	2006.11 ~
Reda Abd El Hameed Abd Allah	Supervisor/Bilbais	Distribution management	2006.11 ~
Salah Mohamed Kamel	Supervisor/Bilbais	Distribution management	2006.11 ~
Mahmoud El Sayed El Killany	Supervisor/Bilbais	Distribution management	2006.11 ~
Hamdi El Sayed Abd El Fatah Sharaf	Engineer/Diarb Nigm	Distribution management	2006.11 ~
Khairy Abd El Motelb Mohamed	Supervisor/Diarb Nigm	Distribution management	2006.11 ~
Mohamed El Sayed El Killany	Supervisor/Diarb Nigm	Distribution management	2006.11 ~
Mahmoud Megahed Abd El Aziz	Supervisor/Diarb Nigm	Distribution management	2006.11 ~
Tarek Yousef	Head of GIS Team	GIS	2006.11 ~
Mohamed El Badawi	GIS Engineer	GIS	2006.11 ~
Mohamed Mosbah	GIS Engineer	GIS	2006.11 ~
Aliaa El Saeed	GIS Engineer	GIS	2007.10 ~
Doaa Zaki	GIS Engineer	GIS	2007.10 ~
Hend Ali	GIS Engineer	GIS	2007.10 ~
Maha Abd Allah	GIS Engineer	GIS	2007.10 ~
Mohamed Saeed	GIS Engineer	GIS	2007.10 ~
Aliaa El Honsainy	Public Awareness Campaign	Commercial	2006.11 ~2007.9
Ahmed El Feki	Haed of Public Awareness Campaign	Commercial	2006.11 ~
Mohamed Hamouda	Assistant of Public Awareness Campaign	Commercial	2006.11 ~

<SOP Team>			
Abdel Shafi Abdel Aziz	Head of SOP/HQ Team	Engineer	2006.11 ~
Ibrahim Shaheen	Electrical Engineer	Electrical Engineer	2006.11 ~
Gamal Abd El Hameed	Well Depart/Head Quarter	Geologist	2006.11 ~
Osama El Masry	Head Quarter	Chemist	2006.11 ~
Heba Mahmoud Mohamed	Head Quarter	Engineer	2007.10 ~
Abd Allah Sayed	Head Quarter	Engineer	2006.11 ~
Nagi Labib Abd El Sayed	Hihya WTP manager	Engineer	2006.11 ~
Mohamed El Sayed Abd El Kader	Kafr Saqr WTP manager	Engineer	2006.11 ~2009.1
Bahaa Abd Allah Badran	Kafr Saqr WTP manager	Engineer	2009.1 ~
Samir Gharieb	Abbasa WTP manager	Engineer	2006.11 ~
Ibrahim Noufal	El Husainia WTP manager	Engineer	2006.11 ~
Aly El Mosalemy	Water Department Manger	Engineer	2006.11 ~
Emam Abd El Mawgoud	Menia Al Qamah FMR plant	Engineer	2006.11 ~
Mohamed El Sayed Abd El Hameed	Bilbais BPs	Engineer	2006.11 ~
Mohamed Mesbah	Head Quarter	Data Base Engineer	2006.11 ~
Haesham Gamal	Head Quarter	Auto Cad Operator	2007.5~2007.11

ANNEX 10 Local Cost Sharing

(Unit: LE)

Items	FY2006 Expenditure	FY2007 Expenditure	FY2008 Expenditure by Jan 09	Total	Remarks
(Personnel Expense)					
Personnel Services					Including employment cost
(Implementation Cost)					
Civil works of flow meter chambers for UFW	0	96,000	64,000	160,000	
Replacement water meter	0	114,300	72,900	187,200	
GIS maps	0	363,600	485,720	849,320	
Training yard for leakage reduction	0	0	162,500	162,500	
Civil works of flow meter chambers including steel fences at aqueduct	0	154,800	155,335	310,135	
Electrical works and installation for flow meter	0	22,000	219,000	241,000	
Medium volt panels for Zagazig WTP	0	0	1,050,000	1,050,000	
Medium volt panels for Abbasa WTP	0	0	1,100,000	1,100,000	
Level measure equipment for alum dosing tank and water reservoir.	0	0	150,000	150,000	
Central laboratory	0	0	11,000,000	11,000,000	
<b>Total</b>	<b>0</b>	<b>750,700</b>	<b>14,459,455</b>	<b>15,210,155</b>	



## ANNEX 11 Achievements of the Project

Evaluation Item	EVALUATION QUESTIONS		Result/Findings	Necessary Data	Achievement level
	Questions	Sub-Questions			
Project Achievement	Achievement of Overall Goal	Achievement of Overall Goal (expected) 'Management capacity of operation and maintenance of water supply facilities is improved in Sharkia Governoratio.'	While no specific performance indicators were set during the project implementation, there seems to have been a general agreement that the same PI indicator as that of the Project Purpose was to be applied. Having confirmed that Project Purpose was found to have achieved an intended goal using this PI, the Team was left with no appropriate indicator to measure the achievement level of the Overall Goal. It is therefore not possible to pass any judgment on possibility of reaching the Overall Goal. It is not a role of the Team to select PI during the final evaluation exercise, however, there are two possible indicators that should be closely looked at and collected even beyond the project period to measure the level of achievement of Overall Goal. These are: 1) Through application of improvement on frequencies of filter washing at five water treatment plants, nearly 9 million m <sup>3</sup> of water could be saved which is equivalent to cost reduction of 6.9 million LE per year; and 2) UFW ratio for the whole of Sharkia Governoratio is estimated around 30 percent if similar trend of incidence in the pilot project areas covering one city and seven markazes where nearly percent of the total population of the governoratio 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.	Performance indicators (PI) in the field of management capacity of operation and maintenance are improved for all branches in the Governoratio	N/A
	Achievement of Project Purpose	Achievement of Project Purpose 'Management capacity of operation and maintenance of water supply facilities is improved in target areas.'	<p>Selection of Performance Indicators (PI) was done during the mid-term monitoring mission. PI was set at percentage of the measured production to the total estimated production of water treatment plants. The Team confirmed that this PI was understood as increased numbers of water treatment plants that could correctly measure through installation of flow meters and keep records on such measurements. By the end of the Project period, it is expected that all seven (7) water treatment plants will have flow meters installed and would be able to calculate the identified PI.</p> <p>Measurements of water flows and supply have been undertaken and recorded at two model water treatment plants at Abassa and Zagazig. As a result, SHAPWASCO was able to obtain sufficient data to set indicators for electricity and chemical consumption. For Zagazig Water Treatment Plant, they were set at 0.28kWh/m<sup>3</sup> for electricity, 26.7g/m<sup>3</sup> for aluminum sulfate and 5.37g/m<sup>3</sup> for chlorine respectively. These indicators were then compared to those of the Hihya Water Treatment Plants that was constructed under the Japanese Grant Program for identification of areas of improvement and setting of optimum indicators. Currently collection and compilation of data on standard working hours are being undertaken at various water supply facilities and are to be completed by the end of the Project.</p> <p>As for UFW reduction activities, in addition to the three (3) pilot project areas in Abu Hamad Markaz, Menia Alqumah, and in Bilbels Markaz that were added at the time of mid-term monitoring, two (2) more areas in Zagazig Markaz and Ibrahimiya Markaz 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: 1) Flow meter installation pits were constructed with concrete in all pilot candidate areas in one city and seven markazes and ready for starting activities; 2) Data on leakages in all target areas are being collected and have been put into the database which could be used as a tool to develop pipe replacement plan; 3) All 12 members of core UFW team at HQ, Zagazig East and Hihya have equipped with sufficient expertise to train other SHAPWASCO staff members; and 4) Construction of a leakage detection training yard at Hihya has been initiated by SHAPWASCO and is expected to provide platform of further training not only for all other staff members at target areas but in all over the Governorate.</p> <p>Incorporation of SOP activities into work routine and their expansion to other facilities have been confirmed by: 1) Filter washing method has already been incorporated into routine work at two model water treatment plants and has been started its application at another Water Treatment Plant in Kafr Saqr; 2) Monitoring on chemical consumption has been undertaken and data is being regularly collected; 3) Monitoring on flow data and data is being regularly collected at both model water treatment plants and at El Huseinia; 4) On the Job Training on chlorine usage control was conducted and SOPs were then developed at Kenayat Iron and manganese removal plant. Moreover, the Chairman of HCWW has already distributed a draft copy of SOPs to other water companies which are expected to be applied throughout the country.</p> <p>Nothing in particular</p>	<p>Performance indicators in the field of management capacity of operation and maintenance are improved in target areas.</p> <p>Setting indicators for optimum electricity and chemical consumption and manpower standard working hours is conducted at model facilities for SOP activity.</p> <p>Activities on UFW and SOPs are incorporated into the routine work.</p> <p>- Activities on UFW reduction are expanded to other sites than the pilot project sites.</p> <p>- Activities on SOPs are expanded to other facilities than the model facilities.</p> <p>Any inhibiting factor to achieve the Project Purpose, if any.</p>	A

A	<p>(Indicator 1-1) Water balance analysis can be conducted properly for the pilot project sites.</p>	<p>Conducting water balance analyses could help identification of appropriate measures to reduce UFW ratios. Analyses were conducted for all six (6) initial pilot project areas and are expected to be finalized by June 2009 for the three (3) added areas. As for Zagazig City East area a physical loss from leakages such as from water mains and water pipes amounted to 28.3 percent of water supply. It showed dramatic decrease to 9.7 percent upon repairs of faulty meters, cleaning of meters and repairs of leakages. On the other hand, changes on operating loss stemmed from apparent loss from non-responsive meters was almost negligible. As the similar results from water balance analyses were obtained for other five (5) pilot areas, leakage reduction measures were proven to be the most effective to reduce UFW ratios in the pilot areas.</p>	<p>(Indicator 1-2) An average UFW ratio (initial) is reduced by 13 points in the pilot project sites.</p>
A	<p>(Indicator 1-3) An average leakage ratio (initial) is reduced by 13 points in the pilot project sites.</p>	<p>An average percentage point reduced was at 14.5 for the initial six (6) pilot project areas. Water balance analyses for the remaining three areas, namely Abu Hamad Markaz, Menia Alqumah Markaz, and Bibels Markaz, are to be completed between May and June 2009. However, it should be noted that the water balance analysis for Ibrahimiya Markaz was conducted without replacing faulty meters for the reasons being under investigation.</p>	<p>(Indicator 1-4) At least three (3) members of each UFW team of Zagazig City and Hihya Markaz acquire leakage detection survey technique.</p>
A	<p>(Indicator 1-5) At least one (1) member of each UFW team of other Markazes related to the pilot projects acquires leakage detection survey technique.</p>	<p>An average percentage point reduced was at 15.1 for the initial six (6) pilot project areas. Water balance analyses for the remaining three areas, namely Abu Hamad Markaz, Menia Alqumah Markaz, and Bibels Markaz, are to be completed between May and June 2009. It should be noted, however, that the water balance analysis for Ibrahimiya Markaz was conducted without replacing faulty meters for the reasons being under investigation.</p>	<p>(Indicator 1-6) At least three (3) members of each UFW team of Zagazig City and Hihya Markaz acquire leakage detection survey technique.</p>
A	<p>Other supporting data to show the achievement level of Output 1, if any.</p>	<p>A total of eight UFW members from the core teams of Zagazig City East area and Hihya Markaz were given training on leakage detection survey techniques directly by the Japanese experts. Six were given to practical exam in June 2008 and were found to have demonstrated sufficient level of knowledge and skills. While the remaining two members did not take this exam, their skill levels are believed to be at par by the Japanese experts. Moreover four UFW team members at HQ have been equipped with skills sufficient even to train other SHAPWASCO staff members. Therefore, a total of twelve (12) members, nine more than planned number, of the UFW teams have acquired sufficient level of skills on detection survey technique.</p>	<p>(Indicator 1-7) Basic system drawings of the facilities are prepared and updated at five (5) model facilities (2 WTPs, 1 FMRP, 1 BPS and 1 well station) which represent the facilities of SHAPWASCO.</p>
N/A	<p>Nothing in particular</p>	<p>Staff members at various water supply facilities have had no prior experiences to observe system drawings of the facilities where they work let alone preparing it on their own. They were trained to draw basic system drawing by hand which were then made into Auto-CAD drawings. Such completed drawings are now being placed at the facilities in order to enable them to check and apply for their daily operation and maintenance work. Computers were procured and placed at each facility so that the senior managers could readily check Auto-CAD drawings.</p>	<p>(Indicator 2-1) Manuals for management of O&amp;M are developed and updated as SOPs by the following SOP packages for plant components and for three activity categories, i.e. Operation, Maintenance and Water Quality Control for each model facility.</p>
A	<p>Achievement level of Output 2: To what extent has "Operation and maintenance capacity of water supply facilities is strengthened," been achieved?</p>	<p>By the time of final evaluation, 34 SOP packages were developed for water treatment plants; 20 for iron and manganese removal plants, 9 for booster pump stations and 8 for well stations. The number of SOP packages is significantly greater than the planned. Such SOPs are continued to be updated and revised by incorporating feedbacks from operators. SOP packages were intentionally not made into books but were binded in box files for easy and prompt revision on required contents. Use of visuals and simple terms were promoted in order for operators to use at facilities.</p>	<p>- Not less than twenty (20) SOP packages at WTP - Not less than five (5) SOP packages at FMRP, BPS and well</p>

Project Achievement	Achievement of Outputs	<p>OJT training was also conducted both at all the five model facilities and at Qenayal iron and manganese removal plant. Since January 2008 OJT on aggregation and filtration which are both primary process of water treatment were conducted and completed. Having witnessed visible effects of application of SOPs through OJTs, classroom type of training were not conducted and changed to OJT.</p> <p>Three members of the SOP team at HQ were given paper exam in February 2009. The results demonstrated that all have acquired sufficient level of knowledge. They are now in the process of preparing paper tests to the senior management of model facilities. Operators will later be tested by observation. While all the exams have not yet been conducted by the time of final evaluation, it is highly likely that more than 80 percents of staff members are to pass the exams.</p> <p>Comprehensive understanding of procedures, work amounts, timing and staffing of entire operation and maintenance works throughout the year is required to develop operation and maintenance plans. Equipment lists, annual work schedule, daily operational schedules of equipments and emergency procedures have been developed at Abbasa water treatment plants. They could be replicated and utilized at other water treatment plants.</p> <p>Having given a direction on water quality control from HCWW on improvement of accountability in water quality test data, the Project came up with 1) draft SOPs for water quality analysis; 2) develop water quality control management program/procedures for both Zagazig and Abbasa water treatment plants; and 3) introduce regular auditing system with a check list of chemicals and equipments at laboratory which will be reported to the headquarter.</p> <p>All the data on 315 well stations in the one city and 11 markaze have been collected and the well inventory was prepared with a standard form. Regular monitoring have been undertaken on regular basis and database has been updated accordingly. Using four groundwater level meters installed in FY2007 and portable meters, usage and groundwater level have been measured and analyzed. These data were translated into a groundwater level contour map which has already been drawn.</p> <p>Hydraulic analyses serves as a tool to check the level of water pressures, identify areas of improvements on water supply networks and to check validity of pipe replacement plans that are either being implemented or in pipeline. Hydraulic analyses have been conducted at two areas in Hihya markaz and Zagazig City (Area 4 in Zagazig City East). Three SHAPWASCO counterparts have already been given sufficient skills to undertake analyses. They will lead another staff members to study the network data which has already been put into database and to draw an appropriate pipe replacement plan in the remaining project period.</p> <p>Developed SOPs have been distributed to other companies by the HCWW chairman.</p>	<p>(Indicator 2-3) For the application of SOPs to the field operation, classroom training and OJT to operators are conducted at all the five (5) model facilities.</p> <p>(Indicator 2-4) Not less than eighty (80) percent of SOP/HQ and SOP/IMF members acquire the ability to apply knowledge and skills of SOP.</p> <p>(Indicator 2-5) O&amp;M Plan is developed at not less than one (1) WTP.</p> <p>(Indicator 2-6) Water quality control program applying the new HCWW regulation is prepared.</p> <p>(Indicator 2-7) Well inventory is prepared with a standard form and the first round of investigation is conducted for all the SHAPWASCO well stations.</p> <p>(Indicator 2-8) Hydraulic analysis is done for not less than two pilot project areas.</p> <p>Other supporting data to show the achievement level of Output 2, if any.</p>	A
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<p>Project Achievement</p> <p>Were the inputs provided as planned and agreed?</p>	<p>Records of Inputs</p>	<p>Egyptian side  A total of 91 at SHAPWASCO and its branches were appointed as counterparts. With four (4) resigned, a current number of counterparts is 87.  The necessary facilities and operational costs of the Project have been provided. The total budget was allocated to the project operational cost was 15,210,000 LE till the end of January, 2009. It should be noted, however, this includes 11 million LE for construction of the central laboratory that was initiated by SHAPWASCO.  The necessary office spaces for Japanese Experts have been provided.</p> <p>Japanese side  A total of 10 experts have been dispatched. A total person-months of dispatch amounts to 71.37.  5 counterpart personnel received training in Japan.  Machinery and equipment in total valued at 59.1 million Japanese yen were provided for the project activities by the end of January, 2009.  A total amount of 66 million Japanese yen was provided to supplement a portion of local expenditure as of end January 2009.  The monitoring mechanism of project as a whole is shared through bi-weekly project team meetings. At the same time, monthly monitoring on achievement of respective activities mainly in light of the Plan of Operation have been conducted. JICA dispatched a mid-term monitoring mission in February 2008 to monitor the progress of the Project. Revision of PDM was done in accordance with findings.  3 JCC meetings were held as planned.</p>	<p>N/A</p>
<p>Implementation Process</p> <p>Were there any problems on administration for the Project management?</p>	<p>Status of monitoring activities</p>	<p>Three revisions were undertaken since the inception of the Project jointly between the senior management of SHAPWASCO and the Japanese experts. Efforts were made to identify measurable indicators.  Utilization depends on the administrative level. Higher the level, there was more awareness of PDM and its indicators. Young and junior counterparts were not fully aware of PDM. A detailed PO was utilized more effectively and frequently than PDM.  Not particular problems are found.  Not particular problems are found.</p>	<p>N/A</p>
<p>Implementation Process</p> <p>Were there any problems in the measures of technology transfer? Sense of ownership of counterpart organization and personnel towards the Project.</p>	<p>Relationship between J/E and C/P  Was there any issue in technology transfer?  Ownership of counterpart organization</p>	<p>Very good relationship between the Japanese experts and the counterparts were established. Hiring of an Egyptian facilitator and experts have proven to be quite effective particularly in filling the void and keeping close watch on project activities while Japanese experts are not in Egypt. While there is a limitation on periods of time when experts could stay in Egypt, a level of communication and trust between the Japanese experts and Egyptian counterparts were found very high.  Technology transfer was undertaken through project implementation, training in Japan and Jordan, on-the-job training and other technical training.</p> <p>With the Project, many counterparts at SHAPWASCO could associate UFW and SOP activities as their own issue and a part of their routine work. Chairman of SHAPWASCO has demonstrated significant level of commitment and leadership by assigning younger engineers, enabling replacement of faulty meters for the UFW activities and installation of flow meters. Moreover, he took an decision of constructing a leakage detection yard at Hithya and a central lab which was outside of this Project scope.</p>	<p>A</p>

A: Excellent, B: Good, C: Fair, D: Poor

# ANNEX 12 Evaluation Results by Five Criteria

EVALUATION QUESTIONS		Result/Findings	Necessary Data	Grade	Overall Grade
Questions	Sub-Questions				
Was there necessity of implementing the Project?	In line with the needs of Egypt?	<p>*Egypt is an arid country covering an area of approximately 1 million km<sup>2</sup> of which its population occupies only 5.5 percent. Its available annual per capita renewable water resources is believed to be well under the water poverty line of 1,000m<sup>3</sup> and is expected to reach less than 600m<sup>3</sup> by 2025. With continued surge of population which is expected to reach 95 million by 2025 from 72 million in 2005 coupled with scarcity of water resources, water shortage is expected to further worsened. The decreasing water availability limits the growth potential of industry, tourism and agriculture, with negative consequences for the overall economic development of the country. Efficiency and equality in the use of water have become the most important issues in the water sector and the reduction of UFW rate 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.</p> <p>*Egypt had tackled water and wastewater sector reform throughout 1990s, however, accumulated debts amounted to US\$1.3 billion by 2003. Donors, particularly USAID, had started providing assistance to improvement of efficiency and business management of the sector. All the economic general authorities of water &amp; sanitary drainage water under the Ministry of Housing, Utilities and New Urban Development were transferred to be managed by the Holding Company for Water and Wastewater (HCWW) in September 2004. For both HCWW and Potable Water and Sanitation Companies such as SHAPWASCO, improving business management remains to be the most critical agenda. Therefore, improvements in management capacity of operation and maintenance and development of its capacities needed to be given urgent attentions.</p> <p>In the Governorate of Sharqiya, responsibilities to operate and maintain all the water and wastewater businesses were transferred from the Sharqiya Economic General Authority of Water &amp; Sanitary Drainage (SH-EGAWASD) to Sharqiya Potable Water and Sanitation Company (SHAPWASCO). Just as other portable water and sanitation companies, 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 rate, and poorly managed facilities stemmed from serious lack of basic information on production and supply of water and on customer information.</p> <p>The Egyptian government has provided to provide heavy subsidies to SHAPWASCO. 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 rate was therefore found in line with the needs of SHAPWASCO. Moreover, the responsibilities to reduce UFW rates and to operate and maintain water facilities lies with engineers and technicians of SHAPWASCO. The Project was found to be in line with the SHAPWASCO's needs for skilled engineers and technicians.</p>	Are the UFW reduction and improvement of management capacity of operation and maintenance priorities in water sector?	A	
Relevance	Was the project in line with the needs of the target group?	<p>The 6th National Economic and Social Development 5-Year Plan (2007/8-2011/12) has development goals including: restructuring of public services, expansion and improvement of infrastructure, and environmental protection. For the water and wastewater sector, priorities were given to reduction of UFW, gradual introduction of cost recovery, and improving appropriate use of water consumption through loss reduction. Moreover, efficiency and equality in the use of water have become the most important issues in the water sector and the reduction of UFW rate 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.</p> <p>Improvement and expansion of public services is identified as priority development issues in JICA's plan for country-specific program implementation for Egypt. Thus, there is consistency between project purpose, overall goal and Priority in Japan's foreign aid policy and JICA's policy.</p>	Selection of target group and its appropriateness	A	A
Priority	<p>is Overall goal of the Project consistent with development policy of Egypt?</p> <p>is Overall goal of the Project consistent with Japan's foreign aid policy and JICA's plan for country-specific program implementation?</p>	<p>The 6th National Economic and Social Development 5-Year Plan (2007/8-2011/12) has development goals including: restructuring of public services, expansion and improvement of infrastructure, and environmental protection. For the water and wastewater sector, priorities were given to reduction of UFW, gradual introduction of cost recovery, and improving appropriate use of water consumption through loss reduction. Moreover, efficiency and equality in the use of water have become the most important issues in the water sector and the reduction of UFW rate 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.</p> <p>Improvement and expansion of public services is identified as priority development issues in JICA's plan for country-specific program implementation for Egypt. Thus, there is consistency between project purpose, overall goal and Priority in Japan's foreign aid policy and JICA's policy.</p>	Water sector policy in the Egypt development policy	A	A



<p>Were activities sufficient to produce outputs?</p> <p>Were there any influences due to the changes in the important assumptions at the level of "from activities to outputs"?</p>	<p>See achievement level of Outputs</p> <p>No changes in important assumptions.</p> <p>Mostly appropriate. Concern was addressed with the timing of dispatches of Japanese experts. Due to necessity to have a new contract drawn in each fiscal year it was made difficult for the Japanese experts to stay in Egypt during this entire period. While assigning an Egyptian facilitator had kept the Project's momentum going, absence of Japanese experts during such time remains to be a concern. A total of 68 person-months were allocated for over the three year project period. An average period of each expert per year was at 2.5 person-months which was found to be insufficient to provide satisfactory level of skill transfers. In particular, either assignments periods or the numbers of experts who should work on expansion of SOP applications beyond the modal facilities should have been increased. 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 (i.e. section/department heads) who already have tremendous workloads</p> <p>Provision of equipment were appropriate.</p> <p>The equipment that were provided are properly utilized.</p>	<p>See achievement level of Outputs</p> <p>Employees who received trainings by the Project will continuously work for SHAPWASCO/ Personnel transfer of executive management will not affect the implementation of the Project/ Funds from INOPWASD and SHAPWASCO in related to the Project will be allocated as planned.</p>	<p>A</p>
<p>Were inputs adequate in timing, quantity and quality to conduct the activities?</p>	<p>Appropriate.</p> <p>Appropriate.</p> <p>Mostly appropriate. There was a case of one CAD operator resigned from a post which has not yet been filled till now. It also could have been more desirable to have more younger staff members assigned as counterparts for the sole purpose of ensuring continuity and sustainability of activities and skills.</p> <p>Adequate.</p>	<p>Dispatch of experts (Number, timing, expertise)</p> <p>Appropriateness of equipment provided (kind/variety, type/model, number, timing)</p>	<p>B</p>
<p>Is the level of achievement of Project purpose adequate in terms of inputs level?</p> <p>Can PI in the field of management capacity of operation and maintenance are improved for all branches in the Governorate be realized within 3-5 years (or 5-10 years?) after the termination of the Project?</p>	<p>Nothing in particular.</p>	<p>Utilization of the major inputs to its cost</p>	<p>N/A</p>
<p>Are there any inhibiting factors towards achievement of Overall goal?</p>	<p>Nothing in particular.</p>	<p>[See the achievement of Overall goal] Improvement on performance indicators in the field of management capacity of operation and maintenance are improved for all branches in the Governorate</p> <p>Changes in social and cultural factors, accesses, etc.</p>	<p>N/A</p>

Efficiency

Impact

Impact	Causal relationship	<p>Is the gap between Project purpose and Overall goal huge? Were there any influences due to the changes in the important assumptions at the level of "from project purpose to Overall goal"?</p> <p>Influences due to the external conditions</p>	<p>There was no gap between overall goal and project purpose addressed.</p> <p>No changes in important assumptions.</p> <p>No influence</p>	<p>Logical Framework and logic model</p> <p>Possibility of the external conditions that influence on the Project</p> <p>Changes in social and cultural factors, accesses, etc.</p>	A
Impact	Spread effect	<p>Are there any unintended positive situation produced by the implementation of the Project?</p>	<p>*Visibility of SHAPWASCO has increased particularly in the eyes of HCWW and other companies through presentations both at open seminars and workshops on UFW and SOP activities. This has enabled SHAPWASCO strengthen its relationships with the Ministries, Sharqiya Governorate's government and the HCWW. * Once SOPs are finalized, a Chairman of HCWW is intending to have them distributed to other portable water and wastewater companies in the country for replication of success being made at SHAPWASCO. A draft has already been distributed. *SHAPWASCO had taken initiative to construct a training yard for water leakage detection at Hibiya which would provide appropriate training platform initially for its own engineers and technicians and later others from outside of the Governorate. *Having acknowledged importance of measuring and recording the level of water production and supply for planning and implementation of operation and maintenance, a Chairman of HCWW instructed other portable water and wastewater companies to install flow meters. As such, there are higher awareness on effectiveness and impacts of SOP activities at HCWW and are being cascaded down to other companies.</p> <p>* A Chairman of HCWW instructed to form a committee to follow up on application of SOPs at other companies. *Relationships with the communities have been strengthened through public awareness companies and activities. *The Chairman of SHAPWASCO has been appointed as a member of the committee for evaluating tenders and offers on leak detection in Cairo Governorate.</p>	<p>Changes and improvement that indicators can not describe, and good practice</p>	A
Impact		<p>Are there any unintended negative situation produced because of the implementation of the Project?</p>	<p>No negative impacts are observed.</p> <p>No negative impacts are observed.</p>	<p>Policy, Law (Preparation of regulation, institutionalization, etc.), Social and cultural changes such as gender, human rights, inequality, etc., Technology changes, economic changes in target society, etc</p> <p>Cases of negative impact on SHAPWASCO or HCWW as well as their staff, if any</p>	A



Sustainability	<p>Policy and system</p> <p>Will current support at the policy level continue after the Project?</p> <p>Is there any institutional mechanism in SHAPWASCO to continue UFW countermeasures and improvement in operation and management of water treatment and supply facilities?</p> <p>How high is the probability that SHAPWASCO will increase/continue providing necessary budgetary allocation for UFW and SOP activities?</p>	<p>Improvement on business performance of the water sector remains high priority for Egypt and continued support from the government and the HCWW to SHAPWASCO is highly likely to be ensured.</p> <p>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. Creation of two departments/sections respectively on UFW and SOP is being considered under the strong leadership of the SHAPWASCO chairman. If these departments were to be created with trained counterparts assigned to conduct necessary training and activities, sustainability of UFW and SOP activities would highly likely be ensured. While the Team acknowledge that positive steps are being considered, no concrete mechanism has yet been institutionalized.</p> <p>Accumulation of deficit remains to be a challenge both at HCWW and the companies like SHAPWASCO. While increase of user charges has just been introduced in January 2009 from one of the lowest in the world at LE 0.26 per m<sup>3</sup>, it is yet unclear as to what extent this would help financial health of the water sector. Subsidies from the government remain to be imperative for SHAPWASCO to operate and maintain water supply facilities. SHAPWASCO has demonstrated strong commitments and the HCWW continues to allow budget allocation to the UFW and SOP's 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.</p>	<p>Policy changes in water sector, if any, and the preparation level under policy direction for the current activities to continue</p> <p>Level of institutionalization of Project activities i.e. staffing, plans, implementation framework</p> <p>Estimated budget and commitment of the Senior management</p>	A
Sustainability	<p>Mechanism to establish and extend the technology transferred</p> <p>Will the equipment be appropriately used and maintained?</p> <p>How high is the possibility that SHAPWASCO could sustain UFW and SOP activities on its own?</p>	<p>All the skills on UFW countermeasures being applied to outside of the pilot areas are highly likely be utilized further. Leakage detection survey skills in particular will highly likely be transferred not only inside SHAPWASCO but to other governorates through training at the newly constructed Hithya training yard. As for SOPs, applications have already been extended to other water supply facilities by a SOP team at HQ. This would be further accelerated with distribution of SOPs by HCWW to other companies in the country.</p> <p>Equipment and devices have been utilized by the counterparts. However, their repair may have been contracted out due to technical constraints.</p> <p>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. They remain to have vital roles in training SHAPWASCO staffs.</p> <p>For expansion of activities on SOPs and UFW beyond the pilot areas, they still need to have close supervision, on and off technical guidance, or experts who could provide technical advices.</p>	<p>Replicability of the technology transferred</p> <p>Maintenance of Equipment and devices</p> <p>Continuity of the technology transferred</p>	B
Social and cultural aspects	<p>Promoting factor to sustain the positive effect produced by the Project</p> <p>Inhibiting factor due to lack of consideration to environment and socially vulnerable groups?</p>	<p>Promoting factor: 1) Strong leadership of the SHAPWASCO Chairman; 2) Higher visibility of SHAPWASCO in the eyes of HCWW and the government of Governorate; and 3) Substantial changes in working style, mentality and attitudes.</p> <p>Nothing in particular.</p>	<p>Promoting factors towards and necessary conditions to the continuity of outcome (positive changes, benefit...) that the Project produced.</p> <p>Inhibiting factor stemmed from lack of considerations to environment and socially vulnerable groups against the continuity of outcome (positive changes, benefit) that the Project produced, if any</p>	A
Other aspects	<p>Any inhibiting factor?</p>	<p>Nothing in particular.</p>	<p>Inhibiting factor against the continuity of outcome (positive changes, benefit) that the Project produced, if any</p>	N/A

A: Excellent, B: Good, C: Fair, D: Poor

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**6 Minutes of Meeting of 6<sup>th</sup> JCC Meeting**

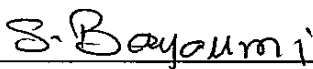
**MINUTES OF MEETING  
ON  
THE SIXTH JOINT COORDINATION COMMITTEE  
FOR  
THE PROJECT FOR IMPROVEMENT OF MANAGEMENT CAPACITY  
OF  
OPERATION AND MAINTENANCE FOR SHAPWASCO  
IN THE ARAB REPUBLIC OF EGYPT**

At the final stage of the Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO (hereinafter referred to as "the Project"), the sixth meeting for Joint Coordination Committee (hereinafter referred to as "JCC") for the Project was held on 27<sup>th</sup> October 2009 in Cairo with the attendants listed in Annex-1.

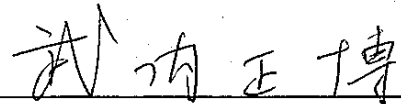
The Japanese expert team headed by Mr. Masahiro Takeuchi, Chief Advisor of the Project, reported to the committee that all the activities in Egypt by the Japanese experts have been completed and explained the achievements of the Project. The team stated that they are preparing the final report for all the activities and their achievements which will be submitted to the counterpart in November 2009. The committee confirmed the explanation by the team.

The team stated that the details of the results and achievements will be presented by the counterpart team members in the open seminar followed by this committee, the program of which is attached hereto as Annex-2.


Cairo, 27<sup>th</sup> October 2009



Dr. Salah Bayoumi  
Chairman  
Sharkia Potable Water and Sanitation Company  
(SHAPWASCO)



Mr. Masahiro Takeuchi  
Chief Advisor  
The Project for Improvement of  
Management Capacity of Operation  
and Maintenance for SHAPWASCO  
JICA



Prof. Dr. Abdel Kawi Khalifa  
Chairman  
Holding Company for Water and Wastewater  
(HCWW)

List of Participant

**[Egyptian side]**

Holding Company for Water & Wastewater (HCWW)

Prof. Dr. Abdel Kawi Khalifa	Chairman
Mr. Mamdouh Raslan	Vice Chairman
Mr. El Sayed Nasr	Vice Chairman

Sharkia Potable Water and Sanitation Company (SHAPWASCO)

Dr. Salah Bayoumi	Chairman
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**[Japanese side]**

JICA Expert Team

Mr. Masahiro Takeuchi	Expert for Water supply Planning/Chief Advisor
Mr. Keizo Kimura	Expert for Water Treatment/Mechanical Equipment
Mr. Mitsuhiro Omori	Hydraulic Engineer for Network Analysis
Mr. Mohamed Nagi	Facilitator of the Project Team
Mr. Mostafa Moawed	Senior Engineer for UFW Reduction Activity

JICA Egypt Office

Mr. Tetsuo Takahashi	Assistant Resident Representative
Dr. Ashraf El-Abd	Chief Program Officer
Mr. Nour Hussein	Senior Program Officer

S.B

*A*

*[Handwritten signature]*



**Program of Seminar**  
(At Al Masah Hotel in Nasr City, Cairo on 27<sup>th</sup> of October 2009)

Time	Program	Speaker
9:30 – 10:00	6 <sup>th</sup> JCC Brief explanation of the results of the Project	Mr. Masahiro Takeuchi Chief Advisor of JICA Expert Team
10:00 – 10:30	Registration ( <i>Taking tea and coffee</i> )	
10:30 – 10:40	Opening speech-1	Chairman of Holding Company for Water and Wastewater (HCWW)
10:40 – 10:50	Opening speech-2	Representative of JICA Egypt Office
10:50 – 11:00	Brief Explanation of the Project	Chairman of SHAPWASCO
11:00 – 11:45	[Part-1] UFW Results, evaluation and recommendation	UFW Team of SHAPWASCO.
11:45 – 12:20	<i>Coffee break and praying time</i>	
12:20 – 13:10	[Part-2] SOP Results, evaluation and recommendation	SOP Team of SHAPWASCO.
13:10 – 13:20	[Part-3] Public Awareness Results, evaluation and recommendation	Public Awareness Team of SHAPWASCO
13:20 – 13:25	Closing speech-1	Mr. Masahiro Takeuchi Chief Advisor of JICA Expert Team
13:25 – 13:45	Closing speech-2	Chairmen of HCWW and SHAPWASCO
13:45 – 15:00	<i>Lunch</i>	

S.B.

*A.*

*[Signature]*