

## 9 プロジェクトチーム会議議事録（第三年次）

**Minutes of Meeting for 1<sup>st</sup> Project Team Meeting for PH-3**  
MM-PTM3-1 [08.5.29]

Date	29 <sup>th</sup> May (Thursday) 2008	Signature
Time	10:00~11:30	
Place	SHAPWASCO chairman's room	
Attendants	<b>[SHAPWASCO : C/P]</b> Dr. Salah Bayoumi : Chairman/Project Manager Eng. Alae El Din Mohamed : Head of UFW/HQ Team	<i>S. Bayoumi</i>
	<b>[JICA Expert Team : The team]</b> Mr. Masahiro Takeuchi : Team Leader Mr. Masatoshi Seno : UFW Reduction Mr. Noboru Saeki : SOP Activity Mr. Mitsuhiro Omori : Coordinator Mr. Mohamed Nagi : Facilitator	<i>[Signature]</i>

The team and C/P confirmed the activities in Phase-3 for the Project as follows:

**1. Dispatch of experts**

The team explained to C/P that the following experts will be dispatched in Phase-3 for the Project according to the attached schedule (refer to **Attachment-1**):

- ◆ Mr. Masahiro Takeuchi: Water Supply Planning/Chief Advisor
- ◆ Mr. Masatoshi Seno: Unaccountable-for Water Reduction
- ◆ Mr. Akihiko Okazaki: Leakage Detection
- ◆ Mr. Noboru Saeki: SOP Activity
- ◆ Mr. Keizo Kimura: SOP Activity
- ◆ Mr. Ashraf Ahmed: Electrical Equipment
- ◆ Mr. Mitsuhiro Omori: Coordinator/Hydraulic Analysis
- ◆ Mr. Mohamed Nagi: Facilitator
- ◆ Dr. Mohamed Sobhy: Senior Engineer (UFW Activity)
- ◆ Mr. Mahmood Khalaf: Senior Engineer (SOP Activity)

**2. Activities in Phase-3**

The team and C/P confirmed UFW reduction activities and SOP activities in Phase-3 as shown in **Attachment-2** and **Attachment-3** respectively.

The team proposed to apply the following methodology for C/P staff to conduct their activities more independently.

**For UFW reduction activity**

The team will support C/P:

- To hold internal workshops every two months for each team member to make presentation of the outcomes in each pilot project site. It is expected that this enable the whole UFW team members to enhance an awareness of the importance of UFW reduction activity.
- To make an implementation plan for other UFW teams than those in the pilot project sites to participate in the activity for pilot projects.
- To establish a section specializing in UFW reduction activity in SHAPWASCO.

**For SOP activity**

The team will support C/P:

- To clarify outcomes from activities for improvement and work hard by competing with each other between SOP teams.
- To develop visualization (putting a system flow sheet on the wall of pump house, etc.) for improving O&M works which has already been applied in Phase-2.

**3. Workshops**

The team and C/P agreed to have following workshops in Phase-3.

- Internal workshop: When required
- 2<sup>nd</sup> open workshop: November 2008 in Zagazig
- 3<sup>rd</sup> open workshop: February 2009 in Cairo

The team proposed that a representative from Water Authority of Jordan (WAJ) who has a similar experience with JICA's UFW reduction project in Jordan make a presentation in 3<sup>rd</sup> open workshop to be held in February 2009 to exchange views between Egyptian UFW team and the Jordanian counterpart.

C/P agreed to the team's proposal.

**4. Approval of additional three (3) pilot project sites**

The team informed C/P that JICA headquarters has agreed on adding three (3) pilot project sites for UFW reduction activities and one set of leakage survey equipment for these additional sites will be procured during Phase-3. The team handed over a letter from JICA Egypt Office for this matter (**Attachment-4**).

**5. Training of UFW teams for additional pilot project sites**

The team requested C/P to do training of nominated staff (engineers and technicians) for UFW teams of the additional three (3) pilot project areas, that is, Abu Hamad, Menia Alqamah and Bilbais Markazes. C/P stated that UFW/HQ team will do the training of the staff and prepare training program and materials by themselves and the training will be done at the middle of June.

**6. 4<sup>th</sup> JCC Meeting**

The team requested C/P to have 4<sup>th</sup> JCC meeting to get approval of PDM3 and PO3 in which the following points are incorporated:

- Three (3) additional pilot project sites for UFW reduction activities
- Revision of the average UFW and leakage ratios specified as an objectively verifiable indicator in PDM2 after completion of the fourth pilot project which is now under implementation in Zagazig Markaz
- Others, if any

C/P proposed to discuss the indicator for UFW reduction activity in the next PTM and the team agreed it.

**7. Training Yard for Leakage Survey**

C/P stated that SHAPWASCO is planning to construct its own training yard for leakage survey by the end of June 2008 and requested the team to support it. The team agreed it.

**8. Next PTM**

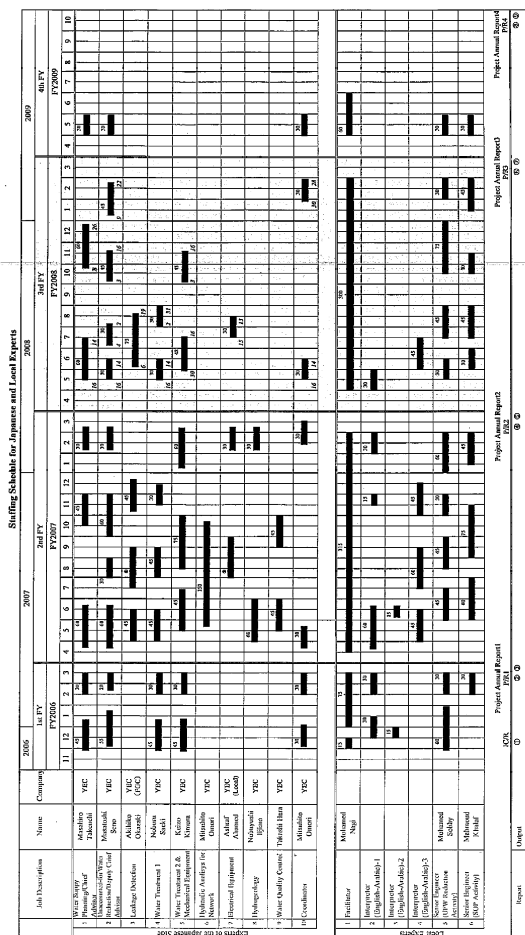
The team proposed to have the next PTM on 5<sup>th</sup> June 2008.

**Attachment:**

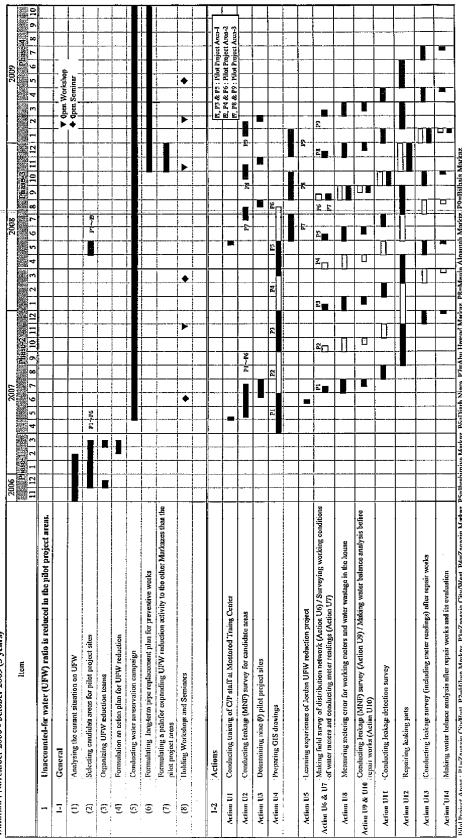
1. Dispatching schedule of Japanese and Egyptian experts
2. Plan of operation for UFW reduction activity
3. Plan of operation for SOP activity
4. Letter from JICA Egypt Office

(End of Agenda)

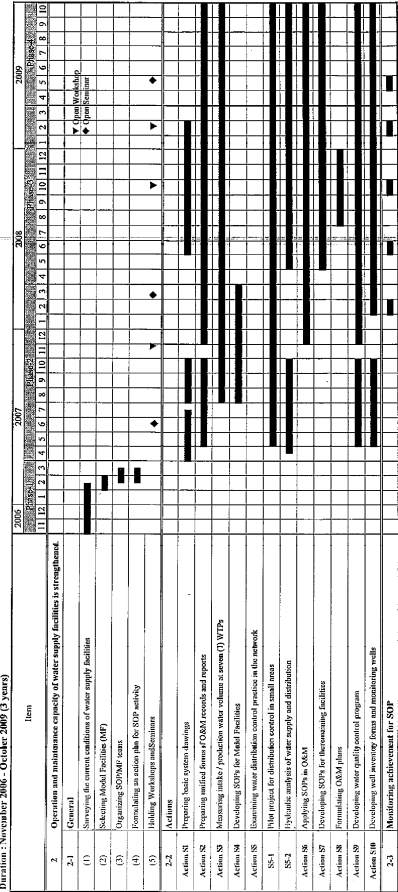
Attachment - 1



Plan of Operations-3 (PO3) 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)



Plan of Operations-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)



**JAPAN INTERNATIONAL COOPERATION AGENCY**  
 World Trade Center - 10 th. Floor, 1191 Corniche El Nil st., Boulak., Cairo  
 Tel.: 5748240 /41/42/44 - Fax : 5748243 P.O. Box 475 Dokki

MM-PTM3-2 (1/6)

Minutes of Meeting for 2<sup>nd</sup> Project Team Meeting for PH-3  
 MM-PTM3-2 [08.6.12]

May 15, 2008

Dr. Salah Bayoumi  
 Chairman  
 Sharkia Potable Water and Sanitation Company (SHAPWASCO)  
 Ministry of Housing, Utilities, and Urban Development

**Re: Approval from JICA HQs on adding 3 pilot sites as requested at JCC**

Dear Sir,

In reference to the technical cooperation "The Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO", I am pleased to inform you that JICA HQs has agreed on adding three (3) UFW pilot project sites in total, one each in Menia Alqamah Markaz, Bilbais Markaz, and Abu Hamad Markaz.

Then please make necessary arrangements for implementing the additional activities. Japanese experts will arrive in Zagazig on 19 May, 2008.

Sincerely Yours,

Katsuhiko OZAWA  
 Resident Representative  
 JICA EGYPT OFFICE

Date	12 <sup>th</sup> June (Thursday) 2008	Signature
Time	11:00~12:30	
Place	SHAPWASCO chairman's room	
Attendants	[SHAPWASCO : C/P] Dr. Salah Bayoumi : Chairman/Project Manager Eng. Alae El Din Mohamed : Head of UFW/HQ Team Eng. Abdel Shafi Abdel Aziz : Head of SOP/HQ Team	<i>S. Bayoumi</i>
	[JICA Expert Team : The team] Mr. Masahiro Takeuchi : Team Leader Mr. Masatoshi Seno : UFW Reduction Mr. Akihiko Okazaki : Leakage Detection Mr. Noboru Saeki : SOP Activity Mr. Keizo Kimura : SOP Activity Mr. Mitsuhiro Omori : Coordinator Mr. Mohamed Nagi : Facilitator Dr. Mohamed Sobhy : Senior Engineer for UFW Mr. Mahmoud Khalaf : Senior Engineer for SOP	<i>[Signature]</i>

**1. General**

- Japanese Expert schedule  
 The team reported that the following Japanese expert arrived in Egypt on 31<sup>st</sup> May and 7<sup>th</sup> June 2008 respectively:  
 - Mr. Keizo Kimura: SOP expert  
 - Mr. Akihiko Okazaki: Leakage Detection

**(2) Water conservation campaign**

The team reported that they started to support C/P to make analysis of collected data in the campaign which have been done from October 2007 to March 2008.

**2. UFW Reduction Activity (progress of the last week and schedule for the next week from 14<sup>th</sup> to 19<sup>th</sup> June 2008)**

**2-1. Progress**

Actions U4, U6, U7, U8, U9, U10, U11 and U12 have been conducted by the last week. The progress and the issues are summarized as follows:

**Common Activity**

- Action U4 Preparing GIS drawings (for network)  
 > Preparation of the following GIS network drawings have been completed by the end of

May 2008.

- 1) Zagazig East: 5 candidate sites
- 2) Zagazig West: 5 candidate sites
- 3) Hihya Markaz: 5 candidate sites
- 4) Zagazig Markaz: Kafr El Hamam (Site-1) as pilot project site
- 5) Ibrahimiya Markaz: Ibrahimiya City (Site-1) as pilot project site
- 6) Diarb Nigm Markaz: Diarb Nigm City (Site-1) as pilot project site

> The draft of GIS network drawing for candidate site (Site-1: Menia Alqamah City) in Menia Alqamah Markaz as one of the additional pilot project sites has been started last week.

#### Pilot Project -1: Zagazig City-East (Area-1)

> All activities have been finished by the end of February 2008.

#### Pilot Project -2: Hihya Markaz (Area-2)

> All field activities have been finished by the end of February 2008. Water balance analysis is now under examination.

#### Pilot Project -3: Zagazig West (Area-3)

> All field activities have been finished by the end of February 2008. Water balance analysis is now under examination.

#### Pilot Project -4: Zagazig Markaz (Area-1)

##### (1) Action U6 Making field survey of distribution network

> The detailed field survey of the conditions of pipelines and valves have been conducted according to GIS drawings.

##### (2) Action U7 Surveying installation & Status conditions of water meters and conducting meter readings

> The survey of the installation conditions of water meters has been completed and current condition of meters is as follow.

- 1) Total number of meters is 2103.
- 2) Number of working meters is 1633 (78%).
- 3) Number of replaced meters up to last week is 220 (10%).
- 4) Number of meters inaccessible and/or to be repaired is 250 (12%).

##### (3) Action U8 Measuring metering error of water meter

> Measuring metering error of 6 water meters has been conducted.

##### (4) Action U9 Conducting leakage (MNF) survey (before repair works)

> MNF survey before repair has been done this week.

##### (5) Action U10 Making water balance analysis before repair works

2

> Continuous MNF survey and water meter reading have been finished.

##### (6) Action U11 Conducting leakage detection survey

> Leakage detection survey has been finished and total 8 places of leakage have been found at the invisible underground places.

##### (7) Action U12 Repairing leakage parts

> Leakage parts have been repaired by SHAPWASCO.

#### Pilot Project -5: Ibrahimiya Markaz

##### (1) Action U6 Making field survey of distribution network

> The detailed field survey of the conditions of pipelines and valves will conduct according to GIS drawings next week.

##### (2) Action U7 Surveying installation & Status conditions of water meters and conducting meter readings

> The survey of the installation conditions of water meters will start next week.

#### Pilot Project -6: Diarb Nigm Markaz

> Actions for this pilot project will be started on September, 2008.

#### Pilot Project -7: Abu Hamad Markaz

#### Pilot Project -8: Menia Alqamah Markaz

#### Pilot Project -9: Bilbais Markaz

> Pipeline sketches for five (5) candidate sites at additional each Pilot Project Site have been provided last week and construction of chambers for flow meter will be started next week.

#### 2-2. Schedule for next week

■ Actions of U4, U6, U7, U8, U9, U10, U11 and U12 will be conducted this week.

#### 3. SOP Activity (progress of the last week and schedule for the next week from 14<sup>th</sup> to 19<sup>th</sup> June 2008)

##### 3-1. Progress

Mr. Omori/Mr. Saeki, on May 17<sup>th</sup>, and Mr. Kimura, on May 31<sup>st</sup>, arrived in Zagazig and then SOP activity for Phase 3 activities have been resumed while SOP/HQ team and SOP/Facility teams of SHPWASCO conducted their activities continuously during the transition period from Phase 2.

Actions S1, S4, S5 and S10 have been conducted by the last week. The progress and the issues are summarized as follows:

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##### (1) Action S1 Preparing Basic System Drawings

> Activity for model well pump station at EL Aslougi has been started and preparation of basic drawings has been started.

##### (2) Action S3 Measuring intake /production water volume at 7 WTPs

> Flow meter installation works are continued. Current status is shown on Attachment-S1.

##### (3) Action S4 Development of SOPs for Model Facilities

> Major part of SOP documents for FMRP has been completed and first draft SOPs have been distributed to Kafr Farag FMRP for comment on May 28, 2008.

> Activity for model well pump station at EL Aslougi has been started and a field survey by SOP/HQ team and expert team was conducted and discussion between teams and plant O&M team was held on Jun 1, 2008. It was confirmed that "Headlines" and "Overview" would be prepared and discussed for the next step.

##### (4) Action S6 Applying the SOP in O&M

> Applying SOP in O&M was continued in Zagazig WTP and in Abbasa WTP.

> First discussion on O&M was held at Kafr Farag FMRP on June 4, 2008. It was confirmed that water quality data for the various process points would be collected and analyzed and basic functions of the plant's facilities should be confirmed before entering into the detailed SOP application.

##### (5) Action S10 Well Monitoring

> Continuous measurements of groundwater level were continued at four well stations where the recorders were installed. Data entry for the record is also continued.

#### 3-2. Schedule for next week

Above activities will be continued to the next week.

#### 4. New Egyptian Potable Water Standards

The expert team kindly requested SHAPWASCO to clarify the basic policy to tackle the new Egyptian Potable Water Standards issued in October 2007 because water treatment plant, especially iron/manganese removal plants of the company generally can not fulfill the standards in the current operation conditions and it may affect to the SOP activity.

■ SHAPWASCO explained that one fiscal year (from July 2008 to June 2009) transition period has been decided to find out a new suitable technology to adjust the current situation of exceeding Fe/Mg concentration of well water stipulated in the new standards. As a first step, the construction works of six facilities (direct filtration WTP) will be completed by June 2008 as urgent priority projects.

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#### 5. Training Yard for Leakage Surveying

The team stated that they are now collecting necessary data for designing training yard for leakage survey. C/P stated that they will make a field survey for selecting a yard as soon as possible.

#### 6. Terminology for UFW Reduction Activity

The team proposed that the word "UFW" should be used as it is and not replaced by the word "NRW" in this project because UFW has already been applied in many documents prepared during the project and it will cause confusion when it is changed.

C/P agreed to the team's proposal.

#### 7. Verifiable Indicator for Output-1 in PDM2

The team proposed that some of the objectively verifiable indicators for Output-1 (UFW is reduced in the pilot project sites) in PDM2 should be modified in PDM3 as follows:

	PDM2	PDM3	Remarks
1-2	An average UFW ratio (initial) is reduced from 35% to 20% in the pilot project sites.	An average UFW ratio (initial) is reduced by xx% in the pilot project sites.	Output-1 is "UFW ratio is reduced in the pilot project sites". Therefore, it is enough to set only UFW ratio as an indicator.
1-3	An average leakage (real loss) ratio (initial) is reduced from 30% to 15% in the pilot project sites.	To be deleted.	Leakage reduction is included in the reduction of UFW ratio.

C/P agreed to the team's proposal and stated that this matter should be discussed and finalized before the coming JCC.

#### 8. OJT of C/P Staff in South Giza Water Treatment Plant (WTP)

The team proposed that some of C/P staff in charge of operation & maintenance for WTP, booster pump station, etc. should participate in OJT to be done in South Giza WTP where some of the equipment will be replaced under JICA Follow-up Project. The OJT is expected to be done for three (3) days (19<sup>th</sup>, 22<sup>nd</sup> and 23<sup>rd</sup> June).

C/P agreed to the team's proposal and will take a necessary action for facilitating this OJT.

#### 9. Encouragement System

> The team proposed to SHAPWASCO to introduce an encouragement system for the C/P staff for better achievements of the project.

■ SHAPWASCO agreed in principle and confirmed that they have the intention to apply the suitable encouragement system.

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**10. Next PTM**

The team proposed to have next PTM on 21<sup>st</sup> June 2008.

(End of agenda)

**Minutes of Meeting for 3<sup>rd</sup> Project Team Meeting for PH-3**

MM-PTM3-3 [08.6.28]

Date	28 <sup>th</sup> June (Sat) 2008	Signature
Time	11:00~13:30	
Place	SHAPWASCO chairman's room	
Attendants	[SHAPWASCO : C/P] Dr. Salah Bayoumi : Chairman/Project Manager Eng. Alae El Din Mohamed : Head of UFW/HQ Team Eng. Abdel Shafi Abdel Aziz : Head of SOP/HQ Team Eng. Gamal Abd El Hameed Morsi : SOP/HQ Team (Well Monitoring) Mr. Mohamed Osama Ahmed : SOP/HQ Team (Water Quality Control)	
	[JICA Expert Team : The team] Mr. Masahiro Takeuchi : Team Leader Mr. Akihiko Okazaki : Leakage Detection Mr. Keizo Kimura : SOP Activity Mr. Mohamed Nagi : Facilitator Dr. Mohamed Sobhy : Senior Engineer for UFW Mr. Mahmoud Khalaf : Senior Engineer for SOP	

**1. General****(1) Japanese Expert schedule**

The team reported that the following Japanese experts left Egypt on 13<sup>th</sup> June 2008:

- Mr. Masatoshi Seno: UFW Reduction Expert
- Mr. Noboru Saeki: SOP expert
- Mr. Mitsuhiro Omori: Coordinator

**(2) Water conservation campaign**

C/P has been proceeding data entry in excel format for analyzing the results of pre-questionnaire and post-questionnaire which have been done in five (5) schools from October 2007 to March 2008.

C/P stated that they will make a presentation for this campaign at 4<sup>th</sup> JCC to be held on 9<sup>th</sup> July 2008.

**2. UFW Reduction Activity (progress to the last week and schedule for the next week from 28<sup>th</sup> to 3<sup>rd</sup> July 2008)****2-1. Progress**

Actions U4, U6, U7, U8, U9, U10, U11 and U12 have been conducted by the last week. The progress and the issues are summarized as follows:

6

1

**Common Activity****(1) Action U4** Preparing GIS drawings (for network)

> Preparation of the following GIS network drawings have been completed by the end of May 2008.

- 1) Zagazig East: 5 candidate sites
- 2) Zagazig West: 5 candidate sites
- 3) Hihya Markaz: 5 candidate sites
- 4) Zagazig Markaz: Kafr El Hamam (Site-1) as pilot project site
- 5) Ibrahimiya Markaz: Ibrahimiya City (Site-1) as pilot project site
- 6) Diarb Nigm Markaz: Diarb Nigm City (Site-1) as pilot project site

> The draft of GIS network drawing for candidate site (Site-1: Menia Alqamah City) in Menia Alqamah Markaz as one of the additional pilot project sites has been completed.

**Pilot Project -1: Zagazig City-East (Site-1)**

> All activities have been finished by the end of February 2008.

**Pilot Project -2: Hihya Markaz (Site-2)**

> All field activities have been finished by the end of February 2008. Water balance analysis is now under examination.

**Pilot Project -3: Zagazig West (Site-3)**

> All field activities have been finished by the end of February 2008. Water balance analysis is now under examination.

**Pilot Project -4: Zagazig Markaz (Site-1)****(1) Action U6** Making field survey of distribution network

> The detailed field survey of the conditions of pipelines and valves based on GIS drawings have been completed.

**(2) Action U7** Surveying installation & Status conditions of water meters and conducting meter readings

> The survey of the installation conditions of water meters has been completed and current condition of meters is as follow.

- 1) Total number of meters is 2,103.
- 2) Number of working meters is 1,633.
- 3) Number of replaced meters up to last week is 240.
- 4) Number of meters inaccessible and/or to be repaired is 230.

**(3) Action U8** Measuring metering error of water meter

> Measuring metering error of 11 water meters has been conducted.

2

**(4) Action U9** Conducting leakage (MNF) survey (before repair works)

> MNF survey before repair has been finished.

**(5) Action U10** Making water balance analysis before repair works

> Continuous MNF survey and water meter reading have been finished.

**(6) Action U11** Conducting leakage detection survey

> Leakage detection survey has been finished and total 8 spots of invisible leakage have been found.

**(7) Action U12** Repairing leakage parts

> Leakage parts have been already repaired by SHAPWASCO.

**Pilot Project -5: Ibrahimiya Markaz****(1) Action U6** Making field survey of distribution network

> The detailed field survey of the conditions of pipelines and valves will be conducted according to GIS drawings next week.

**(2) Action U7** Surveying installation & Status conditions of water meters and conducting meter readings

> The survey of the installation conditions of water meters was conducted last week. The results are as follows:

- |  |       |
|--|-------|
| 1) Total number of meters:   | 1,120 |
| 2) Number of working meters:   | 919   |
| 3) Number of non-working meters:   | 88    |
| 4) Number of meters inaccessible:  | 90    |
| 5) Number of meters which can not be read because water is attached to the inside the meter glass: | 23    |

**Pilot Project -6: Diarb Nigm Markaz**

> Actions for this pilot project will be started on September, 2008.

**Pilot Project -7: Abu Hamad Markaz****Pilot Project -8: Menia Alqamah Markaz****Pilot Project -9: Bilbais Markaz**

> Pipeline sketches for five (5) candidate sites at additional each Pilot Project Site have been provided by each Markaz's branch office.

■ C/P stated that they have already allocated the budget for the yard so that the construction works can be started.

3



Dr. Salah Bayoumi  
Chairman  
SHAPWASCO

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

**Subject:** Request for Instructions related to Intensified SOP Activity in Kafr Farag Fe/Mn Removal Plant (KFR-FMRP)

With regard to the captioned project, we, SOP/HQ and expert teams, have issued the first draft SOPs for KFR-FMRP and are now ready to apply them for the field O&M. For the commencement of the field application, we would like to propose an intensified activity committed by the Chairman at this plant.

**Background**

The Egyptian Potable Water Standards were revised and issued in October 2007 as Decree 458. However, current operation of the plant can not fulfill the new requirements as shown in the table below and it is urgently required for SHAPWASCO to clarify whether the plant may fulfill the standards with the strict operation by mobilizing its 100% potential or not.

Item	Decree 458	Operation Result	Raw Well Water
Iron	0.3mg/L	0.15mg/L	0.40mg/L
Manganese	0.4mg/L	0.70mg/L	0.90mg/L

At the same time, SOP/HQ and expert teams are expecting in the course of SOPs preparation that there should be some operation points to be improved with a possibility of complying with standards.

**Activity**

Plant operation according to the SOPs will be conducted and performance of the plant will be examined. SOPs prepared are describing general procedures but also featuring the following points:

- > Inspection of the plant equipment conditions including filter media
- > Determining the required chlorine dosing rate by raw well water quality analysis and tests
- > Chlorine dosing according to the results of the test
- > Monitoring water qualities in specific process points
- > Examining the performance of the Plant

JICA Expert Team Office in SHAPWASCO, Zagazig, Sharkia, Egypt  
TEL +055-2351998 / FAX +055-2351998

**Schedule**

Final judgment on effectiveness of the Plant as well as the Plant SOPs prepared shall be done in November 2008.

In connection with the above, we would like to ask you to take necessary actions mentioned below:

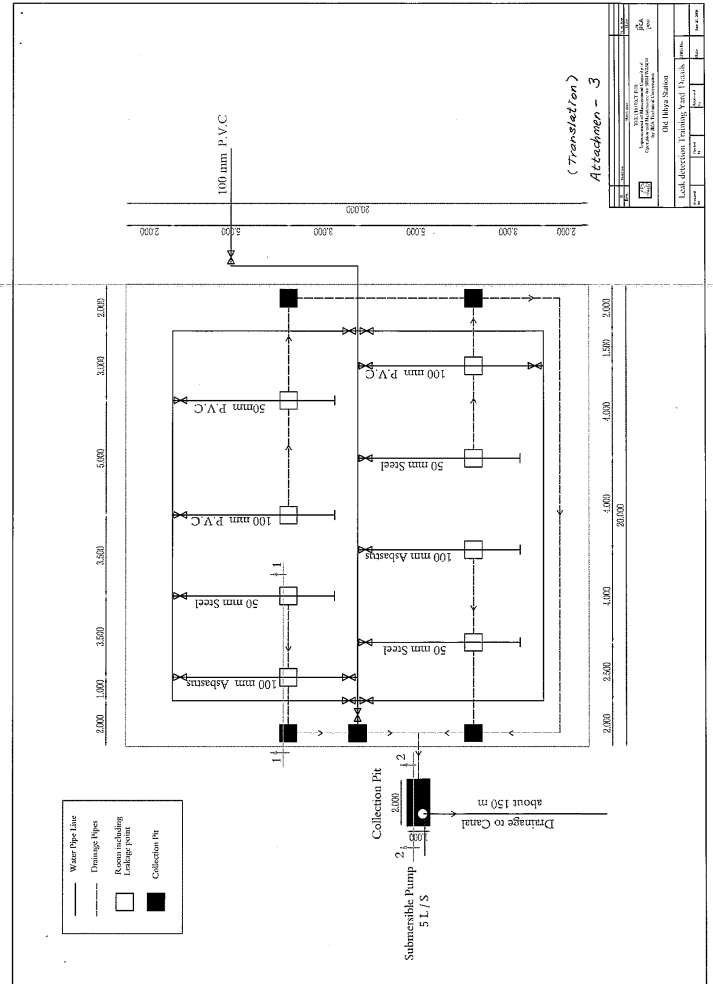
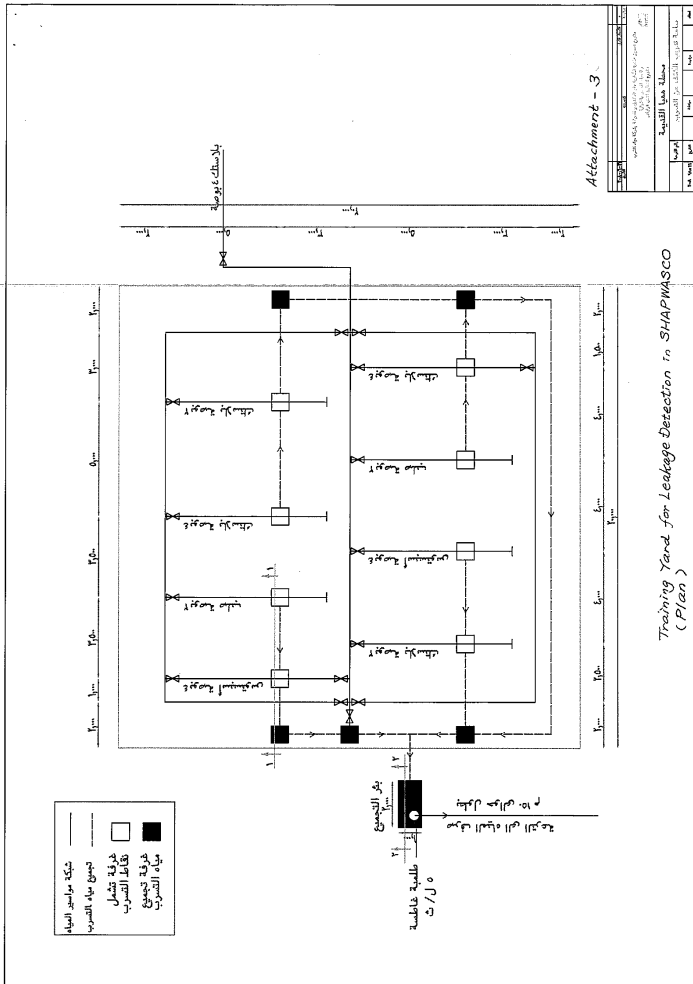
1. To instruct for implementing this activity to the head of Menia Al Qamah, branch chemist in charge and the plant manager
2. To provide necessary chemicals for the operation and water quality analysis
3. To provide filter media and other equipment, if required

Your prompt action to the above would be highly appreciated.

Yours faithfully

Masahiro Takeuchi  
Chief Advisor  
JICA Expert Team

JICA Expert Team Office in SHAPWASCO, Zagazig, Sharkia, Egypt  
TEL +055-2351998 / FAX +055-2351998









**5. New equipment for UFW reduction activity in Phase-3**

The team and C/P confirmed that new equipments for UFW reduction activity in Phase-3 were delivered to SHAPWASCO on 30th June 2008. The equipments arrived are listed in **Attachment-1**.

**6. Review of Verifiable Indicators for UFW and Leakage Ratios**

The team and C/P confirmed the objectively verifiable indicators for UFW and leakage ratios in PDM3 will come to the following figures taking into account the results of two pilot projects (Zagazig City-East and Hihya Markaz).

- > An average UFW ratio (initial) is reduced by 13 points in the pilot project sites.
- > An average leakage ratio (initial) is reduced by 13 points in the pilot project sites.

The team informed C/P that these indicators are now under examination by JICA headquarters.

**7. Next PTM**

The team proposed to have next PTM on 12<sup>th</sup> July 2008.

(End of Minutes)

Attachment

## 1. List of Equipment procured in Phase-3

No.	Name of Equipment	Quantity
1	Water leak detector	2
2	Digital sound detector	1
3	Hammer drill	1
4	Drill bit	5
5	Boring bar (1m)	1
6	Acoustic rod (1.5m)	2
7	Portable ultrasonic flow meter (φ200-φ6000)	2
8	Portable ultrasonic flow meter (φ50-φ400)	2
9	Water pressure recorder	2
10	Pipe and cable locator	1
11	Metal locator	1
12	Leak sound detector	1
13	Non metallic pipe vibrator	1
14	Generator	1

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Minutes of Meeting for 5<sup>th</sup> Project Team Meeting for PH-3  
MM-PTM3-4 [08.8.12]

Date	7 <sup>th</sup> July (Mon) 2008	Signature
Time	11:00~15:30	
Place	SHAPWASCO chairman's room	
Attendants	<b>[SHAPWASCO : C/P]</b> Dr. Salah Bayoumi : Chairman/Project Manager Eng. Alae El Din Mohamed : Head of UFW/HQ Team Eng. Abdel Shafi Abdel Aziz : Head of SOP/HQ Team Eng. Gamal Abd El Hameed Morsi : SOP/HQ Team (Well Monitoring) Mr. Mohamed Osama Ahmed : SOP/HQ Team (Water Quality Control) Eng. Ibrahim Shahin : SOP/HQ Team (Electrical) Ms. Heba Mahmoud : SOP Team (Hydraulic Analysis)	<i>S. Bayoumi</i>
	<b>[JICA Expert Team : The team]</b> Mr. Noboru Saeki : SOP activity Mr. Akihiko Okazaki : Leakage Detection Mr. Mohamed Nagi : Facilitator	<i>Saeki</i>

**1. General****(1) Japanese Expert schedule**

The team reported that the following Japanese expert arrived in Egypt on 3<sup>rd</sup> August 2008:

- Mr. Noboru Saeki: UFW Reduction Expert

**(2) Water conservation campaign**

C/P has been completed the data entry for analyzing the results of pre-questionnaire and post-questionnaire which have been done in five (5) schools from October 2007 to March 2008.

The activity of water conservation has been suspended due to school's summer holidays.

- > The team proposed to SHAPWASCO to extend the activities to women and youth associations.

- SHAPWASCO explained that this activity will be continued after Ramadan.

**2. UFW Reduction Activity (progress to the last week and schedule for the next week from 9<sup>th</sup> to 14<sup>th</sup> July 2008)****2-1. Progress**

Actions U4, U6, U7, U9, U10, U11, U12, U13 and U14 have been conducted by the last

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week. Mr. Alae, head of UFW/HQ team, made a presentation of the progress by PowerPoint.

The progress and the issues are summarized as follows:

**Common Activity****(1) Action U4** Preparing GIS drawings (for network)

- > Preparation of the following GIS network drawings have been prepared as follows.

- 1) Abuhamad Markaz : 5 candidate sites  
Pipelines have been drawn on the GIS base maps.

**Pilot Project -5: Ibrahimiya Markaz (Area-1)****(1) Action U6** Making field survey of distribution network

- 1) The detailed field survey of the conditions of pipelines and valves has been finished.

**(2) Action U7** Surveying installation & Status conditions of water meters and conducting meter readings.

The survey of the installation conditions of water meters has been finished end of June.

The results were follows:

1. Total number of meters: 1,120
2. Number of working meters: 919
3. Number of non-working meters: 88
4. Number of meters inaccessible: 90
5. Number of meters which can not be read because water is attached to the inside the meter glass: 23

Meter readings survey has been conducted from 3 July to 18 July.

**(3) Action U9** Conducting leakage survey (MNF) action

The leakage survey (MNF) has been finished during the meter reading survey.

**(4) Action U10** Making water balance analysis before repair works.

Water balance analysis before repair works will be finished.

**(5) Action U11** Conducting leakage detection survey

Leakage detection survey has been finished on 26 July, and detected eight leakage points.

**(6) Action U12** Repairing leakage parts

Leakage points have been fixed by 29 July. All leakage points were at the joint part of house connection.

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## (7) Action U13 Conducting leakage survey (MNF)

Leakage survey (MNF) after repair has been finished end of July.

## (8) Action U14 Conducting meter readings after repair works for the making water balance.

Meter reading after repair works will be start from 9 August.

**Pilot Project -7: Abu Hamad Markaz**

## (1) Action U6 Making field survey of distribution network

The detailed field survey of the conditions of pipelines and valves has been finished and waiting for construction for chamber works.

**Pilot Project -3: Zagazig West (Area-1)**

## (1) Action U10 Making water balance analysis before repair works

MNF survey and water meter reading have been finished by last week.

## (2) Action U11 Conducting leakage detection survey

Leakage detection survey will be started from this week.

**Pilot Project -4: Zagazig Markaz (Area-1)**

## (1) Action U10 Making water balance analysis before repair works

MNF survey and water meter reading will be finished by this week.

**3. SOP Activity (progress of the last week and schedule for the next week from 9<sup>th</sup> to 14<sup>th</sup> August 2008)**

Actions S3, S4, S6 and S10 have been conducted by the last week. The progress and the issues are summarized as follows:

## (1) Action S3 Measuring intake /production water volume at 7 WTPs

> The team reported the C/P that latest situation of flow meter installation works is as shown in attached summery sheet (Attachment -1) where the progress is very slow since the last PTM and requested SHAPWASCO to take action regarding this issue as soon as possible. There are some cases found that manholes were constructed and flow meters were installed but they are not used for long time due to electricity supply.

- SHAPWASCO explained that the reasons of delay is due to contracting with electric company and will finish these processes by end of August.

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## (2) Action S4 Development of SOPs for Model Facilities

**[Preparation of New SOP]**

- > SOP documents for the model facilities of Abbasa WTP, Kafr Frag FMRP, and Asulougi WPS has been completed and first draft SOPs have been distributed to each facility and trial applications have been started.
- > Preparations of SOP documents for booster pump station (Bilbais BPS) are now under preparation and will be finalized by the end of August.

## (3) Action S6 Applying the SOP in O&amp;M

**[Abbasa WTP]**

- > Operation records by unified recording forms such as process water flow rates, chemical consumption and electricity consumption have been started.
- > "Refreshment Filter Washing", specially selected trial application theme, has been started and its progress is as attached summery sheet.
- > The expert team and SOP/HQ team are not satisfied with the activities at the plant site and request more effort of the SOP/facility team to overcome the obstacles, such as required manpower and repair work
  - The way to strengthen the activity shall be discussed with Mr. Saeki and Eng. Shafi because the new unified forms for records are still under printing while the current records are done by using the old forms for records.
  - Financial evaluation of the tender for purchasing the required equipment for measurements (Pressure gauge and alum level recorder) is proceeding and it is expected to be completed within one week while the tender for chlorine cylinder weigh will be re-tendered.

**[Zagazig WTP]**

- > "Refreshment Filter Washing", specially selected trial application theme, has been started and its progress is quite acceptable as attached summery sheet.

**[Kafr Farag FMRP]**

- > Verification of the plant capability to satisfy the new Egyptian Potable Standard by applying SOPs has been started as "Intensified SOP Activity".
- > Current operation data were prepared by SOP/KFR-FMRP team.
- > Three trial operation modes were agreed between SOP/facility team, SOP/HQ team and Expert team and they are:
  - Operation-1 Increasing residual free chlorine (target 1.0 ppm) at filter inlet and analyzing process water qualities at various points
  - Operation-2 Activating filter media by chlorine and repeat operation-1
  - Operation-3 Decreasing the surface load of filter with high residual free chlorine
- > Trial operations will be done by limited time duration and at the time of minimum

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water demand from network

- > Further activity will be discussed after above trial operations.
- SHAPWASCO Chairman requested the C/P to replace the existing media with a new filter media through direct order to save time as the situation became clear from these trial operations done that present media condition is bad. This ordering procedure and replacement work will be completed within one month.

**[Asulougi WPS]**

- > For the first trial application to this WPS, "Activation of existing chlorine facility" was selected because the facility was newly constructed but not used fully.
- > It became clear in the workshop organizing operation members of the station, Zagazig Markaz Branch chemists and SOP/HQ that existence of iron in the raw well water may cause color problem to the customer.
- > Water quality survey was conducted by Zagazig Markaz Branch chemists.
- > Survey results will be analyzed and solution will be proposed.
- SHAPWASCO Chairman requested the C/P and JICA team to propose how to deal the present chlorination facility.

## (4) Action S10 Well Monitoring

- > Continuous measurements of groundwater level were continued at four well stations where the recorders were installed. Data entry for the record is also continued.
- SHAPWASCO Chairman requested the C/P to consider utilization method of gathered observation data.

**3-2. Schedule for next week**

Above activities will be continued to the next week.

**4. Training Yard for Leakage Surveying**

Tender opening has been completed and it is expected to select the awarded contractor within one week.

**5. Next PTM**


The team proposed to have next PTM on 20<sup>th</sup> August 2008.

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## 10 プロジェクトチーム会議議事録（第四年次）

Minutes of Meeting for 1<sup>st</sup> Project Team Meeting for PH-4

MM-PTM4-1 [09.5.30]

Date	30 <sup>th</sup> May (Sat) 2009	Signature
Time	10:20~11:00	
Place	SHAPWASCO chairman's room	
Attendees	<p>[SHAPWASCO : C/P]</p> <p>Dr. Salah Bayoumi : Chairman/Project Manager</p> <p>Eng. Alae El Din Mohamed : Head of UFW/HQ Team</p> <p>Eng. Gamal Abd El Hameed Morsi : SOP/HQ Team (Well Monitoring)</p> <p>Ms. Hoba Mohmoud : SOP Team (Hydraulic Analysis)</p> <p>Ms. Walaa Hamdi : UFW Team</p> <p>Ms. Walaa Mohamed : UFW Team</p> <p>[JICA Expert Team : The Team]</p> <p>Mr. Masahiro Takeuchi : Team Leader</p> <p>Mr. Mohamed Nagi : Project Facilitator</p> <p>Mr. Mahmoud Abu El Naga : Senior Engineer for SOP Activity</p>	<p>S. Bayoumi</p> 

**1. General****1-1 Main Activities in Phase-4**

The Team explained to C/P that Phase-4 has started in April 2009 and will be completed in the end of October 2009. Main activities of Phase-4 are described as follows:

**[UFW Reduction Activity]**

For the UFW reduction activities mentioned below for Phase-4, items 1) to 4) are the continuation from Phase-3.

- 1) Formulating long-term pipe replacement plan for preventive works
- 2) Formulating a plan for expanding UFW reduction activity to the other Markaz than the pilot project areas (including proposed organization and staff assignment for new UFW department)
- 3) Second trial for the pilot project in Ibrahimiya Markaz to clarify the results of water balance analysis obtained in Phase-3
- 4) Expansion of UFW reduction activity to other areas than the pilot project areas
- 5) Setting performance indicator related to UFW for the management improvement of SHAPWASCO
- 6) Cost-benefit analysis for all the UFW reduction activities conducted during the Project
  - <sup>1</sup>The Team requested SHAPWASCO to start establishment of UFW department and

<sup>1</sup> ■: Request by the Team, ●: Action or confirmation by C/P

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strengthen the current staff (2 engineers and one head of the team) with other young engineers and also requested to provide necessary leakage survey and detection equipment to all the UFW teams of SHAPWASCO.

- SHAPWASCO Chairman confirmed that establishment of UFW department will be done soon. He nominated and requested Mr. Alae El Din Mohamed to be fully responsible about formulating this department. The Chairman requested Mr. Alae to prepare the numbers and qualifications of the required new staff, comprehensive plan for UFW activities in SHAPWASCO, training programs for the new staff and required equipment in order to start hire the new staff and buy the required new leak detection equipment to cover the whole areas of SHAPWASCO. It is expected to start hire the new staff within one month. SHAPWASCO requested the Team to assist in preparing the plan for establishment of UFW department. The Team stated that they will support C/P to prepare the plan in the next month.

**[SOP Activity]**

For SOP activities mentioned below for Phase-4, all items are the continuation from Phase-3.

- 1) Applying SOPs to other water supply facilities than Model Facilities
- 2) Setting a performance indicator (PI) related to filter refreshment and monitoring the activity to achieve the targeted value
- 3) Setting performance indicators related to power consumption, chemical consumption and standard working hours corresponding to SHAPWASCO's PIs.

**[Other Activities]**

- 1) Water conservation campaign
- 2) 3<sup>rd</sup> open seminar (expected to be held at the end of October 2009)

**1-2 Work Assignment of the Japanese Experts in Egypt**

The Team explained to C/P the work schedule of the Japanese experts in Egypt as follows:

- Mr. Masahiro Takeuchi (Team Leader):
  - 1<sup>st</sup> assignment: 19<sup>th</sup> May to 15<sup>th</sup> June 2009
  - 2nd assignment: 21<sup>st</sup> October to 2<sup>nd</sup> November 2009
- Mr. Masatoshi Seno (UFW Reduction):
  - 1<sup>st</sup> assignment: 26<sup>th</sup> April to 23<sup>rd</sup> May 2009
  - 2nd assignment: 2<sup>nd</sup> September to 19<sup>th</sup> September 2009
- Mr. Keizo Kimura (SOP Activity):
  - 1<sup>st</sup> assignment: 26<sup>th</sup> April to 23<sup>rd</sup> June 2009

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- 2nd assignment: 6<sup>th</sup> October to 2<sup>nd</sup> November 2009
- Mr. Mitsuhiro Omori (Coordinator):
  - 1<sup>st</sup> assignment: 30<sup>th</sup> April to 27<sup>th</sup> May 2009
  - 2nd assignment: 6<sup>th</sup> October to 2<sup>nd</sup> November 2009
- Mr. Mohamed Nagi (Project Facilitator)
  - Assignment: 1<sup>st</sup> May to 15<sup>th</sup> October 2009

**1-3 Water conservation campaign**

C/P has completed the data entry for analyzing the results of pre-questionnaire and post-questionnaire which have been done in seven (7) schools from March to April 2009.

- Because of year end examinations and the following school summer holiday, SHAPWASCO is planning to start water conservation campaign for SHAPWASCO staff children and daughters. The schedule will be prepared after the completion of the examinations.

**1-4 Recommendations by PEMA**

The Team and C/P confirmed that they should follow the recommendations of Project Evaluation Report No.31 made by PEMA (Centre for Project Evaluation & Macroeconomic Analysis) in the Ministry of International Cooperation in March 2009.

- SHAPWASCO nominated Mr. Alae El Din Mohamed (Head of UFW/HQ team) and Mr. Abdel Shafi (Head of SOP/HQ team) to follow the recommendation of PEMA report.

**2. UFW Reduction Activity (progress to date and schedule up to the end of October 2009)****2-1. Progress**

Pilot projects for additional 3 areas of Abu Hamad, Menia Alqamah and Bilbais Markaz are under implementation. The progress and the issues are summarized below and compiled as in Annex-1:

**Common Activity**

- (1) Action U4: Preparing GIS drawings (for network)
  - Preparation of GIS network drawings is remained for the following areas:
    - 1) Zagazig Markaz Area 2,3,4 and 5
    - 2) Bilbais Markaz Area 1 and 2

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**Pilot Project -5: Ibrahimiya Markaz (Area-1)**

All the actions from U6 to U14 for the pilot project have been finished in Phase-3. However, Action U13 and U14 will be repeated because of error in the meter readings as there is no replacement of non-working meter in the previous activity.

**Additional Pilot Project -7: Abu Hamad Markaz**

- (1) Action U6: Making field survey of distribution network
  - The detailed field survey of the conditions of pipelines and valves has been finished.
- (2) Action U7: Surveying installation & status conditions of water meters and conducting meter readings
  - This action has been finished.
- (3) Action U9: Conducting leakage survey (MNF)
  - The leakage survey (MNF) has been finished during the meter reading survey.
- (4) Action U10: Making water balance analysis before repair works
  - Water balance analysis before repair works will be done by the end of June 2009.
- (5) Action U11: Conducting leakage detection survey
  - Leakage detection survey has been finished and detected two leakage points.
- (6) Action U12: Repairing leakage parts
  - Leakage points have been fixed. All leakage points were at the joint part of house connection.
- (7) Action U13: Conducting leakage survey (MNF)
  - Leakage survey (MNF) after repair has been finished.
- (8) Action U14: Conducting meter readings after repair works for making water balance
  - This action is not finished and it will be done by the end of June 2009.

**Additional Pilot Project -8: Menia Alqamah Markaz (Area-2)**

- (1) Action U6: Making field survey of distribution network
  - The detailed field survey of the conditions of pipelines and valves has been finished.
- (2) Action U7: Surveying installation & status conditions of water meters and conducting meter readings
  - This action has been finished.
- (3) Action U9: Conducting leakage survey (MNF)

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- The leakage survey (MNF) has been finished during the meter reading survey.
- (4) **Action U11:** Conducting leakage detection survey
  - Leakage detection survey has been finished and no leakage point was found due to new network.

Therefore, further actions (Actions U12 to U14) have been cancelled and Area-3 (Malames) has been selected as a new pilot project area.

#### Additional Pilot Project -9: Bilbais Markaz (Area-5)

- (1) **Action U6:** Making field survey of distribution network
  - The detailed field survey of the conditions of pipelines and valves has been finished.
- (2) **Action U7:** Surveying installation & status conditions of water meters and conducting meter readings
  - This action has been finished.
- (3) **Action U9:** Conducting leakage survey (MNF)
  - The leakage survey (MNF) has been finished during the meter reading survey.
- (4) **Action U10:** Making water balance analysis before repair works
  - Water balance analysis before repair works will be done by the middle of June 2009.
- (5) **Action U11:** Conducting leakage detection survey
  - Leakage detection survey has been finished and three (3) leakage points were detected.
- (6) **Action U12:** Repairing leakage parts
  - Leakage points have been fixed. All leakage points were at the joint part of house connection.
- (7) **Action U13:** Conducting leakage survey (MNF)
  - Leakage survey (MNF) after repair has been finished.
- (8) **Action U14:** Conducting meter readings after repair works for making water balance
  - This action will be done by the middle of June 2009.

#### Pilot Project (Expansion)-10: Zagazig Markaz (Area-5)

- (1) **Action U6:** Making field survey of distribution network
  - The detailed field survey of the conditions of pipelines and valves has been finished.
- (2) **Action U7:** Surveying installation & Status conditions of water meters and conducting

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- meter readings
  - This action has been finished.
- (3) **Action U9:** Conducting leakage survey (MNF) action
  - The leakage survey (MNF) has been finished during the meter reading survey.
- (4) **Action U10:** Making water balance analysis before repair works
  - Water balance analysis before repair works will be done by the end of June 2009.
- (5) **Action U11:** Conducting leakage detection survey
  - Leakage detection survey has been finished and two (2) leakage points were detected.
- (6) **Action U12:** Repairing leakage parts
  - Leakage points have been fixed. All leakage points were at the joint part of house connection.
- (7) **Action U13:** Conducting leakage survey (MNF)
  - Leakage survey (MNF) after repair will be started by the end of May 2009.

#### Pilot Project (Expansion)-11: Ibrahimiya Markaz (Area-2)

- (1) **Action U6:** Making field survey of distribution network
  - The detail field survey of the conditions of pipelines and valves has been finished.
- (2) **Action U7:** Surveying installation & status conditions of water meters and conducting meter readings
  - This action has been finished.
- (3) **Action U9:** Conducting leakage survey (MNF)
  - The leakage survey (MNF) has been finished during the meter reading survey.
- (4) **Action U10:** Making water balance analysis before repair works
  - Water balance analysis before repair works will be done by the middle of June 2009.
- (5) **Action U11:** Conducting leakage detection survey
  - Leakage detection survey has been finished and three (3) leakage points were detected.
- (6) **Action U12:** Repairing leakage parts
  - Leakage points have been fixed. All leakage points were at the joint part of house connection.
- (7) **Action U13:** Conducting leakage survey (MNF)
  - Leakage survey (MNF) after repair has been finished.

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- (8) **Action U14:** Conducting meter readings after repair works for making water balance
  - This action will be done by the middle of June 2009.

#### **3. SOP Activity (progress to the last week and schedule for the next week)**

Actions S1, S2, S3, S4, S5, S6, and S10 have been conducted by the C/P team during the period of March and April 2009. JICA Expert Team and C/P teams have been conducting these activities from 26<sup>th</sup> April, 2009. The progress and the issues are summarized as follows:

- (1) **Action S1:** Preparing basic system drawings for remaining facilities
  - As an extension of Action S1 for other remaining facilities The C/P team prepared P& ID, general layout and piping route (Auto CAD drawings) for Abu Metana (FMRP) at Diarb Nigm Markaz. The drawings have been distributed to the facility for final review of the staff.
  - The drawings have been revised by Abu Metana FMRP staff and amendments have been completed and revised drawings distributed to the plant on 26<sup>th</sup> May 2009.
  - Revised version of P& ID, general layout and pipe route for Qenayat FMRP have completed and distributed to the facility on 26<sup>th</sup> April 2009.
- (2) **Action S2:** Operation Records for O& M for other remaining facilities
  - The C/P issued, distributed and explained to the staff the operation records for Qenayat (FMRP) on 13<sup>th</sup> April, 2009. Recording have been started.
  - The Team issued, distributed and explained to the staff the operation records for Abu Metana (FMRP) on 10<sup>th</sup> May 2009. Recording have been started.
- (3) **Action S3:** Measuring intake /production water volume at 7 WTPs
  - The Team reported the C/P that latest situation of flow meter installation works is as shown in the attached summary sheet **Annex-2**.
  - The Team explained to SHAPWASCO that the installation works of flow meters at three locations (Old Faqus-raw water, Kafr Farag and Hihya Branch-2 –Alsalamon line) are behind the schedule and the Team requested SHAPWASCO to complete installation of the three flow meters by June 2009.
  - SHAPWASCO Chairman nominated Mr. Gamal Abd El Hameed to follow the completion of flow meters installation.
- (4) **Action S4:** Development of SOPs for Model Facilities  
[Preparation of New SOP]

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- Preparation of first version of SOP documents for model facilities have been completed and distributed to the model facilities.
  - For SOP documents for remaining facility (Qenayat FMRP), the first version has been completed and distributed to the facility.
- (5) **Action S5:** Examining water distribution control in the network
    - Data of flow meters at Hihya Markaz were collected and flow meter data were analyzed.
    - Based on the above analysis the water supply per capita per day (LCD) has been calculated for pilot project area (Hihya Markaz) and found as follows:
      - a. Average for the whole Markaz: 145 LCD
      - b. Average of the Hihya City Center: 193 LCD
      - c. Average of Western area of the Markaz: 135 LCD
      - d. Average of the Eastern Area of the Markaz: 145 LCD
  - (6) **Action S6:** Applying SOPs in O&M
    - Operation records by unified recording forms such as process water flow rates, chemical consumption and electricity consumption have been proceeding in Zagazig and Abbasa WTPs.
    - Operation records by unified recording forms have been extended to Faqus, Kafr Saqr, Huseinia.
    - "Refreshment Filter Washing", has been applied in Faqus WTP.
    - Chlorine consumption control at Qenayat (FMRP) has been applied considering the chlorine dosing point to be mainly at the reservoir and keeping frequent dosing to the aeration tower in order to avoid algae gross. The following are the results through applying SOP at Qenayat:

Activity	Item	Before applying SOP	After applying SOP
Chlorine Dosing Control	Chlorine Dosing Quantity	500 g/hr	400 g/hr
	Free Residual Chlorine at outlet of the plant	0.18 mg/L	0.5 mg/L
	% of Iron Removal	73%	73%
	% of Manganese Removal	13%	29%

- Also, filter washing regime at Qenayat has been revised in order to save loss of the water production and the following table shows the comparison between the previous and new filter washing regimes.

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Item	Before applying SOP	After Applying SOP
Back washing time	8 minutes	6 minutes
Stabilization time	3 minutes	3 minutes
Rinsing (Rewash) time	5 minutes	3 minutes

- As an extension of applying SOP for other facilities, the Team and SOP H/Q team started applying SOP at Abu Metana (FMRP).
  - Applying SOP at Asloughi WPS is proceeding and additional OJT for the staff has been started on 13<sup>th</sup> May 2009.
  - SHAPWASCO installed alarm system for overflow of the elevated tank and repaired in the level meter of the reservoir to activate using the elevated tank.
  - Applying SOP at Bilbais BPS is proceeding through control of pump operation based on network demand.
  - Additional OJT for the staff has been started on 16<sup>th</sup> May 2009.
- (7) Action S7: Development of SOP's for the Remaining Facilities
- In the course of Action S6 and although development of SOPs for the remaining facilities has been started in remaining facilities such as Qenayat and Abu Metana (FMRP) as explained above in Action S7, the Team and SOP H/Q team has surveyed other facilities such as Huseinia, Kafri Saqr and Faqus WTPs and other FMRPs such as Al Seds, Mashout Al Soog, etc. The result of the current condition and number of staff are shown in the attached Annex-3.
  - The Team requested SHAPWASCO to allocate the required staff in order to proceed to further application of SOPs to the remaining facilities.
  - Also, the Team requested SHAPWASCO to start establishment of SOP section and strengthen the current staff (2 engineers and one head of the team) with other young engineers, staff for collecting data such as data logger information, data from facilities, etc. in addition to secretary because the current staff is overloaded by many tasks.
  - SHAPWASCO confirmed that they are preparing to hire new staff and already they completed the procedures to hire technicians and skilled workers. SHAPWASCO Chairman nominated Mr. Shafi (Head of SOP team) to decide the required numbers of the staff in order to strengthen and establishment of SOP team at SHAPWASCO. SHAPWASCO explained that based on the new regulations issued by Ministry of Housing it may take about one month until hiring the new staff.
- (8) Action S8: Preparation of O&M Plan
- First draft of O&M Plan for Abassa was prepared by SOP/TF.
  - Equipment card for Zagazig started and will be continued.

- (9) Action S10: Well Monitoring
- Continuous measurements of groundwater level have been continued at four well stations where the recorders were installed. Data entry for the record has also been continued.
  - Well monitoring and the updating data will be continued.

3-2. Schedule for next week

Above activities will be continued to the next week.

3-3. Next PTM:

Next PTM will be held on 6<sup>th</sup> June 2009.

Annexes

Annex-1: Schedule of UFW Reduction Activity from May to June 2009

Annex-2: Current Situation of Flow Meter's Installation (As of May 25, 2009)

Annex-3: Current Situation and Conclusion Regarding Applying SOP

Item No.	Activity	Priority	Responsible	Start Date	End Date	Status	Remarks
1	Installation of flow meter at Abu Metana (FMRP)	High	SHAPWASCO	13/05/2009	16/05/2009	Completed	Flow meter installed and data recording started.
2	Installation of flow meter at Asloughi WPS	High	SHAPWASCO	13/05/2009	16/05/2009	In Progress	Staff OJT started on 13/05/2009.
3	Installation of flow meter at Bilbais BPS	High	SHAPWASCO	16/05/2009	19/05/2009	In Progress	Staff OJT started on 16/05/2009.
4	Installation of flow meter at Huseinia	High	SHAPWASCO	16/05/2009	19/05/2009	In Progress	Staff OJT started on 16/05/2009.
5	Installation of flow meter at Kafri Saqr	High	SHAPWASCO	16/05/2009	19/05/2009	In Progress	Staff OJT started on 16/05/2009.
6	Installation of flow meter at Faqus WTP	High	SHAPWASCO	16/05/2009	19/05/2009	In Progress	Staff OJT started on 16/05/2009.
7	Installation of flow meter at Al Seds	High	SHAPWASCO	16/05/2009	19/05/2009	In Progress	Staff OJT started on 16/05/2009.
8	Installation of flow meter at Mashout Al Soog	High	SHAPWASCO	16/05/2009	19/05/2009	In Progress	Staff OJT started on 16/05/2009.
9	Installation of flow meter at Qenayat	High	SHAPWASCO	16/05/2009	19/05/2009	In Progress	Staff OJT started on 16/05/2009.
10	Installation of flow meter at Abu Metana (FMRP)	High	SHAPWASCO	16/05/2009	19/05/2009	In Progress	Staff OJT started on 16/05/2009.


Flow Meter	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Abu Metana (FMRP)	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Asloughi WPS	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Bilbais BPS	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Huseinia	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Kafri Saqr	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Faqus WTP	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Al Seds	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Mashout Al Soog	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Qenayat	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks
Abu Metana (FMRP)	Flow Meter Model	Flow Meter Location	Flow Meter Installation Date	Flow Meter Status	Flow Meter Remarks

Current Situation and Conclusion Regarding Applying SOP

Facility Type	Plant Name	Current Situation	Site Visit	Conclusion	Number of Staff	
					Engineer/Chemist	Technicians and skilled workers
WTP	1 Alhassa WTP	SOP applying is proceeding and plant condition is good			1	49
	2 Zagazig WTP	SOP applying is proceeding and plant condition is good			1	37
	3 Kafr Saqr WTP	Kafr Saqr (Mr. Bahaa) explained the situation of the plant as follows: (1) The plant is operated by the Arab Contractor. (2) The plant condition is good except adjust sand media of the filters in the first extension and replace the sand media in the new extension. (2) To apply SOP by SHAPWASCO staff it is required to hire staff working for SHAPWASCO because there is no SHAPWASCO staff. New Faqus (Mr. Ahmed El Ghateo) explained the situation of the plant as follows: (1) To adjust the shortage of sand media in the filters (first extension). (2) There is leakage in the drain valves of sedimentation basins, some of them was repaired by the Arab Contractor (Plant Operation Company and the others need repair. (3) Chlorination system is not working. It is required to install the newly delivered equipment. (4) Filter operation details are not working in the new extension (six filters). (5) It is required to calibrate Alum dosing pumps in the new extension. (5) Number of available staff of SHAPWASCO is 12 persons.	It is difficult to start now to apply SOP in this plant without quick actions by SHAPWASCO. SHAPWASCO started taking action on May 5/09 and the remaining work will be completed by end of May.	1	Assistant Chemist 12	
	4 New Faqus WTP	Hussainia (Mr. Ibrahim Nofail) explained the situation of the plant as follows: (1) Rehabilitation of the plant is necessary and rehabilitation report has been prepared and waiting for funding finance. (2) The plant is operated by the Arab Contractor. (3) Mr. Ibrahim proposed to transfer applying SOP to a new plant named Tarek (170 L/Sec) where SHAPWASCO staff are available (16) while the other new plant in Hussainia Markaz (Hogalin- 170 L/Sec) is operated by Arab Contractor.	Alum & Chlorine dosing control can be applied in this plant and SHAPWASCO chemist to this plant or accept to request Arab Contractor Chemist to do this job.	1	0 3	

MM-PTM4-2 (1/3)

Minutes of Meeting for 2<sup>nd</sup> Project Team Meeting for PH-4  
MM-PTM4-2 (09.6.14)

Date	14 <sup>th</sup> June (Sun) 2009	Signature
Time	10:20~11:20	
Place	SHAPWASCO chairman's room	
Attendants	[SHAPWASCO : C/P] Dr. Salah Bayoumi : Chairman/Project Manager Eng. Alaa El Din Mohamed : Head of UFW/HQ Team Mr. Abd El Shafee Abd El Aziz : Head of SOP/HQ Team Eng. Gamal Abd El Hameed Morsi : SOP/HQ Team (Well Monitoring) Ms. Heba Mohmoud : SOP Team (Hydraulic Analysis) Mr. Abd Alah Abd El Ghani : SOP Team Ms. Walaa Hamdi : UFW Team Ms. Walaa Mohamed : UFW Team [JICA Expert Team : The Team] Mr. Masahiro Takeuchi : Team Leader Mr. Mohamed Nagi : Project Facilitator	

1. General

(1) JICA Expert Schedule

Mr. Takeuchi (Team Leader) will leave Egypt on 15<sup>th</sup> June 2009. Among JICA expert team, Mr. Mohamed Nagi will continue to follow-up the Project during absence of the Japanese Experts until the end of August 2009.

(2) Water conservation campaign

C/P will start water saving campaign for SHAPWASCO's staff (H/Q) children on 16<sup>th</sup> June 2009. SHAPWASCO is planning to extend this campaign to the members of Suzan Mubark Library and to other staff children.

SHAPWASCO will submit tentative schedule to the Team as soon as completed.

2. UFW Reduction Activity (progress to date and schedule up to the end of the Project)

2-1. Progress

Pilot projects for additional 3 areas (Abu Hamad, Menia Alqamah and Bilbais Markaz) and expansion projects for 2 pilot project sites in Zagazig Markaz and Ibrahimiya Markaz are under implementation. The progress and the issues are summarized as shown in Attachment-1.

6 Old Faqus WTP	Under Rehabilitation					
7 Old Zagazig WTP	Under Rehabilitation					
1 Qenayyat FMRP	SOP applying is proceeding and plant condition is good				0	1
2 Abu Metana	SOP applying can be continued	(1) The alum dosing backwash system need to be operated manually	SOP has been continued on May 10, 2009.		0	0
3 El Stads	Plant condition is bad (One well out of two wells has been stopped because of submersible pump problem, two filters out of three are not working, filter's valve need repair, reservoir and aeration tower need over whole maintenance and aeration system need maintenance)		Difficult to apply SOP before making required repairs and maintenance.		0	7
4 Melarnas	Under Rehabilitation. Rehabilitation will be completed after one month.				0	6
5 Meshout El Soqq	Under Rehabilitation. Rehabilitation will be completed after one month.				0	3
6 Kafr Farag (Menia Al Camaha)	Under Rehabilitation. Rehabilitation will be completed after one month.				0	8
7 Hoggia El Enab (Metana Al Chabab)	New Plant		Overstayed by the Contractor (Military Factory)		0	3
8 El Adlia (Bilbais)	New Plant				0	3
9 Karimeia (Bilbais)	New Plant				0	3
10 West Farab (Bilbais)	New Plant				0	3
1 Bilbais					0	9
1 El Askouy					0	6

MM-PTM4-2 (2/3)

2-2. Plan for Expanding UFW Reduction Activity to the Governorate Level

The Team and C/P team submitted the draft (Revision-0) of the "Plan for Expanding UFW Reduction Activity to the Governorate Level" to SHAPWASCO Chairman as Attachment-2.

- SHAPWASCO Chairman explained that internal discussion with UFW H/Q team will be held next week to revise the plan, if necessary. It is expected to reach to the final conclusion of the Plan by the end of July 2009 with the consultation with the Team. It is expected to start applying this Plan by October 2009.

3. SOP Activity (progress to the last week and schedule for the next week)

3-1. Progress

Actions S1, S2, S3, S4, S6, and S10 have been conducted by the C/P team during the period of March and April 2009. JICA Expert Team and C/P team have been conducting these activities from 26<sup>th</sup> April, 2009. The progress and the issues are summarized as follows:

- Action S1:** Preparing basic system drawings for remaining facilities
  - P& ID and layout drawings (Revision -1) for Abu Metana FMRP have been completed and will be distributed on 16<sup>th</sup> June 2009.
  - C/P team will start the P& ID drawings for Kafr Saqr WTP and Shobra El Enab FMRP on 15<sup>th</sup> June 2009.
- Action S2:** Operation Records for O&M for other remaining facilities
  - Records for Abu Metan and Qenayyat FMRP are proceeding.
- Action S3:** Measuring intake /production water volume at 7 WTPs
  - The C/P reported that electrical works for Kafr Farag FMRP will be completed by 16<sup>th</sup> June 2009 and installation of flow meter will be completed by 18<sup>th</sup> June 2009. Preparation for installation of flow meter at Hihya -Branch-2 is proceeding and it is expected to complete installation works for the flow meter by the end of June 2009. The civil works for flow meter chamber at Old Faqus has been started and it is expected to complete the installation of flow meter by end of June 2009.
- Action S4:** Development of SOPs for Model Facilities [Preparation of New SOP]
  - Preparation of first version of SOP documents for model facilities have been completed and distributed to the model facilities.
  - For SOP documents for remaining facility (Qenayyat FMRP), the first version has been completed and distributed to the facility.
  - Draft of SOP document for Abu Metana (remaining facility) has been completed and will be distributed for the facility on 15<sup>th</sup> June 2009



- (5) **Action S6: Applying SOPs in O&M**
    - > Records by unified recording forms are proceeding.
  - (6) **Action S7: Development of SOP's for the Remaining Facilities**
    - > In the course of Action S6 and although development of SOPs for the remaining facilities has been started in remaining facilities such as Qenayat and Abu Metana (FMRP) as explained above in Action S7, the Team and SOP H/Q team has surveyed other facilities such as Huseinia, Kafr Saqr and Faqus WTPs and other FMRPs such as Al Seds, Mashtool Al Soq, etc.
      - The Team requested SHAPWASCO to allocate the required staff in order to proceed to further application of SOPs to the remaining facilities.
      - Also, the Team requested SHAPWASCO to start establishment of SOP section and strengthen the current staff (2 engineers and one head of the team) with other young engineers, staff for collecting data such as data logger information, data from facilities, etc. in addition to secretary because the current staff is overloaded by many tasks.
      - SHAPWASCO H/Q team prepared his requirement to overcome the current shortage of the staff and to strengthen the H/Q team. The Chairman explained that internal discussion about this request will be held to revise this request within the next week. Upon reaching to the final conclusion of the required staff procedures for hiring staff will start and it is expected to be finalized by October 2009
  - (7) **Action S8: Preparation of O&M Plan**
    - > Equipment card for Zagazig started and will be continued.
  - (8) **Action S10: Well Monitoring**
    - > Continuous measurements of groundwater level were continued at four well stations where the recorders were installed. Data entry for the record is also continued.
    - > Well Monitoring is continued and updating data is continued.
    - As about 50% of the production of water in SHAPWASCO is from wells, the Chairman decided to have a meeting with related departments in SHAPWASCO in order to study SHAPWASCO strategy regarding necessity to construct, improve, upgrade and/or construct Iron and Manganese Removal plants based on the outputs obtained from the above Action S10.
- 3-2. **Schedule for next week**  
Above activities will be continued to the next week.

14th June 2009

Activity	Activity Description	Current Status	Remarks
Annex 11	Conducting capacity assessment survey of 16 UFW stations	Completed	Capacity assessment survey of 16 UFW stations has been completed. Results are shown in Annex-1 and Annex-3.
Annex 12	Recruiting necessary staff for UFW department	In Progress	Recruitment process is ongoing. Interviewing candidates for various positions.
Annex 13	Establishing UFW department	In Progress	Organizational structure is being defined. Necessary equipment is being procured.
Annex 14	Setting out a practicable methodology for UFW reduction activity	In Progress	Methodology for UFW reduction is being developed based on JICA expert team's input.
Annex 15	Applying SOPs in O&M	In Progress	SOPs are being applied at various UFW stations. Training sessions are being conducted.
Annex 16	Development of SOPs for remaining facilities	In Progress	SOPs are being developed for remaining facilities. Field surveys are being conducted.
Annex 17	Preparation of O&M Plan	In Progress	O&M plan for Zagazig is being prepared. Equipment cards are being filled.
Annex 18	Well Monitoring	In Progress	Well monitoring is continued at four well stations. Data entry is being updated.
Annex 19	Construction of Iron and Manganese Removal plants	Not Started	Feasibility study and design are in progress. Construction will start upon final approval.

1. This table is for reference only. It is not intended to be used as a contract document.  
2. The status of the activities is subject to change without notice.

**Sharkia Potable Water and Sanitation Company (SHAPWASCO)**

**Plan for Expanding UFW Reduction Activity To the Governorate Level**

(Revision-0)

14<sup>th</sup> June 2009

**SHAPWASCO Counterpart Team  
Yachiyo Engineering Co., Ltd.  
(JICA Expert Team)**

**Plan for Expanding UFW Reduction Activity to the Governorate Level (Revision-0)**

Through the Project for Improvement of Management Capacity of Operation and Maintenance for SHAPWASCO (hereinafter referred to as "the Project" under the Japan technical cooperation by JICA, UFW reduction technique has been transferred to the SHAPWASCO staff by the Japanese expert team from November 2006 to October 2009.

However, in order to achieve the overall goal as "Maintenance capacity of operation and maintenance of water supply facilities is improved in Sharkia Governorate", SHAPWASCO is required to expand their activity to the Governorate level by carrying out the following:

- > Establishing UFW department
- > Recruiting necessary staff for UFW department
- > Procuring necessary leakage survey equipment
- > Setting out a practicable methodology for UFW reduction activity

JICA expert team and C/P team conducted capacity assessment survey of following 16 UFW teams (SHAPWASCO headquarters (HQ) and branch offices). The survey results are shown in Annex-1 and Annex-3. As shown in Annex-1, more than half of the UFW team members are over 50 years old. Therefore, recruiting young staff less than 30 years old is considered one of the key issues of SHAPWASCO.

1. Headquarter
2. Zagazig East
3. Zagazig West
4. Zagazig Markaz
5. El Huseinia Markaz
6. Awlad Saqr Markaz
7. Faqus Markaz
8. Kafr Saqr Markaz
9. Abu Kabier Markaz
10. Diarb Nigm Markaz
11. Ibrahimiya Markaz
12. Hihya Markaz
13. Abu Hamad Markaz
14. Bilbais Markaz
15. Menia Alqamah Markaz
16. Mashtool El Soq Markaz

1. Establishment of UFW Department

1-1 Organization and Tasks of UFW Department

1-1-1 Organization of UFW Department

UFW department will be composed of HQ team and 16 branch teams and the number of employees will become 105. The organization of the department is proposed as shown in Figure-1.

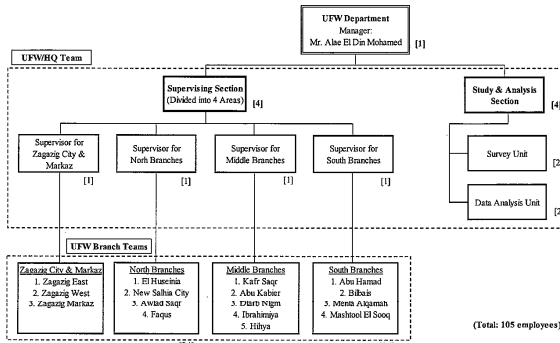


Figure-1 Proposed Organization Chart for UFW Department of SHAPWASCO

1-1-2 Organization of UFW/HQ Team

UFW/HQ team shall be composed of the following members:

- Head of UFW/HQ team: 1 (Head of UFW Department)
- Supervisor for UFW branch teams: 1 x 4 areas = 4
- Study & data analysis: 4

The organization of UFW/HQ team is proposed in Figure-2.

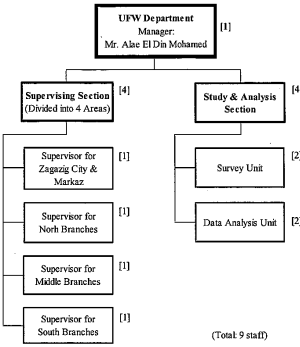


Figure-1 Proposed Organization of UFW/HQ Team of SHAPWASCO

1-1-2 Tasks for UFW/HQ Team

Tasks for UFW/HQ team are as follows:

- (1) Formulating action plan for UFW reduction activity
- (2) Preparing program for training UFW branch members
- (3) Preparing training schedule and conducting training to UFW branch members
- (4) Formulating a plan for District Metered Area (DMA) and conducting supervision of UFW reduction activity for DMAs
- (5) Analyzing leakage survey results and examining countermeasures for leakage prevention
- (6) Preparing a plan for recruiting UFW members
- (7) Conducting procurement and maintenance of leakage survey equipment (including repairs and regular check-up)
- (8) Preparing an annual budgetary plan for UFW Department (HQ team and branch teams)

For the tasks mentioned above, the roles of UFW/HQ team members are as shown in Table-1.

Table-1 Tasks and Roles of UFW/HQ Team Members

No.	Task	Head of UFW/HQ Team	Supervisor for Branch Teams	Study & Analysis Section
(1)	Formulating action plan for UFW reduction activity	○		
(2)	Preparing program for training UFW branch members	○		
(3)	Preparing training schedule and conducting training to UFW branch members	○	△	△
(4)	Formulating a plan for DMA and conducting supervision of UFW reduction activity for DMAs	△	○	△
(5)	Analyzing leakage survey results and examining countermeasures for leakage prevention	△		○
(6)	Preparing a plan for recruiting UFW members	○		
(7)	Conducting procurement and maintenance of leakage survey equipment (including repairs and regular check-up)	△	○	
(8)	Preparing an annual budgetary plan for UFW Department	○		

Note: ○: Main task, △: Assisting other staff's task

1-1-3 Job Description of UFW/HQ Team

(1) Formulating action plan for UFW reduction activity

UFW/HQ team shall formulate an annual budgetary plan for UFW reduction activity of UFW department. This plan shall include an action plan prepared by each UFW branch team. The action plan shall include at least the following items:

- Target areas
- GIS drawing of DMA for the target areas
- Leakage survey schedule for DMAs

(2) Preparing training program for UFW branch team members

The contents of the program for training are as follows:

[Class Room Training]

- Meaning of UFW reduction activity
- Leakage survey method such as Minimum Night Flow (MNF) survey, leak detection survey, etc.
- Outline of leakage survey equipment
- Evaluation of leakage survey results
- Explanation and distribution of SOP for leakage survey prepared in the project

[OJT at Hihya Training Center]

- Method of MNF survey
  - Leak detection survey
- (3) Preparing training schedule and conducting training of UFW branch members  
UFW/HQ team shall prepare an annual training plan for UFW branch teams and conduct training according to the training plan by means of the training program
  - (4) Formulating a plan for DMA and conducting supervision of UFW reduction activity for DMAs  
UFW/HQ team has a responsibility of the following:
    - Designing DMA
    - Monitoring of distributed volume at DMA
    - Analyzing causes of unusual results, if any
    - Giving advices to UFW branch team for leakage survey
    - Supervising leakage survey by UFW branch team
  - (5) Analyzing leakage survey results and examining countermeasures for leakage prevention
    - Analyzing results of leakage survey by preparing water balance analysis sheet
    - Giving guidance for countermeasures for leakage prevention
  - (6) Recruit Plan for new staff of UFW Department (HQ team and branch teams)  
In order to realize continuous activity for UFW reduction, two (2) new members less than 30 years old shall be employed from 2009 to 2011 for each UFW team. The recruiting plan is shown in Annex-1.
  - (7) Procurement and maintenance of leakage survey equipment  
UFW/HQ team has following responsibility for leakage survey equipment:
    - Conducting regular check-up for leakage survey equipment
    - Conducting control for spare parts of the equipment (checking inventory stock, preparing list of the required quantity to be procured)
    - Taking necessary action for repairing the equipment when it has become out of order
  - (8) Preparing an annual budgetary plan for UFW Department  
UFW/HQ team has following responsibility for budgetary plan:
    - Preparing annual budgetary plan for UFW Department including the following cost:
      - > Operation cost for UFW/HQ team (personnel cost, fuel cost, training cost, maintenance cost of Hihya training center, etc.)
      - > Operation cost for UFW branch teams (personnel cost, repairing leakage cost, etc.)





Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Markaz/City: Arind Saqr, Markaz (No.6) Date of Survey: December 1, 2008.

No.	Item	1	2	3	4	5
1	Name	Mr. Esmel Ahmed Abd El Kader	Mr. Beshay Hussein El Kader	Mr. Hegazy El Sayed Ali	Mr. Saied Abd El Salam	
2	Age	48 years	47 years	47 years	52 years	
3	Educational background	Faculty of Engineering	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Managers of Water Networks	Head of City Water Network	Assistant Engineer Supervisor of Water Network	Assistant Engineer Supervisor of Water Network	
5	Working years in Water Sector	17 Years	21 Years	14 Years	15 Years	
6	Section or Department	Water Department	Water Department	Water Department	Water Department	
7	Experience of UFW activity	Yes, Elhiya	Yes, Zagazig City & Hhaya			
8	UFW workshop or training	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team			

Note:  
Head of Sector: Mr. Thawad Abd El Fattah

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Markaz/City: Zagazig Markaz (No.4) Date of Survey: 6/07/2009

No.	Item	1	2	3	4	5
1	Name	Amr's Mohamed Farg	Mohamed Mohamed Saley	El Sayed Elsayed Ahmed	Rehman Bayoumi Mohamed	
2	Age	51	50	49	47	
3	Educational background	Mechanical Engineer- Faculty of Engineering or Engineering School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Head of Zagazig Markaz Water Department	Head of Zagazig Markaz Water Networks	Supervisor of Water Networks	Supervisor of Water Networks	
5	Working years in Water Sector	22 years	21 years	13 years	21 years	
6	Section or Department	Water Department	Water Networks	Water Networks	Water Networks	
7	Experience of UFW activity	All Activities	All Activities	All Activities	All Activities	
8	UFW workshop or training	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	

Note:  
Head of Sector: Mr. Mohamed Hassan Amin

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Markaz/City: El Huesnia (No.7) Date of Survey: 13/1/2009.

No.	Item	1	2	3	4	5
1	Name	Sobhy Mohamed Kader	Moustaf Mohamed Mousalsh	El Sayed Abd El Aziz Soliman	Sahib El Dren Abbas	
2	Age	51	47	45	48	
3	Educational background	Mechanical Engineer- Faculty of Engineering or Engineering School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Head of Water Networks	Supervisor of Water Networks	Supervisor water Networks	Supervisor Water Networks	
5	Working years in Water Sector	21 years	21 years	15 years	22 years	
6	Section or Department	Water Department	Water Networks	Water Networks	Water Networks	
7	Experience of UFW activity	All Activities	All Activities	All Activities	All Activities	
8	UFW workshop or training	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	

Note:  
Head of Sector: Mr. Mohamed Abd El Hamed Nife'a

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Markaz/City: El Huesnia (No.5) Date of Survey: 23/1/2009.

No.	Item	1	2	3	4	5
1	Name	Sahib Abd El Haq	Mohamed Abd El Mostafa Haskim	El Sayed Ibrahim Ali	Mohamed Abd Ala Mohamed	
2	Age	50	49	54	49	
3	Educational background	Mechanical Engineer- Faculty of Engineering or Engineering Department	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Head of Water Department	Supervisor of Water Networks	Supervisor water Networks	Supervisor Water Networks	
5	Working years in Water Sector	19 years	17 years	29 years	22 years	
6	Section or Department	Water Department	Water Networks	Water Networks	Water Networks	
7	Experience of UFW activity	All Activities	All Activities	All Activities	All Activities	
8	UFW workshop or training	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	

Note:  
Head of Sector: Mr. Abd El Hady Ghinoh

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Manbaz/City: Dinet-Niger (No.10)

Date of Survey: 12/1/2009

List of UFW Team Member

No.	Item	1	2	3	4	5
1	Name	Hassan El Sayed Abd El Fatah Shant	Khairy Abd El Mehdi Mohamed	Mohamed El Sayed El Kellany	Mohamed Maghleh Abd El Aziz	
2	Age	52	52	54	57	
3	Educational background	Mechanical Engineer- Faculty of Engineering Department	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Manager, Water Department	Head of Dabab Nagar City Water Networks	Supervisor water Networks	Supervisor of Water Networks	
5	Working years in Water Sector	30 years	31 years	31 years	36 years	
6	Section or Department	Water Department All Activities	Water Networks All Activities	Water Networks All Activities	Water Networks All Activities	
7	Experience of UFW activity	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	
8	UFW workshop or training	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	

Note:  
Head of Sector: Mr. Adal Salah, Satek

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Manbaz/City: Kafr-Sayr (No.6)

Date of Survey: 20/1/2009

List of UFW Team Member

No.	Item	1	2	3	4	5
1	Name	Fahmy Mohamed Khaif Allah	Mohamed Ibrahim Mohamed	Mohamed Awad Abd Allah	Ossam Mansour Mohamed	
2	Age	55	46	47	52	
3	Educational background	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Head of Water Networks	Supervisor of Water Networks	Supervisor of water Networks	Supervisor of Water Networks	
5	Working years in Water Sector	23 years	23 years	19 years	27 years	
6	Section or Department	Water Department All Activities	Water Networks All Activities	Water Networks All Activities	Water Networks No	
7	Experience of UFW activity	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	
8	UFW workshop or training	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	

Note:  
Head of Sector: Mr. Mohamed El Sayed Abd El Kader

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Manbaz/City: Ibrahimiya (No.11)

Date of Survey: 13/1/2009

List of UFW Team Member

No.	Item	1	2	3	4	5
1	Name	Abd Allah Abd El Maged	Sami Mohamed Ahmed Farg	Ramadan Abu Allah Hassan	Mohamed Ragab Asar	
2	Age	58	55	40		
3	Educational background	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Head of Water Networks	Supervisor of Water Networks	Supervisor of water Networks	Supervisor of Water Networks	
5	Working years in Water Sector	21 years	20 years	20 years	20 years	
6	Section or Department	Water Department All Activities	Water Networks All Activities	Water Networks All Activities	Water Networks No	
7	Experience of UFW activity	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	
8	UFW workshop or training	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	

Note:  
Head of Sector: Mr. Roshdy El Nigar

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Manbaz/City: Abu Kabier- Marbaz (No.9)

Date of Survey: December 1, 2008

List of UFW Team Member

No.	Item	1	2	3	4	5
1	Name	Mr. El Sayed Abd El Rabeen	Mr. Abd El Wahab Mohamed Ali	Mr. Mahoww Gregis Ramees	Mr. Mahanad Mohamed Gebly	
2	Age	49 years	54 years	48 years	53 years	
3	Educational background	Engineer, Faculty of Engineering School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Manager of Water Networks Section	Head of Water Network at Marbaz	Assistant Engineer, Supervisor of Water Network	Assistant Engineer, Supervisor of Water Network	
5	Working years in Water Sector	16 Years	32 Years	26 Years	29 Years	
6	Section or Department	Water Department Yes, Zagazig City	Water Department Yes, Zagazig City & Elhya	Water Department Yes, Zagazig City	Water Department Yes, Zagazig City	
7	Experience of UFW activity	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	
8	UFW workshop or training	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	Attend workshops held by JICA - Expert Team	

Note:  
Head of Sector: Mr. Ahmed El Sayed Labouta

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Manbaz/Chf: Bilal Minkaz (No.14) Date of Survey: Mar. 27, 2008.

No.	Item	1	2	3	4	5
1	Name	Mr. Hendry Abd El Kader Sharaby	Mr. Fadi Abd El Hamed Abd Alla	Mr. Salah Mohamed Esmel	Mr. Mahmoud El Sayed El Kellany	
2	Age	54	48	52	49	
3	Educational background	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Manager of Bellows Water Networks	Supervisor of Water Networks	Supervisor of Water Networks	Supervisor of Water Networks	
5	Working years in SHAPWASCO	12 Years	12 Years	12 Years	12 Years	
6	Section or Department	Water Department	Water Department	Water Department	Water Department	
7	Experience of UFW activity	No	All Activities	All Activities	All Activities	
8	UFW workshop or training	Attended workshops held by JICA-Expert Team	Attended workshops held by JICA-Expert Team	Attended workshops held by JICA-Expert Team	Attended workshops held by JICA-Expert Team	

Note: Head of Bellows Sector: Mr. Hassan Elawwa

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Manbaz/Chf: Hilwa (No.12) Date of Survey: 5/12/2009

No.	Item	1	2	3	4	5
1	Name	Mahdy Fahy Ahmed	Omni Mohamed Haseeb	El Hady Fahy Ahmed		
2	Age	50	57	44		
3	Educational background	Engineer - Faculty of Engineering	Assistant Engineer Technical High School	Assistant Engineer Technical High School		
4	Job category (eng. or technician)	Manager of Water Department	Supervisor of Water Networks	Supervisor of Water Networks		
5	Working years in Water Sector	18 years	20 years	15 years		
6	Section or Department	Water Department	Water Department	Water Department		
7	Experience of UFW activity	All Activities	All Activities	All Activities		
8	UFW workshop or training	Attended workshops held by JICA - Expert Team	Attended workshops held by JICA - Expert Team	Attended workshops held by JICA - Expert Team		

Note: Head of Sector: Mr. El Shaban Homy Adel

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Manbaz/Chf: Menia Alqamah (No.15) Date of Survey: May 29, 2008.

No.	Item	1	2	3	4	5
1	Name	Mr. Mohamed Abd El Wahab	Mr. Adel Mohamed Saleh	Mr. Ibrahim Fahy El Sidawy	Mr. El Sayed Hashem El Emry	
2	Age	54	55	47	50	
3	Educational background	Engineer - Faculty of Engineering	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Manager of Menia Alqamah Water Department	Manager of Menas Water Networks	Manager of Menas Water Networks	Manager of Shalshamon Water Networks	
5	Working years in SHAPWASCO	25 Years	12 Years	12 Years	12 Years	
6	Section or Department	Water Department	Water Department	Water Department	Water Department	
7	Experience of UFW activity	No	All Activities	All Activities	All Activities	
8	UFW workshop or training	Attended workshops held by JICA-Expert Team	Attended workshops held by JICA-Expert Team	Attended workshops held by JICA-Expert Team	Attended workshops held by JICA-Expert Team	

Note: Manager of Menia Al qamah Sector: Mr. Faahy Ameen

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Manbaz/Chf: Abu Hamad Marbaz (No.13) Date of Survey: May 27, 2008.

No.	Item	1	2	3	4	5
1	Name	Mr. Mostafa Abd Allah Ghannem	Mr. Tamer Mansour Mervely	Mr. Mohamed Mahmoud Bahayem	Mr. Youssef Abd El Mousen Hassan	
2	Age	57	47	55		
3	Educational background	Faculty of Engineering	Assistant Engineer Technical High School	Assistant Engineer Technical High School	Assistant Engineer Technical High School	
4	Job category (eng. or technician)	Manager of Water Department	Head of Water Network in Abu Hamad Marbaz	Supervisor of Water Network in Abu Hamad Marbaz	Supervisor of Water Network in Abu Hamad Marbaz	
5	Working years in SHAPWASCO	12 Years	12 Years	12 Years	12 Years	
6	Section or Department	Water Department	Water Department	Water Department	Water Department	
7	Experience of UFW activity	No	No	No	No	
8	UFW workshop or training	Attended workshops held by JICA-Expert Team	Attended workshops held by JICA-Expert Team	Attended workshops held by JICA-Expert Team	Attended workshops held by JICA-Expert Team	

Note: Head of Abu Hamad Sector: Mr. Farouk Shaba

Annex-3 Capacity Assessment of UFW Team Members

Capacity Assessment Survey for UFW Team Members of SHAPWASCO

Markaz/Chf: Manshara El Saay (No. 14)

Date of Survey: 13/1/2009

No.	Name	Age	Educational background	Job category (eng. or technician)	Working years in Water Sector	Section or Department	Experiences of UFW activity	UFW workshop or training
1	Saad Abd El Rahman Hefay	53	Mechanical Engineers- Faculty of Engineering	Manager of Water Networks	23 years	Water Department	All Activities	Attend workshops held by JICA - Expert Team
2	Mdamed Ahmed Al-Hozzen	49	Assistant Engineer Technical High School	Head of Manshara El Saay City Water Networks	24 years	Water Networks	All Activities	Attend workshops held by JICA - Expert Team
3	Ald El Easer Morsaf Mohamed	52	Assistant Engineer Technical High School	Supervisor water Networks	29 years	Water Networks	All Activities	Attend workshops held by JICA - Expert Team
4	Soliman Hassan Soliman	44	Assistant Engineer Technical High School	Supervisor Water Networks	15 years	Water Networks	All Activities	Attend workshops held by JICA - Expert Team

Note: Head of Sector: Mr. Eam El Sayed Khalil

Annex 5 Capacity Assessment of UFW Team Members

Minutes of Meeting for 3<sup>rd</sup> Project Team Meeting for PH-4  
MM-PTM4-3 [09.10.31]

Date	31 <sup>st</sup> October (Sat) 2009	Signature
Time	13:00~14:00	
Place	SHAPWASCO chairman's room	
Attendants	<p>[SHAPWASCO : C/P]</p> <p>Dr. Salah Bayoumi : Chairman/Project Manager                  Eng. Alae El Din Mohamed : Head of UFW/HQ Team                  Mr. Abd El Shafi Abd El Aziz : Head of SOP/HQ Team                  Eng. Gamal Abd El Hameed Morsi : SOP/HQ Team (Well Monitoring)                  Eng. Ibrahim Shahin : SOP/HQ Team (Electrical)                  Ms. Heba Mohmoud : SOP Team (Hydraulic Analysis)                  Ms. Walaa Hamdi : UFW Team                  Ms. Walaa Mohamed : UFW Team</p> <p>[JICA Expert Team : The Team]</p> <p>Mr. Masahiro Takeuchi : Team Leader                  Mr. Keizo Kimura : SOP Activity                  Mr. Mitsuhiro Omori : Coordinator                  Mr. Mohamed Nagi : Project Facilitator</p>	

1. General

Completion of Activities by JICA Experts in Egypt

All the Japanese expert team will leave Egypt on 2<sup>nd</sup> November 2009 after they have completed their activities in Egypt for the Project.

- Mr. Masahiro Takeuchi (Chief Advisor)
- Mr. Keizo Kimura (Water Treatment-2/Mechanical Equipment)
- Mr. Mitsuhiro Omori (Coordinator)

2. UFW Reduction Activity

2-1. Progress

All the UFW activities for 9 pilot projects in the project scope and 2 pilot projects for expansion by own effort of SHAPWASCO have been completed. The results of the activities are shown in Attachment-1.

2-2. Cost-Benefit Analysis

Expert team and C/P team conducted cost-benefit analysis taking into account the results of

the pilot projects as shown in Attachment-2. According to the results, both sides confirmed that UFW reduction activities are much beneficial for SHAPWASCO in terms of the period of five (5) years after the reduction activities that is considered as the expected recurrence period of leakage.

2-3. Long-term Target for UFW Ratio (Related to Overall Goal for the Project)

Expert team and C/P team conducted setting long-term target of UFW ratio for SHAPWASCO related to the Overall Goal for the Project as follows:

In 2009: 31.4% (current UFW ratio)

- > For 2015: 27%
- > For 2020: 24%
- > For 2025: 21%
- > For 2030: 19%

The details are shown in Attachment-3. These targets have been calculated using the results of the pilot projects.

2-4. Establishment of UFW Department

Board of Directors of SHAPWASCO decided to establish a new department for UFW in the meeting No. 57 dated on 25<sup>th</sup> October 2009.

According to the regulations, this decision will be verified by the Board of Directors in the coming meeting that will be held within this week (4<sup>th</sup> November 2009).

Practical steps to formulate this department have been already started and these steps are:

- A- UFW H/Q Team already prepared long term plan for expansion of UFW activities to the whole Governorate.
- B- A discussion with Human Resource Department about the required man power needed for strengthening the current number staff has been started in order to apply the prepared plan.
- C- Examination for detailed activities such as organization of the new department duties, required qualifications of the staff, action plan, etc., has been started.

3. SOP Activity

3-1. Progress

All the SOP activities have been completed in cooperation with JICA experts. From now on, C/P team is requested to continue the activity as a routine work.

3-2. Performance Indicator (Related to Overall Goal for the Project)

Expert team and C/P team conducted setting performance indicators (PIs) for SHAPWASCO related to the Overall Goal for the Project as shown in Attachment-4. PIs have been calculated using the monitoring data at the facilities where SOP activities have been conducted in the Project.

3-3. Establishment of SOP Department

Board of Directors of SHAPWASCO decided to establish a new department for UFW in the meeting No. 57 dated on 25<sup>th</sup> October 2009.

According to the regulations, this decision will be verified by the Board of Directors in the coming meeting that will be held within this week (4<sup>th</sup> November 2009).

Practical steps to formulate this department have been already started and these steps are:

- A- A discussion with Human Resource Department about the required man power needed for strengthening the current number staff has been started in order to apply the prepared plan.
- B- Examination of detailed activities such as organization of the new department duties, required qualifications of the staff, action plan, etc have been started.

Attachments

- Attachment-1: Results of UFW Reduction Activities
- Attachment-2: Cost-Benefit Analysis for UFW Reduction Activity
- Attachment-3: Long-Term UFW Targets for SHAPWASCO
- Attachment-4: Setting of Performance Indicator (PI) regarding SOP Activities

(End)



Attachment-3

Long-Term UFW Targets for SHAPWASCO

Year	UFW Team	No. of UFW Reductions Activity Site	Service Population in Activity Site (accumulated)	Total Population in Government	Total Distributed Water (m <sup>3</sup> /Year)	Water Loss (m <sup>3</sup> /Year)	Distributed Water (m <sup>3</sup> /Year)	Reduction of UFW by volume (m <sup>3</sup> /Year)	Accumulation Reduction (m <sup>3</sup> /Year)	UFW after Activity (%)	Long Term Target (%)	Remark
2009	3	12	86,400	5,700,000	266,970,000	43,158	3,728,842	458,648	458,648	31.21		
2010	5	20	144,000	5,814,000	270,920,000	43,158	3,728,842	764,413	1,223,061	30.91		
2011	10	40	288,000	5,928,000	275,938,400	43,158	3,728,842	1,223,061	2,446,122	30.32		
2012	15	60	432,000	6,042,000	280,956,800	43,158	3,728,842	1,677,075	4,123,197	29.47		
2013	15	60	432,000	6,156,000	285,975,200	43,158	3,728,842	2,131,129	6,254,326	28.85		
2014	15	60	432,000	6,270,000	290,993,600	43,158	3,728,842	2,585,182	8,839,508	28.24		
2015	15	60	432,000	6,384,000	296,012,000	43,158	3,728,842	3,039,235	11,878,743	27.63		
2016	15	60	432,000	6,498,000	301,030,400	43,158	3,728,842	3,493,288	15,372,031	27.02		
2017	15	60	432,000	6,612,000	306,048,800	43,158	3,728,842	3,947,341	18,865,372	26.41		
2018	15	60	432,000	6,726,000	311,067,200	43,158	3,728,842	4,401,394	22,358,713	25.80		
2019	15	60	432,000	6,840,000	316,085,600	43,158	3,728,842	4,855,447	25,852,054	25.19		
2020	15	60	432,000	6,954,000	321,104,000	43,158	3,728,842	5,309,500	29,345,395	24.58		
2021	15	60	432,000	7,068,000	326,122,400	43,158	3,728,842	5,763,553	32,838,736	23.97		
2022	15	60	432,000	7,182,000	331,140,800	43,158	3,728,842	6,217,606	36,332,077	23.36		
2023	15	60	432,000	7,296,000	336,159,200	43,158	3,728,842	6,671,659	39,825,418	22.75		
2024	15	60	432,000	7,410,000	341,177,600	43,158	3,728,842	7,125,712	43,318,759	22.14		
2025	15	60	432,000	7,524,000	346,196,000	43,158	3,728,842	7,579,765	46,812,100	21.53		
2026	15	60	432,000	7,638,000	351,214,400	43,158	3,728,842	8,033,818	50,305,441	20.92		
2027	15	60	432,000	7,752,000	356,232,800	43,158	3,728,842	8,487,871	53,798,782	20.31		
2028	15	60	432,000	7,866,000	361,251,200	43,158	3,728,842	8,941,924	57,292,123	19.70		
2029	15	60	432,000	7,980,000	366,269,600	43,158	3,728,842	9,395,977	60,785,464	19.09		
2030	15	60	432,000	8,094,000	371,288,000	43,158	3,728,842	9,850,030	64,278,805	18.48		
2031	15	60	432,000	8,208,000	376,306,400	43,158	3,728,842	10,304,083	67,772,146	17.87		

1. Initial UFW rate for Sharhah Governemate is assumed as 31.4% according to the results of the pilot projects in JICA technical cooperation project.  
2. Reduction point after UFW reduction activities is assumed as 12.2 points according to the results of the pilot projects.  
3. Taking into account of recurrence of leakage, the long-term UFW target shall be reviewed every 3 years and revised if necessary.

Attachment-1

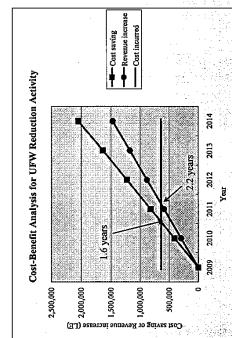
Results of UFW Reduction Activities

No.	Pilot Project Site	UFW Ratio		
		Before Repair (%)	After Repair (%)	Reduction (point)
1	Zagazig City-East	40.8	20.8	20.0
2	Hihya Markaz	27.5	16.6	10.9
3	Zagazig City-West	35.3	19.3	16.0
4	Zagazig Markaz-1	39.3	14.1	25.1
5	Ibrahimiya Markaz-1	30.0	14.0	16.0
6	Diab Nigm Markaz	26.2	18.6	7.5
7	Zagazig Markaz-2	30.7	23.0	7.6
8	Ibrahimiya Markaz-2	19.7	12.7	7.0
9	Bilbais Markaz	21.3	12.8	8.5
10	Abu Hamad Markaz	39.2	29.7	9.5
11	Menia Alqamah M.	29.2	23.4	5.8
Average		31.4	19.1	12.3
Target				13

Attachment-2

Cost-Benefit Analysis for UFW Reduction Activity

Parameters	Unit	Quantity	Pilot Project Sites (Present State)											
			Zagazig City East	Zagazig City West	Zagazig City East	Zagazig City West	Hihya M.	Zagazig City East	Zagazig City West	Bilbais M.	Abu Hamad M.	Menia Alqamah M.	Diab Nigm M.	Brahimiya M.
Water saving	m <sup>3</sup> /Year	1,705	310	223	172	411	181	110	65	85	68	68	54	
Money saving	\$/Year	622,325	113,150	81,030	48,180	150,015	66,065	40,150	24,090	31,023	31,300	24,820	12,410	
- Amortization cost (@0.0574/Year)	\$/Year	658,866	74,200	53,237	31,654	96,360	42,045	26,339	15,277	20,383	20,623	16,317	8,153	
- Depreciation of equipment	\$/Year	29,778	5,140	3,793	2,526	8,655	3,720	2,317	1,312	1,640	1,657	1,293	633	
Cost Income <sup>1</sup>	\$/Year	634,825	63,663	63,663	63,663	63,663	63,663	63,663	63,663	63,663	63,663	63,663	63,663	
Benefit after 5 years of activity	\$/Year		2,044,338	371,698	266,184	158,271	492,759	217,024	131,893	79,136	101,917	103,116	81,534	40,767
- Cost reduction (at production cost) <sup>2</sup>	\$/Year		1,468,687	267,034	191,231	113,705	354,035	155,913	94,754	56,825	73,219	74,080	58,575	29,288
- Revenue increase (at selling price) <sup>3</sup>	\$/Year		575,651	104,664	77,053	44,566	140,744	61,110	37,139	24,312	28,698	29,037	22,952	11,479
Cost recovery period	Year	1.6	0.9	1.2	2.0	0.6	1.5	2.4	1.0	2.1	2.1	1.9	2.8	
- Amortization cost (@0.0574/Year)	\$/Year	2.2	1.2	1.1	2.8	0.9	2.9	3.4	2.0	3.4	3.4	2.1	3.4	10.2



1. Cost Income includes the following:  
- Personnel cost for staff  
- Personnel cost for manager points  
- Preparation of O&M  
- Construction cost of chamber  
2. Cost reduction when distribution volume is debited by the saved water amount.  
3. Revenue increase when distribution volume is debited by the saved water amount.  
4. UFW reduction activity is not beneficial for the reduced sites.

Attachment-3

Long-Term UFW Targets for SHAPWASCO

Year	UFW Team	No. of UFW Reductions Activity Site	Service Population in Activity Site (accumulated)	Total Population in Government	Total Distributed Water (m <sup>3</sup> /Year)	Water Loss (m <sup>3</sup> /Year)	Distributed Water (m <sup>3</sup> /Year)	Reduction of UFW by volume (m <sup>3</sup> /Year)	Accumulation Reduction (m <sup>3</sup> /Year)	UFW after Activity (%)	Long Term Target (%)	Remark
2009	3	12	86,400	5,700,000	266,970,000	43,158	3,728,842	458,648	458,648	31.21		
2010	5	20	144,000	5,814,000	270,920,000	43,158	3,728,842	764,413	1,223,061	30.91		
2011	10	40	288,000	5,928,000	275,938,400	43,158	3,728,842	1,223,061	2,446,122	30.32		
2012	15	60	432,000	6,042,000	280,956,800	43,158	3,728,842	1,677,075	4,123,197	29.47		
2013	15	60	432,000	6,156,000	285,975,200	43,158	3,728,842	2,131,129	6,254,326	28.85		
2014	15	60	432,000	6,270,000	290,993,600	43,158	3,728,842	2,585,182	8,839,508	28.24		
2015	15	60	432,000	6,384,000	296,012,000	43,158	3,728,842	3,039,235	11,878,743	27.63		
2016	15	60	432,000	6,498,000	301,030,400	43,158	3,728,842	3,493,288	15,372,031	27.02		
2017	15	60	432,000	6,612,000	306,048,800	43,158	3,728,842	3,947,341	18,865,372	26.41		
2018	15	60	432,000	6,726,000	311,067,200	43,158	3,728,842	4,401,394	22,358,713	25.80		
2019	15	60	432,000	6,840,000	316,085,600	43,158	3,728,842	4,855,447	25,852,054	25.19		
2020	15	60	432,000	6,954,000	321,104,000	43,158	3,728,842	5,309,500	29,345,395	24.58		
2021	15	60	432,000	7,068,000	326,122,400	43,158	3,728,842	5,763,553	32,838,736	23.97		
2022	15	60	432,000	7,182,000	331,140,800	43,158	3,728,842	6,217,606	36,332,077	23.36		
2023	15	60	432,000	7,296,000	336,159,200	43,158	3,728,842	6,671,659	39,825,418	22.75		
2024	15	60	432,000	7,410,000	341,177,600	43,158	3,728,842	7,125,712	43,318,759	22.14		
2025	15	60	432,000	7,524,000	346,196,000	43,158	3,728,842	7,579,765	46,812,100	21.53		
2026	15	60	432,000	7,638,000	351,214,400	43,158	3,728,842	8,033,818	50,305,441	20.92		
2027	15	60	432,000	7,752,000	356,232,800	43,158	3,728,842	8,487,871	53,798,782	20.31		
2028	15	60	432,000	7,866,000	361,251,200	43,158	3,728,842	8,941,924	57,292,123	19.70		
2029	15	60	432,000	7,980,000	366,269,600	43,158	3,728,842	9,395,977	60,785,464	19.09		
2030	15	60	432,000	8,094,000	371,288,000	43,158	3,728,842	9,850,030	64,278,805	18.48		
2031	15	60	432,000	8,208,000	376,306,400	43,158	3,728,842	10,304,083	67,772,146	17.87		

1. Initial UFW rate for Sharhah Governemate is assumed as 31.4% according to the results of the pilot projects in JICA technical cooperation project.  
2. Reduction point after UFW reduction activities is assumed as 12.2 points according to the results of the pilot projects.  
3. Taking into account of recurrence of leakage, the long-term UFW target shall be reviewed every 3 years and revised if necessary.

Attachment-4

Setting of Performance Indicator (PI) for SOP Activities

1. Calculation of PI regarding O&M

Measurement of flow rate for intake water and transmission water in 6 water treatment plants in SHAPWASCO. Records of these flow rate are informed to SOP HQ team from managers of 6 water treatment plants and PIs are calculated by SOP H/Q team.

Following PIs were calculated as one of the activities in this project:

- 1) Power consumption per unit production water volume PI-PW (kWh/m<sup>3</sup>) PI on Power consumption
- 2) Chlorine consumption per unit production water volume PI-CL (g/m<sup>3</sup>) PI on Chlorine consumption
- 3) Alum consumption per unit production water volume PI-AL (g/m<sup>3</sup>) PI on Alum consumption
- 4) Ratio of production water volume to intake water volume PI-EF (m<sup>3</sup>/m<sup>3</sup>) PI on Production Efficiency
- 5) Production water volume per employee PI-Man (m<sup>3</sup>/person) PI on Manpower

Originally, PI should be calculated as performance indicator of management for the business unit. Therefore, the records for calculation of PI include whole records in the business unit.

In this project, actual flow rate of intake and transmission water can be measured only at water treatment plants.

In this stage, we can not measure the flow rate of intake and transmission water for all water facilities including well station, booster pump station and iron/manganese removal plant.

Therefore, in this project, we calculated PI in 2009 and we estimated PI as the target to be achieved in 2010 regarding WTP.

The following water treatment plants are in service from January, 2009 in SHAPWASCO. PIs for following plants were calculated in a period from January to September in 2009.

- 1) Hihya WTP
- 2) Zagazig WTP
- 3) New Faqus WTP
- 4) Kafr Saqr WTP
- 5) Huseinia WTP
- 6) Abbasa WTP

The following water treatment plants are still under rehabilitation since 2008 and not in service. Therefore, PIs for those plants could not be calculated.

- 1) Old Zagazig WTP
- 2) Old Faqus WTP

2. Calculation results of PI for WTPs

PIs for the above mentioned plants were calculated in a period from January to September in 2009. Calculation results are as follows:

WTP	PI-PW (kWh/m <sup>3</sup> )			Difference with Ave		
	Maximum	Minimum	Average	Maximum	Minimum	Minimum
Hihya	0.327	0.305	0.315	0.012	0.010	
Zagazig	0.322	0.287	0.300	0.022	0.015	
NewFaqus	0.359	0.247	0.289	0.080	0.04	

2-3 PI-AL

WTP	PI-AL (g/m3)			Difference with Ave.	
	Maximum	Minimum	Average	Maximum	Minimum
Hihya	26.1	16.2	21.7	4.4	5.5
Zagazig	29.6	22.8	25.1	4.5	2.3
NewFaqus	24.6	18.8	22.0	2.6	3.2
Kafr Saqr	18.1	18.9	21.3	0.8	2.4
Huseinia	18.3	12.4	14.4	3.9	2.0
Abbas	52.2	38.0	41.0	11.2	3.0
Average	27.8	20.3	21.9	5.97	1.6

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2-4 PI-EF

WTP	PI-EF (-)		
	Maximum	Minimum	Average
Hihya	0.999	0.710	0.951
Zagazig	0.933	0.853	0.898
NewFaqus	0.963	0.638	0.846
Kafr Saqr	0.951	0.895	0.918
Huseinia	0.930	0.853	0.913
Abbas	0.977	0.882	0.940
Average	0.959	0.804	0.911

2-5 PI-Man

WTP	PI-Man (m3/person)		
	Production water volume (m3 in 9 months)	Number of Employees	Production water volume per employee
Hihya	9,049,918	28	323,211
Zagazig	9,867,686	48	205,577
NewFaqus	25,963,222	65	399,434
Kafr Saqr	24,322,895	51	476,920
Huseinia	9,195,119	49	187,655
Abbas	32,441,161	90	360,457
Average	110,840,001	331	334,864

3. Improvement target of PI in 2010

3-1 Power consumption per unit production water volume: PI-PW

Electrical power consumed mainly by main pumps, such as intake pumps and transmission pumps, in water treatment plant in SHAPWASCO. When we improve the value of PI-PW, We have to focus to operation and maintenance activities for main pumps.

Action to reduce power consumption in WTP

Control of operation number of transmission pumps to maintain water pressure in adequate for the network.

Target	Huseinia WTP	Less than 0.42 (kWh/m3)
	New Faqus WTP	Less than 0.25 (kWh/m3)
	Kafr Saqr WTP	Less than 0.25 (kWh/m3)
	WTP except Huseinia	Less than 0.30 (kWh/m3)

Note

Huseinia WTP is operated under special condition on power supplying  
Wattmeter is installed at the place near by water intake facility located 25km away from WTP  
Power supply loss arises while supplying electric power for WTP.

3-2 Chlorine consumption per unit production water volume: PI-CL

Chlorine consumption will be changed based on raw water quality such as break point  
Hence, target of PI can not be set up as a value common to all the water treatment plant.

Action to reduce chlorine consumption and keep the value in stable condition in WTP

- 1) Residual chlorine control procedures shall be continued after completion of this project
- 2) Monitor and review periodically pre and post chlorine dosing rate, free residual chlorine of treated water at end of the process

3) Maintain adequate dosing flowrate of chlorine based on chlorine dosing rate and raw water flowrate.

WTP	Average Annual Target		Monthly Target	
	Maximum	Minimum	Maximum	Minimum
Hihya	Not more than 4.5(g/m3)	4.5(g/m3)	±0.5(g/m3)	
Zagazig	Not more than 4.5(g/m3)	4.5(g/m3)	±0.5(g/m3)	
NewFaqus	Not more than 5.0(g/m3)	5.0(g/m3)	±0.5(g/m3)	
Kafr Saqr	Not more than 5.0(g/m3)	5.0(g/m3)	±0.5(g/m3)	
Huseinia	Not more than 4.5(g/m3)	4.5(g/m3)	±0.5(g/m3)	
Abbas	Not more than 4.5(g/m3)	4.5(g/m3)	±0.5(g/m3)	

3-3 Alum consumption per unit production water volume: PI-AL

Alum consumption will be changed based on raw water quality such as turbidity, pH, algae accounts etc. Therefore, target of PI can not be set up as a value common to all the water treatment plant.

Action to reduce alum consumption and keep the value in stable condition in WTP

- 1) Alum dosing control procedures shall be continued after completion of this project
- 2) Monitor and review periodically alum dosing rate, turbidity of treated water at end of the process.
- 3) Maintain adequate dosing flowrate of alum based on alum dosing rate and raw water flowrate.
- 4) Adjust the concentration of alum solution according to adequate procedures for making alum solution.

WTP	Average Annual Target		Monthly Target	
	Maximum	Minimum	Maximum	Minimum
Hihya	Not more than 20(g/m3)	20(g/m3)	±2(g/m3)	
Zagazig	Not more than 23(g/m3)	23(g/m3)	±2(g/m3)	
NewFaqus	Not more than 20(g/m3)	20(g/m3)	±2(g/m3)	
Kafr Saqr	Not more than 20(g/m3)	20(g/m3)	±2(g/m3)	
Huseinia	Not more than 15(g/m3)	15(g/m3)	±2(g/m3)	
Abbas	Not more than 38(g/m3)	38(g/m3)	±2(g/m3)	

3-4 Ratio of production water volume and intake water volume: PI-EF

At water recycle from drainage equipment, Hihya WTP differs from other WTPs in SHAPWASCO.

Water from drainage equipment returns to receiving well as recycle water in Hihya WTP.

Therefore, intake water volume can be reduced by the amount of recycled water.

As a result, efficiency expressed as the ratio of production water volume to intake water volume will be improved.

Action to improve the ratio of production water volume to intake water volume in WTP are as follows. (reduction of water wastage in the plant)

- 1) Review of filter washing regime and filtering time based on assessment results of filter media
- 2) Filtering load to the filter shall be reduced as much as possible by keeping turbidity of clarified water in good condition according to the set target of treatment at flocculation and sedimentation basin.
- 3) Monitoring of filter washing operation and water quality of clarified water according to periodical inspection of filter media
- 4) Check and repairing of wastage by leakage from water treatment facilities such as structures, pipes and valves

WTP	Average Annual Target	
	Maximum	Minimum
Hihya	Not less than 0.98	
Zagazig	Not less than 0.93	
NewFaqus	Not less than 0.93	
Kafr Saqr	Not less than 0.93	
Huseinia	Not less than 0.93	
Abbas	Not less than 0.95	

3-5 Manpower in water treatment plant

Load of operation and maintenance will be changed according to the level of automation for facilities, deterioration level of facilities, etc. of the plant.

PI was calculated for reference regarding employment in the plant as production water volume per employee.

This PI shall be evaluated on the basis of deliberation based on operation and maintenance load of each plant.

And this PI shall be calculated as annual data on total production volume.

Therefore, we can not set up PI for 2010 at present.