PALESTINIAN INTERIM SELF-GOVERNMENT AUTHORITY
JERICHO MUNICIPALITY

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

PROJECT COMPLETION REPORT

<<APPENDICES>>

March 2018

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

NJS CONSULTANTS CO., LTD.
YOKOHAMA WATER CO., LTD

GE
JR
18−034

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<<Chapter 1>>

A 1-5-1: Transition and Modification of the PDM

Appendix A 1-5-1 Transition and Modification of the PDM

The original PDM was formulated based on the R/D exchanged among the Ministry of Planning and Administrative Development, Palestinian Water Authority (PWA), Jericho Municipality and JICA in May, 2012. At the 1st JCC in February 2013, the revised PDM (ver.1) was approved.

1-2 Number of full-time staff for sewerage works is **more than 14 persons**.

2-1 **More than 6 persons** pass a technical examination for O&M of the WWTP.

2-3 **70% of treated wastewater and 10% of sludge** are utilized.

2-4 **More than 80%** of serviced population recognizes the need for the WWTP.

3-1 **More than 4 staffs** pass a technical examination for sewer maintenance and promotion for connection to public sewers.

3-2 **2,000 private sewers** (house connections) are connected to public sewers and **60% of the connected building owners** is satisfied with the system.

4-1 Collection rate of user charge for sewerage facilities **exceeds 60%**.

4-3 **More than 60%** of serviced population recognizes the need for payment of user charge.

At the 2nd JCC in February 2014, the revised PDM (ver.2) was approved to clarify the contents of the PDM and correct typographical errors.

The revised PDM versions are shown in the tables below along with the original version with reasons for the revisions.

(1) 1st Revision

Setting the Project objective verification indicators is shown as below.

Items	Current Wording	Proposed Wording	Reason
Objectively Verifiable Indicator			
Output 1	2) The number of full-time staff for sewage works is more than XX persons.	2) The number of full-time staff for sewage works is more than 14 persons.	1. The number of staff was selected from Jericho Municipality.
Output 2	3) XX % of treated water and XX % of sludge are utilized. 4) More than XX% of served population recognizes the need for the WWTP.	3) 70% of treated water and 10% of sludge are utilized. 4) More than 80% of served population recognizes the need for the WWTP.	1. It is expected that more than two third of treated wastewater is utilized, and re-used of sludge is promoted any at all. 2. The percentage was set based on Japanese experience.
Output 3	1) More than XX staff pass a technical examination for sewer maintenance and promotion for connection to public sewers. 2) XX private sewers (house connection) are connected to public sewers and XX % of households are satisfied with the system.	1) More than 4 staff pass a technical examination for sewer maintenance and promotion for connection to public sewers. 2) 2,000 private sewers (house connection) are connected to public sewers and 60% of households are satisfied with the system.	1. The number of staff was selected from Jericho Municipality. 2. The number of house connections was set, made up as follows; The Pilot Project: approximately 800, Jericho people approximately

Items	Current Wording	Proposed Wording	Reason
			1,200 connections 3. It is expected that the majority of the targeted house owners can understand the system and be satisfied it.
Output 4	1) Collection rate of user charge for sewerage facilities exceed XX %. 3) More than XX % of served population recognizes the need for payment of user charge.	1) Collection rate of user charge for sewerage facilities exceed 60%. 3) More than 60% of served population recognizes the need for payment of user charge.	1. It is expected that the majority of users can understand and pay the tariff.

(2) 2nd Revision

In order to clarify the contents of PDM and correct typographical errors, the JICA Expert Team prepared the 2nd revised PDM.

Items	Current Wording	Proposed Wording	Reason
Narrative Summary			
Project Purpose	System for operation and management of sewage works in Jericho municipality is established.	System for operation and management of sewerage ~~sewage~~ works in Jericho municipality is established.	1. typographical error 2. error in grammar
Output 1	Management plan for sewage works in Jericho municipality is developed.	Management plan for sewerage ~~sewage~~ works in Jericho municipality is developed.	
Activities	(1.1) Establish departments for operation and management preparation of sewage works.	(1.1) Establish departments for operation and management preparation of sewerage ~~sewage~~ works.	
	(1.2) Assigns in departments for operation and management of sewage works.	(1.2) Assigns in departments for operation and management of sewerage ~~sewage~~ works.	
	(1.4) Develop a mid-term Strategic Business Plan for Managing Jericho Sewerage System for sewage works in Jericho municipality.	(1.4) Develop a mid-term ~~sewerage~~ management plan for sewerage ~~sewage~~ works in Jericho municipality.	
Objectively Verifiable Indicator			
Overall Goal	2) Effluent from sewage treatment plant become below effluent standard.	2) Effluent from wastewater ~~sewage~~ treatment plant become below effluent standard.	1. typographical error 2. error in grammar 3. clarification of meaning
Project Purpose	1) Departments in charge of sewage works is officially approved in Jericho municipality. 3) OHM of sewerage facilities is conducted based on manuals and plans. 4) Sewage works is managed based on a management plan.	1) Department~~s~~ in charge of sewerage ~~sewage~~ works is officially approved in Jericho municipality. 3) O&M ~~OHM~~ of sewerage facilities is conducted based on manuals and plans. 4) Sewerage ~~Sewage~~ works are ~~is~~ managed based on a management plan.	
Output 1	1) Departments in charge of sewage works is officially approved in	1) Department~~s~~ in charge of sewerage ~~sewage~~ works is	

Items	Current Wording	Proposed Wording	Reason
	Jericho municipality. 2) The number of full-time staff for sewage works is more than 14 persons. 4) Mid-term management plan is approved in the city council.	officially approved in Jericho municipality. 2) The number of full-time staff for sewerage ~~sewage~~ works is more than 14 persons. 4) Mid-term management plan is approved by ~~in~~ the city council.	
Output 2	3) 70% of treated water and 10% of sludge are utilized.	3) 70% of treated wastewater ~~water~~ and 10% of sludge are utilized.	
Output 3	2) 2,000 private sewers (house connection) are connected to public sewers and 60% of households are satisfied with the system.	2) 2,000 private sewers (house connections) are connected to public sewers and 60% of the connected building owners ~~households~~ is ~~are~~ satisfied with the system.	
Means of Verifications			
Project Purpose	1) Official letter for approval of department in charge of sewage works in Jericho municipality. 4) Record of OHM	1) Official letter for approval of department in charge of sewerage ~~sewage~~ works in Jericho municipality. 4) Record of O&M ~~OHM~~	1. typographical error
Output 1 1st year	1) Organization structure and staffing of sewage works	1) Organization structure and staffing of sewerage ~~sewage~~ works	
Output 1 2nd year	1) Staffing of sewage works	1) Staffing of sewerage ~~sewage~~ works	
Output 2 2nd year	6) Level of implementation of treated water and sludge re-use	6) Level of implementation of treated wastewater ~~water~~ and sludge re-use	

After the 2nd revision, it had been agreed to not make further changes to the PDM (ver.2) at the 3rd JCC held in November 2014 between the participants and Jericho mayor, which also marked the beginning of the 2nd year Project.

<<Chapter 2>>

<Overall Outputs>

A 2-2-1: JCC Meeting Materials

The 1st JCC Meeting (February 4th, 2013)

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

Agenda for the 1st Joint Coordinating Committee (JCC) Meeting

1. Date:

- 4 (Mon) February 2013, 10:00-12:00: at meeting room in the Training Center

2. Agenda

1. Opening Statement **(by the Mayor of Jericho Municipality)**	**10:00-10:10**
2. Outline and Basic Policy of the Project **(by Mr. Sano, Chief Advisor of the Project)**	**10:10-10:45**
3. (Coffee Break-1)	**10:45-10:55**
4. Project schedule, Report, Manuals and Undertaking by Palestinian Side **(by Mr. Sano, Chief Advisor of the Project)**	**10:55-11:20**
5. (Coffee Break-2)	**11:20-11:30**
6. Discussion	**11:30-11:50**
7. Closing Remarks **(by Mr. Tanaka, Chief Representative of JICA Office in Tel Aviv)**	**11:50-12:00**

End

Technical Assistance and Capacity Building for the Jericho Sanitation Project

Meeting Title: Joint Coordination Committee

Attendance List

Date: February 4, 2013

	Name	**organization**	**Designation**	**Signature**
1	Mohamad Fetiane	Jericho Municipality	Head of Executing Supervision	
2	Razan Abd Alatif	Ministry of Environment Affairs	Environmental Inspector	
3	Mobarak Zawahra	Ministry of Environment Affairs	Environmental Awareness Employee	
4	Basel Hijazi	Jericho Municipality	Head of Engineering Dept.	
5	Ghazi Ayyad	Director of Water and Waste Dept.	GhaziNaji@yahoo.com	
6	Eiji Kubo	JICA	Representative	
7	Izumi Tanaka	JICA	Chief Representative	
8	Essa Jalayta	J.M	City Council	
9	Abd Al-Nasser Makky	JICA	Representative	
10	Ammar Hussein	MOA	Agriculture	
11	Ibrahim Abu Seiba	Jericho Municipality	Mechanical Engineer	
12	Riyad M. Abu Zaid	MOLG	WW Engineer	
13	Adel Yasin	PWA	Director of WW	
14	Nael Ali Ahmad	PWA	Director	
15	Hirofumi Sano	JICA EXPERT TEAM	Chief Advisor	
16	Yasumi Tsutsui	JICA EXPERT TEAM	Expert of Public Awareness	

TECHNICAL ASSISTANCE AND
CAPACITY BUILDING PROJECT
FOR
THE JERICHO SANITATION PROJECT

JOINT COORDINATING COMMITTEE
(JCC)

4th February 2013

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1. Outline of the Project

2

1-1 Overall Goals

Sewerage facilities in Jericho municipality are operated and managed appropriately under sound financial condition

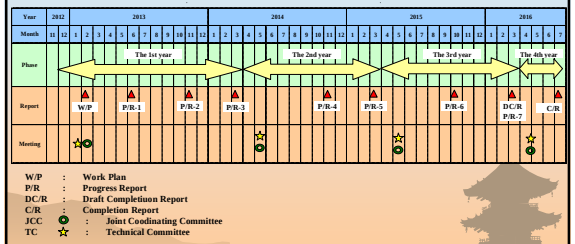
3

1-2 Project Purpose

System for operation and management of sewage works in Jericho municipality is established

4

1-3 Duration of the Project



W/P : Work Plan
P/R : Progress Report
DC/R : Draft Completiuon Report
C/R : Completion Report
JCC : Joint Coodinating Committee
TC : Technical Committee

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1-4 Project Site

Jericho municipality and its surrounding (Refugee Camps and others) areas

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1-5 Expert Team Members

No.	Position and/or Assigned Tasks	Name
1	Chief Advisor/Institutional Operation/Legal System	Mr. Hirofumi SANO
2	Deputy Chief Advisor/Reuse of Treated Water and Sewage sludge	Mr. Satoru ONIKI
3	O&M of WWTP (Mechanical)-1	Mr. Yasuaki KONDA
4	O&M of WWTP (Mechanical)-2	Mr. Yoshikazu NAGANO
5	O&M of WWTP (Mechanical)-3	Mr. Masaru KASAHARA
6	O&M of WWTP (Electrical)	Mr. Akira HASEBE
7	Water Quality Management/ Sewer Network Construction and Maintenance-1	Mr. Keiji MASTUOKA
8	Sewer Network Construction and Maintenance-2	Mr. Kozo HAYASHISHITA
9	Awareness Raising/Project Coordinator	Ms. Yasumi TSUTSUI
10	Financial Management	Mr. Toshihiko TAMAMA

Time schedule of each expert is shown in ANNEX-1

1-6 List of the Counterparts for the Project

Outputs		C/P Team	
		Name	Qualification
Project Chief		Mohammed Fetyani	Civil Engineer
(1)	Establishment of organizational base for departments in charge of sewage works	Iyad Hamdan	Management
		Mohammed Fetyani	Civil Engineer
		Ibrahim Abu Seiba	Mechanical Engineer
(2)	Development of capacity of Jericho municipality for O&M of the WWTP	Ibrahim Abu Seiba	Mechanical Engineer
		Mohammed Khalaf	Technician
		Maher Al Swaidy	Technician (Electricity)
(3)	Development of capacity of Jericho municipality for O&M of sewer network and promotion for connection to public	Mohammed Isayed	Civil Engineer
		Mohammed Fetyani	Civil Engineer
		Ibrahim Abu Seiba	Mechanical Engineer
(4)	Public awareness	Mohammed Isayed	Civil Engineer
		Wiam Irekat	Public Relations
		Mohammed Azmuty	Public Relations
	Financial management	Mohammed Abu Mohsen	Finance Management
		Baha Al Shareef	Finance Management

: Key personnel in each task

1-7 Output of the Project

(1) Development of management plan for sewage works

(2) Development of capacity for operation and maintenance of the WWTP

(3) Development of capacity for maintenance of sewers and promotion for connection to public sewers

(4) Development of capacity for financial management of sewage works

2. Basic Policy of the Project

2-1 Activities for each Output

2-1-1 Development of management plan for sewage works

1) Establish departments for operation and management preparation of sewage works

2) Assigns staffs in departments for operation and management of sewage works

3) Draft a by-law for users of the sewerage facilities

4) Develop a mid-term management plan for sewage works in Jericho municipality

2-1-2 Development of capacity for operation and maintenance of the WWTP

1) Carry out trainings/workshops in order to obtain basic knowledge
2) Prepare manuals for O&M in the Jericho WWTP and carry out on the job trainings
3) Develop an effluent regulation to water discharged to sewer networks
4) Utilize the treated water and sludge for agricultural use
5) Raise public awareness and disseminate experiences on the Jericho WWTP to related organizations

2-1-3 Development of capacity for maintenance of sewers and promotion for connection to public sewers

1) Carry out trainings/workshops in order to obtain basic knowledge
2) Prepare manuals for maintenance of sewer networks and carry out on the job trainings
3) Connecting private sewers with public sewers in Pilot Project areas
4) Raise public awareness and disseminate experiences on the sewer network to related organizations

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2-1-4 Development of capacity for financial management of sewage works

1) Carry out trainings/workshops in order to obtain basic knowledge
2) Develop structure of user charge for sewerage facilities
3) Develop a mid-term financial plan
4) Raise public awareness and disseminate experiences on financial planning to related organizations

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2-2 Program for the C/P Training in Japan (Draft)

(1) Attendee : C/P from Jericho Municipality

(2) Goal : Establishes basic knowledge required for the management of sewerage facilities, by the blended course of lecturing and site inspections

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(3) Theme, Purpose and Contents

Theme	Purpose	Contents
O&M of WWTP	To understand the mechanism of wastewater treatment and the method of O&M of WWTP	Explanation through lecturing and site tour
O&M of Sewer Network	To understand the methods of maintaining sewer network	Explanation through lecturing
Administrative and Financial Management	To understand the sustainable management of sewerage facilities	Explanation through lecturing
Water Quality Management	To understand the method of water quality control, to protect water environment	Explanation through lecturing
Institutional Development and Human Resources Management	To understand the institutional development and human resources management	Explanation through lecturing
Design of Sewerage Facilities	To study the designing of sewerage facilities	Lecturing and study tour of constructing site

* Detail schedule will be fixed and announced later

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2-3 Activities to ensure Capacity Development

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Capacity of C/P staff shall be comprehensively grasped by conducting a capacity assessment, which will give the information to analyze which capacity is in short and needs to be developed

Strategy for technical transfer will be developed base on the above results

Based on the above processes, the Project will be able to support the formation of autonomous development in the C/P side in the sewerage services to beneficiaries and an appropriate O&M of sewerage facilities

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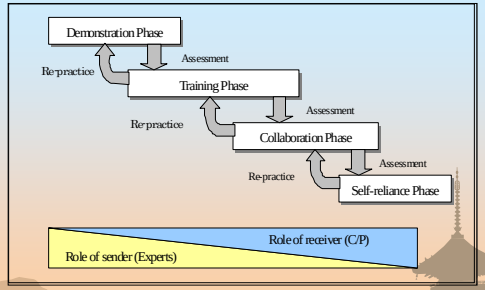

Image of Phased Capacity Development in Technical Cooperation

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2-4 Outputs and Verifiable Indicators of the Project

Output and verifiable indicators are shown in attached A-3 paper titled "ANNEX-II: PDM"

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Outputs		Verifiable Indicator
(1)	Organizational base for department in charge of sewage works is establishes	➢ Department in charge of sewage works are officially approved ➢ The number of full-time staff for sewage works is more than 14 persons ➢ The by-law for user of sewerage facilities is enforced ➢ Sewerage management plan is approved in the city council
(2)	Capacity for appropriate O&M of the WWTP is developed	➢ More than 6 staffs pass a technical examination for O&M of the WWTP ➢ Hazardous materials exceeding the quality standard do not flow into the sewerage facilities ➢ 70 % of treated water and 10% of sludge are utilized ➢ More than 80 % of serviced population recognizes the need for the WWTP

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Outputs		Verifiable Indicator
(3)	Capacity for appropriate maintenance of sewer networks and promotion for connection to public sewers is developed	➢ More than 4 staff pass a technical examination for sewer maintenance and promotion for connection to public sewers ➢ 2,000 private sewers are connected to public sewers and 60 % of household are satisfied with the system
(4)	Capacity for financial management of sewerage works is developed	➢ Collection rate of user charge for sewerage facilities exceeds 60 % ➢ A mid-term financial plan is approved by relevant organizations ➢ More than 60 % of serviced population recognizes the need for payment of user charge ➢ Income (Subsidy, borrowing, charges, etc.) exceeds expenditure in the management plan

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2-5 Pilot Project (PP)

(1) Purpose

- Promotion household connection to public sewer
- Developing the "Design Standard for House Connection Pipe"
- Developing the "Regulations of Connection Charges"

(2) Phased Implementation

1) Primary PP Stage
Detail design of household connections on the overall target areas in the 1st Year and construction on the primary PP lines in the 2nd Year

2) Full-scale PP Stage
Construction on the main stage PP in the 3rd Year

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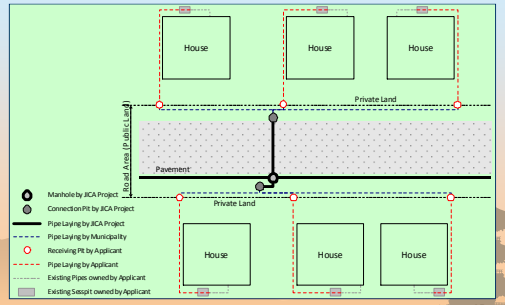
(3) Construction Assignment



(4) Target Area

To avoid the residents "negative feelings for unfairness of charge", regulation of target area selection will be decided with Jericho municipality and Emirs and many type of household shall be applied.

(5) Number of Connection in the PP

Number of connection will finally be decided after negotiating with JICA

(6) Sub-Contract

- PP includes construction work and local consultants (LC) work
- Contractors can be decided at the 1st Year for the whole work
- Work allocation and contractors will be decided with JICA and C/P
- LC for the work of detail design and supervision of construction is chose by qualifications and comparing quotations from more than three different LC
- Contractors will be allocated by bidding

2-6 Awareness Raising and Public Relations

(1) Activities

- Face-to-face public relations will be implemented through stakeholders on sewerage services
- Organize visit tour to WWTP for stakeholders, to enhance understanding for wastewater treatment process
- Target resident base will be expanded by utilizing website

2-7 Schedules of Several Types of Meeting

Tentative schedules of Participatory Meeting, Workshop/ Seminar, site visit are shown in ANNEX-III.

3. Project Schedule

(1) The 1st Year :December 2012 – March 2014

(1/2)

1)Explanation and discussion of the Draft Work Plan
2)Collection the baseline data
3)Implementation of the social survey
4)Implementation of the capacity assessment
5)Making the progress reports
6)Support to establish the department of sewerage works
7)Support to make the draft of sewerage by-law
8)Support to make the sewerage management plan
9)Implementation of the training and workshop to learn basic skills of sewerage facilities
10)Preparation of the manuals of O&M of sewerage facilities

(2/2)

11)Formulation of the drainage criteria for the factories connecting to public sewers

12)Considering the reuse system of treated water and sludge

13)Data collection of agricultural water and crops

14)Support to connect house drainage facilities to sewer network

15)Data collection and effect evaluation by the constructed sewerage facilities

16)Implementation of the training and workshop to learn basic skills of sewerage facilities management

17)Support to set up the sewage tariff system

18)Support to make the financial plan

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(2) The 2nd Year :April 2014 – March 2015

1)Consensus building among involved parties about implementation plan of the year at the JCC and TC

2)Making the progress reports

3)Capacity building of O&M of sewerage facilities

4)Formulation of the drainage criteria for the factories connecting to sewerage system

5)Considering the reuse system of treated water and sludge

6)Data collection of agricultural water and crops

7)Support to connect house drainage facilities to public sewers

8)Data collection and effect evaluation by the constructed sewerage facilities

9)Support to set up the sewage tariff system

10)Support to make the financial plan

(3) The 3rd Year :April 2015 – March 2016

1)Consensus building among involved parties about implementation plan of the year at the JCC and TC

2)Making the progress reports

3)Informing the knowledge and contents of the project to the residents and involved parties

4)Making the draft of project completion report

5)Support to review the department of sewerage works and their staffing

6)Support to review the draft of sewerage by-law

7)Support to review the draft of the sewerage management plan

8)Capacity building of O&M of sewerage facilities

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9)Formulation of the drainage criteria for the factories connecting to sewerage facilities

10)Considering the reuse system of treated water and sludge

11)Support to connect house drainage facilities to public sewers

12)Support to set up the sewerage tariff system

13)Support to make the financial plan

(4) The 4th Year :April 2016 – July 2016

1)Consensus building among involved parties about implementation plan of the year at the JCC and TC

2)Making the project completion report

3)Informing the knowledge and contents of the project to the residents and involved parties

4)Support to review the department of sewerage works and their staffing

5)Support to review the draft of sewerage by-law

6)Support to review the draft of the sewerage management plan

7)Capacity building of O&M of sewerage facilities

8)Formulation of the drainage criteria for the factories connecting to sewerage system

9)Considering the reuse system of treated water and sludge

10)Support to connect house drainage facilities to public sewers

11)Support to set up the sewerage tariff system

12)Support to make the financial plan

The schedule plan of project implementation is shown in ANNEX-IV

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4. Report

The 1st Year:
(1) Work Plan
(2) Progress Report (1) – (3)
The 2nd Year:
(1) Progress Report (4) – (5)
The 3rd Year:
(1) Progress Report (6) – (7)
(2) Draft of Completion Report
The 4th Year:
(1) Completion Report

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5. Deliverable Manuals of Capacity Development

(1)Manual and trouble shooting of water quality management

(2)Manual and trouble shooting of mechanical equipment

(3)Manual and trouble shooting of electrical equipment

(4)Safety and hygienic manuals for sewerage works

(5)Completion report of Pilot Project

(6)Manual and trouble shooting of pipe connection for each house

(7)Operation and maintenance manual of pipe lines

(8)Financial planning manual

6. Undertaking by Palestinian Side

(1) Safeness and security for the project team

(2) Project office and equipment in Jericho

(3) Human resource allocation for representative of the C/P, and supporting staffs in related department

(4) Arrangement of duty free for equipment which the project team bring in Palestine

(5) Support and arrangement for money sending and bringing project budget in Palestine

(6) Arrangement or required material and information, and coordination with related organizations

(7) Arrangement of permission for taking local materials out of Palestine

(8) Arrangement of duty free for the project team and foreigner registration of the project team

(9) Arrangement for project activities in private properties and restricted area

Thank you very much

The 2nd JCC Meeting (February 19th, 2014)

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

Agenda for the 2nd Joint Coordinating Committee (JCC) Meeting

1. Date:

- 19 (Wed) February 2014, 10:00-12:30: at meeting room in the Training Center

2. Agenda

1. Opening Statement **(by the Mayor of Jericho Municipality)**	**10:00-10:10**
2. Outline of Activities for the Project through the 1st Year **(by Mr. Sano, Chief Advisor of the Project)**	**10:10-10:40**
3. (Coffee Break-1)	**10:40-10:50**
4. Achievement of Capacity Building and Future Activities	
4.1 Achievement of Capacity Building **(by Mr. Ghazi A Al-Naji, Director of Water and Wastewater Dept.)**	**10:50-11:10**
4.2 Future Plan (countermeasures to solve the issues) **(by Mr. Ibrahim Abu Seiba, Sewerage Section Chief)**	**11:10-11:40**
5. (Coffee Break-2)	**11:40-11:50**
6. Discussion	**11:50-12:20**
7. Closing Remarks **(by Mr. Tanaka, Chief Representative of JICA Office in Tel Aviv)**	**12:20-12:30**

End

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

2ND JOINT COODINATING COMMITTEE (JCC) MEETING

19TH FEBRUARY 2014

MEETING PROGRAM

1. Opening Statement	10:00-10:10
2. Outline of Activities on the Project for the 1st Year	10:10-10:40
3. Coffee Break-1	10:40-10:50
4. Achievement of Capacity Building and Future Activities	10:50-11:40
5. Coffee Break-2	11:40-11:50
6. Discussion	11:50-12:20
7. Closing Remarks	12:20-12:30

OUTLINE OF ACTIVITIES ON THE PROJECT FOR THE 1ST YEAR

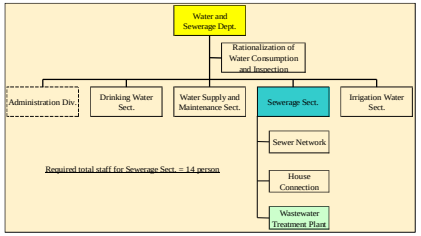
PROJECT PURPOSE

System for operation and maintenance for sewerage works in Jericho municipality is established

OUTPUT OF THE PROJECT

(1) Management plan for sewerage works in Jericho municipality is developed.
(2) Capacity of Jericho municipality for appropriate operation and maintenance of the wastewater treatment plant is developed.
(3) Capacity of Jericho municipality for appropriate maintenance of sewer networks is developed.
(4) Capacity of Jericho municipality for financial management of sewerage works is developed.

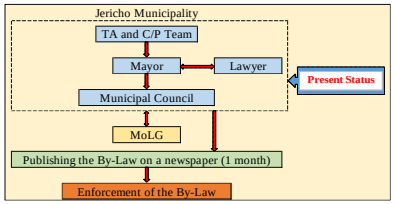
1. ESTABLISHMENT OF WATER AND SEWERAGE DEPARTMENT



New Sewerage Section (as of May 2014)

Post		Number of Personnel	Person in Charge	Full-time /Concurrent	Assign Date
Sewerage Section Chief		1	Mr. Ibrahim Abu Seiba	Full-time	
Sewer Network		2	Mr. Mohammed Fetyani	Concurrent	
			Mr. Mohammed Isayed	Concurrent	2015
House Connection		2	Mr. Mohammed Fetyani	Concurrent	2015
			Mr. Mohammed Isayed	Concurrent	
Wastewater Treatment Plant	Manager	1	Mr. Ibrahim Abu Seiba	Full-time	
	Operator	1	Mr. Nasser Issawi	Full-time	
	Worker	1	-	Full-time	May, 2014
	Maintenance	PM : 1	Mr. Mohammed Awajneh	Full-time	
		PE : 1	Mr. Maher Swaidy	Concurrent	
	Laboratory	1	Mr. Ata Shtawy	Concurrent	
	Security	2	-	Full-time	May, 2014
Total		13			

2. PREPARATION THE DRAFT SEWERAGE BY-LAW



Approval Process of the Sewerage By-Law

3. TRAINING AND WORKSHOP ON WWTP

3.1 Mechanical and Electrical Training

3.1.1 Outline of the training
- **Period: 10th October to 24th December, 2013**
- **Trainee: 4 C/Ps (mechanical and electrical engineers)**
- **Place: Office lecture and constructing site**

3.1.2 Training contents
- **Site visit the Al-Bireh WWTP**
- **Guidance of the equipment flow diagram and manufacture approval drawing**
- **Guidance of the equipment installation approval drawing**
- **Guidance of wastewater treatment theory**
- **Practical knowledge acquisition by discussion with manufacture engineers at the site**
- **Training course in Japan**

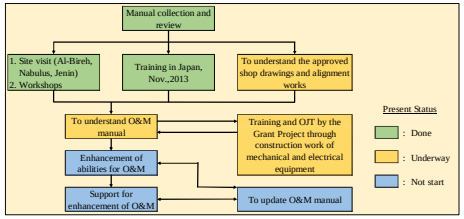
3.2 Workshop on WWTP

3.2.1 Outline of the workshop
- **Date: 2nd November, 2013**
- **Participants: 15**
- **Presenter: JICA expert team and C/P**
- **Venue: Jericho Training Center**

3.2.2 Contents
- **Basic explanation of WWTP (objectives, treatment methods, treatment process, etc.)**
- **Introduction of Japanese WWTP**
- **Explanation of mechanical and electrical equipment**
- **Question and answer and additional explanation by JICA experts and C/P**

Pictures of Workshop on WWTP

4. PREPARATION OF O&M MANUALS FOR WWTP



Activities for Manual Preparation

5. UTILIZATION OF TREATED WASTEWATER AND SLUDGE

Outline of Activities

- **Interview survey with the Al-Bireh and Nabulus municipalities to comprehend regarding current reuse of treated wastewater, sludge and final disposal**
- **Interview survey with farmers and a private company in Jericho regarding potential demands of treated wastewater and sludge**
- **Discussion with the MoA regarding the draft reuse of treated wastewater in Water Quality Standard for Agricultural Use**
- **Acquisition the latest version of the Water Quality Standard for Agricultural Use**

6. TRAINING AND WORKSHOP FOR SEWERS

6.1 Training to C/Ps for Sewer Planning

6.1.1 Outline of the training
- Period: 3rd to 5th in November, 2013
- Trainee: 3 C/Ps (civil engineers)
- Venue: Jericho Municipal Office

6.1.2 Training contents
- Lecture on the calculation method of sewage flow
- Exercises in calculation of wastewater flow and quality using example conditions (area, population, unit flow, unit pollution load, etc.)
- Check the exercises to be answered by C/Ps
- Lecture and exercise in wastewater amount per each sewer
- Lecture on the setting of pipe diameter and gradient using the Manning Formula which is adopted in the Jericho Wastewater Project
- Training course in Japan

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6.2 Workshop for Sewers

6.2.1 Outline of the Workshop
- Date: 20th June, 2013
- Participants: 12 (engineers, financial and other staffs in Jericho municipality)
- Presenter: JICA expert team
- Venue: Jericho Training Center

6.2.2 Contents
- Basic knowledge of sewerage planning and sewer design
- Introduction of Japanese sewerage system
- Question and answer and additional explanation by JICA experts and C/P

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Pictures of Workshop on Sewers

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7. ASSISTANCE OF HOUSE CONNECTION

7.1 Outline of the Pilot Project supported by JICA

7.1.1 1st Pilot Project
- Connection number: 94
- Household number: 268
- Type of connection: Detached house, shop, restaurant, school, apartment, office and hotel
- Target area: City center area and buildings where locate along the constructed trunk sewers
- Present status: Selection of the Contractor
- Commencement of construction: Early March, 2014
- Construction period: 4 months

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7.1.2 2nd Pilot Project (total number will be decided based on the budget)
- Connection Number: approx. 480
- Household Number: approx. 580
- Type of connection: Detached house, shop, restaurant, school, apartment, office and hotel
- Target area: City center area and buildings where locate along the constructed trunk sewers and the secondary network sewers
- Present status: Start of the preliminary alignment survey of house connection in individual property
- Construction: 2015

7.2 Technical transfer on the house connection

JICA expert team is conducting the preliminary alignment survey of house connection with C/P as the technical transfer in the 2nd Pilot Project.

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8. PUBLIC AWARENESS ACTIVITIES

8.1 Implementation of the Social Survey

8.1.1 Outline of the Social Survey
- Sampling Number: 150 household (100 from inside of Jericho, and 50 from surrounding area)

Area		Surveyed Household	Average of Household Size	Religion			Type of Resident	
				Muslim	Christian	Other	Apartment	House
Jericho	Block 1	7	6.86	7	0	0	1	6
	Block 2	11	5.64	11	0	0	2	9
	Block 3	31	5.97	31	0	0	3	28
	Block 4	13	5.77	10	3	0	0	13
	Block 5	19	5.05	17	2	0	4	15
	Block 6	19	6.11	18	1	0	1	18
	Subtotal	100	5.82	94	6	0	11	89
Surrounding area	Ein AsSultan	13	5.92	13	0	0	3	10
	Aqbet Jaber	12	6.17	12	0	0	1	11
	Al Deyuk Al Tahta	13	7.62	13	0	0	0	13
	An Nuwaru	12	6.08	12	0	0	0	12
	Subtotal	50	6.46	50	0	0	4	46

- Methodology: Interview survey with questionnaire
- Interview Date: 21th April to 4th May, 2013

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8.1.2 Results of Social Survey

(1) Problems of Sanitary Condition

Item	Jericho			Surrounding Area		
	Male	Female	Total	Male	Female	Total
Overflow	1	0	1	0	0	0
Leakage	23	22	45	4	4	8
Obstacle	1	0	1	1	0	1
Insect and animal	9	15	24	1	5	6
Dirtiness	6	4	10	6	9	15
Bad smell	8	11	19	6	7	13
other	0	0	0	0	7	7

(2) Source of Information about Jericho Sanitation Project

Item	Jericho			Surrounding Area		
	Male	Female	Total	Male	Female	Total
Local Radio	38	32	70	10	21	31
Newspaper	0	1	1	0	3	3
Public Meeting	40	35	75	12	21	33
Flyers and Bulletin	4	4	8	1	16	17
Internet	13	12	25	4	13	17
Family, friend, neighbors	11	9	20	4	2	6
other	1	0	1	3	1	4

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(3) Number of Responders (Negative/Positive for Re-use of Wastewater)

Item	Jericho			Surrounding Area		
	Male	Female	Total	Male	Female	Total
Positive	38	31	69	16	27	43
Negative	5	16	21	1	5	6
No Idea	5	5	10	1	0	1

(4) Summary of Important Findings of the Social Survey

% of responders who recognize the importance of WWTP in Jericho		64%
Top 3 things to learn in awareness activities	Information for awareness raising	97%
	Sewerage fee	34%
	Construction period	25%
Current water tariff (monthly average)		85.64 NIS
Level of monthly income (Top 2 answers)	1,001-2,000 NIS	48%
	2,001-3,000 NIS	29%

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8.2 Conducted Awareness Activities

8.2.1 Pamphlets

The pamphlets were prepared and distributed to users to bring public attention to the benefits of sewerage project.

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8.2.2 Sticker

The sticker was prepared and distributed to user in order to explain the project's main message.

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8.2.3 Information Sheet and Media Tools

The information sheet and Facebook of municipality were prepared and distributed to women and users. Local TV and newspapers were used to disseminate the project information.

23

8.2.4 Educational Activity for Kids

The meeting was to explain about the current situation and future sewerage system and why the sewerage project is necessary for the Jericho.

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8.2.5 Public Meetings

- The public meetings for women and the Users in the 1st Pilot Project Area to explain about the sewerage system and why the sewerage project is necessary for the Jericho.
- The prepared pamphlet and sticker were distributed to the participants.

Meeting with Women

Interview form Local TV

Meeting for the 1st PP Area Users

25

8.2.6 Project Nickname

The described logo is Sunbird which inhabits in Jericho.

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9. ASSISTANCE IN DEVELOPING WASTEWATER TARIFF SCHEME

9.1 Developing the Wastewater Tariff Scheme

- The working team was established consisted of 6 C/Ps and the TA team.
- The meetings with JAIP (Jericho Agricultural Industrial Park) and PWA on the wastewater tariff scheme were held.
- The draft of wastewater tariff scheme was developed with the C/Ps.
- After discussion and study, the 1st draft Sewerage By-Law which is including the wastewater tariff scheme was submitted to the City Council.
- The working team was received some comments from the City Council regarding the sewerage tariff and connection fee.
- The 2nd draft sewerage tariff and connection fee was submitted again to the City Council after the working team is restudying and modifying them.

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9.2 Wastewater Tariff and Connection Fee (Draft)

(1) Sewerage Tariff

Category		Tariff
Residential	Fixed Charge	5.0 NIS/cycle
	Volumetric Charge	1.0 NIS/m^3
Commercial	Fixed Charge	10.0 NIS/cycle
	Volumetric Charge	1.5 NIS/m^3

(2) Connection Fee

Category	Fee	Remarks
For every m^2 of building	13.0 NIS/m^2	
Minimum Fee	2,000 NIS	To be applied when the calculation is less than 2,000 NIS
Maximum Fee	10,000 NIS	To be applied when the calculation is more than 10,000 NIS

(3) Cesspit Discharge Fee

Category	Fee
For each loads of Vehicles of $5m^3$	5.0 NIS/transferred

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10. C/P TRAINING IN JAPAN

10.1 Outline of the Training in Japan

- Period: 11th November to 23rd November, 2013
- Number of Participants: 11 persons (10 from Jericho Municipality and 1 from PWA)
- Place of Training: Yokohama City and other areas in Japan
- Training Goal: Participants are expected to acquire basic knowledge of sewerage system through lecture and site visits.
- Lecture Materials: All the lecture materials and some brochures of visiting places were translated to Arabic.

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10.2 Training and Results

- Participants actively addressed questions through the training
- The contents of lectures were no more than the outline due to time constraints and the lecture program on the finance was insufficient in time
- The demonstration of pipe cleaning was favorably accepted
- Almost all of the participants expressed their new understandings of sewerage system in general
- Participants expected to enhance the skill of their own specialty using the understanding of sewerage works in Japan

10.3 Report of Training

- Date: 22nd November, 2013
- Participants: 21 persons including the Mayor of Jericho

11. PROGRESS OF THE PROJECT (as of December 2013)

- Commencement of assignment of the JICA Experts: 12th December, 2012
- Official contracted days: 28.63 (M/M)
- Total days of assignment: 648 days (21.60 M/M)
- Official contract days of assignment: 619 days (20.63 M/M)
- Days covered by consultant side: 29 days (0.97 M/M)
- Percentage of progress in the contracted days: 72.1 %
- Percentage of progress in total days: 75.4 %

The end of my presentation
Thank you very much

2nd Joint Coordination Committee (JCC) Meeting

Achievement of Capacity Building and Future Activities

Prepared by: Ibrahim Abu Seiba
Sewerage Section

19th February 2014

Outline of Presentation

- Objective of TeCSOM Project.
- Main Outputs of the Project.
- Current Situation and Achievement of the Project.
- Future Activities.

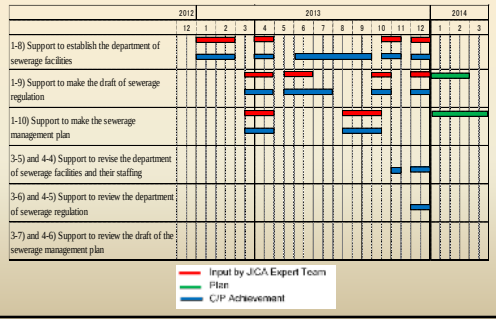
Objective of TeCSOM Project

- The general objective of the project is to operate and manage the sewerage system in Jericho city in efficient and sound way.

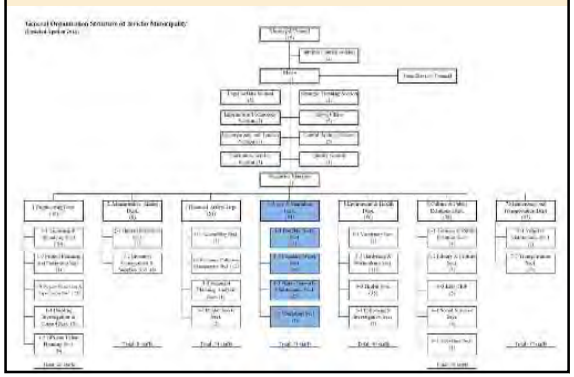
Main Outputs of the Project

Output 1;
Management plan for sewage works in Jericho municipality is developed.
Output 2;
Capacity of Jericho municipality for appropriate operation and maintenance of the Wastewater Treatment Plant (WWTP) is developed.
Output 3;
Capacity of Jericho municipality for appropriate maintenance of sewer networks is developed.
Output 4;
Capacity of Jericho municipality for financial management of sewage works is developed.

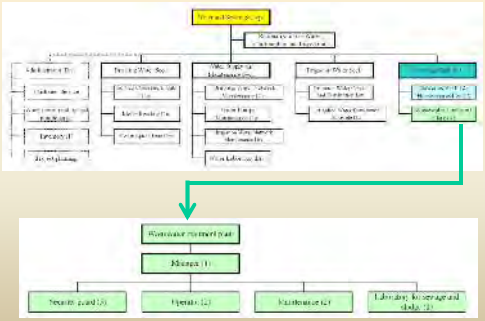
Current Situation and Achievement of the Project
Achievement as Output-1



1) Department in charge of sewage works:



2) Sewerage Division Personnel & Assignment

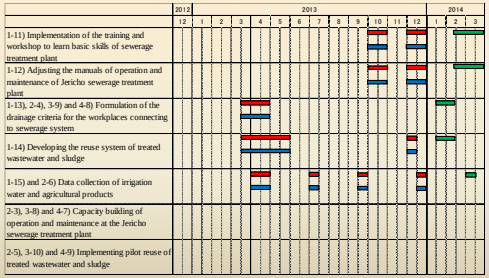


	Position	Person Name	Full Time/ Another Post	Recruit
Sewerage Section	Section Chief	Mr. Ibrahim Abu Seiba	Full Time	
	Sewer Network 1	Mr. Mohammed Fetyani	Project Execution & Supervision Sect. PES Sect.	
	Sewer Network 2	Mr. Mohammed Isayed		In 2015
	House Connection 1	Mr. Mohammed Fetyani		In 2015
	House Connection 2	Mr. Mohammed Isayed		
Wastewater Treatment Plant	Manager	Mr. Ibrahim Abu Seiba	Full Time	
	Operator	Mr. Nasser Issawi	Full Time	
	Worker	To be appointed from another sect. / Full Time		In May 2014
	Maintenance Mech.	Mr. Mohammed Awajneh	Full Time	
	Maintenance Elect.	Mr. Maher Swaidy	PES Sect.	
	Security Guard 1 - 3	To be appointed from another sect. / Full Time		In May 2014
	Laboratory	Mr. Ata Shtawy	Water Laboratory	

3) The by-law and Job Descriptions

- The draft of by-law for users of sewerage facilities has been established and need a municipal council approval.
- The job descriptions for each person works in sewerage section have been approved by Mayor and distributed to each one.
- Tariff system has been established and revised to be presented on municipal council for approval.

Achievement as Output-2



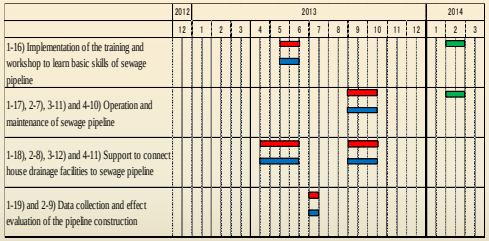
Implementation of Training and Workshop

- Interview to Nablus staff

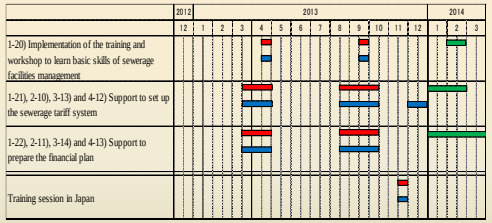
- Site Visit at Al-Bireh WWTP

- Mechanical and Electrical Training

Achievement as Output-3

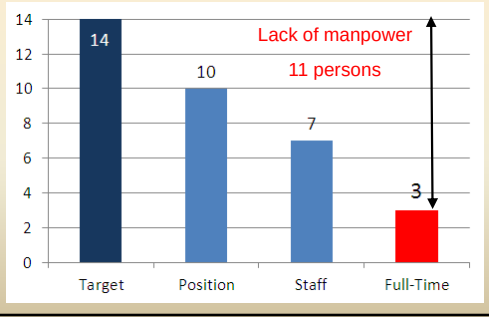


Achievement as Output-4

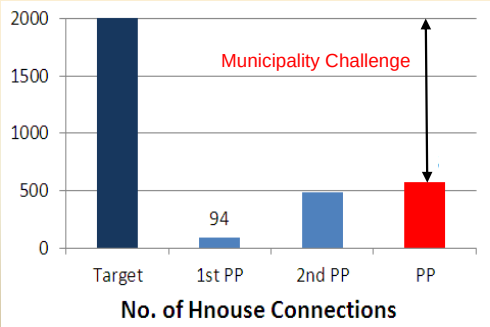


Future Activities

1) Sewerage Section Personnel & Assignment



2) Reach the target Number of House Connections



3) To enforce the by-law for users of sewerage facilities.

4) To establish a pilot project for reuse scheme.

5) To develop management and financial plans.

6) Prepare manuals for O&M.

7) Workshop and training sessions.

The 3rd JCC Meeting (November 16th, 2014)

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

Agenda for the Joint Coordinating Committee (JCC) Meeting

(2nd Year: Phase II)

1. Date:

- 16 (Sun) November 2014, 10:00-12:30: at meeting room in the Training Center

2. Agenda

1. Opening Statement **(by the Mayor of Jericho Municipality)**	**10:00-10:10**
2. Remarks **(by the Palestinian Water Authority)**	**10:10-10:20**
3. Outline of Achievements on the Phase I Project **(by Mr. Ibrahim)**	**10:20-10:45**
4. (Coffee Break-1)	**10:45-11:00**
5. Outline of Activities on the Phase II Project	
5.1 Outline of the Phase II Project **(by Mr. Sano, Chief Advisor of the Project)**	**11:00-11:20**
5.2 Implementation Plan of the Phase II Project **(by Mr. Oniki, Deputy Chief Advisor of the Project)**	**11:20-11:40**
6. (Coffee Break-2)	**11:40-11:50**
7. Discussion	**11:50-12:20**
8. Closing Remarks **(by Mr. Tanaka, Chief Representative of the JICA Office in Tel Aviv)**	**12:20-12:30**

End

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

The Joint Coordinating Committee (JCC) Meeting

(2nd Year: Phase II)

November 16, 2014

Name	Organization	Position	Signature
Abd Alnasser Makki	JICA Jericho Office	Chief Coordination	
Mohammed Isayed	Jericho Municipality	Civil Engineer	
Mohammed Fetyani	Jericho Municipality	Head of Execution and Supervision Dept.	
Omran Khalaf	Jericho Municipality	Mechanical Engineer	
Ibrahim Abu Seiba	Jericho Municipality	Head of WWTP	
Mohammed Awajneh	Jericho Municipality	Technician	
Junsuke Suzuki	JICA Palestine Office	P.F Advisor	
Izumi Tanaka	JICA Palestine Office	Chief Representative	
Keiji Matsuoka	JICA Expert Team	Civil Engineer	
Akira Hasebe	JICA Expert Team	Electrical Engineer	
Mohammed Abu Mohsen	Jericho Municipality	Financial Manager	
Ahmad Hindi	PWA	G.D	
Fahmi Njoum	MOA	Engineer	
Ghazi Naji	Jericho Municipality	Director of Water and Sewage Dept.	
Basel Hijazi	Jericho Municipality	Head of Engineering Dept.	

Mohammed Jalayta	Jericho Municipality	Mayor	
Hirofumi Sano	JICA Expert Team	Chief Advisor	
Satoru Oniki	JICA Expert Team	Deputy Chief Advisor/ Reuse of Treated Wastewater and Sludge	

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT
FOR
THE JERICHO SANITATION PROJECT

(Phase II)

JOINT COODINATING COMMITTEE (JCC) MEETING

16th November 2014

MEETING PROGRAM

1. Opening Statement	10:00-10:10
2. Remarks by PWA	10:10-10:20
3. Outline of Achievement on the Phase I Project	10:20-10:45
4. Coffee Break-1	10:45-11:00
5. Outline of Activities on the Phase II Project	11:00-11:40
6. Coffee Break-2	11:40-11:50
7. Discussion	11:50-12:20
7. Closing Remarks	12:20-12:30

OUTLINE OF ACHIEVEMENT ON THE PHASE I PROJECT

PRESENTED BY MR. IBRAHIM ABU SEIBA

TeCSOM
Technical assistance for capacity building sewerage system operation management

3RD JOINT COORDINATION COMMITTEE (JCC) MEETING

ACHIEVEMENT OF CAPACITY BUILDING

PREPARED BY: ENG. IBRAHIM ABU SEIBA

16TH NOVEMBER 2014

OUTLINE

- TC (TECHNICAL COMMITTEE) AND JCC (JOINT COORDINATING COMMITTEE)
- BASELINE DATA COLLECTION
- SOCIAL SURVEY
- CAPACITY ASSESSMENT OF C/PS
- SUPPORT FOR ESTABLISHMENT OF WATER AND SEWERAGE DEPARTMENT
- ASSISTANCE IN PREPARING DRAFT SEWERAGE BY-LAW
- ASSISTANCE IN PREPARING SEWERAGE MANAGEMENT PLAN
- TRAINING AND WORKSHOP FOR BASIC KNOWLEDGE OF WASTEWATER TREATMENT PLANT
- PREPARATION OF O&M MANUALS FOR JERICHO WASTEWATER TREATMENT PLANT
- ASSISTANCE OF DEVELOPING DISCHARGE STANDARD FROM FACTORIES
- UTILIZATION OF TREATED WASTEWATER AND SLUDGE
- TRAINING AND WORKSHOP FOR BASIC KNOWLEDGE OF SEWERS
- MAINTENANCE OF SEWER NETWORK
- ASSISTANCE FOR HOUSE CONNECTION FROM INNER DRAINAGE FACILITIES TO SEWERS
- ASSISTANCE IN DEVELOPING WASTEWATER TARIFF SCHEME
- PUBLIC AWARENESS

1. TC (TECHNICAL COMMITTEE) AND JCC (JOINT COORDINATING COMMITTEE):

- ❑THE FIRST TC AND JCC WAS HELD AFTER PREPARING THE DRAFT WORK PLAN AND HANDOUTS REGARDING THE OUTLINE OF THE PROJECT.
  - TC: JANUARY 27, 2013
  - JCC: FEBRUARY 4, 2013
- ❑THE SECOND JCC WAS HELD TO PRESENT THE PROJECT PROGRESS AND EVALUATION ON TECHNOLOGY TRANSFER SINCE DECEMBER 2012 (COMMENCEMENT OF THE PROJECT) AND AN EXPLANATION OF THE REVISED PDM AS VERSION 2 AFTER THE APPROVAL OF THE PDM AT THE 1ST JCC
  - DATE: FEBRUARY 19, 2014

2. BASELINE DATA COLLECTION

(1) DATA COLLECTION ON THE EXISTING ORGANIZATIONS

a)THE DATA OF THE EXISTING ORGANIZATIONAL STRUCTURE AND NUMBER OF STAFFS OF JERICHO, AL-BIREH AND NABLUS MUNICIPALITIES WERE COLLECTED WITH COOPERATION OF C/PS.

b)THE JOB DESCRIPTION FOR EACH DEPARTMENT / SECTION IN JERICHO MUNICIPALITY WAS PREPARED BY C/PS.

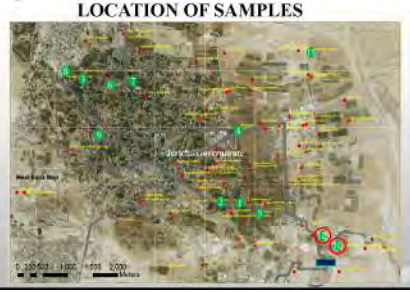
c)INFORMATION OF THE CURRENT FINANCIAL SITUATION AND COLLECTION RATIO OF WATER TARIFF IN JERICHO MUNICIPALITY WAS COLLECTED BY C/PS TO SET THE SEWERAGE TARIFF.

(2) DATA COLLECTION BY LOCAL CONSULTANTS

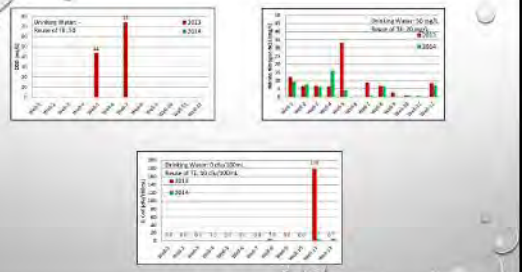
a)GROUNDWATER QUALITY SURVEY

- •NUMBER OF WATER SAMPLING: 12 LOCATIONS (11 GROUNDWATER AND 1 SPRING WATER)
- •WATER PARAMETERS: 3 PARAMETERS (COD, NO3-N AND E. COLI.)
- •SAMPLING TIME: JUNE 2013, JUNE 2014

LOCATION OF SAMPLES



WATER QUALITY RESULT OF EXISTING WELLS FOR AGRICULTURAL USE



B) BASELINE SURVEY

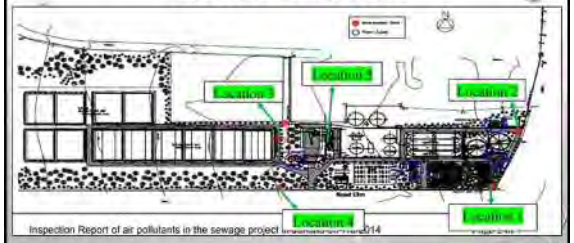
- **NUMBER OF WATER SAMPLING: 2 LOCATIONS (IN AGRICULTURAL LAND)**
- **WATER QUALITY PARAMETERS: 37 PARAMETERS**
- **SAMPLING TIME: 5 TIMES (JUNE, SEPTEMBER, NOVEMBER 2013, JANUARY, JUNE 2014)**

c) OFFENSIVE ODOR SURVEY

- **NUMBER OF WATER SAMPLING: 5 LOCATIONS (THE BOUNDARY OF THE WWTP)**
- **WATER QUALITY PARAMETERS: 3 PARAMETERS (NH3, TVOC, AND H2S)**

3) SAMPLING TIME : JUNE 7, 2014

LOCATION OF SAMPLING



Inspection Report of air pollutants in the sewage project [illegible] 2014

OFFENSIVE ODOR SURVEY RESULT

Location		NH_3 (ppm)	TVOC (ppb)	H_2S (ppm)	Temp (℃)	RH (%RH)
No.1	Average	0.03	0.0	0.0	29.4	40.9
	Max	0.10	0.0	0.0	30.4	42.3
No.2	Average	0.05	0.0	0.0	32.3	37.5
	Max	0.20	0.0	0.0	34.1	41.0
No.3	Average	0.08	0.0	0.0	33.0	35.4
	Max	0.20	0.0	0.0	35.4	37.6
No.4	Average	0.13	0.0	0.0	33.4	33.2
	Max	0.30	0.0	0.0	40.8	36.5
No.5	Average	0.45	1,384	0.81	32.3	34.4
	Max	0.80	3,513	2.46	33.7	36.6
Palestine Standard 803[1]		0.02<	-	0.01<	-	-

3. SOCIAL SURVEY

❑OBJECTIVE

- **THE SOCIAL SURVEY WAS CARRIED OUT TO EVALUATE THE SUSTAINABILITY OF THE WWTP OPERATION IN JERICHO.**

❑METHOD

- **THE SURVEY WAS CARRIED OUT USING AN ARABIC QUESTIONNAIRE. THE SURVEY TEAM VISITED EACH RESPONDENT'S HOUSE, READ THE QUESTIONS, AND WROTE DOWN THEIR ANSWERS.**

RESULT

Percentage of Respondents Recognizing the Importance of the WWTP in Jericho.		64%
Affordable Amount for Sewerage Tariff *	No Idea	61%
	Lower Than 50% of Current Water Tariff	37%
Current Water Tariff (Monthly Average)	85.64 NIS	
Level of Monthly Income*	1,001-2,000NIS	48%
	2,001-3,000NIS	29%
Percentage of Respondents Positive for Re-use of Treated Sewer Water	69%	
Percentage of Respondents Positive for Re-use of Sludge	40%	
Top 3 Things to Learn in Awareness Activities	Information for Awareness Raising	97%
	Sewerage Tariff	34%
	Construction Period	25%

4. CAPACITY ASSESSMENT OF C/PS

❑METHOD

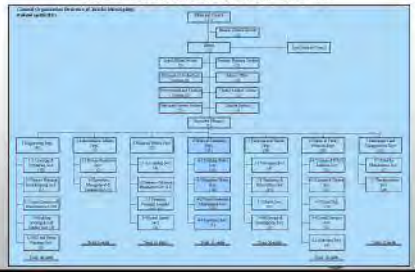
- THE CAPACITY OF EACH INDIVIDUAL C/P MEMBERS WAS ASSESSED BOTH IN THE GENERAL SKILL/COMPETENCY AND IN THE TECHNICAL KNOWLEDGE/SKILL, BY CONDUCTING A QUESTIONNAIRE SURVEY ASKING ALL C/PS TO FILL OUT THE QUESTIONNAIRE SHEET PREPARED BY THE EXPERTS

RESULT

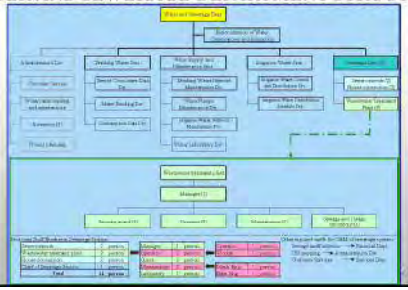
ACTION

- A TRAINING IN JAPAN IN NOVEMBER 2013 ALONG WITH SEMINAR SESSIONS WERE HELD

5. SUPPORT FOR ESTABLISHMENT OF WATER AND SEWERAGE DEPARTMENT



WATER AND SEWERAGE DEPARTMENT STRUCTURE



PERSONNEL ASSIGNMENT

Post		Number of Personnel	Person In Charge	Full-time / Concurrent	Assign Date
Sewerage Facilities Plan		1	Mr. Ibrahim Abu Sitta	Full-time	
Sewer Network		2	Mr. Mohammad Fetyani	Concurrent	
			Mr. Mohammad Juoyd	Concurrent	2013
House Connection		2	Mr. Mohammad Fetyani	Concurrent	2013
			Mr. Mohammad Juoyd	Concurrent	
Wastewater Treatment Plant	Manager	1	Mr. Ibrahim Abu Sitta	Full-time	
	Operator	3	Mr. Osman Khalaf	Full-time	
	Worker	5	Adam Ashoor	Full-time	
	& Security Guard	(3 shifts)	Ibrahim Jalayta Ramadan Jalayta		
	Maintenance	Mechanical: 2	Mr. Mohammad Awajneh	Full-time	
		Electrical: 2	A Mr. Nimer Al Swaidy	Full-time Concurrent	July, 2014
	Laboratory	1	Mr. Osman Khalaf	Full-time	July, 2014
Total		17			

6. ASSISTANCE IN PREPARING DRAFT SEWERAGE BY-LAW

- "RULE OF CONNECTING HOUSES AND PREMISES TO THE PUBLIC SEWERAGE NETWORK OF PROVIDERS OF SERVICES OF WATER AND WASTEWATER"

✓IT WAS APPROVED ON MARCH 12, 2014, AND GAINED FURTHER APPROVAL BY PWA AND MOLG.

7. ASSISTANCE IN PREPARING SEWERAGE MANAGEMENT PLAN

- THE SEWERAGE MANAGEMENT PLAN, NAMED "STRATEGIC BUSINESS PLAN 2014-2018 FOR MANAGING JERICHO SEWERAGE SYSTEM" WAS DEVELOPED AS A ROLLING 5 YEAR PLAN FROM 2014 TO 2018.

OUTLINE OF PLANNED ACTIVITIES FOR THE NEXT 5 YEARS IN THE JERICHO SEWERAGE SERVICE

8. TRAINING AND WORKSHOP FOR BASIC KNOWLEDGE OF WASTEWATER TREATMENT PLANT

❑POLICY AND OUTLINE OF THE TRAININGS

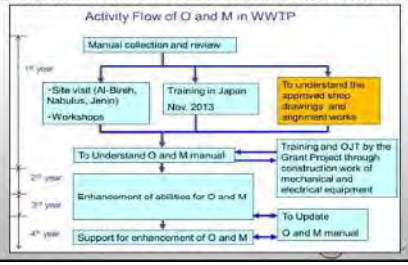
a)LECTURE TRAININGS

b)PRACTICAL TRAININGS

MAJOR CONTENTS OF THE TRAININGS

1. REVIEWING MECHANICAL FLOW SHEET AND INTELLIGIBILITY CHECK OF THE COUNTERPART
2. INSPECTION OF EQUIPMENT INSTALLATION
3. UNDERSTANDING OUTLINES OF ELECTRICAL FACILITIES
4. LEARNING ACTUAL OPERATION AND MAINTENANCE METHOD OF ACTUAL EQUIPMENT
5. LEARNING MAINTENANCE OPERATION METHOD OF SELDOM-USED EQUIPMENT
6. PREPARATION OF DAILY/WEEKLY RECORD AND SITE INSPECTION FORMAT
7. TRAINING ON WATER ANALYSIS

9. PREPARATION OF O&M MANUALS FOR JERICHO WASTEWATER TREATMENT PLANT



10. ASSISTANCE OF DEVELOPING DISCHARGE STANDARD FROM FACTORIES

11. UTILIZATION OF TREATED WASTEWATER AND SLUDGE

- THE JICA EXPERT TEAM AND C/PS VISITED THE AL-BIREH AND NABULUS MUNICIPALITIES TO CONDUCT SURVEYS BASED ON INTERVIEWS REGARDING THE CURRENT REUSE OF TREATED WASTEWATER, SLUDGE AND FINAL DISPOSAL.
- C/PS AND THE JICA EXPERT TEAM CONDUCTED SURVEYS BASED ON INTERVIEWS REGARDING THE REUSE OF TREATED WASTEWATER AND SLUDGE WITH MINISTRY OF AGRICULTURE AT THE JERICHO BRANCH OFFICE.
- C/PS AND THE JICA EXPERT TEAM ALSO CONDUCTED SURVEYS BASED ON INTERVIEWS WITH FARMERS AND PRIVATE COMPANIES IN THE JERICHO MUNICIPALITY REGARDING POTENTIAL DEMANDS OF TREATED WASTEWATER AND SLUDGE.

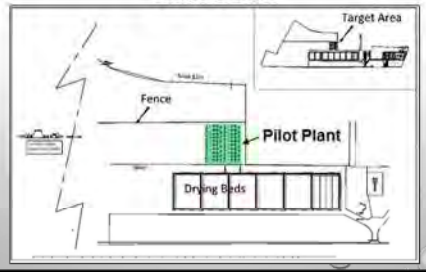
- THE JICA EXPERT TEAM HAS DISCUSSED A REUSE PLAN WITH C/PS, AND HELD A WORKSHOP ON THE REUSE OF THE TREATED WASTEWATER AND SEWAGE SLUDGE TO THE C/PS IN JUNE 2014.
- BEFORE PROVIDING THE TREATED WASTEWATER TO FARMERS OUTSIDE OF THE WWTP, THE EXPERT TEAM SHALL RUN AN EXPERIMENTAL FARM CALLED THE PILOT PLANT, AND THEN THE JICA EXPERT TEAM AND C/PS WILL SIMULTANEOUSLY CONFIRM WHETHER THE TREATED WASTEWATER QUALITY MEETS THE STANDARD.

THE DRAFT IMPLEMENTATION SCHEDULE OF THE PILOT PLANT BOTH INSIDE AND OUTSIDE OF THE WWTP

- CONDUCT TREATED WASTEWATER QUALITY TEST AND SEWAGE SLUDGE (SOIL) TEST
- RECORD THE TESTED WATER QUALITY AND COMPARE TO THE (DRAFT) PALESTINE REUSE STANDARD
- SET AND IMPLEMENT THE PILOT PLANT IN THE WWTP (SETTING THE EXPERIMENTAL FARM WILL START IN EARLY OCTOBER SINCE IT IS THE TIMING FOR CULTIVATING PALM DATES)
- CONDUCT A QUESTIONNAIRE SURVEY WITH FARMERS ABOUT THE TEST RESULTS IN JERICHO

- INFORMATION DISCLOSURE OF THE TREATED WASTEWATER QUALITY BY A WEBSITE AND/OR A MUNICIPAL BULLETIN BOARD
- HOLD JOINT WORKSHOPS WITH RELATED ORGANIZATIONS AND STAKEHOLDER MEETINGS
- COOPERATE WITH NEIGHBOR FARMERS AT THE WWTP AND THE EXPERIMENTAL FARM OUTSIDE OF THE WWTP
- FINALLY, PROVIDE/SELL THE TREATED WASTEWATER AND/OR SEWAGE SLUDGE TO FARMERS

PILOT PLANT



12. TRAINING AND WORKSHOP FOR BASIC KNOWLEDGE OF SEWERS

❑TRAINING PERIOD AND CONTENTS

- DATE: NOVEMBER 3-5, 2013 (3 DAYS)
- CONTENT: HYDRAULIC DESIGN OF SEWER NETWORKS

❑DATE: MAY5, 7 AND 25, 2014(3 DAYS)

CONTENT: A REVIEW OF THE LAST TRAINING, EXERCISES IN CALCULATION OF WASTEWATER FLOW AMOUNT AND QUALITY USING A DIFFERENT EXAMPLE WASTEWATER PLAN SPECIFICATIONS (POPULATION, WASTEWATER UNIT AND WASTEWATER LOAD UNIT).

13. MAINTENANCE OF SEWER NETWORK

❑DATE: MAY 28, 2014

❑CONTENTS:

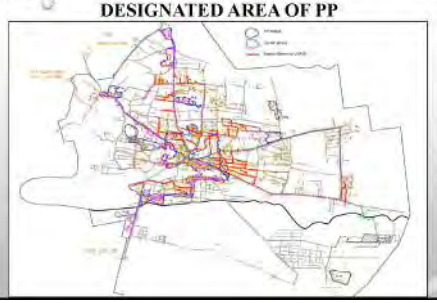
- ➢OBJECTIVE AND NECESSITY OF SEWER CLEANING
- ➢DEVELOPMENT METHOD OF SEWER CLEANING PLAN
- ➢PRIORITY DECISION METHOD OF SEWER CLEANING
- ➢SEWER CLEANING METHOD
- ➢SAFETY CONTROL

14. ASSISTANCE FOR HOUSE CONNECTION FROM INNER DRAINAGE FACILITIES TO SEWERS

❑OBJECTIVE:

- TO REALIZE AN EARLY SEWERAGE TARIFF INCOME
- TO EXPECT SECURING WASTEWATER INFLOW AS MUCH AS POSSIBLE IN THE WWTP
- TO ACCUMULATE EXPERIENCES OF CONNECTIONS ON VARIOUS TECHNICAL CONDITIONS (STANDARDIZATION OF CONNECTION METHODS/PROCEDURES)

DESIGNATED AREA OF PP



ESTIMATION OF CONNECTION NUMBER

Items / Category		Detached house	Commercial/Ap. Buildings: Buildings	Restaurant	Shop	Ap. Flats	Offices	Schools	Factories	Institution	Hotel
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
PP Area	a)City center	80	246	15	490	100	50	7	0	10	2
	b)Other PP Area	160	45	1	80	80	10	6	0	18	1
	c)Total PP Area	240	291	16	550	180	60	13	0	28	3
	d)Out PP Area	43	33	10	87	91	5	10	0	23	1
e)Other Area		833	138	6	43	160	5	2	3	8	1
f)Total		1,356	753	48	1,230	911	130	38	9	85	10
PP Area Connection		575	c)①+②+③+④+⑤+⑥+⑦+⑧+⑨+⑩								
Other Area		987	e)①+②+③+④+⑤+⑥+⑦+⑧+⑨+⑩								
Connection Total		1,562									
PP Area Consumers		845	c)①+②+③+④+⑤+⑥+⑦+⑧+⑨+⑩ Note:Half of shops in City Center are consumers								
Other Area		1,263	e)①+②+③+④+⑤+⑥+⑦+⑧+⑨+⑩								
Total Consumers		2,108	Note:Half of shops in City Center are consumers.								
In PP Connections		94	d)①+②+④+⑤+⑥+⑦+⑧+⑨+⑩								
In PP Consumers		268	d)①+②+④+⑤+⑥+⑦+⑧+⑨+⑩								

- TARGET BUILDINGS FOR ORIGINAL CONTRACT

Category	Common Houses	Commercial /Apartment Buildings	Schools	Institutions including Mosque and Church	Hotel & Large Buildings	Total
Connection No.	34	38	11	5	5	93

- AMENDED TARGET BUILDINGS

Category	Common Houses	Commercial /Apartment Buildings	Schools	Institutions including Mosque and Church	Hotel & Large Buildings	Total
Connection No.	35	28	9	12	5	89

❑PROGRESSING OF THE 1ST PHASE PP

- THE HOUSE CONNECTION DESIGN INCLUDING PREPARATION OF TENDER DOCUMENTS IN THE 1ST PHASE PP WAS COMPLETED IN EARLY DECEMBER 2013
- THE FINAL SELECTION WAS DONE AT THE END OF JANUARY 2014.
- THE WORK STARTED IN THE BEGINNING OF MARCH 2014. THE WORKS WERE ORIGINALLY PLANNED TO BE COMPLETED BY THE END OF JUNE.

❑PROGRESSING OF THE 2ND PHASE PP

- THE TARGET AREAS OF 2ND PHASE PP WITH THE MUNICIPALITY STAFF, AND DREW UP CONNECTION LAYOUT PLANS AS THE BASE DATA FOR THE DESIGN OF 2ND PHASE OF PP.
- TENDER DOCUMENTS FOR THE DESIGN WORK OF 2ND PHASE PP WAS PREPARED
- SURVEY, PIPE DESIGN AND PROFILE CALCULATION OF 2ND PHASE OF PP WERE COMPLETED.

15. ASSISTANCE IN DEVELOPING WASTEWATER TARIFF SCHEME

❑WASTEWATER TARIFF

- THE WASTEWATER TARIFF WAS DEVELOPED BASED ON THE FOLLOWING PRINCIPLES:

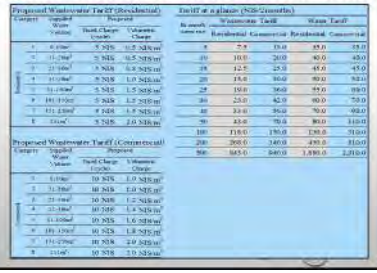
✓THE TARIFF IS DESIGNED TO BE APPLIED FROM 2014 TO 2018, FOR 5 YEARS

✓THE TARIFF REVENUE WILL COVER 100 % OF THE O&M COST AND A PART OF THE DEPRECIATION COST (I.E. ONLY THE PORTION OF INVESTMENT FUNDED BY JERICHO MUNICIPALITY)

✓CUSTOMERS ARE DIVIDED INTO 2 CATEGORIES, RESIDENTIAL AND COMMERCIAL, AS PRACTICED IN THE CURRENT WATER TARIFF.

✓COSTS ARE CLASSIFIED AS FIXED AND VARIABLE, AND ALLOCATED TO EACH CUSTOMER CATEGORY; THE FIXED CHARGE IS DESIGNED TO COVER THE BASIC COST AND THE VOLUMETRIC CHARGE IS DESIGNED TO COVER VARIABLE COSTS.

DRAFT SCHEME OF WASTEWATER TARIFF



❑CONNECTION FEE

- THE CONNECTION FEE WAS SET UP BASED ON THE FOLLOWING PRINCIPLES:

✓THE CONNECTION FEE IS DESIGNED TO COVER ALL OF THE CONSTRUCTION COST FOR CONNECTION PIT, CONNECTING PIPE AND RECEIVING PIT, OF WHICH MUNICIPALITY OF JERICHO HAS THE RESPONSIBILITY TO CONSTRUCT

✓THE CONSTRUCTION COST STATED ABOVE IS ESTIMATED USING THE RESULTS OF THE PRELIMINARY SURVEY OF THE PILOT PROJECT WHICH WAS CONTRACTED OUT TO THE LOCAL CONSULTANT; THE ESTIMATED COST IS 3,173 NIS PER CONNECTION.

- ✓THE CONNECTION FEE IS IMPOSED ON THE BUILDING FLOOR AREA AND IS CALCULATED BY "THE NUMBER OF ALL CONNECTIONS OF WATER SUPPLY SERVICE IN JERICHO MUNICIPALITY" MULTIPLIED BY "THE UNIT CONSTRUCTION COST 3,173 NIS/CONNECTION" STATED ABOVE AND DIVIDED BY "THE SUM OF BUILDING FLOOR AREA IN JERICHO MUNICIPALITY".
- ✓THE UNIT CONNECTION FEE WAS CALCULATED AS 16.6 NIS/M2, BUT WAS ADJUSTED TO 15 NIS/M2.

- APPROVED WASTEWATER TARIFF AND CONNECTION FEE

Category	Unit Fee	Notes
Sewerage Fee	1.0 NIS/m^3	For every cubic meter of water consumption
Connection Fee	13 NIS/m^2	For every square meter of building

16. PUBLIC AWARENESS

- IN OCTOBER 2013, THE PUBLIC RELATIONS EXPERT WAS DISPATCHED TO JERICHO FOR A PERIOD OF ONE MONTH
- THE PURPOSE WAS TO HELP C/PS FAMILIARIZE THE COMMUNITY WITH THE OUTCOMES OF THE PROJECT AND ITS BENEFITS.
- SEVERAL PUBLIC AWARENESS ACTIVITIES WERE CONDUCTED BY C/PS DURING THE MONTH TO PROMOTE THE PUBLIC AWARENESS ON THE CONNECTIONS TO THE PUBLIC SEWERS AND PAYING FOR THE SEWERAGE CHARGE.

THE OUTCOMES OF THE ACTIVITIES CONDUCTED DURING THE MONTH:

1. PAMPHLET
2. STICKER
3. INFORMATION SHEET
4. INCREASED USE OF FACEBOOK AND WEBSITE
5. EDUCATIONAL ACTIVITY FOR CHILDREN
6. PUBLIC MEETING WITH WOMEN
7. PUBLIC MEETING FOR THE PILOT PROJECT AREA
8. PROJECT NICKNAME

CONCLUSION

❑OUR NEEDS:

1.MORE TRAINING IN WATER QUALITY ANALYSIS.

2.PRACTICAL TRAINING IN MECHANICAL AND ELECTRICAL EQUIPMENT (VISIT FACTORIES).

3.PRACTICAL TRAINING IN OPERATION AND MAINTENANCE OF SEWERAGE SYSTEM.

4.PRACTICAL TRAINING IN SCADA SYSTEM.

5.PREVENTIVE MAINTENANCE PROGRAM.

THANK YOU

Coffee Break -1

OUTLINE OF ACTIVITIES ON THE PHASE II PROJECT

OUTLINE OF THE PHASE II PROJECT

Implementation Schedule of the Project

PR Progress Report DC/R: Draft Completion Report C/R: Completion report

Overall Goals

Sewerage facilities in Jericho municipality are operated and managed appropriately under sound financial conditions

Project Purpose

System for Operation and Management of Sewerage Business in Jericho municipality is established

Outputs and Verifiable Indicators (1/4)

Output	Verifiable Indicator
(1) Organizational base for departments in charge of sewage works is established	1) Departments in charge of sewage works are officially approved 2) The number of full-time staff for sewage works is **more than 14 persons** 3) The by-law for users of sewerage facilities is enforced 4) Sewerage management plan is approved by City Council

Outputs and Verifiable Indicators (2/4)

Output	Verifiable Indicator
(2) Capacity for appropriate operation and maintenance of the wastewater treatment plant (WWTP) is developed	1) **More than 6 staff** pass a technical examination for O&M of the WWTP 2) Hazardous materials exceeding the in-flow standard do not flow into the sewerage facilities 3) **70% of treated wastewater and 10% of sludge** are utilized 4) **More than 80% of serviced population** recognizes the need for the WWTP

Outputs and Verifiable Indicators (3/4)

Output	Verifiable Indicator
(3) Capacity for appropriate maintenance of sewer networks and promotion for connection to public sewers is developed	1) **More than 4 staff** pass the technical examination for sewer maintenance and promotion for connection to public sewers 2) **2,000 private sewers** are connected to public sewers and **60% of households** are satisfied with the process

Outputs and Verifiable Indicators (4/4)

Output	Verifiable Indicator
(4) Capacity for financial management of sewerage works is developed	1) Collection rate of user charge for sewerage facilities **exceeds 60%** 2) A mid-term financial plan is approved by relevant organizations 3) **More than 60% of serviced population** recognizes the need for payment of user charge 4) Income (subsidy, charges, etc.) exceeds expenditure in the management plan

Target Area and Activity Base

Jericho municipality and the surrounding areas including the refugee camps and others within the wastewater treatment area

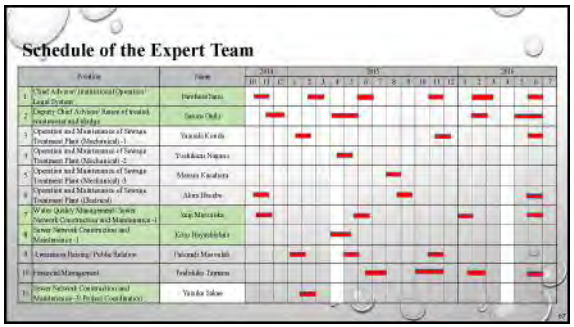
Basic policy of the Phase II Project

1. Mechanical/ electrical problems in WWTP may frequently occur during the first few months of operation. To solve and prevent these problems, the experts for O&M shall reside at the site to cooperate with the C/Ps.
2. More than one expert is to be at site as much as possible to prevent slumps and/or delays of the C/P activities.
3. To respect the independency and spontaneity of the C/Ps, and to raise the efficiency of the collaboration work with the C/Ps, weekly meetings are to be held to confirm the progress, goal and achievement methods.

Expert Team Members

No.	Position and Assigned Task	Name
1	Chief advisor/institutional operation/legal system	Hirofumi Sano
2	Deputy chief advisor/reuse of treated wastewater and sludge	Satoru Oniki
3	Operation and maintenance of WWTP (mechanical)-1	Yasuaki Konda
4	Operation and maintenance of WWTP (mechanical)-2	Yoshikazu Nagano
5	Operation and maintenance of WWTP (mechanical)-3	Masaru Kasahara
6	Operation and maintenance of WWTP (electrical)	Akira Hasebe
7	Water quality management/sewer network construction and maintenance-1	Keiji Matsuoka
8	Sewer network construction and maintenance-2	Kozo Hayashishita
9	Awareness raising/public relation	Tatsushi Masuduh
10	Financial management	Toshihiko Tamana
11	Sewer network construction and maintenance-3/ project coordination	Yusuke sakae

Schedule of the Expert Team



Counterpart Team Members

Output	Name	Qualification
Project chief	Basel Hijazi	Civil engineer
(1) Establishment of organizational base for departments in charge of sewage works	Ghazi A. Al-Nsji	Civil engineer
	Iyad Hamdan	Administration
	Ibrahim Abu Seibu	Mechanical engineer
(2) Development of capacity for O&M of the WWTP	Ibrahim Abu Seibu	Mechanical engineer
	Mohammed Awajneh	Mechanical technician
	Maher Al Swaidy	Electrical technician
	Omran Khalat	Mechanical engineer
	Ibrahim Abu Seiba Omran Khalat	Laboratory
(3) Development of capacity for O&M of sewer network and promotion for connection to public sewers	Mohammed Fetyani	Civil engineer
	Mohammed Isayed	Civil engineer
(4) Public awareness	Mohammed Azmuty	Public relation
Financial management	Mohammed Abu Mnsen	Finance management

Deliverables of Capacity Development

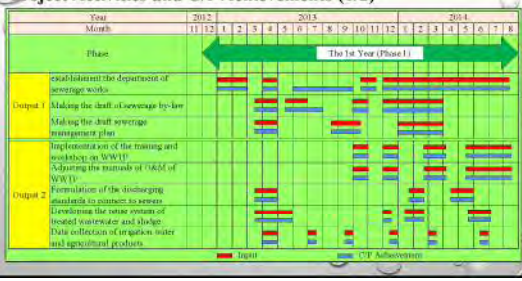
1. Manual and trouble shooting of water quality management
2. Manual and trouble shooting of mechanical equipment
3. Manual and trouble shooting of electrical equipment
4. Safety and hygiene manuals for workers of sewerage facilities
5. Completion Report of the Pilot Project
6. Manual and trouble shooting of sewage pipe connection for each house
7. Operation and maintenance manual for sewers
8. Financial planning manual

Undertaking by Palestinian Side

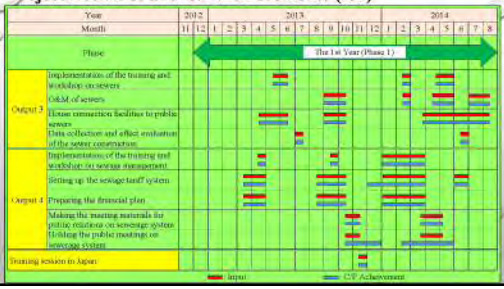
1. Safety and security for the Expert Team
2. Provision of project office and equipment in Jericho
3. Human resource allocation for representative of the C/P, and supporting staff in related departments
4. Arrangement of duty free entry of equipment which the Team will bring into Palestine
5. Support and arrangement for transferring money and bringing of project budget into Palestine
6. Arrangement for required material and information, and coordination with related organizations
7. Arrangement of permission for taking local materials out of Palestine
8. Arrangement of duty free status for the project team and for foreigner registration of the project team members
9. Arrangement for project activities to be undertaken in private properties and/or restricted area

Project Activities and C/P Achievements in the Phase I Project

Project Activities and C/P Achievements (1/2)



Project Activities and C/P Achievements (2/2)



Quantitative Achievement by the Verifiable Indicators in the Phase I Project

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Output-1
The number of full-time staff for sewerage works is **more than 14 persons**.

As of November 10, 2014

Post		Number of Personnel	Person in Charge	Full-time/ Concurrent
Sewerage section chief		1	Ghazi A. Al-Naji	Full-time
Sewer network & house connection		2	Mohammed Fatyani	Concurrent
			Mohammed Isayed	Concurrent
WWTP	Manager	1	Ibrahim Abu Seiba	Full-time
	Operator	2	Ibrahim Abu Seiba	Full-time
			Omran Khalaf	Full-time
	Worker & security guard	3	Adnan Ashoor	Full-time
			Ramadan Al Ghoul	Full-time
			Ibrahim Jahite	Full-time
	Maintenance	Mechanical: 1	Mohammed Awajneh	Concurrent
		Electrical: 1	Maher Al Swaidy	Concurrent
	Laboratory	2	Ibrahim Abu Seiba	Full-time
			Omran Khalaf	Full-time
Total personnel		15	Full-time	9 person
Actual personnel		10	Actual full-time	6 person

Output-3
2,000 private sewers are connected to public sewers.

(1) Actual numbers of private sewers as of October 25, 2014

1) 85 house connections are connected by the 1st JICA Pilot Project
2) 51 house connections will be started to use after approval by Jericho municipality

(2) Expected connection numbers of private sewers

1) Hundreds of house connections will be constructed by the 2nd JICA Pilot Project
2) Following the progress of the USAID Project, house connections funded by the Palestinian side will be installed acceleratory

---

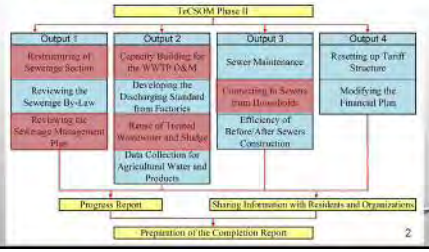
Output-4
Collection rate of user charge for sewerage facilities **exceeds 60%**.

According to the information of Jericho municipality, collection rate of user charge is 0% as of October 28, 2014.
To cope with this issue, Jericho municipality should have introducing a new collection system using the IT device or manual collection system as soon as possible.

IMPLEMENTATION PLAN OF THE PHASE II PROJECT

November 16, 2014
NJS Consultants Co., Ltd.

1. Flow Chart of Implementation Methodology



2

2 Activities for the Output 1

2-1 Restructuring of Sewerage Section

- Number of House Connections
- Generated Wastewater to the WWTP
- Generated Sewage Sludge and its Treatment
- Reuse Treated Wastewater and Sludge

3

2-2 REVIEWING THE SEWERAGE MANAGEMENT / FINANCIAL PLAN & TARIFF STRUCTURE

- AN ANNUAL ROLLING PLAN
- RE-EXAMINATION SHALL BE MADE WITH C/PS ACCORDING TO THE ACTUAL PROGRESS.
- NO. OF HOUSE CONNECTIONS, AMOUNT OF WASTEWATER
- TARIFF COLLECTION
- ACTUAL O&M COSTS AT THE WWTP

4

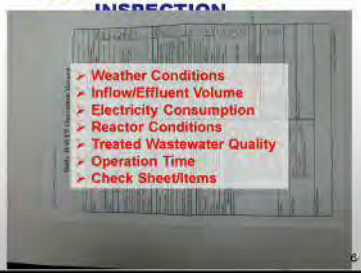
3 ACTIVITIES FOR THE OUTPUT 2

3-1 CAPACITY BUILDING FOR THE WWTP O&M

- EXECUTION OF PERIODIC INSPECTION AND MAINTENANCE
- PLANNING AN ANNUAL MAINTENANCE SCHEDULE
- TROUBLESHOOTING EXERCISES
- CONSIDERATION/EXECUTION OF OPERATION METHODS ACCORDING TO FLOW VOLUME AND QUALITY
- CONSIDERATION/EXECUTION OF OPERATION METHODS FOR ELECTRICITY COST REDUCTION
- GUIDANCE AND WORK ASSIGNMENT FOR NEW STAFF
- PREPARATION OF WWTP EXPLANATORY MATERIALS FOR EXTERNAL USE, FOR VISITORS AND ORGANIZATIONS

5

DAILY MAINTENANCE & INSPECTION



6

3-2 REUSE OF TREATED WASTEWATER AND SLUDGE

- AN EXPERIMENTAL FARM (PILOT PLANT) WILL BE CREATED INSIDE THE WWTP SITE
- PRIORITY REUSE
  1. MAINTENANCE FOR WWTP (FOR DEFOAMING)
  2. IRRIGATION AND AMENITY AT THE GARDEN
  3. PILOT PLANT

7

IRRIGATION IN GARDEN IN WWTP

Sprinkling TE to lawns

Irrigation: twice a day
1 time: 10 – 15 min
By manual

Dropping TE to lawns

8

AMENITY USE

9

LOCATION OF PILOT PLANT AT WWTP

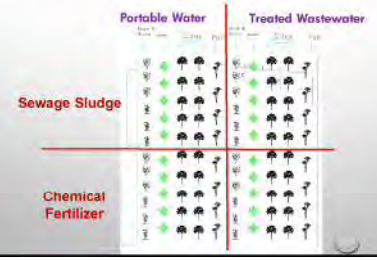
TARGET PRODUCTS

PALM, GRAPE, CITRUS

AREA: 1,800 M²

10

PILOT PLANT



11

JERICHO WWTP OBLIGATIONS

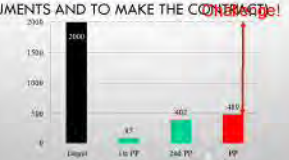
- TREATED WASTEWATER QUALITY TEST
- SEWAGE SLUDGE (SOIL) TEST
- INFORMATION DISCLOSURE ON ABOVE TEST RESULTS

- FOR GUARANTEE OF THE QUALITY TO SELL TE AND SLUDGE
- FOR AVOIDING CONFLICTS BETWEEN JM AND CUSTOMERS REGARDING PROBLEMS SUCH AS REDUCTION/DETERIORATION OF PRODUCTS AND/OR PLANT WITHERING

12

4. Activities for the Output 3
4.1 CONNECTING TO SEWERS FROM HOUSEHOLDS (PILOT PROJECT)

- PILOT PROJECT (DESIGN, PREPARE BIDDING DOCUMENTS AND TO MAKE THE CONTRACT)



13

PILOT PROJECT IMPLEMENTATION SCHEDULE

Division	Items	2014				2015									
		9	10	11	12	1	2	3	4	5	6	7	8	9	10
Pilot Project	Survey and design for 2nd phase PP														
	Announcement and Quotation														
	Selection of contractor														
	Construction														

15

5. Implementation Schedule by Output and Subject (1/2)

16

5 Implementation Schedule by Output and Subject (2/2)

17

6. COMPARATIVE RESULTS OF RESPONSES TO THE AWARENESS AND SOCIAL SURVEYS

18

7. SHARING INFORMATION WITH RESIDENTS AND RELATED ORGANIZATIONS

Objectives	1) Application process, fees and resident's legal obligations 2) Connecting to the public sewer 3) Proper use of the sewer system 4) The Project benefits for the City 5) Raising awareness on the cesspits related environmental issue
Method	Local news (TV, radio) Municipality website Handouts (leaflets, stickers, pamphlets, posters, calendars, educational material for children) WWTP tours Local festivals, etc

19

PUBLIC AWARENESS

Pamphlet

20

THANK YOU FOR YOUR ATTENTION

The 4th JCC Meeting (December 2nd, 2015)

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

Agenda for the Kick-Off Meeting on Final Evaluation Mission for the Terminal Evaluation

(2nd Year: Phase II)

1. Date:

November 29 (Sun), 2015, 9:00-11:00

2. Venue:

The Conference Room in the Municipality of Jericho

3. Agenda

1. Opening Statement **(by the Mayor of Jericho Municipality)**	**9:00- 9:10**
2. Remarks on Terminal Evaluation **(by Mr. Iijima, JICA)**	**9:10- 9:20**
3. Outline of the Grant Aid Project and TeCSOM **(by C/P Mr. Mohammed Fetyani)**	**9:20- 9:45**
4. (Coffee Break)	**9:45-10:00**
5. Outline of Achievements on TeCSOM **(by C/P Mr. Ibrahim Abu Seiba)**	**10:00-10:30**
6. Discussion	**10:30-10:50**
7. Closing Remarks **(by the Palestinian Water Authority)**	**10:50-11:00**

End

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

Agenda for the Joint Coordinating Committee (JCC) Meeting for the Terminal Evaluation

(2nd Year: Phase II)

1. Date:

December 2 (Wed), 2015, 9:30-11:00

2. Venue:

The Conference Room in the Municipality of Jericho

3. Agenda

1) Opening Statement (by the Mayor of Jericho Municipality)	**9:30- 9:40**
2) Remarks (by the Palestinian Water Authority)	**9:40- 9:50**
3) Presentation of the Terminal Evaluation Report (by Mr. Mochizuki)	**9:50-10:05**
4) Recommendations on Terminal Evaluation (by Mr. Iijima, JICA)	**10:05-10:20**
5) Discussion	**10:20-10:40**
6) Closing Remarks (by Ms. Mitsui, Chief Representative of the JICA Office in Tel Aviv)	**10:40-10:50**
7. Sinning on the Minutes of Meeting	**10:50-11:00**

End

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERED OF THE PALESTINE
ON
TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

Jericho, December 2, 2015

Mr. Daisuke Iijima
Leader
Terminal Evaluation Team
Japan International Cooperation Agency

Mr. Mohammed Jalaitah
Mayor
Jericho Municipality

Ms. Yuko Mitsui
Chief Representative
JICA Palestine Office
Japan International Cooperation Agency

Mr. Nael Ali Ahamad
Manager, Project Management Unit
Palestinian Water Authority

The Terminal Evaluation Team, organized by the Japan International Cooperation Agency, was dispatched from November15 to December 2, 2015 to review the progress of the Japanese Technical Cooperation Project for "Technical Assistance and Capacity Building Project for the Jericho Sanitation Project."

The Terminal Evaluation Team visited Jericho municipality to exchange views and opinions on the project with project stakeholders and had a series of discussion with the Palestinian authorities concerned.

As a result of the discussions, both parties agreed on the matters referred to in the attached document hereto.

END

Attached document: Terminal Evaluation Report

TERMINAL EVALUATION REPORT
ON
TECHNICAL ASSISTANCE
AND
CAPACITY BUILDING PROJECT
FOR
THE JERICHO SANITATION PROJECT

Japan International Cooperation Agency

and

Authorities Concerned of the Palestine Authority

December2, 2015

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Abbreviations and Acronyms

C/P	Counterpart
JAIP	Jericho Agro-Industrial Park
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
JSC	Joint Service Council
M/M	Minutes of Meeting
MoA	Ministry of Agriculture
MoLG	Ministry of Local Government
NIS	New Israel Shekel
O&M	Operation and Maintenance
OJT	On-the-Job Training
PA	Palestinian Authority
PDM	Project Design Matrix
PIEFZA	Palestinian Industrial Estates and Free Zones Authority
PO	Plan of Operation
PWA	Palestine Water Authority
R/D	Record of Discussion
SCADA	Supervisory Control And Data Acquisition
USAID	United States Agency for International Development
WWTP	Wastewater Treatment Plant

1. Introduction

1-1. Background of the Project

The Jericho Jordan Valley Area is located in the world-famous Great Rift Valley. Owing to the topographic conditions, wastewater generated in urban areas has no other discharging points, thus, if remains within the valley. Since there is no proper wastewater treatment facilities available in this area, the contamination of the groundwater vein, which is the sole water source for the water supply system of the Jericho municipality, has been found in serious condition in January 2010.

From a viewpoint of effective use of the limited water source, treated wastewater is expected to be used as a new water source. Agricultural activities have been prospected in this area and construction of an "Agro-Industrial Park" is planned as a core project in the "Corridor for Peace and Prosperity" that is being promoted by the Government of Japan. Wastewater generated in the park is also planned to be treated and utilized.

Based on these circumstances, the Palestinian Authority requested Jericho Wastewater Collection, Treatment System and Reuse Project in Jericho municipality located in the Jordan River's West Bank Area in August 2008 under the Japanese Grant Aid Assistance. In response to the request, the Government of Japanese decided to conduct Preparatory Survey and JICA conducted survey to examine the target facility construction sites, wastewater treatment method and so forth. The Exchange of Note and Gran Agreement for the Grant Project were concluded on February 28, 2011.

The Palestinian Authority also requested technical cooperation for the Project and the Government of Japan accepted the request. JICA conducted Detailed Planning Survey from 20th November, 2011 to 20th December, 2011. Both sides agreed the outline of the Project.

1-2. Summary of the Project Design

<Overall Goal>
Sewerage facilities in Jericho municipality are operated and managed appropriately under sound financial condition.
<Project Purpose>
System for operation and management of sewerage works in Jericho municipality is established.
<Expected Outputs>
(1) Strategic Business Plan for sewerage works in Jericho municipality is developed. (2) Capacity of Jericho municipality for appropriate operation and maintenance of the wastewater treatment plant (WWTP) is developed. (3) Capacity of Jericho municipality for appropriate maintenance of sewer networks is developed. (4) Capacity of Jericho municipality for financial management of sewerage works is

developed.
<Project Implementation Period>
From December 2012 to July 2016
<Implementing Agency>
Jericho Municipality
<Target Area>
Jericho municipality and its surrounding areas
<Beneficiaries>
Jericho municipality, Residents of Palestine

2. Outline of the Review

2-1. Background of the Review

Technical Assistance and Capacity Building Project for the Jericho sanitation Project (hereinafter referred to as "the Project") is a bilateral technical cooperation project between the Government of Japan through JICA and Authorities Concerned of Palestine. This four-year project was launched in December 2012 to improve the system for operation and management of sewerage works in Jericho municipality. As the Project has reached final stage of the whole project period, the Terminal Evaluation of the Project was conducted by the Terminal Evaluation Team (hereinafter referred to as "the Evaluation Team").

2-2. Objectives of the Review

The objectives of the Terminal Evaluation are listed as follows:

(1) To jointly review inputs, activities, and outputs of the Project to date and assess the likelihood of achieving the Project Purpose as well as the Overall Goal in due course;

(2) To jointly analyze the progress and achievements in reference to the Project Design Matrix (PDM) ver. 2(see Annex 2) and the five criteria for evaluation (relevance, effectiveness, efficiency, impact, and sustainability); and

(3) To discuss measures to be taken for the Project's further improvement and to prepare the Terminal Evaluation Report.

2-3. Members of the Evaluation Team

Japanese Side

Name	Title	Organization
Mr. Daisuke Iijima	Leader	Advisor, Environment Management Team 2, Environment Management Group, Global Environment Department, JICA Headquarter
Mr. Noriaki Yokouchi	Cooperation and Planning	Assistant Director, Environment Management Group, Global Environment Department, JICA Headquarter
Mr. Akihiro Mochizuki	Evaluation and Analysis	Senior Consultant, ICONS Inc.

2-4. Schedule of the Evaluation

The Terminal Evaluation was conducted from November15 to December 2, 2015(see Annex 1 for the detailed schedule of the Terminal Evaluation).

2-5. List of Interviewees

The Terminal Evaluation Team conducted interviews with project stakeholder, including JICA Experts.

Name	Position	Organization
Mr. Basel Hijazi	Head of Engineering Department	Jericho Municipality
Mr. Eyad Anabosi	Head of Quality Section	Jericho Municipality
Mr. Mohammed Abu Mohsen	Head of Financial Department	Jericho Municipality
Mr. Mohammed Fetyani	Head of Water and Sewerage Department	Jericho Municipality
Mr. Mohammed Awajneh	Water Networks Maintenance/ Sewerage Section, Water and Sewerage Department	Jericho Municipality
Mr. Maher Swaidy	Electrician, Sewerage Section, Water and Sewerage Department	Jericho Municipality
Mr. Mohammed Isayed	Civil Engineer, Strategic Planning and Economic Development Section	Jericho Municipality
Mr. Mohammed Azmouti	Public Relations Section, Public Relations Department	Jericho Municipality
Mr. Ibrahim Abu Sibaa	Head of Sewerage Section, Water and Sewerage	Jericho Municipality

	Department	
Mr. Omran Khlaf	Operator, Sewerage Section, Water and Sewerage Department	Jericho Municipality
Mr. Hazem Bali	Engineer, Project Planning Section, Engineering Department	Jericho Municipality
Mr. Abed Habad	Head of Revenue Collection Management Section, Financial Department	Jericho Municipality
Mr. Nael Ali Ahmad	Manager, Project Management Unit	PWA
Mr. Rami Abu Ktaish	Project Management Specialist	USAID
Mr. Karim K. Husari	Senior Projects Manager	Black & Veatch
Mr. Jamal Awwadat	Committee President	Aqbat Jaber Camp
Mr. Imad Abu Sombul	Manager Director	Aqbat Jaber Camp
Mr. Takeo Matsuzawa	Team Leader	PIEFZA
Mr. Kunitoshi Saito	Business Development Services Expert	PIEFZA
Mr. Hirofumi Sano	Chief Advisor	JICA Expert
Mr. Satoru Oniki	Deputy Chief Advisor	JICA Expert
Mr. Toshihiko Tamama	Financial Management	JICA Expert

3. Methodology of the Review

3.1.Review Method

In accordance with the New JICA Guidelines for Project Evaluation (the First Edition, 2010), the Terminal Evaluation Team evaluated the Project, taking the following steps:

Step 1. Prepare an evaluation grid that lists questions, data/information necessary for the review and information sources;

Step 2. Collect data and information necessary for the review;

Step 3. Assess the Project's achievements in reference to the PDM and the Plan of Operation (PO) (see Annex 3);

Step 4. Analyze the factors that promoted or inhibited the Project's achievements, including factors relating to the project design and the project implementation process;

Step 5. Analyze the Project from the viewpoints of the five evaluation criteria, defined in "3-2 Five Evaluation Criteria";

Step 6. Draw up recommendations from the analysis;

Step 7. Share the preliminary evaluation results with stakeholders and discuss the future direction of the Project; and

Step 8. Reach an agreement on the evaluation results between the Japanese and Palestinian sides.

3.2.Five Evaluation Criteria

Five evaluation criteria used in the Terminal Evaluation are defined as follows:

Relevance: Relevance is assessed in terms of the Project's validity in relation to the development policy of the Government of Palestine at the evaluation stage, Japan's Official Development Assistance (ODA) policy, and the needs of the Project beneficiaries, as well as the appropriateness of the project approach to address the needs.

Effectiveness: Effectiveness is assessed based on the prospect of achieving the Project Purpose by the end of the project period and whether this is due to the Project's Outputs.

Efficiency: Efficiency is assessed by focusing on the relationship between Outputs and Inputs in terms of timing, quality and quantity of Inputs. It measures to what extent Project Inputs have economically been converted into Outputs in consideration of the achievements of both Inputs and Outputs.

Impact: Impact is assessed based on the prospect of achieving the Overall Goal within three to five years of the project completion and the positive and negative changes that have been produced, directly or indirectly as a result of project implementation.

Sustainability: Sustainability is assessed in terms of institutional, organizational, financial and technical aspects, by examining the extent to which the achievements of the Project will be maintained or further expanded by Palestine side after the project period.

3.3.Data Collection Methods

The following sources of information and data were used in the Terminal Evaluation:

1) Interviews with and/or questionnaires' answers from Counterparts (C/Ps), collaborating organizations and the Japanese expert team.

2) Site visits
   - Wastewater Treatment Plant
   - Project Site of Pilot Project
   - Jericho Agro Industrial Part
   - Aqbat Jaber Refugee Camp

3) Documents agreed upon by both sides prior to and/or during the course of the Project implementation, including the Record of Discussions (R/D), Minutes of Meetings (MM), and PDM;

4) Records of inputs from both sides and activities of the Project, including the records on C/P nomination, JICA Experts' assignment, and actual expenses covered by both Palestinian and Japanese sides;

5) Documents that provide data and information indicating the degree of achievement of the Project Outputs, Project Purpose, and Overall Goal; and

6) Documents that show the project's relevance and sustainability (e.g. Japan's Country Assistance Policy for Palestine).

4. Project Performance to Date

4-1. Achievements of Inputs

(1) Japanese Side

1) Assignment of Experts

The Japanese side has assigned 12 experts to the Project. The assigned experts' fields of expertise are the following.

Table 1. Expertise of JICA Experts

No.	Position and/or Assigned Tasks	Name
1	Chief Advisor / Institutional Operation/ Legal System	Mr. Hirofumi Sano
2	Deputy Chief Advisor / Reuse of treated wastewater and sewage sludge	Mr. Satoru Oniki
3	Operation and Maintenance of Sewage Treatment Plant (Mechanical)-1	Mr. Yasuaki Konda
4	Operation and Maintenance of Sewage Treatment Plant (Mechanical)-2	Mr. Yoshikazu Nagano
5	Operation and Maintenance of Sewage Treatment Plant (Mechanical)-3	Mr. Masaru Kasahara
6	Operation and Maintenance of Sewage Treatment Plant (Electrical)	Mr. Akira Hasebe
7	Water Quality Management / Sewer Network Construction and Maintenance -1	Mr. Keiji Matsuoka
8	Sewer Network Construction and Maintenance -2	Mr. Kozo Hayashishita
9	Awareness Raising / Project Coordinator	Ms. YasumiTsutsui
10	Financial Management	Mr. Toshihiko Tamama
11	Sewer Network Construction Assistance /Project Coordinator	Mr. Yusuke Sakae
12	Awareness Raising	Ms. FatemehMasouteh

2) Provision of Machinery and Equipment

The Japanese side has provided various equipment related to sewerage system (e.g. Electric panel for pump, Distribution pipe for Treated Effluent, Oxygen & Hydrogen sulfide meter and others) and office equipment (Laptop computers and others) that are necessary for the project implementation (see Annex 4. List of Equipment provided by the Japanese Side).

3) Training

As it shown below in detail, since 2013, eleven counterpart members have attended the training in Japan.

No.	Name	Position / Organization
1	Mr. Basel Hijazi	Head/ Engineering Department/ Jericho Municipality (1995)
2	Mr. Ghazi Aki	Director of Waste Water Department/ Jericho Municipality (2013)
3	Mr. Eyad Anabosi	Head/ Quality Unit/ Jericho Municipality (2005)
4	Mr. Mohammed Abumohsen	Head/ Financial Planning and Analyzing Section / Jericho Municipality (2004)
5	Mr. Mohammed Fetyani	Head/ Projects Executing and Supervision Division / Engineering Department/ Jericho Municipality (2004)
6	Mr. Mohammed Awajneh	Water Pumps Maintenance/ Water and Sewerage Department, Water Quality and Maintenance Section/ Jericho Municipality (2006)
7	Mr. Maher Swady	Electrician/ Engineering Department, Maintenance Section / Jericho Municipality (1994)
8	Mr. Mohammed Isayed	Civil Engineer/ Execution and Supervision of Project Section/ Engineering Department / Jericho Municipality (2011)
9	Mr. Mohammed Azmouti	Head of Media Section/ Public Relations and Media/ Jericho Municipality (2013)
10	Mr. Ibrahim Abusibaa	Engineer/ Water and Sanitation Department/ Jericho Municipality (2009)
11	Mr. Nael Ali Ahmad	Manager/ Projects Management Unit/ PWA(2010)

4) Local Expenses

The Japanese side has covered USD 1,173,782 in total as local expenses as of 31st October, 2015

1) Operation cost in Palestine borne by Japan (Unit: US$)

	December 2012 - August 2014	October 2014 – October 2015	TOTAL
General local expenses	137,665	132,917	270,581
Equipment	6,251	3,459	9,710
Local consultant	312,879	571,574	884,453
Training in Japan	9,038	0	9,038
Total	465,833	707,950	1,173,782

(2) The Palestinian Side

1) Assignment of Counterparts (C/Ps)

The Palestinian side has assigned C/Ps from Jericho municipality and PWA for the implementation of project activities.

Corresponding task	Name	Title
Project Chief	Mr. Based Hijazi	Head of Engineering Department
Output 1 "Establishment of organization base for departments in charge of sewage works"	Mr. Ghazi A. Al-Naji	Director of Water & Wastewater Department
	Mr. IyadHamdan	Management
	Mr. Mohammed Fetyani	Civil Engineer
	Mr. Ibrahim Abu Seiba	Mechanical Engineer
Output 2 "Development of capacity Jericho municipality for O&M of the WWTP"	Mr. Ibrahim Abu Seiba	Mechanical Engineer
	Mr. Mohammed Awajneh	Technician
	Mr. Maher Al Swaidy	Technician(Electricity)
Output 3 "Development of capacity Jericho municipality for O&M of sewer network and promotion for connection to public sewers"	Mr. Mohammed Isayed	Civil Engineer
	Mr. Mohammed Fetyani	Civil Engineer
	Mr. Ibrahim Abu Seiba	Mechanical Engineer
Output 4 "Public awareness"	Mr. Mohammed Isayed	Civil Engineer
	Ms. WiamIreket	Public Relations
	Mr. Mohammed Azmuty	Public Relations
Output 4 "Financial management"	Mr. Mohammed Abu Muhsen	Finance Management
	Mr. Raja Baha Shareef	Finance Management

2) Facilities

The Palestine side has provide done office in Jericho municipality to be used as a project office, and also provided one meeting room.

3) Local Costs

The Palestine side has covered 242,041 NIS in total for management cost, operation-maintenance cost for wastewater treatment plant and others as of October 2015. In addition to the costs table above, the Palestinian side has covered salary of C/Ps in the Project's activities.

4-2. Achievements of Activities

As shown in the Plan of Operation (see Annex 3), project activities have been conducted as planned. However the activities corresponding to Output 3 and Output 4 are relatively delayed. Mid-term Review to the Project was not conducted, therefore, no recommendations were suggested to be implemented.

4-3. Achievements of Outputs

Output 1: Strategic Business Plan for sewerage works in Jericho municipality is developed.
Objectively Verifiable Indicator (hereinafter "indicator[s]"): Indicators: 1-1 Departments in charge of sewerage works is officially approved in Jericho municipality 1-2 The number of full-time staff for sewage works is more than 14 persons. 1-3 The by-laws for users of sewerage facilities is enforced. 1-4 Sewerage Strategic Business Plan is approved by city council.

The achievement level of Output 1 is deemed as relatively high.

Indicator 1-1: The indicator has been achieved. The letter has been submitted from Jericho municipality that Sewerage department was established officially in June, 2013.

Indicator 1-2: It is not achieved. Currently, there are 16 posts including the director of Water and Sewerage department. At the time of Terminal Evaluation, 9 full-time staffs have been assigned. The municipality is under recruiting five more staffs in 2016 to fulfill the indicator, Due to budget restriction for fiscal year of municipality, recruitment will be conducted in the beginning of 2016.

Indicator 1-3: It is achieved. It has been approved by Jericho municipality council, Ministry of Local Government and Palestine Water Authority in March, 2014

Indicator 1-4: It is achieved. Same as indicator 1-3, sewerage Strategic Business Plan was also approved with user charge modification by city council in March, 2014.

Output 2: Capacity of Jericho municipality for appropriate operation and maintenance of the wastewater treatment plant (WWTP) is developed
Indicators: 2-1 More than 6 staff pass a technical examination for O&M of the WWTP. 2-2 Hazardous materials exceeding the quality standard do not flow into sewerage facilities 2-3 70 % of treated wastewater and 10 % of sludge are utilized 2-4 More than 80 % of served population recognizes the need for the WWTP.

The achievement of Output 2 is considered relatively high at the time of Terminal Evaluation. In order to comply fully the indicator 2-3, more usage of sludge is required.

Indicator 2-1: It has been achieved. Eight staff passed the technical examination for O&M of the wastewater treatment plant at the time of Terminal Evaluation.

Indicator 2-2: It has been achieved. The quality test of treated wastewater and sludge was conducted three times in December 2014, May 2015 and November 2015. According to the result, both treated water and sludge contain less quantity of heavy metal which is permitted in the Water Quality Standard for Agriculture Use and Use of Sewage Sludge in Agriculture.

Indicator 2-3: The indictor is partially achieved. At the time of October 2015, the wastewater treatment plant has produced approximately 8,649 m^3/month treated wastewater and approximately 7,192 m^3/month of treated water which is equivalent to 83 percent of total production has been reused. This is the effluent flow data which obtained by SCADA data, thus the accuracy is confirming. Currently, considering of stable supply to clients, the Project has been supplying only one farmer who collaborates with the experiment of the Project. Meanwhile, the Project and Jericho municipality has an intention to establish the required procedure to conclude the contract for the supply/usage of treated wastewater in near future. Therefore, the percent of treated wastewater usage is expected to achieve 100% without notable obstacle. On the other hand, the sludge has been produced approximately 30,100kg, and is utilized approximately 488kg which is equivalent to1.6% of total quantity at the time of Terminal Evaluation. Due to environment issue and save a disposal cost, the Project has discussed with Ministry of Agriculture for the usage of sludge which generates from the WWTP. Prior to the discussion, Ministry of Agriculture has a policy to promote a sludge, because there are also WWTPs in other cities such as Al-Bireh, Nablus and Jenin. Since Ministry of Agriculture has authorized "The usage of Sewage Sludge in Agriculture" in November 2015. Jericho municipality has agreed to the regulation on behalf of contribution to environment protection.
Then, the Project and Jericho municipality are ready to promote the usage of sludge at first in the municipality's farm as an experiment during the rest of the Project period.

Indicator 2-4: The indicator has been achieved. The Project conducted questionnaire surveys the recognition the needs for the WWTP through questionnaire to the population who have

participated to workshops held by the Project in 2013, 2014 and 2015. The recognition of the served population has been increased as 64% among 100 participants in 2013, 86% among 111 participants in 2014 and 96% among 105 participants in 2015.

Output 3: Capacity of Jericho municipality for appropriate maintenance of sewer networks is developed.
Indicators: 3-1 More than 4 staffs pass a technical examination for sewer maintenance and promotion for connection to public sewers. 3-2 2,000 private sewers (house connections) are connected to public sewers and 60 % of the connected building owners is satisfied with the system.

The achievement level of Output 3 is considered as medium. Because the indicator3-2 is not achieved.

Indicator 3-1: The indicator has been achieved. Currently, all five staffs passed both exams. There are two types of exam. Exam A is for sewer maintenance, exam B is for sewer cleaning.

Indicator 3-2: At the time of Terminal Evaluation, it is not achieved due to delay of house connection to sewer system. Therefore, the probability of achievement is considered as low at the time of the Project.

As of November 28th 2015, 1,222 households connected to the sewer system. Among the connected households, Pilot Project connected 1,179 households meanwhile Jericho municipality connected 43 households. It should be mentioned that high cost of internal connection causes hesitance for the connection. According to the cost quotation by the Project, internal connection cost is 7 to 10 times higher than connection fee.

On the other hand, the Project has implemented the customer satisfaction survey for 70 connected owners/households to sewer system in regard to satisfaction to new sewerage system in June 2015. The survey has implemented to 105 persons and 105 persons have answered to the questionnaire. Among the 105 person, 86 % of owners/residents have shown their satisfaction for the connection to public sewers due to disappearance of bad smell from cesspits, no insects or rats, more space due to the cesspit backfill, or cleaner environment in the city.

Output 4: Capacity of Jericho municipality for financial management of sewerage works is developed.
Indicators: 4-1 Collection rate of user charge for sewerage facilities exceed 60 % 4-2 A mid-term financial plan is approved by relevant organizations. 4-3 More than 60 % of served population recognizes the need for payment of user charge. 4-4 Income (subsidy, borrowing, charges, etc.) exceeds expenditure in the Strategic Business Plan

The achievement level of Output 4 is deemed as medium.

Indicator 4-1: The collection rate of user charge for sewerage facilities increase to 16 %[1] in billed amount base at September and October 2015. Currently, the user charge (tariff) collection rate of water is 37% for the average in September and October, 2015. Considering the circumstance, the probability of achievement of the indictor is considered as low at the end of the Project. There are two reasons the sewage tariff collection rate remains low in Jericho. The one is that even after the bill of sewage and water are integrated in the same bill in June 2015, some customers insist to pay only water tariff and refuse to pay sewerage tariff at the Customer Center. The staffs of the Customers Center accept those claims in order to collect the tariff of water, at least. The second reason is that even the water tariff collection rates remains 30 % approximately. Relaxed enforcement is a major cause hindering achievement.

However, it shows improving trend due to discount campaign for sewerage charge from 1.0 NIS/m^3 to 0.5 NIS/m^3 in order to increase user charge rate collection. The campaign has started from September 2015 and will be continued until December 2017. The tariff collection rate is increased but it is also included the bills which passed due date. Therefore, it is needed to be analyze the effect of campaign. In addition, the Project team has started visiting houses of potential clients to persuade and to encourage for payment of user charge. They have started visiting houses from November 2015. At the time of Terminal Evaluation, they have visited 16 houses and 5 of them have submitted application for the connection to sewer system.

Indicator 4-2: It has been achieved. Strategic Business Plan 2014-2018 for Managing Jericho Sewerage System has been elaborated in March 2014. However, the mid-term financial plan has been revised completely in all activities and plan of operation due to introducing discount campaign for improvement of collection rate. The revised version has been prepared in November 2015. Then the Project will explain to PWA and mayor for approval. .

Indicator 4-3: It has been achieved. According to the survey which was conducted to 105 served population in public meeting/workshop during 2015, 98% of served population have recognized for the need for payment of user charge according to questionnaire.

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1 Total amount of bill corresponding to usage in September and October, 2015 is 13,600 NIS. Meanwhile, 2,202 NIS has been paid until due date for the bill.

Indicator 4-4: The indicator has not been achieved at the time or Terminal Evaluation. And it seems difficult to be achieved at the end of the Project due to delay of following reasons such as "slow increase of connection number to sewer system", "slow improvement of user charge collection rate" and "no inflow from JAIP". According to the Strategic Business Plan 2014, it was estimated to achieve a 25,000 NIS in surplus. Currently, it is estimated to achieve a 3,000,000 NIS in accumulated deficit due to reasons described before. Therefore, the Project has revised and modified the Strategic Business Plan according to this sewerage connection trend and the coordination with donors.

4-4. Prospect for Achieving the Project Purpose

Project Purpose: System for operation and management of sewerage works in Jericho municipality is established.
Indicators: (1) Departments in charge of sewerage works is officially approved in Jericho municipality (2) The by-law for users of sewerage facilities is enforced. (3) O&M of sewerage facilities is conducted based on manuals and plans. (4) Sewerage works are managed based on a Strategic Business Plan

Administrative and technical aspects have been achieved in terms of technical transfer. Meanwhile finance aspect has the challenge to be solved. The importance of financial aspect

Indicator (1): The indicator has been achieved. The Water Department has been changed to Water and Sewerage Department officially in June, 2013.

Indicator (2): The city council of Jericho municipality, the Ministry of Local Government and the Palestine Water Authority approved the by-law for users of sewerage facilities in March, 2014.

Indicator (3): It has been achieved. The manuals namely security control, operation & maintenance and troubleshooting for sewerage facility was prepared in 2014.The daily operation is being conducted according to the manuals. The Project will continue to improve the manuals for the rest of the Project period.

Indicator (4): It is in the process to revise Strategic Business Plan at the time of Terminal Evaluation. The Strategic Business Plan prepared in 2014 has been revised due to prevailing public reluctance in terms of payment of connection fee and internal connection cost to sewerage system as well as sewerage user charge. It is in the process for approval by PWA and the mayor of Jericho.

4-5. Prospect for Achieving the Overall Goal

Overall Goal: Sewerage facilities in Jericho municipality are operated and managed appropriately under sound financial condition.
Indicators: (1) Annual income exceeds annual expenditure. (2) Effluent from wastewater treatment plant become below effluent standard.

To achieve Overall goal, it is needed to make an effort achieving indicator (1) by Palestinian side. The indicator (1) could be achieved if Jericho municipality will increase both number of connection and collection rate. Meanwhile, indicator (2) is prospected to be achieved because of the results of analysis, treated wastewater and sludge have already satisfied with the standards of Ministry of Agriculture at the time of Terminal Evaluation. And the engineers who have improved their capacity by the Project continues to work in the WWTP

4-6. Implementation Process of the Project

As shown in the Plan of Operation, most of the Project activities have been conducted as planned, however some activities are delayed. The factors that have facilitated and hindered the project implementation are summarized below.

(1) Facilitating Factors of the Project Implementation

1) The Commitment and Ownership of Jericho Municipality and PWA

Jericho municipality and PWA have shown strong commitment to improve and extend sewerage system in Jericho. In the first, Jericho municipality has assigned 12 full time staffs so far as counterparts to the Project. In addition, the municipality has a plans to employ and to assign 2 staffs more. This is considered as the strong ownership to the Project. Jericho municipality has been conducting enthusiastically public awareness activities to change mindset of citizen in order to increase fee collection rate and recollect connection tariff in installments.

On the other hand, PWA has also been collaborating closely to the Project with participation to workshop and JCC. PWA has strongly supported explaining to member of city council in order to establish user charge plan based on Strategic Business Plan. In addition, PWA has been demanding PA for disbursement of the budget which is committed by PA at Preparatory Survey of Jericho Wastewater Collection, Treatment System and Reuse Project in July, 2011. Thanks to the effort, some part of the budget has been disbursed and it has been constructed fence, water supply pipeline and access & internal roads of the WWTP. Furthermore, it should be recognized that PWA has been paying the land rent of the WWTP to Ministry of WAQF and Religious Affairs. PWA provides advice for Jericho municipality in regard of coordination with donors. These ownership have been contributing to the Project.

2) Effective Communication between JICA Experts and C/Ps, and among C/Ps

The Project holds weekly meeting in order to share the progress among all the Project members. The effective communication and information sharing have been contributing to the implementation of the Project and for raising ownership to the Project. .

(2) Hindering Factors of the Project Implementation

1) High cost for the connection fee and internal connection to citizen

According to the work plan of the Project, Jericho municipality had committed to bear connecting 2,000 households to sewerage system as a Project. To connect sewerage system, the owners of household have to pay connection fee to the Jericho municipality. The internal connection cost varies with the length from current septic tank to connection pit, therefore, in some cases, the owner should pay expensive cost.

The cost issue is likely to become a negative factor to the owners of existing building. On the other hand, it is obliged to pay the connection fee to obtain construction permission, therefore, it is no difficulty to collect the connection fee for new building.

5. Result of the Review

5-1. Relevance

The Relevance of the Project is assessed as high since the improvement of sewerage service is in line with the needs of Jericho municipality and citizens, development policies of Palestine government, and the Japanese government's assistance policy to Palestine.

(1) Relevance with the Needs of Jericho municipality and citizen of Jericho

Currently, the public sewerage service system in Jericho municipality is not well developed. Therefore, most of the effluents from household cesspit seep directly into ground without any treatment. Due to the circumstances, the environment deterioration in urban area and the groundwater contamination are concerns. Besides the number of wells which are unsuitable for agricultural use is increasing due to the progression of contaminated groundwater. In this respect, the improvement of hygienic environment and the securement and preservation of water resource for agricultural use are urgent issues in Jericho municipality.

In order to improve the circumstances, the Government of Japan constructed sewerage facility in Jericho municipality through grant aid. Obviously, the facility shall be properly operated and maintained for fulfilling its functions. Meanwhile, Palestine has few experiences with regard to sewerage system operation. Accordingly, it is difficult for Jericho municipality to set up an adequate organization and to implement the training for capacity development by itself. Based on the background, Palestine requested a technical cooperation project to the Government of Japan to transfer the Japanese technologies and experiences in public sewerage service system to Jericho municipality. Therefore, the Project is in line with the needs of Jericho municipality and its citizens.

(2) Relevance with the Development Policy of the Palestinian government

The Project is consistent with the country development framework of National Sector Strategy for Water and Wastewater 2011-2013 and National Water Strategy for Palestine 2012-2032.

Based on the strategy, Palestine has been conducting the activities of sewerage facility system improvement which contributes to preserve the environmental hygiene and water preservation, to promote reuse of treated wastewater, to train the human resources, and to raise public awareness on sewerage system. These are considered as higher priority issues

(3) Relevance with the Japanese Assistance Policy to Palestine

In Country Assistance Policy for Palestine (2012), the Government of Japan sets basic policy to build peace through self-supporting promotion of economic and social based on the concept of "Corridor for Peace and Prosperity". In order to achieve the objective, the government of Japan has been supporting to establish and improve basic human needs areas such as water and sewerage in terms of human security. Moreover, the government of Japan has agreed to focus on seven prioritized sectors, namely, support for medium-small sized companies and trade promotion, agriculture, tourism, local autonomy, finance, water supply and sewerage system and health according to the National Development Plan of Palestine. Thus, the Project is consistent with the Japanese assistance policy to Palestine.

(4) Comparative Technical Advantages

Prior to the Project, Japan has provided assistance for sewerage facility construction "Jericho Wastewater Collection, Treatment System and Reuse Project" through grant aid. In addition, Japan also has been providing support for construction of Jericho Agro Industrial Park and conducting technical cooperation project in order to improve and consolidate of the function of sewerage facility of Jericho municipality. The Project would make a contribution to the improvement of living environment and agriculture development in the area.

Furthermore, Japan has implemented similar technical cooperation projects in Syria, India, Malaysia and other countries and obtained notable results. Due to these experiences, Japan has a comparative technical advantage to support the improvement of financial condition of Jericho municipality through the construction of sewerage facility and the activities related to sewerage pipe line maintenance.

5-2. Effectiveness

The Effectiveness of the Project is assessed as medium. It is observed a certain sign of improvement in "System for operation and management of sewerage works in Jericho municipality is established" (Project Purpose) at the Terminal Evaluation. However, according to the indicators of each Outputs, there is still much room to be improved regarding the number of house connections (Output3), the collection rate and the revenue (Output4).

(1) Prospect for Achieving the Project Purpose

Some important outputs are not achieved fully sufficient such as "Output-3 (Indicator 3-2)" and "Output-4 (Indicators 4-1)". Therefore, further efforts is required to the Project and Jericho municipality in order to achieve the Project Purpose at the end of the Project.

Meanwhile, the outcome achieved through the Project activities is shared and also highly evaluated by directors and staff of Jericho municipality. Furthermore, they recognize the importance of increasing the collection rate of sewerage user charge and also the number of household connection to the sewerage pipeline system. Accordingly, they have been taking specific actions to improve the situation, such as visiting potential clients connecting to sewerage system and providing the facility for payment of connection fee in installment payment.

(2) Causal Relationship between the Outputs and the Project Purpose

The Project has been designed from scratch in order to establish system for operation and management of sewerage works in Jericho municipality. There is a clear causal relationship among the four Outputs, Development Strategic Business Plan for sewerage works (Output 1), Capacity development of operation and maintenance of wastewater treatment plant (Output 2), Capacity development for maintenance of sewer networks (Output 3), Capacity development for financial management of sewerage works (Output 4) and Project Purpose (Establishment of operation and management of sewerage works).

(3) Fulfillment of the Important Assumption

There are two important assumptions for achieving the Project Purpose. One is "More than 80% of C/P continue working in the organization" and the other is "The number of farmers do not decrease drastically". At the time of the Terminal Evaluation, it has not been observed any sign of the change to related issues, therefore, both assumptions are likely to be fulfilled.

5-3. Efficiency

The Efficiency of the Project is assessed as relatively high. Most of the inputs required for implementing project activities have been allocated in sufficient quality/quantity and at the appropriate timing for the production of the planned Outputs. Positive collaboration effect with USAID is observed in enhancement of sewerage system.

(1) Achievement of Outputs

Some of the outputs have not reached the targets of their indicators. However considering the quantity of inputs, the degree of the achievement seems to be acceptable level. On the other side, the employment of qualified local civil engineers has contributed to effective usage of limited resources. The equipment provided by the Project is appropriate for Jericho municipality in terms of quality and quantity. Meanwhile most of equipment is under usage in

the Project activities so that it is managed under the Project properly.

Training in Japan has contributed to improve the understanding of sewerage system in general. They have noticed the subjects that should be improved more specifically such as GIS system, user charge system, public awareness and others.

On the other hand, the number of household connection is not reached to the target level due to the unwillingness of owners for assuming the cost for connection. Although, the project has been conducting public awareness, it is still needed more to come out the effect.

(2) Synergy effects with other activity

JICA and USAID have been collaborating for the construction of sewer network in Jericho. JICA funded for the construction of trunk sewer. Meanwhile, branch sewer of 12.5km with flushing jet machine were funded by USAID, which was originally requested by PWA for 16km of branch sewers. In addition, Jericho Agro Industrial Park has an intention to connect to the Jericho sewerage system. The construction branch sewer assumed by USAID was finished and handed it over to Jericho municipality in the end of November, 2015. With this handover, the Project and Jericho municipality can enhance the public awareness and promotion activity for connecting to sewerage system. It is observed that positive synergy effect has been generated through the collaboration with USAID. On the other side, Jericho Agro Industrial Park estimates the volume of sewage would reach to more than 200m^3/day at the end of 2016 according to the list of companies which have already paid the rent by check in advance. Considering the circumstances, it is expected to generate more synergy effects with other activities in the near future.

(3) Implementation Timing of Training in Japan

The training in Japan to C/Ps was efficiently planned in terms of timing. Therefore, they could utilize immediately the technology obtained in Japan from the beginning of the WWTP operation start.

5-4. Impact

The Impact of the Project is assessed as relatively high. At the time of Terminal Evaluation, the probability for achieving the Overall Goal is not ensured. The probability would be increased if Jericho municipality improves the number of connections to sewerage system and increase the rate of collection sewerage user charge from users.

(1) Prospect for Achieving the Overall Goal

As it mentioned in "5.3 Efficiency (2)", the construction of branch sewer funded by USAID was finished and handed it over to Jericho municipality in 2015. Besides, from Jericho Agro Industrial Park the estimated sewage inflow would reach to more than 200m^3/day at the end

of 2016. Considering the circumstances, it is expected to generate synergy effect with other activities in the near future. On the other side, the indicator 2 "Effluent from wastewater treatment plant meets effluent standard" for Overall goal is achieved at the time of Terminal Evaluation.

In the conclusion, the prospect for achieving Overall goal would be increased, if Jericho municipality increases the number of connection and collection rate of sewerage fee.

(2) Public awareness increase

In order to improve the public awareness, the Project has held public meetings and workshops, visited household owners and carried out activities. Since the beginning of the Project, 13 public meetings were held with 1,007 participants in total. These activities have contributed to encourage the citizen to submit for the application for the connection because they have come to recognize the importance of sewerage in terms of hygiene and environment. According to the municipality, 359 applications for connection have been submitted and 43 house owners have already paid the connection fee. On the other side, the Project has encouraged to raise public awareness especially in elementary school. To date, approximately 300 school children from 5 schools have visited to the sewerage facility. These are considered as spill-over effect of the Project.

(3) Technology transfer to other Wastewater Treatment Plant

PWA is considering to apply the technology introduced in the wastewater treatment plants in Al-Bireh. Because PWA highly evaluates the aeration technology to the wastewater treatment plant of Jericho. This is considered as positive impact of the Project. Besides, PWA is also considering solar panels technology in Tubas-Tayasir WWTP as Jericho WWTP

5-5. Sustainability

The Sustainability of the Project is assessed as relatively high except financial aspect at Terminal Evaluation. The Sustainability has been evaluated by following four aspects; "Political aspect", "Organizational aspect", "Financial aspects" and "Technical aspect".

(1) Political aspect

As discussed in "5-1 Relevance," the Project is in line with the country's development policies, such as "Water Authority Strategy Plan 2016-2018 " and "National Water Strategy for Palestine 2012-2032". In this respect, it is quite obvious that Palestine will continue the policies towards improvement of sewerage system in Jericho. Therefore, sustainability in political aspect is considered as high.

(2) Organizational aspect

The organizational aspect is considered as high. Jericho municipality set Sewerage department in 2013 to improve the capacity for managing sewerage. Besides, the number of the departments has been increased according to conduct the task corresponding. Furthermore, the contract status of C/Ps is permanent and stable. These factors contribute to the sustainability on organizational aspect.

(3) Financial aspect

The financial aspect is considered relatively low because the number of connected households and user charge collection rate for sewerage have not been achieved the target set in the Strategic Business Plan in 2014. In order to increase the sustainability in financial aspect, the Project should increase the number of connected households and user charge collection rate. Besides, the Project needs to make an effort to utilize the treated wastewater and tanker sludge as resource of income. In the circumstances, the Project has organized the team to visit houses for the promotion of sewerage connection since November 2015. At the time of Terminal Evaluation, there have been conducted only three times, though they have good results. According to the results, the Project has planned to increase the team numbers in order to accelerate the activities. In addition the Project has started discount campaign in connection fee and sewerage charge and also shows positive results. It shows a sign of improvement in financial aspect through the attempts.

(4) Technical aspect

The technical sustainability of the Project is relatively high.

According to C/Ps interviewed by the Terminal Evaluation Team, C/Ps have gained theoretical knowledge adequately. However some of the C/Ps think that they need to develop skills through more practices in their operation by using the knowledge gained in the theoretical training. Accordingly, the Project needs to give more training opportunities during the rest of the project period.

6. Conclusion

To date of the Terminal Evaluation, most of the project activities have been implemented with strong ownership of Jericho municipality and PWA. In regard to achievement for Project Purpose, The indicators corresponding to administrative and technical issues have been achieved. Meanwhile, the indicator related to financial issue is to be improved with continuous effort by the Palestinian side. The Project and PWA should take action immediately to the recommendations of the Terminal Evaluation in order to improve the achievement of the Project by the end of the Project.

For further improvement of the Project, the Terminal Evaluation Team recommends the measures presented in "7. Recommendations."

7. Recommendations

Based on the above analysis of the Project, the Terminal Evaluation Team put forth the following recommendations for the improvement of the Project. The following recommendations should be conducted by the Project, Jericho municipality and PWA.

(1) Intensive "Door-to-Door Visit" to promote households connections

Increase the household connection is crucial for the Project. According to the current Strategic Management Plan shows the Jericho Municipality should connect households at the pace of 28 households per month.

On the other, the Municipality started "Door-to-Door Visit" to promote households connections since November 2015 and obtained instant effect confirming 5 requests of connections from the residents.

In order to promote the household connection, the Municipality should conduct intensive "Door-to-Door Visit" in the remaining period of the Project for target households as following. -Target: 755 households in total (around 100 households per month)

1) 585 households along with the branch sewer recently constructed funded by USAID
2) 170 households along with the trunk sewer constructed under the Grant Aid

(2) Both water and sewer charges should be collected completely and increase the tariff collectors to increase collection rate

Even after the bill integration with water user charge, the municipality still accepts the refusal of sewer charges payment despite both user charge are written in the same bill.

In order to increase collection rate, the Municipality to enforce the strict collection as following steps.

Step1: Both water and sewer charges should be collected completely at customer service.
Step2: Increase the number of tariff collectors and activate the tariff collectors to visit houses to promote collection of water and sewerage tariff.
The team also collects the repayment of the Pilot Project if it is the target households.

The progress on two actions, (1) and (2), mentioned above should be periodically reported to JICA Palestinian Office and the first reporting should be made at the end of January 2016. JICA will review the progress and may consider the further assistance on expanding sewer networks if there is notable progress with stronger initiatives and strict enforcement by the Municipality.

(3) Evaluation of encouragement scheme

Jericho municipality should evaluate the performance of two encouragement schemes which were introduced in 2014 and take a necessary action for further improvement. The method of evaluation should be established with the help of JICA Expert.

(4) Construction remaining branch sewer

In order to complete the sewerage network plan, PA should make an effort to find the fund to construct the remaining branch sewers by searching fund from donors and others to support

this Project. In addition, since PA committed to allocate 2 millions US$ at the early beginning of the project, PA used around one million US$ to implement the electricity, road, water, fencing with gates and guard room, etc. The remaining one million US$ which can be used to supply material like pipes (4" and 6" and small manholes) for the purpose of completing the house connection should be disbursed as soon as possible

For the actual implementation of branch sewers, the installation plan with priority need to be formulated with the help of JICA expert.

(5) Ensuring Implementation based on Revised Strategic Business Plan

Regarding financial issue, the Strategic Business Plan 2014-2018 ver.2.1 shows considerable amount of deficit. Since it is not healthy condition for the municipality to prolong this deficit situation subsidized by other resources, the management plan needs to be scrutinized towards healthy condition with the help of JICA Expert as soon as possible and the municipality ensures to implement the sewage works according to the revised management plan.

(6) Improvement of method to promote household connections

In order to promote the household connections, the Jericho Municipality needs to explain its necessity by showing the actual cost of household connection, with more affordable price using the local resources at the time of "Door-to-Door Visit".

(7) Continuous Public Awareness Activities

Public awareness activities are crucial for sewerage works and continuous and periodical PR are necessary. Those efforts will create a positive image of sewerage works and get more support from the citizen. Especially PR activities in school program and woman association are effective to foster the next generation. Besides, using local media such as radio stations and newspapers should is effective tool for public awareness.

(8) Repayment on the Pilot Project

The construction cost of households connection, which is connected under the Pilot Project, need to be collected from those owners to ensure fairness among the citizens, the collected fund should be kept separately and the fund should be utilized for the construction cost of the connection-fee part (from connection pit until receiving pit) in new area.

(9) Treated Water and Sludge

The Project should take necessary procedure to obtain a permission of Ministry of Agriculture as soon as possible and start the process of selling treated water.

Regarding the tanker sludge, continuous effort to enforce to collect the sludge to WWTP is

necessary by the Jericho Municipality.

8. Lessons Learnt

(1) Written Confirmation for Advance Payment

The Project faces difficulty in collecting the connection fee and domestic construction cost under the Pilot Project, which should be repaid to the Municipality because it was agreed verbally with the targeted resident in the explanatory meeting of the Pilot Project. The written confirmation should be obtained to ensure the agreement of repayment from the resident before constructions when the Municipality makes an advance payment for the resident.

(2) Setting periodical targets in case for achieving indicators

In the Project, numerical indicators such as sewerage collection rate and connection numbers was set at the beginning of the Project, but the Project realized and took actions for the delay of progress in the later of the Project period. In order to take countermeasures in appropriate timing, the periodical target should be set to take timely actions to tackle the delay of progress especially for the case of setting numerical target.

(3) Improving Effectiveness of starting Technical Cooperation Project before the end of infrastructure construction by Grant Aid

The Project has started before the end of WWTP and sewers construction. The timing has contributed to effectiveness in terms of preventive maintenance and proper operation. In the same context, training in Japan has been implemented before handover of the WWTP and sewers. It has also contributed to smooth and effective implementation of the Project.

9. Annex

Annex 1. Terminal Evaluation Schedule
Annex 2. Project Design Matrix
Annex 3. Plan of Operation
Annex 4. Schedule of JICA Expert Team
Annex 5. List of Equipment Provided by the Japanese Side
Annex 6. Organigram of Jericho municipality
Annex 7. Workflow on Output

Annex 1. Terminal Evaluation Schedule

Date			Mr.Iijima	Mr.Yokouchi	Mr.Mochizuki
Nov.	16	Mon			Arrival at Jericho Interveiw with Experts
	17	Tue			Interveiw with C/P
	18	Wed			Participate to weekly meeting of project Interveiw with C/P Visit WWTP
	19	Thu			Interveiw with C/P
	20	Fri			Document Preparation
	21	Sat			Interveiw with C/Ps etc.
	22	Sun			Interveiw with PWA, Jericho Agro Industrial Park
	23	Mon			Participate weekly meeting of project Interveiw with C/Ps etc.
	24	Tue			Interveiw with C/Ps etc.
	25	Wed			Interveiw with C/Ps etc.
	26	Thu	Arrival at Jericho		Interveiw with C/Ps etc.
	27	Fri	Document Preparation	Arrival at Jericho	Document Preparation
	28	Sat	Site Visit of Jericho WWTP, Acbat Jabel Camp, JAIP		
	29	Sun	Kick-off Meeting with Jericho Municipality & PWA		
	30	Mon	Discussion on M/M		
Dec.	1	Tue	Preparation for JCC		
	2	Wed	JCC		
	3	Thu	Departure from Jericho		

PDM (Project Design Matrix) ver.2

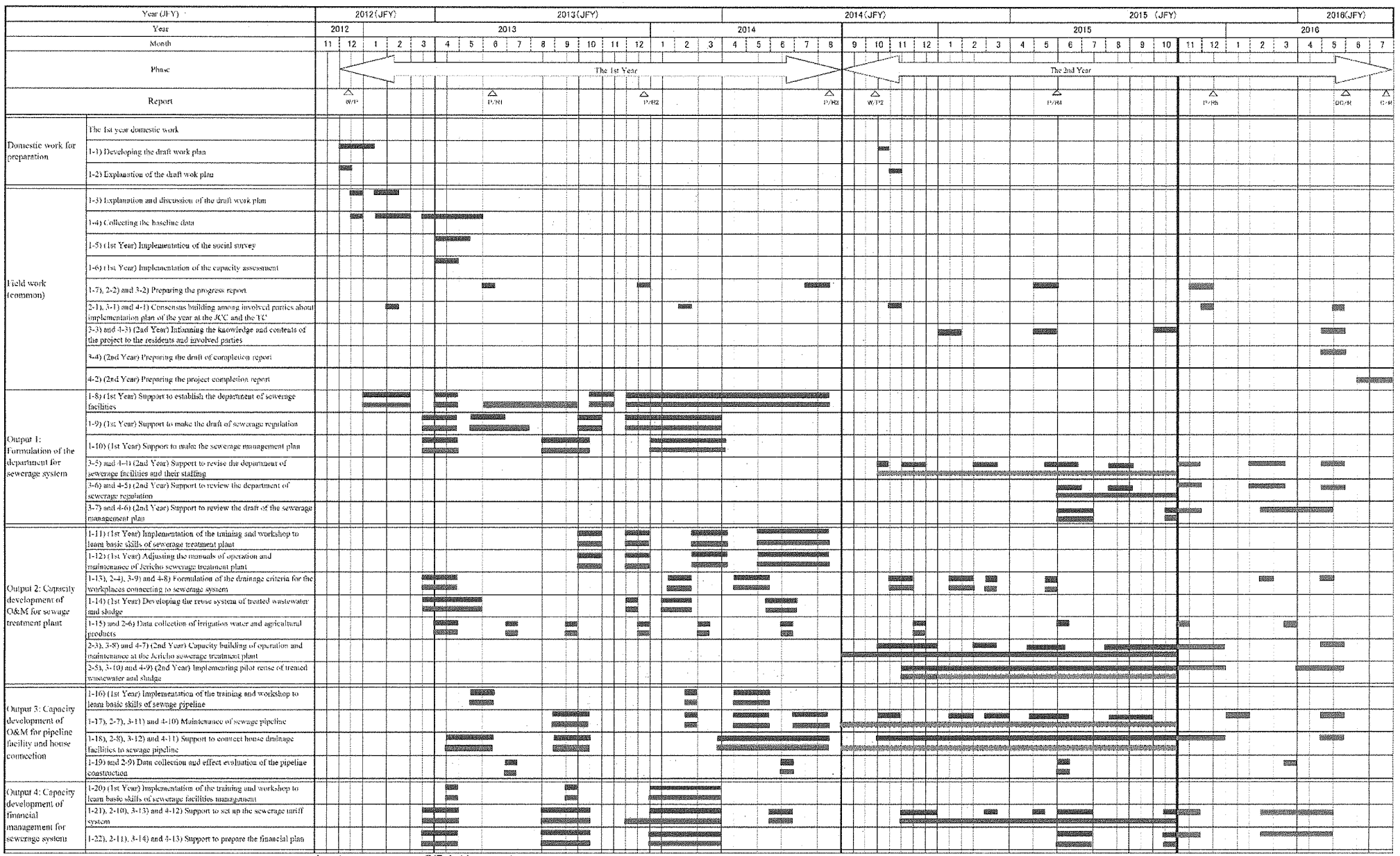
Project Name : Technical Assistance and Capacity Building Project for Jericho Sanitation Project
Target Area : Jericho municipality and its surrounding areas
Target Group : Department in charge of operation and maintenance of Jericho sanitation project
Project Duration : December 2012 - July 2016

Annex 2. Project Design Matrix

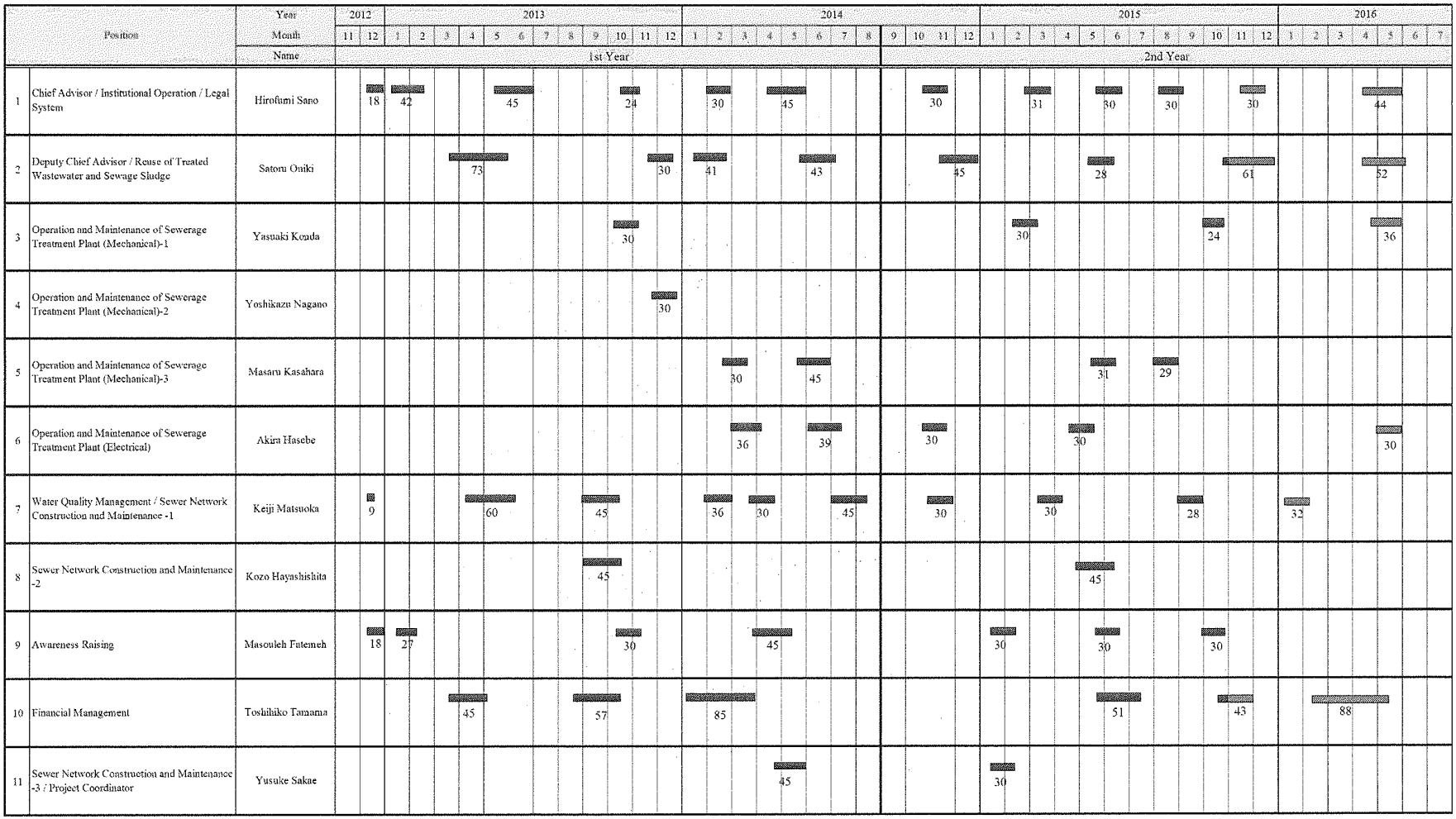
as of 19 February, 2014

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal Sewerage facilities in Jericho municipality are operated and managed appropriately under sound financial condition.	1) Annual income exceeds annual expenditure 2) Effluent from wastewater treatment plant become below effluent standard	1) Financial statements 2) Record of operation	
Project Purpose System for operation and management of sewerage works in Jericho municipality is established.	1) Departments in charge of sewerage works is officially approved in Jericho municipality 2) The by-law for users of sewerage facilities is enforced 3) O&M of sewerage facilities is conducted based on manuals and plans 4) Sewerage works are managed based on a management plan	1) Official letter for approval of department in charge of sewerage works in Jericho municipality 2) By-law for users of sewerage facilities 3) Manuals and plans for sewage works 4) Record of O&M 5) Financial statements 6) Mid-term management plan	More than 80% of C/P continue working in the organization The number of farmers do not decrease drastically.
Outputs		1st year: Item / Verification; In and after 2nd year: Item / Verification	
(1) Management plan for sewerage works in Jericho municipality is developed	1) Departments in charge of sewerage works is officially approved in Jericho municipality 2) The number of full-time staff for sewerage works is more than **14 persons** 3) The by-law for users of sewerage facilities is enforced 4) Mid-term management plan is approved by the city council	1) Organization structure and staffing of sewerage works / 2) Preparation of by-law / 3) Level of public awareness and public relation Verification: — In and after 2nd year: 1) Staffing of sewerage works / 2) Level of public awareness and public relation / 3) Promotion of sewer connection and tariff collection / 4) Regulation practice for discharge from factories Verification: —	
(2) Capacity of Jericho municipality for appropriate operation and maintenance of the wastewater treatment plant (WWTP) is developed	1) More than **6 persons** pass a technical examination for O&M of the WWTP 2) Hazardous materials exceeding the quality standard do not flow into sewerage facilities 3) **70 %** of treated wastewater and **40 %** of sludge are utilized 4) More than **80 %** of served population recognizes the need for the WWTP	1) DOK on mechanism of wastewater wastewater / 2) DOK on wastewater treatment system / 3) DOK on functions of facilities and equipment in WWTP / 4) Preparation level of plant ledger DOK : "Depth of Knowledge" Examination on 1), 2) and 3). Re-exams if below given criteria In and after 2nd year: 1) DOK on functions of facilities and equipment in WWTP / 2) Degree of skill for operating equipment / 3) Degree of skill for measurement using metering device and DOK on the meaning of measured data / 4) Appropriate trouble shooting / 5) Preparation level of record of daily operation / 6) Level of implementation of treated wastewater and sludge re-use / 7) Preparation level of plant ledger Examination on 1), 2) and 3). Re-exams if below given criteria	
(3) Capacity of Jericho municipality for appropriate maintenance of sewer networks is developed.	1) More than **4 staffs** pass a technical examination for sewer maintenance and promotion for connection to public sewers 2) **2,000** private sewers (house connections) are connected to public sewers and **60 %** of the connected building owners is satisfied with the system	1) DOK on sewer system / 2) DOK on sewer network planning / 3) DOK on hydrology / 4) Preparation level of sewer ledger Examination on 1), 2) and 3). Re-exams if below given criteria In and after 2nd year: 1) DOK on sewer system / 2) DOK on sewer network maintenance / 3) Appropriate trouble shooting / 4) Preparation level of inspection, repair, etc / 5) Preparation level of sewer ledger Examination on 1) and 2). Re-exams if below given criteria	
(4) Capacity of Jericho municipality for financial management of sewerage works is developed.	1) Collection rate of user charge for sewerage facilities exceed **60 %** 2) A mid-term financial plan is approved by relevant organizations 3) More than **60 %** of served population recognizes the need for payment of user charge 4) Income (subsidy, borrowing, charges, etc.) exceeds expenditure in the management plan	1) DOK on accounting and financial statements Examination on 1). Re-exams if below given criteria In and after 2nd year: 1) DOK on accounting and financial statements / 2) Volume of treated wastewater and number of connected households / 3) Income and collection rate of tariff / 4) Preparation level of financial statements / 5) Preparation level of mid-term management plan Examination on 1). Re-exams if below given criteria	
Activities	**Inputs**		
	Palestinian side	Japanese side	
(1.1) Establish departments for operation and management preparation of sewerage works (1.2) Assigns staffs in departments for operation and management of sewerage works (1.3) Draft a by-law for users of the sewerage facilities (1.4) Develop a mid-term management plan for sewerage works in Jericho municipality (2.1) Carry out trainings/workshops in order to obtain basic knowledge (2.2) Prepare manuals for O&M in the Jericho WWTP and carry out on the job trainings (2.3) Develop an effluent regulation to water discharged to sewer networks (2.4) Utilize the treated water and sludge for agricultural use (2.5) Raise public awareness and disseminate experiences on the Jericho WWTP to related organizations	1) Safeness and security for the project team 2) Suitable office space with necessary equipment 3) Human resource allocation for representative of the C/P, and supporting staffs in related department 4) Arrangement of duty free for equipment which the project team bring in Palestine 5) Support and arrangement for money sending and bringing project budget in Palestine 6) Arrangement or required material and information, and coordination with related organization 7) Arrangement of permission for taking local materials out of Palestine 8) Arrangement of duty free for the project team and foreigner registration of the project team 9) Arrangement for project activities in private properties and restricted area	1) Expert (Chief advisor/Institutional Operation/Legal System) 2) Expert (Deputy chief advisor/Reuse of Treated Wastewater and Sludge 3) Expert (Operation and Maintenance of WWTP (mechanical-1)) 4) Expert (Operation and Maintenance of WWTP (mechanical-2)) 5) Expert (Operation and Maintenance of WWTP (mechanical-3)) 6) Expert (Operation and Maintenance of WWTP (electrical)) 7) Expert (Water Quality Management/Sewer Network Construction and Maintenance-1) 8) Expert (Sewer Network Construction and maintenance-2) 9) Expert (Awareness Raising/Project Coordinator) 10) Expert (Financial Management)	
(3.1) Carry out trainings/workshops in order to obtain basic knowledge (3.2) Prepare manuals for O&M of sewer networks and carry out on the job trainings (3.3) Connecting private sewers with public sewers in Pilot Project areas (3.4) Raise public awareness and disseminate experiences on the sewer networks to related organizations (4.1) Carry out trainings/workshops in order to obtain basic knowledge (4.2) Develop structure of user charge for sewerage facilities (4.3) Develop a mid-term financial plan (4.4) Raise public awareness and disseminate experiences on financial planning to related organizations		Deliverable Manuals 1) Manual and trouble shooting of water quality management 2) Manual and trouble shooting of mechanical equipment 3) Manual and trouble shooting of electrical equipment 4) Safety and hygienic manuals for sewerage works 5) Completion report of Pilot Project 6) Manual and trouble shooting of pipe connection for each house 7) Operation and maintenance manual of pipe lines 8) Financial planning manual	Pre-condition Security situation continues stable and do not affect the project activities.

Annex 3. Plan of Operation



Annex 4. Schedule of JICA Expert Team

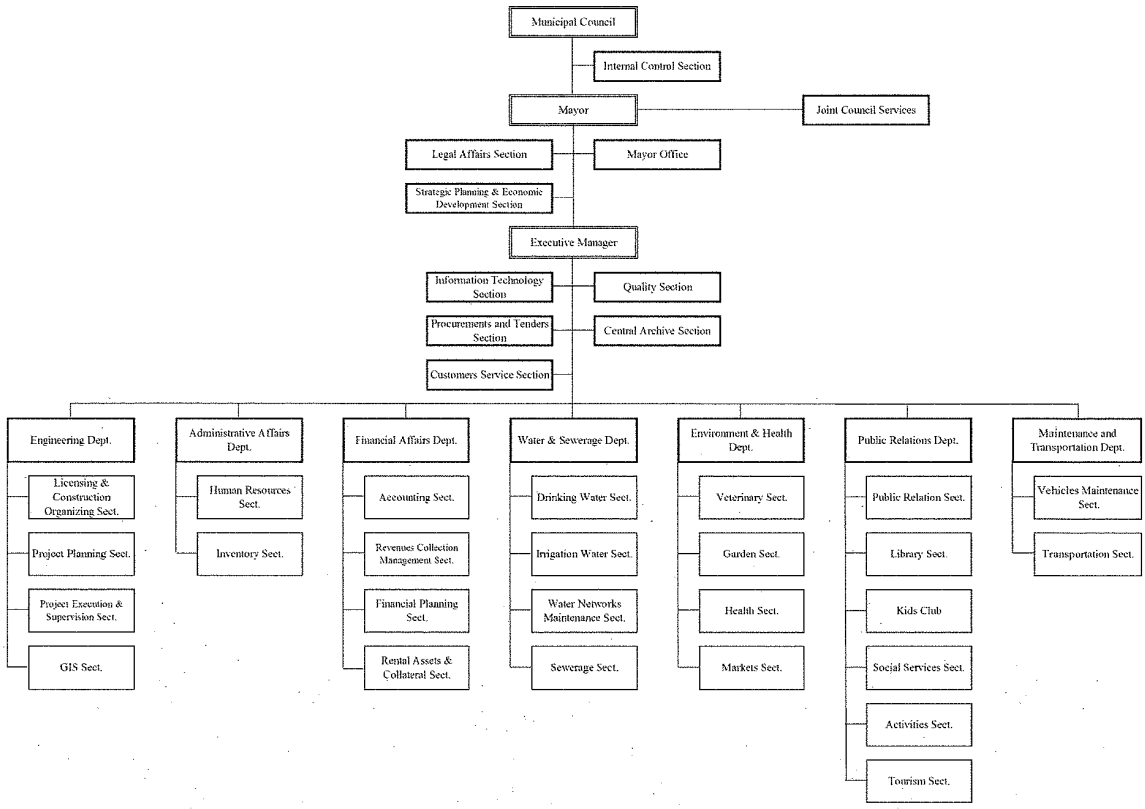


Annex 5. List of Equipment Provided by the Japanese Side

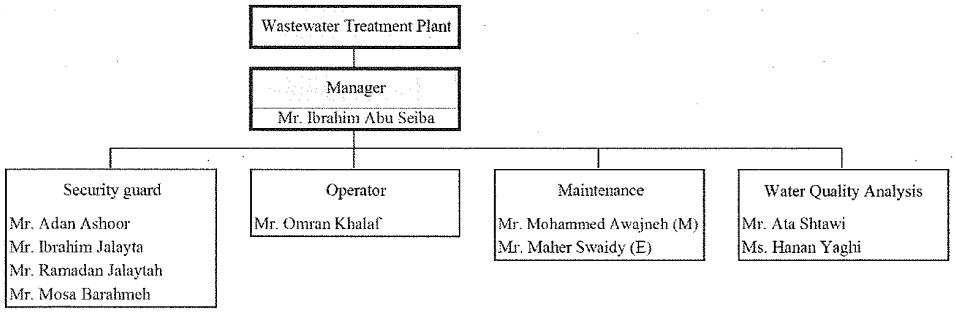
Equipment	Q'ty	Period	Place
Photocopy Machine	1	1st Year	Project Office
Laptop computer	2	1st Year	Project Office
Printer	2	1st Year	Project Office
Electric panel for pump	1	2nd Year	Jericho WWTP
Distribution pipe for Treated Effluent	1	2nd Year	Jericho WWTP
Oxygen & Hydrogen sulfide meter	1	2nd Year	Jericho WWTP
Electric conductivity & Total Dissolved Solids meter	1	2nd Year	Project Office

Annex 6. Organigram of Jericho municipality

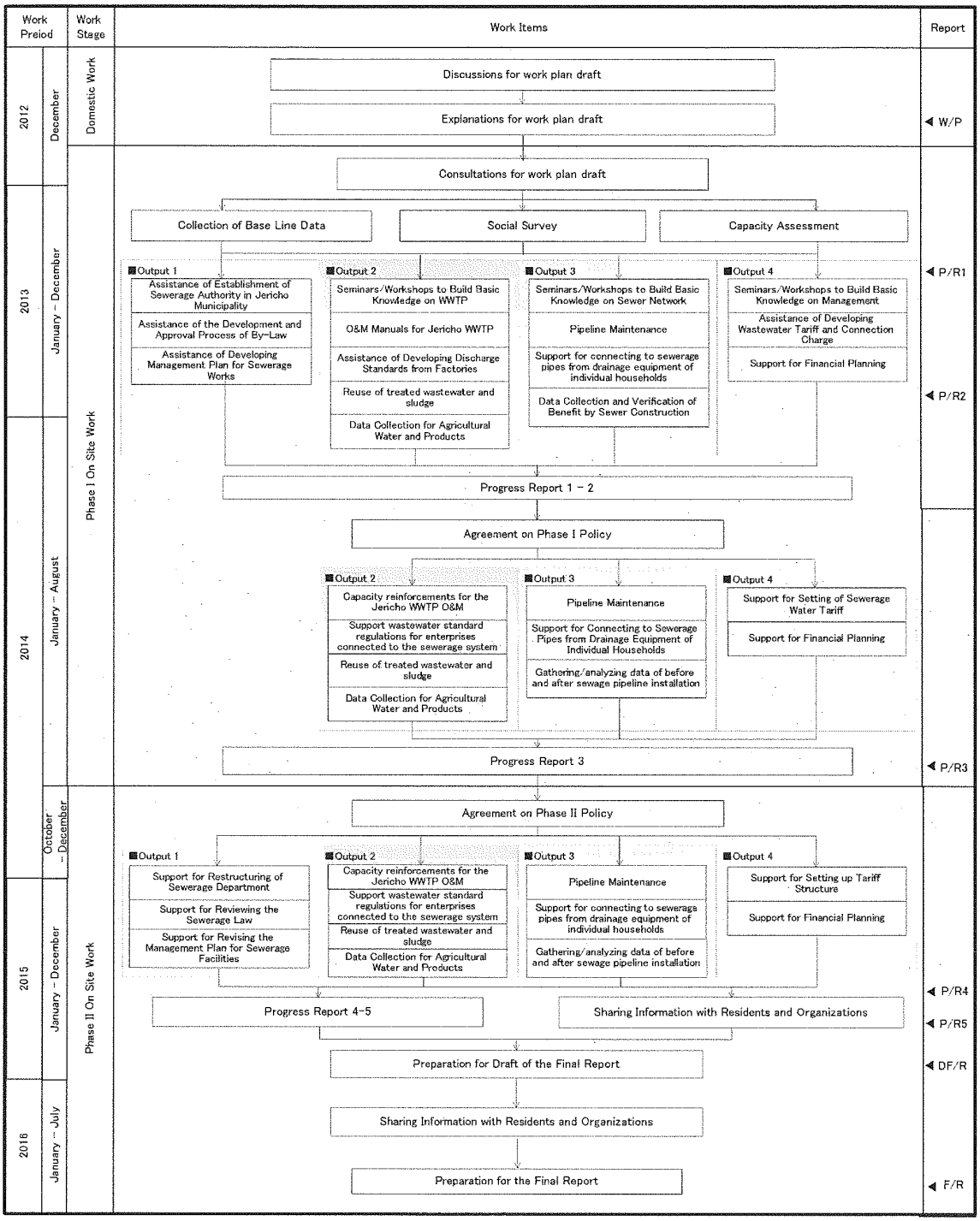
(1) Jericho municipality



(2) Jericho Wastewater Treatment Plant



Annex 7. Workflow on Outputs



The 5th JCC Meeting (January 29th, 2018)

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

Agenda for the 5th Joint Coordinating Committee (JCC) Meeting

1. Date & Venue:

- 29 (Monday) January 2018, 11:10-13:00: at Conference Room in Jericho Municipality

2. Agenda

1. Opening Statement (by Mr. Salem Ali Ghrouf, the Mayor of Jericho Municipality)	**11:10-11:20**
2. Outline of Achievements on TeCSOM (by Mr. Mohammed Fetyani, Director of Water & Wastewater Department)	**11:20-11:45**
3. TeCSOM Challenges (by Mr. Hirofumi Sano, Chief Advisor of the Project)	**11:45-12:00**
4. Coffee Break	**12:00-12:10**
5. Discussion	**12:10-12:30**
6. Closing Remarks (by Mr. Basel Hijazi, Head of Engineering Department)	**12:30-12:40**
7. Closing Remarks (by Mr. Adel Salim Yasin, Director of Wastewater Department in Palestinian Water Authority)	**12:40-12:50**
8. Closing Remarks (by Ms. Yuko Mitsui, Chief Representative of JICA Office)	**12:50-13:00**

End

Joint coordinating committee(5th JCC) meeting

Outline of achievement on TECSOM

Prepared by: Eng. Mohammad Fityani

29th Jan 2018

Project Purpose

System for operation and management of sewage works in Jericho municipality is established.

Based on the analysis of the project in Dec.2015, the evaluation team put several recommendations for the improvement of the project.

1. Intensive door to door visit to promote households connection.
2. Both water and sewer charges should be collected completely and increase the tariff collectors to increase collection rate.
3. Evaluation of encouragement scheme.
4. Construction remaining branch sewer.
5. Ensuring implementation based on revised strategic business plan.
6. Improvement of method to promote household connections.
7. Continuous public awareness activities.
8. Repayment on the pilot project.
9. Treated water and sludge.

1-Intensive door to door visit to promote households connection& 6-Improvement of method to promote household connections.

- **Stage 1 of D-t-D (Dec. 2015 to Dec. 2016)**
- The JICA Experts and the C/Ps visited houses and met with house owners within the USAID and JICA pipeline areas to promote new house connections.
- The C/Ps explained and encouraged people to connect their house, explained the application process, approximated costs, and where to apply.
- PR staff made follow-up phone calls to the visitors after some days as reminders.
- PR materials were distributed at the doors.
- Target **755** households should be visited.

The result

- As a result, the number of responding houses is estimated to be around half of the target, whereas the number of visited houses amounts to 364 as shown in **Table 1**, which means that almost all the responding houses were visited.
- The other 391 non responding because:
  - Some houses are vacant though connection pit has been installed
  - Second houses are existing where the owners come back to Jericho only weekends.

Table 1

Status	From Dec. 2015-May2016					Total
	Dec. 2015 - Jan. 2016	Feb. 2016	Mar. 2016	Apr. 2016	May 2016	
# of Visited Days	18	15	1	0	0	34
# of Visits	210	150	4	0	0	364
# of Agreed to Connect	195	136	4	0	0	335
# of Follow-up Calls	63	0	0	56	0	119
# of Applied Applicants	54 as of May 3rd					54
# of Paid Applicants	15 as of May 3rd					15
# of Connected Houses	8 as of May 3rd					8

(2) Stage2 of D-t-D (Jan. 2017 ~ Dec. 2017)

•The purpose of this activity is the following:

- To promote new connections that have access to sewer network but have not been connected due to non-technical reasons.
- To promote connection by resolving technical issues of buildings that have access to sewer network but have not been connected due to technical reasons.

• The initial challenge for this promotion method was lack of data and map on unconnected houses**(no reliable data or map was available).**

• a survey was planned ,the questionnaire-base survey was planned to collect the followings:

- number of buildings not connected to sewer network
- attributes of the buildings
- reasons for not being connected
- to map locations of the buildings
- **Locations of unconnected houses for D-t-D visits; visits by PR staff if a building was unconnected due to non-technical reasons, and visits by the sewage department engineers if the building was unconnected due to technical reasons.**

The result

Survey data for unconnected water meter and building

The result

The map of unconnected building

The modified stage(3):

- There are a fund by JICA for install branch pipeline and by PA for increasing the house connections .
- This fund could make it possible for many unconnected houses to be connected without advance payments (just like those within the PP1 and PP2 area.
- The survey data and GIS maps, however, are valuable sources of new data on un-connected buildings which is used by the Municipality of Jericho in tendering document for house connection with the new fund release.
- The municipality finished the tender documents and hand to PWA and wait to start the work on land.
- The project cover 650 connections.

2.Both water and sewer charges should be collected completely and increase the tariff collectors to increase collection rate.

- In order to increase the collection rate , the municipality took the following steps:
- Step1: both water and sewer tariff collected completely.

In order to prevent non-payment of wastewater tariff and to remind the customers to pay previous debts and other related fees such as the installment of connection fee and meter installation fee, it was agreed to change the format of the bill as shown in **Figure 1**, and the modification of Mobile Billing System by its manufacturing company STDDP was done using the fund of JICA T/A project.

Modified format of bill (figure1)

- Step2: increase the no. of tariff collectors and activate the tariff collectors to visit houses to promote collection of water and sewage tariff.

In order to increase the rate of collection:

- ❖ The municipality added 2 additional collectors and activate the billing system (**read,print,collect**).
- ❖ In the same day each duration visit the house to allow the customer to prepare the payment.
- ❖ Activate the collection plan (see figure2,3).
- ❖ Prepare report for performance indicator after finish each duration.
- ❖ We activated the billing system in **11+12/2017.**

proposed collection plan

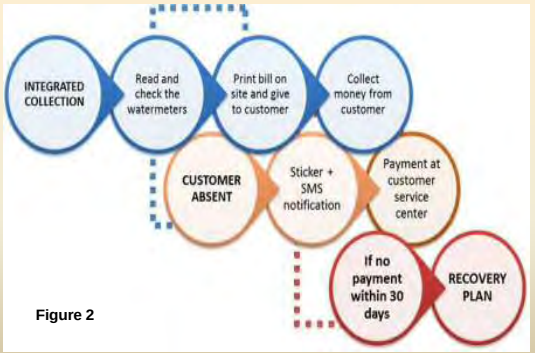


Figure 2

Format of relation between the water and financial dep.

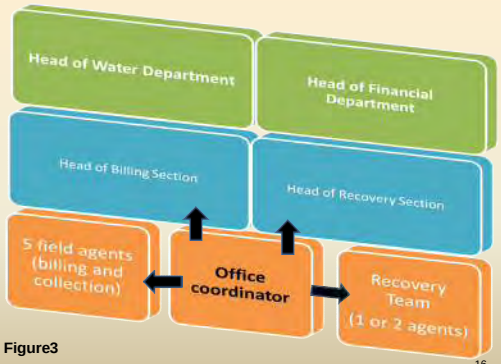


Figure3

3.Evaluation of encouragement scheme.

- The Municipality Council decided on 18th August 2015 after getting the approval of PWA the following decisions:

- Decrease the sewer tariff fee to 50%(**0.5 instead of 1Nis**) until the end of 2017.
- Decrease the connection fee for the old building (**7Nis/m2 instead of 13 Nis**).
- The cost of treated waste water is **0.5NIS/M3 (below the cost).**

The result

Category	2014	2015	2016	2017	2018-2020	Sum	Note
New Connections through Pilot Project	89	295	-	185	-	569	PP-1, PP-2 and PP-3
New Connections By Jericho Municipality	-	49	68	51	252 (84/year)	420	
Fund from PA	-	-	-	-	650 (in 2018)	650	2.1mUSD
Sum of connections	89	344	68	236	902	1639	Total no. of houses is1836 Except(2018-2020)
Volume of Reused and Charged Wastewater (m^3/month)			100%	100%	100%	100%	
Collection Ratio of Bills of Wastewater Tariff		9.2%	48%	23%	65%		36%of debt Gov.

4.Construction remaining branch sewer

- Outline on the projects implemented until the end of 2017.
- ➢ Construction the main trunk lines and WWTP.
- ➢ Pilot projects of Jericho house connection.
- ➢ What remains? From Jericho city.
- ➢ Aqbet Jaber camps projects.

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Main Project
(Construction the Main Trunk line & WWTP)

Content of the project

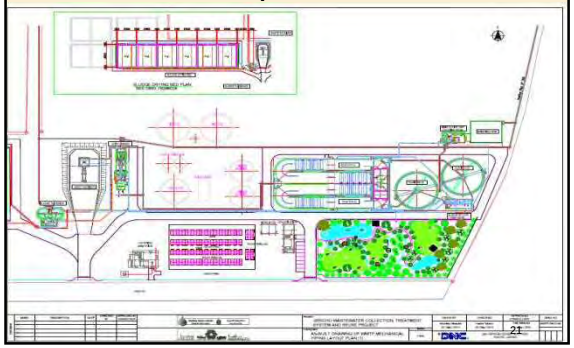
- ❖ Trunk Sewers 25.27 Km
- ❖ Branch Sewer 4.39 Km
- ❖ Connection pit 899

- ❖ WWTP of Capacity 9,800 m2/day which include all the civil structures & Mechanical equipment's & Electrical equipment's.
- ❖ Solar Panels with Capacity 100Kw.H

- ❖ The cost of the main project is 23,000,000 $.

20

Wastewater treatment Plant components



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Sewer Pipelines

22

Pilot projects of Jericho house connection

Purpose of project:

linking buildings(domestic and commercial) to the sewage network and transport sewage to the waste water treatment plant.

23

pilot projects of Jericho house connection

Assistance of house connection:

First pilot project.

- ❖ **Pipe line length 3.32 Km**
- ❖ **Manholes no. 171**
- ❖ **Connection no. 89**
- ❖ **Household no. 246**

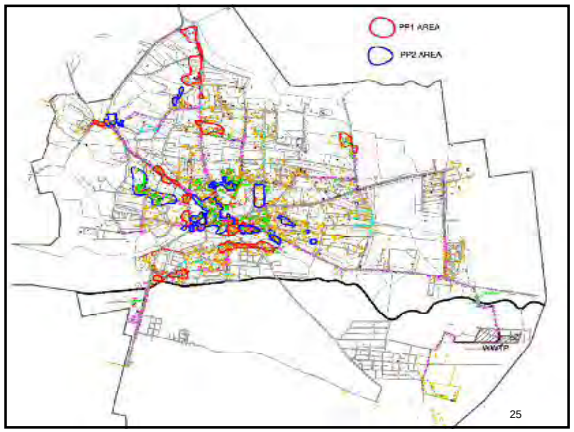
Supported by JICA → Cost 235,000 $

Second pilot project.

- ❖ **Pipeline length 11.16 Km**
- ❖ **Manholes No. 860**
- ❖ **Connection no. 295**
- ❖ **Household no. 645**

Supported by JICA → Cost 741,000 $

24



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Sanitary House Connections Jericho Municipality

- ❖ Pipe line length 3.95 Km
- ❖ Manholes no. 488
- ❖ Connection no. 185
- ❖ Household no. 430

Supported by Municipality

Cost
868,150 NIS

26

PA Grant Aid

External work for WWTP

- Asphalted road 1.5 Km
- Fens around WWTP 2.2 Km
- Guard room 30 m2
- Water supply pipeline 1.5 Km
- Cost of Implemented project 800,000 $.

28

29

USAID Grant

Jericho Collection System Expansion Phase 1A Branch Sewers Project

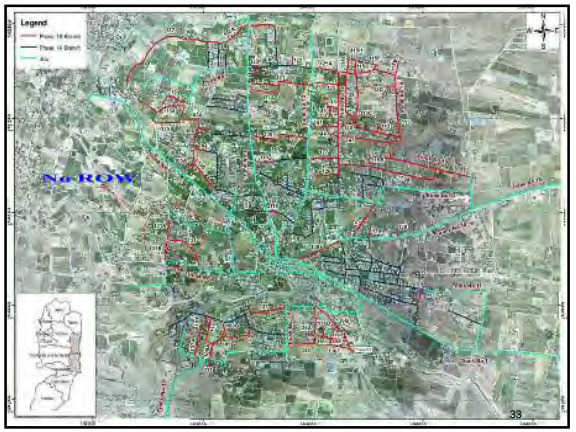
- Branch Sewer Pipeline 12.5 Km
- Number of Beneficiaries: 5400 People
- Project Value: 4,449,992.00 $
- 468 Manholes.
- 585 connection pits.
- Paving roads: 0.81km

.

- 14.100m2 of trench Restoration
- Vacuum Jet Sewer Maintenance

Jericho Collection System Expansion Phase 1B Branch Sewers Project

- Construction stage started at the beginnig of Nov.2017.
- Branch sewer Pipeline 23Km.
- Single Pump station.



What remains?

- Branches A (Priority and mainly in high density areas) Length= 28kmDiameter= (200)mm
- Expected flow 1600m3/day
- Estimated cost= 6.3MUS$

Note: The cost represent the construction of 28km of 8'' diameter gravity sewer with 40 connection pits per km.

What remains?

- Branches B (Secondary and low density areas)
- Length= 51kmDiameter= (200)mm
- Expected Flow= 1500 m3/day
- Estimated cost= 12MUS$
- Note: The cost represent the construction of 54km of 8'' diameter gravity sewer with 40 connection pits per km.

What remains?

- Pilot project no.4 (PP4)
  - ❖ Design stage finished and handed to PWA.
  - ❖ This project cover 650 connections.
  - ❖ PA will cover the cost of 1.1 M $.
- Branch sewer pipelines project.
  - ❖ The budget 1M$ by JICA (Under negotiation).

Aqbet Jaber camps projects.

Package No.	Sewer Length (m)	Population Served (%)	Served Population	Estimated Cost (USD)
1	10,166	40	3,451	1,769,735
2	8,567	30	2,711	1,488,305
3	7,960	20	1,770	1,343,590
4	2,787	10	918	578,180
Total	29,480	100	8,850	5,179,810

Phased construction plan

5-Ensuring implementation based on revised strategic business plan

- The revised strategic business plan was finished but not approved by the council members.

Draft of strategic business plan 2014-2020

7- Continuous public awareness activities

- A public meeting with all mosque Imams was conducted:
  - ➢ On Feb 2 2016; about 30-35 Imams **(see Figure5)**
  - ➢ We requested Imams within the Pilot Project area to encourage the prayers to pay the connection fee. The Imams from outside of the Pilot Project area, however, were requested to encourage new house connections and monthly payments.
  - ➢ The Imams showed positive attitude toward the request. PR materials were distributed at the meeting as well.


Figure 5

- Water dep. made review and recalculation for PP projects connection fees and hand a list of customers to collection dep. to prepare letter of request for payment ,the door to door team handed 83 requests, explain how we estimate the cost ,only 5 customers come to service dep. and paid the connection fee until the end of April/2017. (**see Figure 6**)
- The collection dep. stop the clearance paper until paying the connection fee.

Figure6

- Public Meeting for the Camp residents on 25 Feb.2017.
- Workshop for Women Residents of the Camp on 7 March2017.
- Public a wariness project with a cost of **45000 euro**, one of the objective increasing and improve the collection rate.
  This project funded by Paris municipality.

8- Repayment on the pilot project

NO.	Connection charged to customers	Revenue of connection fees	Fees not paid	Collection rate
1	947645.3	159729.41	787915.41	17%

9-Treated water and sludge

- Average inflow 800m3/day.
- 100% of treated water used by farmers.
- The no. of farmers already used the treated water 5.
- The no. of farmer in the wait list are
- Almost all the tankers used the WWTP.
- **For the sludge:**

- The final meeting with MOA was held in 19 Dec.2017.
- MOA will finish the design of pilot project Jan.2018.
- JM prepared the land for pilot project.
- JM will study the cost of external tests and implement the project in cooperation with MOA.
- We agreed to start the work with PP Jan.2018.

THANK YOU FOR YOUR ATTENTION

TeCSOM Challenges

1

Institutional Aspect

The liaison system between the departments in charge of sewerage works in the Jericho municipality is lacking

A communication system (regular meeting, circulating the weekly/monthly report for share information) should be implemented between departments

It is expected that shortage of staff will occur when sewage volume increases in the future

Jericho municipality should consider the staff increasing and training them through OJT in order to operate sewerage facilities stably in the future

2

Financial Aspect-1

It is difficult to grasp the status of tariff collection related to sewerage by month, and the recognition of the collection rate of staff is low

Jericho municipality should prepare a report on the monthly financial situation to submit the mayor and share information at relevant departments

Bulk water users (especially government agencies) occupying a large proportion by monthly invoiced amount has not been collected

To ensure sound financial condition, Jericho municipality should surely collect water and sewerage tariffs from bulk water users

3

Financial Aspect-2

Together with C/P, TeCSOM has carried out public awareness activities to gain understanding from residents about sewerage, and continuous activities are necessary to get further understanding

Jericho municipality should appoint a person in charge of public awareness raising and hold regular public meeting for residents

Jericho municipality increased the number of staffs for collecting water and sewerage tariff, but it is necessary to further increase in preparation for future increasing the number of target households

Rebuilding and secure collection system of water and sewerage tariff

4

Financial Aspect-3

The budget for water and sewerage in Jericho municipality is weak and it is necessary to secure necessary budget for the future

1) Jericho municipality should consider to maintain budget for encouraging to expand of sewer network and house connection and renewal of future mechanical and electrical equipment of WWTP, furthermore, it is necessary to reliably collect the construction cost of the in-house connection pipe in the Pilot Project area installed by the TeCSOM Project
2) Jericho municipality is expected to implement sewerage works based on the management plan up to 2020, and revise it reflecting the annual sewerage works
3) To increase the tariff collection ratio, Jericho municipality should take action such as introduction the Pre-paid Water Meter, strengthening the PR activity, applying the penalty clause and the organization of the tariff collectors

5

Technical Aspect-1

Part of the collected cesspit sludge has not been discharged to WWTP

From the viewpoint of improvement of living environment and ground water quality conservation, sludge tanker vehicles should be controlled strongly so that collected cesspit sludge is appropriately put into WWTP

Although there are few factories that have enormous impact on biological treatment, it is necessary to prepare for cases where unexpectedly high concentrations sewage flow into WWTP

To protect WWTP, water quality monitoring team should be established to promptly analyze water quality and conducting on-site inspections regularly at factories

6

Technical Aspect-2

Although the amount of sludge generated at WWTP is small at present, it is necessary to study the disposal method

Jericho municipality should consult with the Ministry of Agriculture and establish an agricultural utilization process of sludge

Jericho municipality has agreed to accept sewage from JAIP, but no agreement has been concluded with Aqbat Jaber (AJ) camp

Jericho municipality should conclude an agreement with AJ Camp as soon as possible regarding the sewerage tariff, the quality of receiving water, and the responsibility of maintaining the pipe

7

Technical Aspect-3

The current inlet flow of WWTP (capacity 6,600 m 3/day) which started operation in June 2014 is only about 900 m 3/day. For the future, it is necessary to promote the development of sewage network and house connection

To increase the inlet flow and suppling treated wastewater to the farmers, Jericho municipality should intensively construct additional sewers and house connections using the collected tariff and another donor fund

After the completion of the TeCSOM project, sewage works in Jericho municipality needs to be appropriately operated and managed under a sound financial condition

After the completion of the technology transfer project of TeCSOM, the JICA Expert hope to fully utilize the products (several manuals, technical information, know-how and management plan on sewerage works)

8

Thank you for your attentions

We appreciate your fully cooperation during our Project and hope your works of sewerage is stable operation and management forever.

We are looking forward to seeing you again.

9

A 2-2-2: TC Meeting Materials

The 1st TC Meeting (January 27th, 2013)

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

Agenda for the 1st Technical Committee (TC) Meeting

1. Date:

- 27 (Sun) January 2013, 10:00-12:30: at meeting room in the Training Center

2. Agenda

1. Opening Statement **(by the Mayor of Jericho Municipality)**	**10:00-10:10**
2. Outline and Basic Policy of the Project **(by Mr. Sano, Chief Advisor of the Project)**	**10:10-10:40**
3. (Coffee Break-1)	**10:40-10:55**
4. Methodology of the Project **(by Mr. Sano, Chief Advisor of the Project)**	**10:55-11:25**
5. (Coffee Break-2)	**11:25-11:40**
6. Report, Manuals and Undertaking **(by Ms. Tsutsui, Awareness Expert of the Project)**	**11:40-11:55**
6. Discussion	**11:55-12:20**
7. Closing Remarks **(by Mr. Kubo of JICA Office)**	**12:20-12:30**

End

Technical Assistance and Capacity Building for the Jericho Sanitation Project

Technical Committee Meeting

Attendance List

Date: January 27, 2013

	Name	**organization**	**Designation**	**Signature**
1	Wiam Iriqat	Jericho Municipality	Head of PR Dept.	
2	Ibrahim Abu Seiba	Jericho Municipality	Mechanical Engineer	
3	Eyad Anabosi	Jericho Municipality	Head of Quality	
4	Mohamad Fetiane	Jericho Municipality	Head of supervision	
5	Eui Kubo	JICA	Representative	
6	Basel Hijazi	Jericho Municipality	Head of Engineering Dept.	
7	Mohammad Balo	Jericho Municipality Mayor	Mayor of Jericho	
8	Abd Al Nasser Mekky	JICA	Representative	
9	Baha Al Sharif	Jericho Municipality	Head of Collection Section	
10	Mohammed Isayed	Jericho Municipality	Engineering Dept.	
11	Mohamad Abo Mohsen	Jericho Municipality	Financial analysis	
12	Bilal Ammar	MOLG	Manager	
13	Nael Ali Ahmad	PWA	Director	
14	Hirofumi Sano	JICA EXPERT TEAM	Chief Advisor	
15	Yasumi Tsutsui	JICA EXPERT TEAM	Public Awareness	

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

WORK PLAN

JANUARY 2013

1

1. Outline of the Project

2

1-1 Overall Goals

Sewerage facilities in Jericho municipality are operated and managed appropriately under sound financial condition

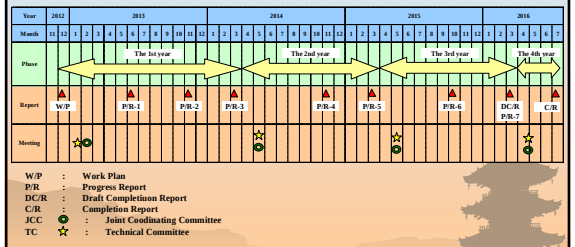
3

1-2 Project Purpose

System for operation and management of sewage works in Jericho municipality is established

4

1-3 Duration of the Project



W/P : Work Plan
P/R : Progress Report
DC/R : Draft Completinon Report
C/R : Completion Report
JCC : Joint Coodinating Committee
TC : Technical Committee

5

1-4 Project Site

Jericho municipality and its surrounding (Refugee Camps and others) areas

6

1-5 Expert Team Members

No.	Position and/or Assigned Tasks	Name
1	Chief Advisor/Institutional Operation/Legal System	Mr. Hirofumi SANO
2	Deputy Chief Advisor/Reuse of Treated Water and Sewage sludge	Mr. Satoru ONIKI
3	O&M of WWTP (Mechanical)-1	Mr. Yasuaki KONDA
4	O&M of WWTP (Mechanical)-2	Mr. Yoshikazu NAGANO
5	O&M of WWTP (Mechanical)-3	Mr. Masaru KASAHARA
6	O&M of WWTP (Electrical)	Mr. Akira HASEBE
7	Water Quality Management/ Sewer Network Construction and Maintenance-1	Mr. Keiji MASTUOKA
8	Sewer Network Construction and Maintenance-2	Mr. Kozo HAYASHISHITA
9	Awareness Raising/Project Coordinator	Ms. Yasumi TSUTSUI
10	Financial Management	Mr. Toshihiko TAMAMA

1-6 List of the Counterparts for the Project

Outputs		C/P Team	
		Name	Qualification
Project Chief		Mohammed Fetyani	Civil Engineer
(1)	Establishment of organizational base for departments in charge of sewage works	Iyad Hamdan	Management
		Mohammed Fetyani	Civil Engineer
		Ibrahim Abu Seiba	Mechanical Engineer
(2)	Development of capacity of Jericho municipality for O&M of the WWTP	Ibrahim Abu Seiba	Mechanical Engineer
		Mohammed Khalaf	Technician
		Maher Al Swaidy	Technician (Electricity)
(3)	Development of capacity of Jericho municipality for O&M of sewer network and promotion for connection to public	Mohammed Isayed	Civil Engineer
		Mohammed Fetyani	Civil Engineer
		Ibrahim Abu Seiba	Mechanical Engineer
(4)	Public awareness	Mohammed Isayed	Civil Engineer
		Wiam Irekat	Public Relations
		Mohammed Azmuty	Public Relations
	Financial management	Mohammed Abu Mohsen	Finance Management
		Baha Al Shareef	Finance Management

: Key personnel in each task

1-7 Output of the Project

(1) Establishment of new department in charge of sewage works

(2) Development of capacity for operation and maintenance of the WWTP

(3) Development of capacity for maintenance of sewers and promotion for connection to public sewers

(4) Development of capacity for financial management of sewage works

2. Basic Policy

2-1 Activities for each Output

2-1-1 Establishment of new department in charge of sewage works

1) Establish departments for operation and management preparation of sewage works

2) Assigns staffs in departments for operation and management of sewage works

3) Draft a by-law for users of the sewerage facilities

4) Develop a mid-term management plan for sewage works in Jericho municipality

2-1-2 Development of capacity for operation and maintenance of the WWTP

1) Carry out trainings/workshops in order to obtain basic knowledge
2) Prepare manuals for O&M in the Jericho WWTP and carry out on the job trainings
3) Develop an effluent regulation to water discharged to sewer networks
4) Utilize the treated water and sludge for agricultural use
5) Raise public awareness and disseminate experiences on the Jericho WWTP to related organizations

2-1-3 Development of capacity for maintenance of sewers and promotion for connection to public sewers

1) Carry out trainings/workshops in order to obtain basic knowledge
2) Prepare manuals for maintenance of sewer networks and carry out on the job trainings
3) Connecting private sewers with public sewers in Pilot Project areas
4) Raise public awareness and disseminate experiences on the sewer network to related organizations

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2-1-4 Development of capacity for financial management of sewage works

1) Carry out trainings/workshops in order to obtain basic knowledge
2) Develop structure of user charge for sewerage facilities
3) Develop a mid-term financial plan
4) Raise public awareness and disseminate experiences on financial planning to related organizations

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2-2 Program for the C/P Training in Japan (Draft)

(1) Attendee : C/P from Jericho Municipality

(2) Goal : Establishes basic knowledge required for the management of sewerage facilities, by the blended course of lecturing and site inspections

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(3) Theme, Purpose and Contents

Theme	Purpose	Contents
O&M of WWTP	To understand the mechanism of wastewater treatment and the method of O&M of WWTP	Explanation through lecturing and site tour
O&M of Sewer Network	To understand the methods of maintaining sewer network	Explanation through lecturing
Administrative and Financial Management	To understand the sustainable management of sewerage facilities	Explanation through lecturing
Water Quality Management	To understand the method of water quality control, to protect water environment	Explanation through lecturing
Institutional Development and Human Resources Management	To understand the institutional development and human resources management	Explanation through lecturing
Design of Sewerage Facilities	To study the designing of sewerage facilities	Lecturing and study tour of constructing site

* Detail schedule will be fixed and announced later

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2-3 Activities to ensure Capacity Development

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Capacity of C/P staff shall be comprehensively grasped by conducting a capacity assessment, which will give the information to analyze which capacity is in short and needs to be developed

Strategy for technical transfer will be developed base on the above results

Based on the above processes, the Project will be able to support the formation of autonomous development in the C/P side in the sewerage services to beneficiaries and an appropriate O&M of sewerage facilities

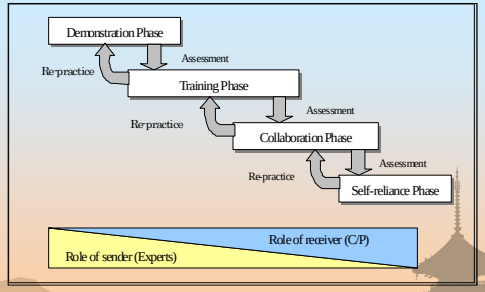


Image of Phased Capacity Development in Technical Cooperation

2-4 Outputs and Verifiable Indicators of the Project

Output and verifiable indicators are shown in attached A3-paper titled "Annex-I, PDM"

2-5 Pilot Project (PP)

(1) Purpose

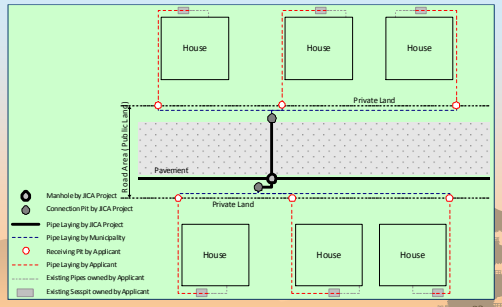
- Promotion household connection to public sewer
- Developing the "Design Standard for House Connection Pipe"
- Developing the "Regulations of Connection Charges"

(2) Phased Implementation

1) Primary PP Stage
Detail design of household connections on the overall target areas in the 1st Year and construction on the primary PP lines in the 2nd Year

2) Full-scale PP Stage
Construction on the main stage PP in the 3rd Year

(3) Construction Assignment



(4) Target Area

To avoid the residents "negative feelings for unfairness of charge", regulation of target area selection will be decided with Jericho municipality and Emirs and many type of household shall be applied.

(5) Number of Connection in the PP

Number of connection will finally be decided after negotiating with JICA

(6) Sub-Contract

- PP includes construction work and local consultants (LC) work
- Contractors can be decided at the 1st Year for the whole work
- Work allocation and contractors will be decided with JICA and C/P
- LC for the work of detail design and supervision of construction is chose by qualifications and comparing quotations from more than three different LC
- Contractors will be allocated by bidding

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2-6 Awareness Raising and Public Relations

(1) Activities

- Face-to-face public relations will be implemented through stakeholders on sewerage services
- Organize visit tour to WWTP for stakeholders, to enhance understanding for wastewater treatment process
- Target resident base will be expanded by utilizing website

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(2) Public Relations Activities (1/2) (Examples)

Goal	To gain approval of the citizens towards sewer connection and sewerage tariff collection
Strategy	1)Disseminate from target residents to families and neighborhood 2)Gain approval and cooperation from the people of socially influential groups 3)Gain approval of the local residents 4)Gain approvals of the residents opposing to tariff collection
Methodology	➢Face-to face public relations activities ➢Visit tour to WWTP ➢Campaign using website
Means of Public Relations	➢Printed media: pamphlets, posters, articles and flyers ➢Electronic media: website, e-mail

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Public Relations Activities (2/2) (Examples)

Stakeholder and PR activity plan	➢ Teacher: Study sessions using pamphlets and flyers, Visit tour to WWTP ➢ Student: Study sessions using pamphlets and flyers, Visit tour to WWTP, Speech contest ➢ Public administration: Study sessions using pamphlets and flyers, Visit tour to WWTP ➢ Task force for PR in Municipality: Presentation, Visit tour to WWTP ➢ Community leaders: Presentation, Visit tour to WWTP ➢ Municipal council staff: One-day seminar ➢ Local residents: Individual meeting with leaders, Presentation ➢ Low-income residents: Individual meeting with leaders, Presentation

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3. Methodology of the Project

The schedule of the project is shown in attached A3-paper titled “Annex-II, Plan of Operation”

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3-1 The 1st Year (December 2012 – March 2014)

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3-1-1 Collection of Base-line Data

Data to be Collected	Remark
➢Number of connections and revenues of collected/ uncollected water tariff ➢Organization structure, assigned tasks of each personnel of Jericho municipality,	Request to Jericho municipality
Water quality analysis of groundwater	Contracting out to local consultants
Water quality analysis of irrigation water and reclaimed wastewater as well as yield and growth of agricultural crops	Contracting out to local consultants

3-1-2 Social Survey

(1) Purpose:

Probing the satisfaction towards sanitary and environmental conditions of the residents

(2) Outline of Social Survey (Draft) (1/3)

Number of Samples	Project site	100 residents
	Surrounding area	50 residents (refugee camps and others)
Survey Method	Interview survey	
Main Questions	General articles	➢ Location of residence ➢ Age and gender ➢ Annual income/expenditure (including breakdown of water charge, pit toilet collection charge, electricity charge) ➢ Family profile
	Type of toilet	➢ Inside/Outside of the house ➢ Flush toilet/cesspit

(2/3)

Main Questions	Cesspit	➢ Inflow of grey water ➢ Individual/shared ➢ Annual collection frequency, cost per one collection
	Satisfaction to sanitary condition	
	Satisfaction to aquatic environment	➢ Water quality (surface water, drinking water) ➢ Water quantity
	Satisfaction to/ request for water supply service	Request: water quality improvement; prevention of supply interruption; improvement of water pressure; others
	Awareness for present water charge	Expensive/fair/cheap
	Expectation for sewerage	Reduction of water borne disease; prevention of flooding on roads; reduction of water resource pollution; others
	Support for construction of sewerage facilities	WWTP; sewer network
	Awareness for treated water reuse	Feeling of rejection towards reuse for irrigational purpose/ condition for reuse

(3/3)

Main Questions	Awareness for sludge utilization	Feeling of rejection towards reuse for fertilizer/ condition for reuse
	Willingness to connect to sewer	Connect/ not connect/ with conditions/ not known
	Willingness to pay for house connection	
	Willingness to pay for sewage tariff	

3-1-3 Capacity Assessment (CA)

(1) CA in technical field

		Axis of Action Pattern			
		Consistency	Interactive	Harmony of difference	Creative
Axis of Item	Self-management	Self-control	Pliability	Utilizing experience and human network	Self-revolution
	Communication	Building trustable relationship	Coordination of people	Leadership in team	Educate next generation
	Achievement	Keen to the result	Sharing the image of result	Maximize the result using acquired resource	Creation of new result
	Process	Rapid & accurate action	Coordination of team work	Making strategy	Creation of new method
	Logic	Logical thinking	Presentation	Making structure	Creation of new concept
	Information	Comprehensiveness of data collection	Sharing/transmission of information	Analysis of information	Transmission of new information

*** At the end of each year, the performance and degree of achievement shall be evaluated and verified**

(2) CA of Organization and Social Institutions

Perspectives	Measurement Indices
Financial	**Income/expenditure ratio** **Operating income/expenditure**
Customer	**Sewage service rate** **Connection rate**
Internal Business Process	**In time solution for complaints from customers**
Learning and Growth	**Accomplishment of CPD (**Continuous Professional Development**) target**

*** At the end of each year, the performance and degree of achievement shall be evaluated and verified**

3-1-4 Assistance of Establishment of the Department of Sewerage Works

Output	Sort of Counterpart	Number required	Qualification
1	Management of Sewerage Works	At least 1	Any realm with certain Authority
2	Operation of WWTP	At least 1	Civil or sanitation engineer
	Maintenance of Machinery	At least 1	Engineer or technician
	Maintenance of Electricity	At least 1	Engineer or technician
3	Maintenance and construction supervision of Sewer Networks	At least 1	Civil engineer or technician
4	Public Awareness	1	-
	Management of Finance	At least 1	-

3-1-5 Assistance of the Development and Approval Process of By-Law

(1/2)

Topics	Major Discussion Issues	Remarks
1.House connection	➢ Duty of connection ➢ Technical standards of connection method, diameter and slope ➢ Check for the plan and construction, limitation of contractor ➢ Standard of sewage quality connecting to sewer	
2.Facility for removing the interference	Condition of implementation (category of industry, amount and quality of wastewater)	
3.Connection Fee	➢ Pricing system ➢ Calculation method ➢ Method of tariff collection ➢ Reduced rates and exemption to the pricing	Learn from examples in Al-Bireh and Nabulus

(2/2)

Topics	Major Discussion Issues	Remarks
4.Application for usage	Application for starting, stopping, abolition of use	
5.Sewage tariff	➢ Pricing system ➢ Calculation method ➢ Method of tariff collection ➢ Reduced rates and exemption to the tariff	➢ Including the price of removal/ treatment of sewage in cesspit ➢ The price will be decided according to examples in Al-Bireh and Nabulus
6.Penalty		
7.Other	Permission and limitation for usage in private land	

3-1-6 Assistance of Developing Management Plan for Sewerage Works

Mid-Term Management Plan (2016 – 2020)

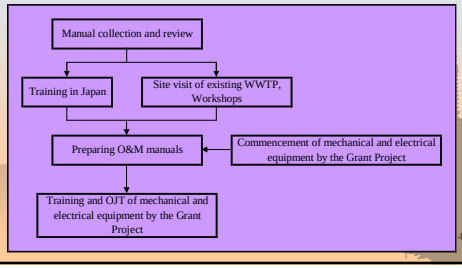
Perspectives	Policy Framework	Measurement Indices
Financial	Establishes principle of financial management and accounting (permissible limit of subsidies, double-entry/single-entry bookkeeping, etc.)	Income/expenditure ratio Operating income/expenditure
Customer	(a) Realize the benefit of sewage service in an earlier stage and maximizes B/C (b) The method of public relations and its contents	Sewage service rate Connection rate
Internal Business Process	(a) Reports, shares and archives documents and administrative data in an effective way (b) Defines the shared work between waterworks and sewage divisions	In time solution for complaints from customers
Learning and Growth	(a) Develops, plans and implements human resources development program (b) Develops CPD program and implements it in an effective way (c) Defines job scope description and required qualifications for each employee	Accomplishment of CPD (Continuous Professional Development) target

Participatory Meeting on Mid-Term Management Plan

Presenters	Observers	Time and Theme
➢ Jericho City (C/P) ➢ The Team	PWA, MoLG (Jenin, Al-Bireh, Nabulus: attendance requested basis)	In the latter half of Aug. 2013 ➢ Explanation of aim ➢ Present status and problems to be solved
		In Dec. 2013 ➢ Discussion on draft plan
		In Feb. 2014 ➢ Discussion on the draft final plan ➢ Discussion on draft financial manual

3-1-7 Seminars/Workshops to Build Basic Knowledge on WWTP

Purpose:
To establish basic knowledge on the O&M of WWTP and to prepare for the smooth start of operation of WWTP



3-1-8 O&M Manuals for WWTP

Assisting the work of C/P to prepare the draft of O&M plan, manuals on monitoring/ analyzing equipment for water quality, mechanical and electrical equipment, trouble-shooting and labor safety and health manual

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3-1-9 Assistance of Developing Discharge Standards from Factories

Review the present regulation frameworks in Al-Bireh, Nabulus and Jenin

↓

Investigate on the details of the existing factories in Jericho Municipality

↓

Team and C/P shall prepare the draft of "Discharge Guidelines to connect to public sewers" and required data are as follows.

- Outline of factory
- Water source and its consumption
- Installment of pre-treatment facility and its treatment process
- Willing to sewer connection, expected discharge volume and quality

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3-1-10 Utilization of Treated Water and Sludge

Investigating the present status, plan and related standards on reuse and utilization of treated water and sludge in the surrounding area

Item	Applied for:	Remarks
Application of treated water and reuse sludge	➢ Irrigation water ➢ Sludge manure	Type of agricultural products
Plan for Supply	➢ Amount of supply ➢ Quality of supplied water/ composition ➢ Method of supply	Method of supply: drip irrigation by low pressure
Standards of beneficial use	➢ Quality of water ➢ Composition of sludge manure	Reference of standards: ➢ MOU-PAL-ZISR-2003 ➢ Technical standards of reuse of treated water (MoA) ➢ "WHO guideline for the safe use of wastewater, excreta and gray water" ➢ "Wastewater treatment and use in agriculture", FAO, irrigation and drainage paper 47

3-1-11 Collection Data on Irrigation and Agricultural Products

- Collecting and analyzing data of irrigation water and crops before starting operation of WWTP
- To be compared with the corresponding data after starting the operation of WWTP, and thus to verify the effect of sewage treatment
- The location of the experiment is the next to WWTP
- The type of agricultural products will be dates palm, flowers, watermelon with advice of MOA
- Sample of water quality test (agricultural water) will be collected in the next of project site, and the quality test would be carried out by sub-contraction

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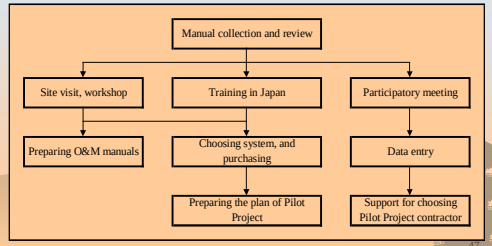
3-1-12 Seminars/Workshops to Build Basic Knowledge on Sewer Network

Purpose:

To establish basic knowledge on the maintenance of sewer network



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Seminar/Workshop on sewer network will be held for one day between April and June 2013

Items	Applying for	Method
Basic knowledge, planning, and design of sewers	Types of pipe material and pipe diameter	➢ Explanation by lecture ➢ Introduction examples and study
	Location and depth of pipes	
	Protection and foundation of pipes	
	Connection and joint	
	Manhole, pit, joint pipes	
	House connection facilities	
Basic knowledge of O&M for sewers	Site inspection	➢ Explanation by lecture ➢ Introduction examples and study
	Visual check, CCTV	
	Pipe cleaning	
	Repair and renovation of pipes	

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3-1-13 Sewer Maintenance

Assisting the work of C/P to prepare the draft plan and manual for sewer network maintenance

Items	Inspection	Remark
Preparation of sewer ledger, recording of maintenance practice	Process of information records	
Inspection and investigation	Frequency of site inspection	Using mirror and/or visual judgment of inside of manhole from the ground level
	Frequency of manhole inspection	Visual judgment of upstream and downstream of pipes, invert condition, flow and sediment
	Frequency of CCTV inspection	
Cleaning	Depth of sediments in pipe	
Repair and rehabilitation	Standard of malfunction	Method of evaluation for these topics: Break, crack, corrode, abrasion, clink and declination of ferrule, tree roots, adherence of fat and malfunction of pipe connection
	Method of choosing repair and rehabilitation of pipe	

3-1-14 Software Application

Application	Functions	Responsible Division
GIS/Sewer ledger management	➢ Geographic information of pipes and major facilities ➢ Diameter, types and construction year of pipes ➢ Location of customers ➢ Locations of water sampling points and municipal boundary	Technical division
Customer management	➢ Management of information of customer (name, code, etc.) ➢ Calculation of charge by water meter checking ➢ Issuing of invoice, receipt, and reminder notice	Management division
Salary calculation	➢ Calculation of basic salary and other allowance ➢ Correspond with department of employee evaluation	Human resource
Accounting	➢ Output of financial statement ➢ Managing tangible assets ➢ Procurement sub-system	Finance

3-1-15 Support for Connecting to Public Sewers from Households by PP

- Selection of target area should be careful
- Participatory meetings are held with residents and governmental bodies, and confirm their willingness to connection and tariff charges
- Detail design (specification, drawings and quantity) and supervision of works are fixed
- By discussion with JICA, final bid amount are fixed.
- Local Consultant (LC) will be sub-contracted to conduct the PP

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3-1-16 Data Collection and Verification of benefit by Sewer Construction

- Collecting data concerning sanitary condition in Jericho and the quality of groundwater
- To be analyzed comparing the data before/after sewer construction for verifying the effect of sewer network

Items of Groundwater Monitoring

Items	Sampling Location	Check Interval	Remarks
Nitrite-nitrogen	➢ Inside of the site: 3 locations of well and 3 locations of wadi ➢ Outside of the site: 3 locations of well and 3 locations of wadi	Once in a year	6 locations of wadi should be selected short period of drying
Nitrate-nitrogen			
Number of bacillus coli.			

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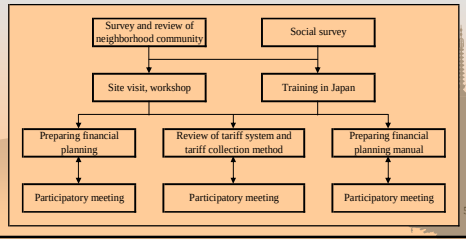
3-1-17 Seminars/Workshops to Build Basic Knowledge on Management

Purpose

- To establish basic knowledge on the financial management of sewage works
- To make an appropriate preparation for full-cost recovery management



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3-1-18 Assistance of Developing Wastewater Tariff and Connection Charge

The connection charge and sewage tariff shall be set up based on the current system of Al-Bireh and Nabulus and water tariff structure of Jericho.

In addition to this, participatory meeting shall be held once.

Participatory Meeting on Sewage Tariff

Presenters	Observers	Time	Remarks
Jericho (C/P), JICA expert	PWA, MOLG	September, 2013	To be held in the style of public hearing

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3-1-19 Assistance of Developing Financial Planning Manual

Investigation current financial status and the related plan of sewage service in the surrounding municipalities.

In addition to this, participatory meeting shall be held once.

Participatory Meeting on Financial Planning Manual

Presenters	Observers	Time	Remarks
Jericho (C/P), JICA expert	PWA, MOLG, Jenin, Al-Bireh and Nabulus	February, 2014	Combined with the 3rd participatory meeting

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3-2 The 2nd Year (April 2014 – March 2015)

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3-2-1 Enhancement of Abilities for O&M in WWTP

- Mechanical experts, electrical expert, and water quality expert will be in charge of checkup of daily reports and monthly reports, on-site checks and instructions and revise O&M manual with the C/P.
- Numerical target of individual C/Ps are set accordance with discussion at the beginning of the 2nd year.
- Evaluation will be held in January 2015, and improving points will be described.

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3-2-2 Support for Setting Sewage Standards for Industries to Connect to Sewers

Process, planning of industrial discharging facilities, and factory inspection by by-law, water quality measurement will be carried out based on the checklist

58

3-2-3 Beneficial Re-use of Treated Water and Sludge

The experiment of re-use of treated water and sludge manure at the experimental firm sets up by MOA near the WWTP will be carried out following the 1st year.

Participatory Meeting for Beneficial Use of Treated Water and Sludge

Accountability Holders	Attendance	Time	Remarks
Jericho (C/P), JICA expert	PWA, MOA, Agricultural Cooperatives in Jericho, and relevant units	June, 2014	➢ Explanation for effective re-use of treated water and sludge, and a draft criteria ➢ Explanation for experiment of re-use of treated water and sludge

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3-2-4 Sewer Maintenance

- Conducting O&M of sewers at the sites and claim management
- Revising of O&M planning and manuals

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3-2-5 Support for Connecting to Public Sewers from Individual Household

After contract agreement for the 2nd year, the work of LC are below,

- Support primary PP bidding
- Supervision of the works following primary PP plan
- Preparation of the draft plan of detailed design
- Finalize the tender documents and the cost estimation of PP
- Preparation and submission of the 3rd year plan for the supervision of works of PP

3-2-6 Data Collection for before/after Sewerage Installation, and Verification of its Efficiency

The activity of the 1st year will continue.

3-2-7 Support for Setting Sewage Tariff

The revised sewage tariff system, which was set up temporary on April 2014, will be considered.

Participatory Meeting for Sewage Tariff

Accountability Holders	Observer	Time	Remarks
Jericho (C/P), JICA expert	PWA, MOLG	November, 2014	➢ Meeting style: Public hearing

3-2-8 Support for Making Financial Plan

Based on the manuals for making financial plan prepared in the 1st year, the construction plan for sewerage facilities by year will be prepared.

3-3 The 3rd Year (April 2015 – March 2016)

3-3-1 Sharing Information with Residents and Stakeholders (Public Relations)

Theme	Type of Media	Contents	Remarks
How to use sewerage	Participatory seminar		➢ Seminar will be held at every community ➢ Seminar will be recorded by movies, and update to website ➢ Website and leaflet will be utilize in seminar simultaneously
Charges of sewerage	Participatory seminar		
Announcement for construction work	Participatory seminar	➢ Plan for main pipe construction ➢ Contents of the pipe connecting construction and cost burden ➢ Process for applying subsidies	
Introduction of the project and its facilities	Website, Leaflet		Tour in the facilities will be held
Benefit of sewerage system	Website, Leaflet		
Financial statement	Website, Leaflet		

3-3-2 Preparation for Draft of the Completion Report

3-3-3 Support for Restructuring of Sewerage Department

The project will support restructuring of sewerage department and distribution of personnel, if necessary.

3-3-4 Support for Reviewing the sewerage By-Law

The project will support revising the sewerage by-law according to the result of operation of the sewerage facilities, if necessary.

3-3-5 Support for Revising the Management Plan for Sewerage Facilities

The project will support revising the management plan for sewerage facilities according to the result of operation of them, if necessary.

3-3-6 Support for Enhancement of O&M Capacities in WWTP

The work of experts shall focus on checking daily-monthly report, site observation, and revising manuals of O&M with C/P.

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3-3-7 Support for Setting Standards of Discharging Industrial Wastewater to Connect to Public Sewers

The project will support reviewing the standards of discharging industrial wastewater, if necessary.

3-3-8 Beneficial Re-use of Treated Water and Sludge

The project will support beneficial re-use of treated water and sludge accordance with plans of beneficial re-use and their standards.

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3-3-9 Sewer Maintenance

Experts will be sent in twice a year in the 3rd year, the interval is longer compared to the 2nd year.

3-3-10 Support for Connecting to Sewers from House Connection

Contract agreement with the LC will continue in the 3rd year and their works are below.

- Support for the main PP bidding
- Supervision of works following the main PP plan
- Preparation of the draft plan of detailed design

69

3-3-11 Support for Setting up Tariff Structure

As continued from the 2nd year, the project will support the fare collection carried out by the C/P in accordance with the sewerage By-Law

3-3-12 Support for making Financial Plan

As continued from the 2nd year, the annual financial plan will be prepared. The plan will be approved by related organizations in the participatory meeting, and the plan will be revised if necessary.

70

3-4 The 4th Year (April 2016 – July 2016)

- Knowledge obtained by the primary and main PP and the other project implemented by the Jericho municipality which will provide “the sample drawings of standard and specification of house connection” and “the division of connection and cost” will be summarized
- The knowledge will be informed and shared with the persons involved by workshop and promoted to be reflected in the sewerage by-law
- The concrete action plan for the future of C/P will be formulated at the same time

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4. Project Schedule

(1) The 1st Year :December 2012 – March 2014 (1/2)

1)Explanation and discussion of the Draft Work Plan
2)Collection the baseline data
3)Implementation of the social survey
4)Implementation of the capacity assessment
5)Making the progress reports
6)Support to establish the department of sewerage works
7)Support to make the draft of sewerage by-law
8)Support to make the sewerage management plan
9)Implementation of the training and workshop to learn basic skills of sewerage facilities
10)Preparation of the manuals of O&M of sewerage facilities

(2/2)

11)Formulation of the drainage criteria for the factories connecting to public sewers

12)Considering the reuse system of treated water and sludge

13)Data collection of agricultural water and crops

14)Support to connect house drainage facilities to sewer network

15)Data collection and effect evaluation by the constructed sewerage facilities

16)Implementation of the training and workshop to learn basic skills of sewerage facilities management

17)Support to set up the sewage tariff system

18)Support to make the financial plan

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(2) The 2nd Year :April 2014 – March 2015

1)Consensus building among involved parties about implementation plan of the year at the JCC and TC

2)Making the progress reports

3)Capacity building of O&M of sewerage facilities

4)Formulation of the drainage criteria for the factories connecting to sewerage system

5)Considering the reuse system of treated water and sludge

6)Data collection of agricultural water and crops

7)Support to connect house drainage facilities to public sewers

8)Data collection and effect evaluation by the constructed sewerage facilities

9)Support to set up the sewage tariff system

10)Support to make the financial plan

(3) The 3rd Year :April 2015 – March 2016

1)Consensus building among involved parties about implementation plan of the year at the JCC and TC

2)Making the progress reports

3)Informing the knowledge and contents of the project to the residents and involved parties

4)Making the draft of project completion report

5)Support to review the department of sewerage works and their staffing

6)Support to review the draft of sewerage by-law

7)Support to review the draft of the sewerage management plan

8)Capacity building of O&M of sewerage facilities

75

9)Formulation of the drainage criteria for the factories connecting to sewerage facilities

10)Considering the reuse system of treated water and sludge

11)Support to connect house drainage facilities to public sewers

12)Support to set up the sewerage tariff system

13)Support to make the financial plan

(4) The 4th Year :April 2016 – July 2016

1)Consensus building among involved parties about implementation plan of the year at the JCC and TC

2)Making the project completion report

3)Informing the knowledge and contents of the project to the residents and involved parties

4)Support to review the department of sewerage works and their staffing

5)Support to review the draft of sewerage by-law

6)Support to review the draft of the sewerage management plan

7)Capacity building of O&M of sewerage facilities

8)Formulation of the drainage criteria for the factories connecting to sewerage system

9)Considering the reuse system of treated water and sludge

10)Support to connect house drainage facilities to public sewers

11)Support to set up the sewerage tariff system

12)Support to make the financial plan

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5. Report

The 1st Year:
(1) Work Plan
(2) Progress Report (1) – (3)
The 2nd Year:
(1) Progress Report (4) – (5)
The 3rd Year:
(1) Progress Report (6) – (7)
(2) Draft of Completion Report
The 4th Year:
(1) Completion Report

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6. Deliverable Manuals of Capacity Development

(1)Manual and trouble shooting of water quality management

(2)Manual and trouble shooting of mechanical equipment

(3)Manual and trouble shooting of electrical equipment

(4)Safety and hygienic manuals for sewerage works

(5)Completion report of Pilot Project

(6)Manual and trouble shooting of pipe connection for each house

(7)Operation and maintenance manual of pipe lines

(8)Financial planning manual

7. Undertaking by Palestinian Side

(1) Safeness and security for the project team

(2) Project office and equipment in Jericho

(3) Human resource allocation for representative of the C/P, and supporting staffs in related department

(4) Arrangement of duty free for equipment which the project team bring in Palestine

(5) Support and arrangement for money sending and bringing project budget in Palestine

(6) Arrangement or required material and information, and coordination with related organizations

(7) Arrangement of permission for taking local materials out of Palestine

(8) Arrangement of duty free for the project team and foreigner registration of the project team

(9) Arrangement for project activities in private properties and restricted area

Thank you very much

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The 2nd TC Meeting (January 30th, 2018)

TECHNICAL ASSISTANCE AND CAPACITY BUILDING PROJECT FOR THE JERICHO SANITATION PROJECT

Agenda for the 2nd Technical Committee (TC) Meeting

1. Date & Venue:

30 (Tuesday) January 2018, 10:30-13:30: at Conference Room in Oasis Hotel

2. Agenda

Welcoming Drink (Coffee & Tea)	**10:00-10:30**
1. Opening Statement (by Mr. Basel Hijazi, Head of Engineering Department)	**10:30-10:40**
2. Opening Remarks (by Mr. Adel Salim Yasin, Director of Wastewater Department in Palestinian Water Authority)	**10:40-10:50**
3. Achievements of Management Plan for Sewerage (by Mr. Mohammed Fetyani, Director of Water & Wastewater Department)	**10:50-11:10**
4. Achievements of O&M on Wastewater Treatment Plant (by Mr. Ibrahim Abu Seiba, Manager of Jericho Wastewater Treatment Plant)	**11:10-11:30**
5. Discussion	**11:30-11:50**
6. (Coffee Break)	**11:50-12:10**
7. Achievements of Sewer Network (by Majdi Mohammad Al-Ghouj, Civil Engineer of Water & Wastewater Department)	**12:10-12:30**
8. Achievements of Financial Management for Sewerage (by Mr. Mohammed Abu Muhsen, Head of Internal Audit and Financial Control Unit)	**12:30-12:50**
9. Discussion	**12:50-13:10**
10. Closing Remarks (by Ms. Mariko Chiba, Project Formulation Advisor, JICA)	**13:10-13:20**
11. Closing Remarks (by Mr. Hirofumi Sano, Chief Advisor of the Project)	**13:20-13:30**
12. Lunch Time	**13:30-14:30**

End

The 2nd Technical Committee

On

Technical assistance and capacity building project for the Jericho sanitation project

Achievements in TeCSOM

Prepared by: Eng. Mohammad Fityani

30th Jan 2018

OUTPUTS OF THE PROJECT

1. **Management plan for sewerage works in Jericho municipality is developed.**
2. **Capacity of Jericho municipality for appropriate operation and maintenance of the wastewater treatment plant(WWTP) is developed.**
3. **Capacity of Jericho municipality for appropriate operation and maintenance of sewer networks is developed.**
4. **Capacity of Jericho municipality for financial management of sewerage works is developed.**

Output No.1

- **Verifiable indicators**

1. **Departments in charge of sewerage works is officially approved in Jericho municipality.**
2. **The no. of full-time staff for sewerage works is more than 14 persons.**
3. **The by-law for users of sewerage facilities is enforced.**
4. **Mid-term management plan is approved by the city council.**

1.Departments in charge of sewerage works is officially approved in Jericho municipality&2.The no. of full-time staff for sewerage works is more than 14 persons.

- The sewerage section started its regular activities after starting operation of the WWTP in June 2014, and mainly deals with the technical aspect of sewerage service. (**see Figure 1**)
- Fourteen full-time regular staffs have been identified to be necessary through JICA TA project, while current staffing as of Dec. 2017 is shown in **Table1**. the no. of full-time 15 and 2 part-time.
- The job description was developed for the chief positions of sewerage management, but not including the personnel , who should closely cooperate with Sewerage Section for the integrated and effective service provision.

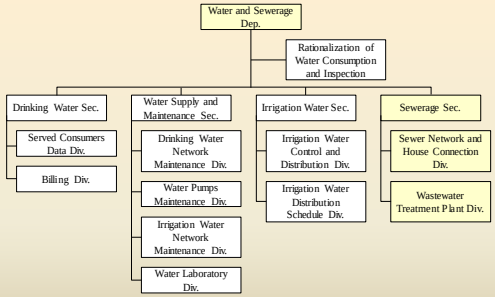


Figure1

Organization of Sewerage Section (As of Dec.2017)

Position		Number	Name	Work type	Assignment
Head of Water supply/Sewerage Department		1	Mr. Mohammed Fetyani	Full-time	
Sewerage section manager/ WWTP manager and Sewer network		1	Mr. Ibrahim Abu Seiba	Full-time	
Sewage pipe installation / house connection		4	Mr. Majdi Mohammad Al-Ghouj	Full-time	
			Mr. Ahmad Jalayta	Full-time	
			Mr. Mosa Naif	Full-time	
			Mr. Isa Sharari	Full-time	
WWTP operation	Operator	1	Mr. Omran Khalaf	Full-time	
	Inspection/O&M	Mechanical:1	Mr. Mohammed Awajneh	Part-time	
		Electrical:1	Mr. Maher Swaidy	Full-time	
	Worker/guard	6 (4 work shifts)	Mr. Adnan Ashoor	Full-time	
			Mr. Ibrahim Jalayta	Full-time	
			Mr. Ramadan Jalaytah	Full-time	
			Mr. Mosa Barahmeh	Full-time	
			Mr. Ehab Nemer	Full-time	
			Mr. Ismail Barahmeh	Full-time	
	Water quality analysis	2	Mr. Ata Shtawi	Part-time	
			Mr. Moafasim Awajneh	Full-time	
Total		17	Breakdown: 15 full-time, 2 part-time		
Sewerage Tariff/fee		1	Mr. Abdul Fatah Haddad	Full-time	

Table 1

- There is shortage on the staff of WWTP (a) 1 full-time technician shall be hired as a regular staff from 2018 in the WWTP Laboratory (b) 1 mechanical technician of the WWTP who is concurrent shall be turned into full-time from 2018.
- Other functions related to sewerage service such as bill delivery and collection, customer service, public relations, GIS mapping of sewer network, financial accounting or human resources management shall be allocated to the specific departments/sections, and hence the service provision to customers should be implemented in close cooperation with the Sewerage Section and other relevant departments/sections. (**see figure 2**)
- We applied the billing system(**single visit read-print-collect**) from Nov. Dec. 2017 to improve the collection rate , now 5 agents do this work.
- There is proposed collection plan made in cooperation with Paris municipality. (**see figure 3**)

Format of relation between the water and financial dep.

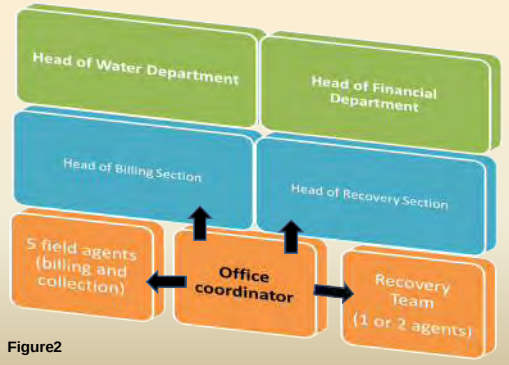


Figure2

proposed collection plan

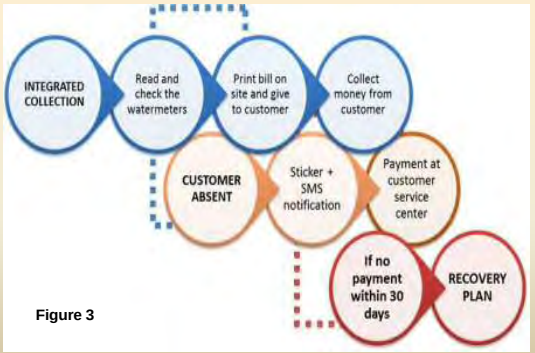


Figure 3

- In order to increase the collection rate , the municipality took the following steps:

➢ Step1: both water and sewer tariff collected completely.

In order to prevent non-payment of wastewater tariff and to remind the customers to pay previous debts and other related fees such as the installment of connection fee and meter installation fee, it was agreed to change the format of the bill as shown in **Figure 1**, and the modification of Mobile Billing System by its manufacturing company STDDP was done using the fund of JICA T/A project.

Modified format of bill (figure1)

➢ Step2: increase the no. of tariff collectors and activate the tariff collectors to visit houses to promote collection of water and sewage tariff.

In order to increase the rate of collection:

❖ The municipality added 2 additional collectors and activate the billing system (**read,print,collect**).
❖ In the same day each duration visit the house to allow the customer to prepare the payment.
❖ Activate the collection plan (see figure2,3).
❖ Prepare report for performance indicator after finish each duration.
❖ We activated the billing system in **11+12/2017.**

3.The by-law for users of sewerage facilities is enforced.

- During the work in the sewage and house connection we faced different problems, System of Connecting Houses and Buildings to the Public Sewer Network No. 16 for the year 2013 not treat those type of problem and not define the penalty.
- JICA TA project team hired a consultant to revise the system.
- The consultant revised the system and prepared a proposed penalty clauses.
- **The penalty clauses not approved by MOLG and PWA, so we can't used to treat the problems.**

- The proposed penalty clauses built based on:
  - The basics amendment law provisions of 2003 and its amendment, in particular Article 70.
  - The Water Law No. 3 For the Year 2002, particularly Article 42 .
  - The Local Authorities Law No. 1 for the year 1997,
  - the Law No. 7 of the year 1999 on the environment,

The penalty clauses include 3 articles:
Article no.1
To amend article No. 5 of the System to be added to it as follows:-
3. After the deadline which is set by the service provider for the compulsory connection all the fees specified to the owner or the user shall be considered as public money, whether the houses or the buildings were connected to the public sewer network or not by the owner, the user or the services provider.
4. The amount will be met on the owner or the user who fails to pay the bill on time as follows:-
(a) The service provider sends a written warning to the owner or user stating the amount owed to the service provider and its details and it must be paid within fifteen days from the date of notification.
(b) In the event of non-payment by the owner or the user the amount due is issued to the Execution Department and bills are considered as the official bonds that shall be collected under Execution Law No. 23 for the Year 2005 and not to be stopped unless the decision is issued from the court that has the lawsuit to stop it.

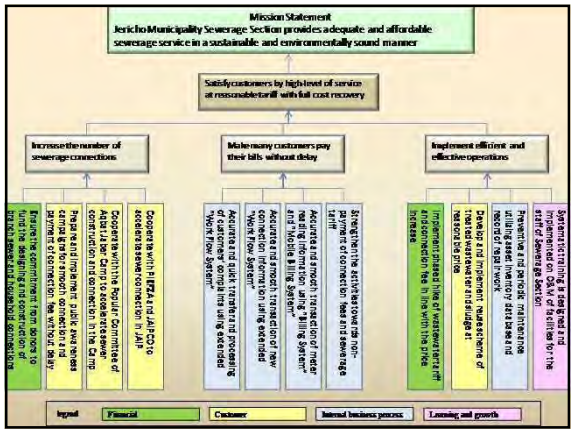
Article 2
To amend the article No. 6 paragraph 2 to be as follows:
In case there is no ability to connect directly to public sewer, the land owners should allow installing pipes in their private lands for the neighboring lands within a setback and is located at a higher level than their land, according to the regulatory diagram approved by the local authority in accordance with the following procedures: -
a. Inform the owner of the neighboring land by a notice attached with a diagram which shows the track of the pipe to express the reason for objections within a period of 15 days.
b. Discuss the objections by a committee made for this purpose and consists of:
1. a representative of PWA;
2. a representative of MOLG;
3. a representative of service provider.
c. The committee studies the objections and within a period of 2 months makes a final decision.
d. In case of no objection submitted and/or the committee has issued a decision, the commission is entitled to enable the service provider to take an action directly on site without any objection so that the staffs/ employees of the service provider conduct inspection or connect to the public sewer for the necessary extension.
Anyone objecting or making a problem to the staffs/ employees is regarded as committing an offense to the duties of the staffs/ employees contrary to the provisions of this System.
The owner of these pipes should commit by a written undertaking to maintain it on their expense and to change the track in case it blocked the freedom of the land owner, and also to remove it in case there is an ability to connect directly to the public sewer.

Article 3
To amend article 21 to be:
Anyone who makes one of the following actions:
1. To damage the property of the water and sewer authority;
2. To connect his own sewer with the public sewer or to cut it without a permission;
3. To cause any obstacle for the employee of service provider or to stop him for doing his duties or to refuse to let him enter his land to inspect public and private sewer;
4. To use public sewer without a license or illegally use sewer in a way different from what has been approved in the license;
5. To discharge rainwater to public sewer network;
6. To throw any of prohibited materials that are mentioned in Annex No.1 of this System;
7. To discharge sewage outside of the exact location in the wastewater treatment plant or specified by the service provider within the border of competent authorities;
8. To discharge sewage of private cesspit without written approval from the service provider;
shall be punished by the imprisonment for a period of not less than 6 months and not more than one year or a fine of not less than 500 JD and not more than 5000 JD or what is met by equivalent currency, that affects the text does not any more severe penalty imposed under any other law.

The proposed penalty clauses

4.Mid-term management plan is approved by the city council.

- The management framework, activities to be accomplished and necessary funding resources to be obtained, as well as forming consensus of stakeholders of Jericho Municipality (i.e. the Mayor, Municipality Council members and Municipality staff).
- This plan makes clear the following four issues:
  - **Construction and household connection plan: branch sewer and connection work;**
  - **Business plan: activities to be conducted each year;**
  - **Staffing plan and organization structure;**
  - **Financial plan: construction plan and revised revenue/expenditure plan.**



Activities to be Strategically Conducted 2014-2020

THANK YOU FOR YOUR ATTENTION

Activities & Achievements
O & M of WWTP

Prepared by
Eng. Ibrahim Abu Seiba

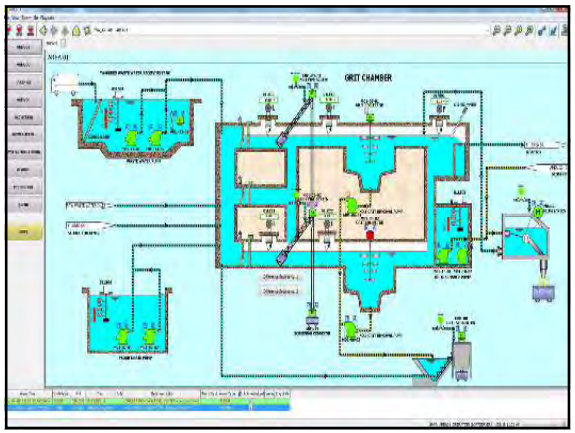
30th January 2018

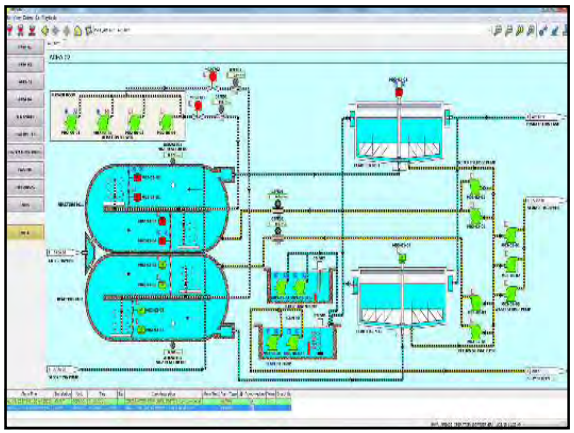
Part 1
WWTP Overview

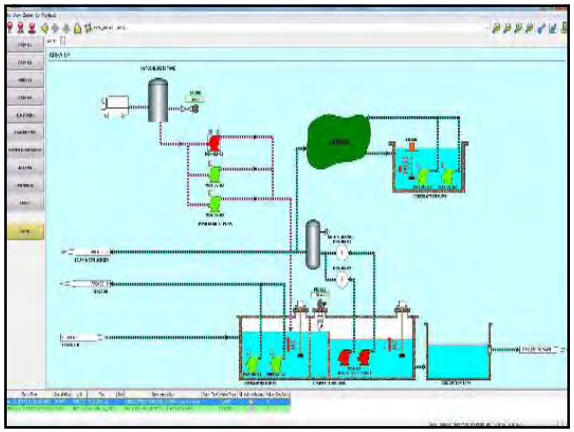
Design WWTP Capacity and Quality

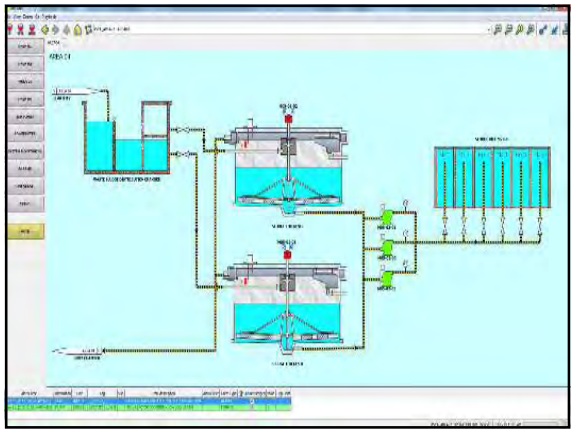
Items	Wastewater Amount and Quality			Effluent Quality
	Daily Average	Daily Maximum	Hourly Maximum	
Wastewater Amount (m^3/day)	6,600	9,800	19,100	---
BOD (mg/L)	500			20
TSS (mg/L)	500			30
T-N (mg/L)	75			50

General View of WWTP

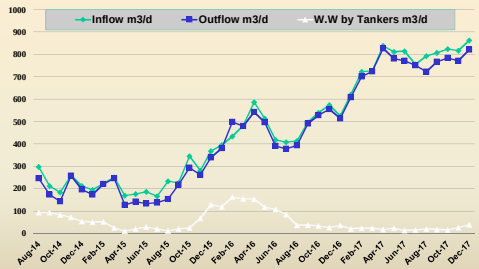




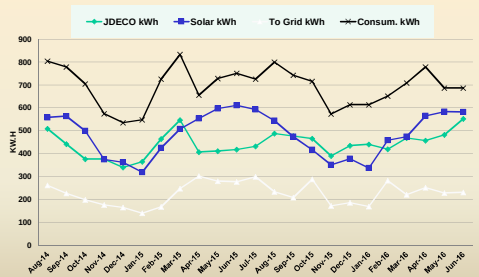




Influent & Effluent

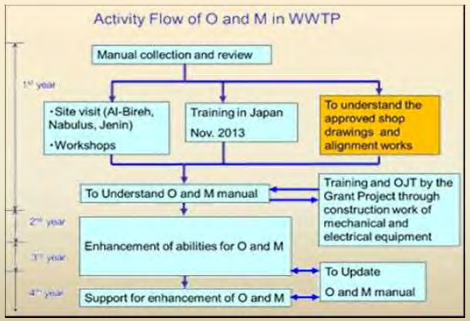


Power



Part 2
Activities

Preparation of O&M Manuals for WWTP



Capacity Assessment of C/Ps

❑ Method

- The capacity of each individual C/P members was assessed both in the general skill/competency and in the technical knowledge/skill, by conducting a questionnaire survey asking all C/Ps to fill out the questionnaire sheet prepared by the Experts

Result

Action

- A training in Japan in November 2013 along with seminar sessions were held

Training during Construction

Training and Workshop for Basic Knowledge of WWTP

❑Policy and outline of the trainings

a)Lecture trainings

b)Practical trainings

Major contents of the trainings

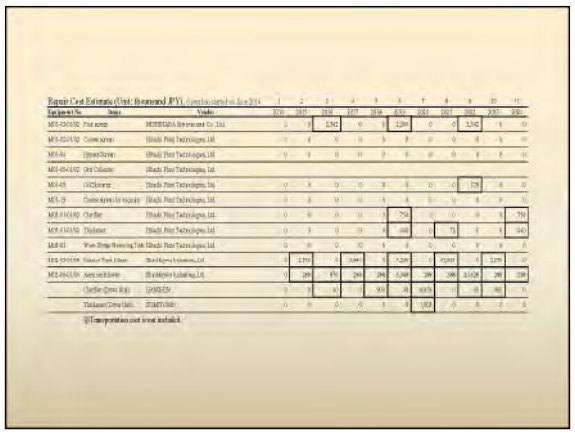
1. Reviewing mechanical flow sheet and intelligibility check of the counterpart
2. Inspection of equipment installation
3. Understanding outlines of electrical facilities
4. Learning actual operation and maintenance method of actual equipment
5. Learning maintenance operation method of seldom-used equipment
6. Preparation of daily/weekly record and site inspection format
7. Training on water analysis

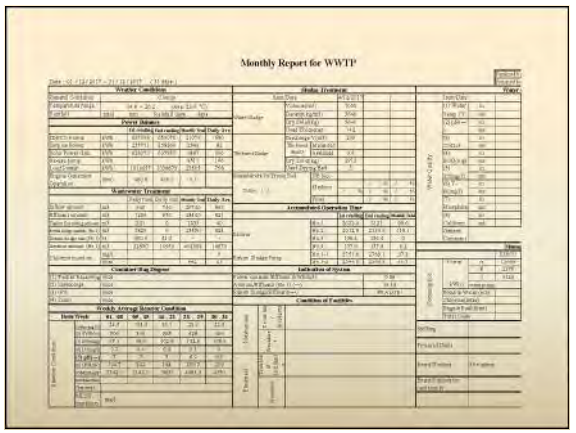
Training and Workshop for Basic Knowledge of WWTP




Part 3
Achievements


VENDOR LIST


Repair Cost Estimate (Unit: thousand JPY)


Monthly Report for WWTP

EQUIPMENT MAINTENANCE RECORD

		Specifications		
Item No.				
Section				
Equipment Name				
Model No.				
Quantity				
Manufacturer				
Manufacturing Year				

History of Maintenance

Replacement of Parts		Lubrication		Painting		Troubles/Accidents	
Date	Description	Date	Description	Date	Description	Date	Description

ACCIDENT REPORT

Approved by:	Checked by:	Reported by:

DATE	TIME	WEATHER	TEMPERATURE

FACILITY :			
EQUIPMENT NAME :		ITEM No. :	
DESCRIPTION			
REMEDIAL ACTION			
REMARKS			

Regular Inspection Sheet

- Tanker Receiving & Grit Chamber -

Date

Checked by

Equipment Name	Pressure	Flow	Oil	Sound	Vibration	Temp.	Leakage	Local/Remote	Fault	Lamp Test	Current	Time	Fault
Wastewater pump for vacuum -1/2								L - R					
Wastewater pump for vacuum -2/2								L - R					
Mixer for vacuum								L - R					
Fine Screen -1/2								L - R					
Fine Screen -2/2								L - R					
Grit Collector -1/2								L - R					
Grit Collector -2/2								L - R					
Grit Removal Pump -1/2			Manual Equipment					L - R					
Grit Removal Pump -2/2								L - R					
Floor Drain Pump -1/2								L - R					
Floor Drain Pump -2/2								L - R					
Grit Separator								L - R					
Oil Discharge Pump -1/2								L - R					
Oil Discharge Pump -2/2								L - R					
Scum Screen								L - R					
Screening Conveyor								L - R					

Equipment Name	Value	Condition
No.1 Fine Screen Upstream Level Meter		
No.1 Fine Screen Downstream Level Meter		
No.2 Fine Screen Upstream Level Meter		
No.2 Fine Screen Downstream Level Meter		
Inflow Flow Meter		

Equipment Name	Open/Close	Adjustment
Coarse screen for vacuum	O - C	
Grit Chamber Inlet Gate -1/4	O - C	
Grit Chamber Inlet Gate -2/4	O - C	
Grit Chamber Inlet Gate -3/4	O - C	
Coarse screen -1/2	O - C	
Coarse screen -2/2	O - C	
Bypass Screen	O - C	
Oil Skimmer	O - C	

Regular Maintenance for Electrical Facility - 1/2

- Main Electrical Room -

Date :

Weather :

Checked by :

Supported by :

Panel	Load	Rated Capacity (kW)	Rated Ampere (A)	Actual Ampere (A) U	V	W	Insulation Resistance (MΩ) U	V	W	Bolt Tightening
Grit Chamber MCC 01MCC01 01MCC02	Mixer for Vacuum	1.5								
	Wastewater pump for vacuum -1/2	3.7								
	Wastewater pump for vacuum -2/2	3.7								
	Fine Screen -1/2	2.2								
	Fine Screen -2/2	2.2								
	Grit Collector -1/2	1.1								
	Grit Collector -2/2	1.1								
	Grit Removal Pump -1/2	2.2								
	Grit Removal Pump -2/2	2.2								
	Floor Drain Pump -1/2	1.5								
	Floor Drain Pump -2/2	1.5								
	Grit Separator	0.75								
	Oil Discharge Pump -1/2	0.75								
	Oil Discharge Pump -2/2	0.75								
	Scum Screen	0.4								
	Screening Conveyor	2.2								
Sludge Thickener MCC 05MCC01	Thickener -1/2	0.4								
	Thickener -2/2	0.4								
	Thickened Sludge Pump -1/2	5.5								
	Thickened Sludge Pump -2/2	5.5								
	Thickened Sludge Pump -3/3	5.5								
Others										

Part 4

Reuse

Utilization of Treated Wastewater and Sludge

Irrigation in Garden in WWTP

Sprinkling TE to lawns

Irrigation: twice a day
1 time: 10 – 15 min
By manual

Dropping TE to trees

Amenity Use

Tilapia fish: 170
✓African freshwater cichlid fish
✓Introduced to many areas for food

Amenity use and detection of toxic substances in water

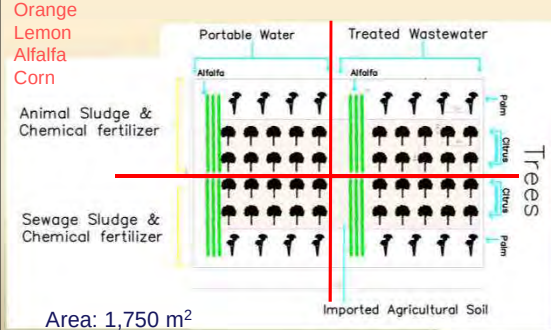
Flushing Sewers

Pilot Plan at WWTP

Target Products
Palm Date, Citrus (Orange, Lemon), Alfalfa, Corn

Pilot Plant Layout

Palm Date
Orange
Lemon
Alfalfa
Corn



Area: 1,750 m^2

Construction of the Pilot Plant

Pilot Plant in December 2014

Portable Water | Treated Wastewater

Pilot Plant in January 2015

Portable Water | Treated Wastewater

Pilot Plant in February 2015

Portable Water | Treated Wastewater

Pilot Plant in March 2015

Portable Water | Treated Wastewater

Pilot Plant in April 2015

Portable Water | Treated Wastewater

Pilot Plant in April 2015

Portable Water | Treated Wastewater

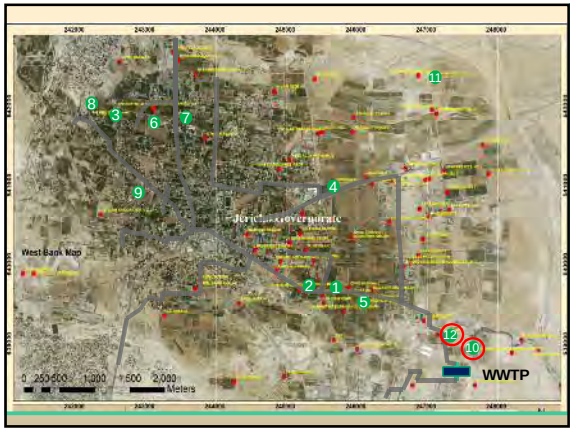
Pilot Plant in May 2015

Portable Water

Treated Wastewater

Pilot Farm (External Experimental Farm)

- ✓ Palm date
- ✓ Approx. 200 Trees
- ✓ Private farm land
- ✓ Providing Treated Wastewater
- ✓ No Sewage Sludge
- ✓ Commencement: Early June 2015



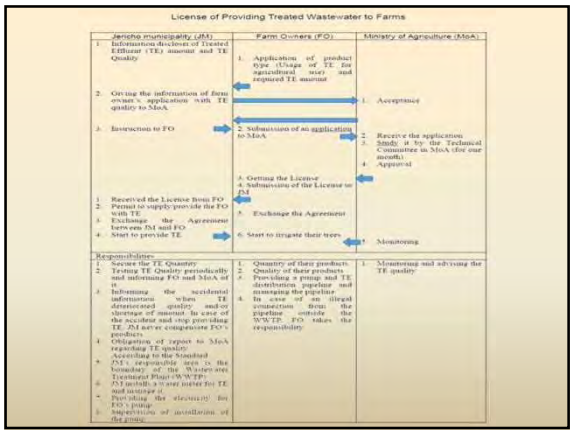
Treated Wastewater Quality

Items		Standard Quality A	Treated Wastewater		Well-10	Well-12
		Sampling Date	1-Dec-14	20-May-15	Jun 22-13	Jun 22-13
Biochemical Oxygen Demand (BOD)	mg/L	20	<5	<5	<5	<5
Total Suspended Solids (TSS)	mg/L	30	1	6.7	1.5	1
Fecal coliform bacteria	colony/100ml	200	600-800	192	0	0
Chemical Oxygen Demand (COD)	mg/L	50	<10	<10	<10	<10
Dissolved Oxygen (DO)	mg/L	1<	2.1	3	3.6	3.95
Total Dissolved Solids (TDS)	mg/L	1,200	867	885	2,413	2,860
Potential of Hydrogen (pH)		6 - 9	7.85	7.68	7.98	7.7
Fat, Oil and Grease	mg/L	5	10.2	<1	<1	<1
Phenol	mg/L	0.002	0.00581	0.018	0.00267	0.00418
Detergents (MBAS)	mg/L	15	<0.01	<0.01	<0.01	<0.01
Nitrate Nitrogen (NO3-N)	mg/L	20	1.23	0.35	0.97	8.39
Ammonium Nitrogen (NH4-N)	mg/L	5	<0.05	<0.05	<0.05	<0.05
Total Nitrogen (T-N)	mg/L	30	22.3	10.7	0.97	8.88
Chloride (Cl)	mg/L	400	237.9	232.9	1024.6	1007.9
Sulfate (SO4)	mg/L	300	85.7	73.5	157.5	305.2
Sodium (Na)	mg/L	200	145	107.1	491	343
Magnesium (Mg)	mg/L	60	30.4	34.67	96.3	167
Calcium (Ca)	mg/L	300	86.6	83.59	54.4	130
Sodium Adsorption Ratio (SAR)	mg/L	5.85	ND	2.47	9.26	4.74

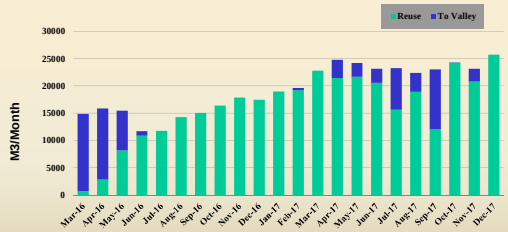
ND: Not detected

Items		Standard Quality A	Treated Wastewater		Well-10 Survey-1	Well-12 Survey-1
		Sampling Date	1-Dec-14	20-May-15	Jun 22-13	Jun 22-13
Phosphate Phosphorus (PO4-P)	mg/L	20	13.2	24.5	20.5	ND
Aluminum (Al)	mg/L	5	0.04	0.224	0.239	0.212
Arsenic (As)	mg/L	0.1	ND	ND	ND	ND
Copper (Cu)	mg/L	0.2	0.035	0.011	ND	ND
Iron (Fe)	mg/L	5	0.07	0.143	0.087	0.4
Manganese (Mn)	mg/L	0.2	ND	0.041	0.011	ND
Nickel (Ni)	mg/L	0.2	ND	ND	ND	ND
Lead (Pb)	mg/L	0.2	ND	ND	ND	ND
Selenium (Se)	mg/L	0.02	0.04	ND	ND	ND
Cadmium (Cd)	mg/L	0.01	ND	ND	ND	ND
Zinc (Zn)	mg/L	?	0.1	0.046	0.079	0.047
Cyanide (CN)	mg/L	0.05	<0.03	<0.03	<0.03	<0.03
Chrome (Cr)	mg/L	0.1	ND	ND	ND	ND
Mercury (Hg)	mg/L	0.001	ND	0.00015	ND	ND
Cobalt (Co)	mg/L	0.05	ND	ND	ND	ND
Boron (B)	mg/L	0.7	0.4	ND	2.75	2.16
Bacteria E. Coli	(colony/100mL)	100	TMTC	187	0	0
Nematodes	(Eggs/L)	<1	ND	ND	ND	ND

ND: Not detected



Reuse



THANK YOU

Sewer Network Management

Eng. Majdi Mohammad Al-Ghouj

January, 30, 2018

Grant Aid Project (Main Sewer Lines)

- JICA Project:
  - Length of sewer network done by JICA project is 30 km.
- USAID Projects:
  - Length of sewer network done by USAID projects are:
    First phase (1A) is 12.5 Km.
    Second Phase (1B) is 23 Km.

SEWER NETWORK

TeCSOM Projects, Pilot Projects (PP-1 and PP-2)

Purpose of project

- To connect the domestic and commercial buildings to sewer network and transport sewage to the waste water treatment plant.
- Increase the flow to the waste water treatment plant.

TeCSOM Projects, Pilot Projects (PP-1 and PP-2)

	PP-1	PP-2
Project Cost ($)	230,000	741,000
Pipe Line Length (KM)	3.32	11.16
No. Of Manholes	171	860
No. Of connections	89	295
No. Of Households	246	645

TeCSOM Projects, Pilot Projects (PP-1 and PP-2)

Jericho Municipality Pilot Project (PP-3)

- Jericho Municipality implemented house connection pilot project (PP-3), which has 185 connection, and 500 household.

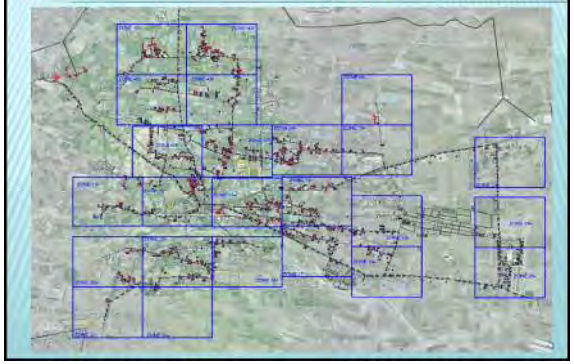
	PP-3
Project Cost ($)	248,000
Pipe Line Length (KM)	3.95
No. Of Manholes	171
No. Of connections	185
No. Of Households	500

Jericho Municipality Pilot Project (PP-3)

Jericho Municipality Pilot Project (PP-4)

- Jericho Municipality has designed house connection pilot project area (PP-4), and it will be implemented after Ministry of Finance make a tender.
- This project has 650 connections.
- After PP 4 it will be there PP 5 in order to connect the remains households and to connect the houses in the new USAID project (1B) area.

Jericho Municipality Pilot Project (PP-4)



Obligation For New Buildings

- Jericho Municipality linked the buildings permit with sewer connection application. So, each new building must apply a connection application and pay the connection fee.

Sewer Maintenance Section

- Sewer maintenance section has four employees, engineer and three workers.

Eng. Majdi Al-Chouj

Mr. Mousa Ghrouf

Mr. Essa Ghrouf

Mr. Ahmad Jalayta

Sewer Maintenance Section

13

Current Number of Connected household

	No. Of connections	No. Of Household
PP-1	89	246
PP-2	295	645
PP-3	185	500
Jericho Municipality Team	168	445
Sum	737	1836

14

Challenges by Jericho Municipality

- ❑ Continue the construction of branches sewer pipe lines.
- ❑ Impose the people to connect to the sewer network.
- ❑ Impose the people in PP-1, PP-2, PP-3 areas to pay the connection fees.
- ❑ Impose all people who connected to the sewer network to pay the sewer tariff.

15

Any Questions

16

Achievements of Financial management for sewerage

30th January 2018

Prepared by: Mohammed Abu Muhsen
Financial manager

1. Introduction

The subject of the sewage from the new threads to many municipalities and therefore needs to be new legislation and specialized staffs.

The question that arises, Is municipalities able to manage such a huge project, including the consequent very high costs in light of the difficult financial situation that most municipalities experiencing ?

We have passed the first stage to get funding to set up a sewage project and now comes the role of the continuity of the project, because its success depends on the Continuation rely on collection efficiency .

In case of failure or weakness of the collection process will lead to the municipality to incur very large sums of money may lead to the collapse of the project .

There are great difficulties facing the process of collection of fees. The municipality has taken many steps to improve the animation process. There are other plans that we are supposed to apply and this needs the support from more than one party, whether municipal or citizens or the Ministry of Finance .

2. Strategic Business Plan (SBP) (2014 – 2020)

- The SBP aims at providing management framework , activities to be accomplished and necessary funding resources to be obtained, as well as forming consensus stakeholders of Jericho municipality . This plan makes clear the following issues:
- Construction and household connection plan: branch sewer &connection work
- Business plan : activities to be conducted each year
- Staffing plan and organization structure
- Financial plan : construction and revised revenue/expenditure plan

3. Objectives and means

- The objective is “to satisfy customers by high level of service at a reasonable tariff with full cost recovery “
- The direct means are :

- Increase the number of sewerage connections
- Make many customers pay their bills without delay
- Implement efficient and effective operations

4. Wastewater Tariff and Connection Fee & Discount

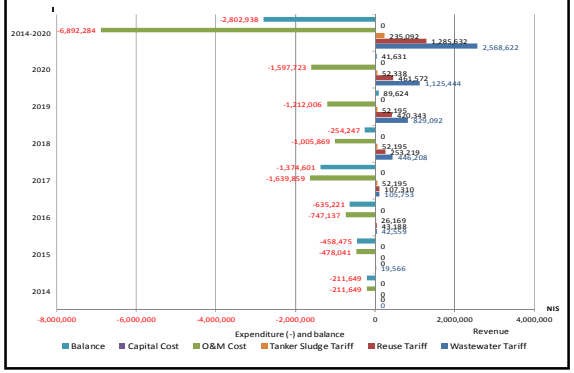
Municipality Council decided on 18th August 2015 to halve both the regular price of wastewater tariff and connection fee until the end of 2017

Category	Unit Fee: Regular Price	Unit Fee: Encouraging Price	Notes
Wastewater Tariff	1.0 NIS/m^3	0.5 NIS/m^3	- Encouraging price applicable till 31 December 2017 . From the beginning of 2018 it returned to 1.0 NIS/m^3
Connection Fee	13 NIS/m^2	7 NIS/m^2	- For every square meter of building - Encouraging price applicable till 31 December 2017 and extended to the end of 2018.
Reused waste water tariff	0.5NIS/m^3		-applied to the licensed users by the MoA- reused wastewater to be used for irrigation purpose. - The price was adjusted to 1 NIS/m^3 from the beginning of 2018
Tanker sludge tariff	5 NIS/tanker		-The start of work by the beginning of July 2016 Equivalent to 0.5 NIS/ m^3 for 10 m^3 tanker truck

5. Key Performance and Indicators

index	Targeted value	In 2017
Influent wastewater volume	(annual average) 784 m3/d	800 m3/d
Volume of reused and charged wastewater (m3/month)	More than 75% of inflow wastewater volume	100% is used
Number of new connections	269	236 Including 185 by PP-3
Number of staff	Nominally 14	15 Actually 2 part time fulltime
Collection ratio of bills of wastewater tariff	40% (collected/billed)	24% (2015-2017)

6. Financial prospect



7. Revenue (2017)

Item	2017	Ratio (%)
Sewerage Fees	37345	33
Sale of Treated Wastewater	42825	38
Solar Revenue	27686	25
Tanks Fees	4200	4
Total	112056	

8. Expenditure: O&M of WWTP (2017)

Item	2017	Ratio (%)
Salary	350000	49
Electricity	181825	25
Maintenance	136626	19
Others	48471	7
Total	716922	

9. Countermeasures to Increase Revenue

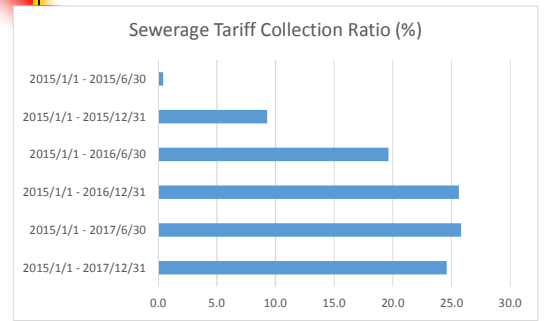
- Collector will do all the billing cycle (meter reading , bill delivery and collection) in order to improve efficiency
- Integration of bill of water and wastewater tariff
- SMS reminder system
- Official letter from JM to PA
- Prepaid water meter
- Awareness raising
- Promotion discount and installment
- Motivate collector and other measures

10. Collection Ratio (Water & Sewerage)

	item	Total invoices	Total payment	Collection Ratio
1/1/2015-30/6/2015	Water supply	3,076,417	2,058,304	67%
Half year	Sewerage fee	151,197	617	--
1/1/2015 – 31/12/2015	Water supply	7,464,850	5,142,902	69%
One year	Sewerage fee	194,904	18,074	9%
1/1/2015-30/6/2016	Water supply	10,755,027	7,527,070	70%
1.5 year	Sewerage fee	248,263	48,704	19%
1/1/2015-31/12/2016	Water supply	15,175,642	11,234,013	70%
2 years	Sewerage fee	332,660	85,261	26%
1/1/2015-30/6/2017	Water supply	17,928,412	12,883,441	72%
2.5 years	Sewerage fee	400,403	103,428	26%
1/1/2015-31/12/2017	Water supply	21,895,219	15,617,075	71%
3 years	**Sewerage fee**	498,372	122,606	**24%**

❖**The sewage bill has been linked to the water bill so that it will be paid as a single invoice from 1/11/2017**
❖Part of this amount accrued on government institutions (167000) NIS is equivalent to 34% of Issued Bills.

11. Sewerage Tariff Collection Ratio



12. Connection Fee

PP1 : 89

PP2 : 295

The total charged to the customers is 957094 NIS. A total of 166,958 NIS was collected (17%) , leaving an amount of 790,136 NIS not collected.

PP3 : 185 contractor has not submitted data to Jericho municipality

The internal connection fees is not charged to the customers because the cost price was not agreed upon

13. Treated wastewater

- Five farm Owners contracted (2017)
- The sale price per cubic meter of treated water is 0.5 NIS/m^3 until the end of 2017. The price has become 1 NIS/m^3 as of 1/1/2018
- Collection ratio: 100% (because it paid in advance)
- The value of treated wastewater sold is 70,340 NIS

14. Countermeasure of Payment Tariff

- Collector will do all the billing cycle (meter reading , bill delivery and collection) in order to improve efficiency
- Integration of bill of water and wastewater tariff
- SMS reminder system
- Official letter from JM to PA
- Prepaid water meter
- Awareness raising
- Promotion discount and installment
- Motivate collector and other measures

15. Jericho Municipality Challenges

- Unwillingness of citizens to pay new fees
- Citizens feel the sanitation service isn't necessary, so they don't accept to pay
- Nobody was sent to legal procedures
- Sewerage Tariff = Drinking water Tariff
- problems related to the financial system in terms of reporting, unified bill
- High cost of Internal connection
- Economic citizens situation
- Using cesspit tank
- There is a belief among many citizens that the link to the sewerage network is free
- High cost of Internal connection

16. Conclusion

- The success of the project is not only by hope
- If we want the success of this project, there must be a plan of action for the next phase with the performance indicators.
- The current situation may be acceptable but can not continue this way.
- We have to take decisive actions on the subject of the collection of tariffs and fees for sanitation.

Thank you for Your Attention

A 2-3-1: Collection Data/Information

Appendix A 2-3-1

Collected Data/Information

No.	The Materials	Source	Original\Copy	Institution Name	The Year
1.	The use of sewage sludge in agriculture	Letter	Copy	Committee Technical Regulations	23.4.2013
2.	Guidelines for using reclaimed wastewater in agriculture	Book	Original	MERAP	June 2101
3.	Sample analysis report	Letter	Copy	Water and Environmental Institute	17.4.2013
4.	Instructions drainage commercial and industrial wastewater to the public sewer network	Letter	Copy		
5.	Authentication model mandatory technical instructions	Letter	Copy	Palestine Standers Institution	2012
6.	Drinking Water	Letter	Copy	PSI	2005
7.	Analysis of water samples	Letter	Copy	Water and Environmental Institute	17.4.2013
8.	Request for Connecting to Sewerage	Letter	Copy	Nablus Municipality	17.4.2013
9.	Sample Of Complaints	Letter	Copy	Nablus Municipality	17.4.2013
10.	Jobs Description	Letter	Copy	Nablus Municipality	
11.	Occupations	Letter	Copy	Nablus Municipality	
12.	System projects of linking houses and facilities to the public sewer network	Letter	Copy		
13.	System project of linking houses and facilities to the public sewer network	Letter	Copy	Ministry of Local Government	24.12.2012
14.	System project linking houses and facilities to the public sewer network	Letter	Copy	Ministry of Local Government	24/12/2012
15.	System project linking houses and facilities to the public sewer network	Letter	Copy	Council of Ministers	18.2012
16.	System project linking houses and facilities to the public sewer network	Fax	Copy	Minister of Local Government	24.Dec2012
17.	System project linking houses and facilities to the public sewer network	Fax	Copy		24.Dec.2012
18.	Waste water Treatment Project	Draft	Copy	The Municipality of Al-BIREH	November 1996
19.	Water Treatment Plant Operation and work on WWTPs	Letter	Copy	Al- BIREH	2009
20.	The Sewerage of AL-Bireh Municipality Area for 1987	Letter	Copy	AL-BIREH Municipality	17.August.1988
21.	WWTP AL-BIREH..Report	Letter	Copy	AL-BIREH	January 2008
22.	Industrial Wastewater cadastra of AL-BIREH Preliminary finding and recommendations	Data	Copy	The Municipality of AL-BIREH	26.September.1999
23.	Wastewater Treatment Plant AL-	Letter	Copy	Al—BIREH	5.4.2013

	BIREH (Daily Lab Report)				
24.	Wastewater Treatment Plant AL-BIREH(Weekly Lab Report)	Letter	Copy	AL-BIREH	15.4.2013
25.	Wastewater Treatment Plant AL-BIREH(daily Lab Report)	Letter	copy	AL=BIREH	14.4.2013
26.	WWTP AL-BIREH	Letter	Copy	AL-BIREH	15.4.2013
27.	The Sewage system for the Municipality of AL-BIREH NO.(1) for years 2000	Letter	Copy (English)	AL-BIREH	16.1.2013
28.	The Sewage system for the Municipality of AL-BIREH NO.(1) for years 2000	Letter	Copy(Arabic)	AL-BIREH	16.1.2013
29.	The Strategic development plan for Jericho city	Letter	Copy		
30.	Wastewater Treatment Plant AL-BIREH (Daily) Report	Letter	Copy	AL-BIREH	15.April
31.	Wastewater Treatment Plant AL BIREH (Weekly) Report	Letter	Copy	AL-BIREH	15.April
32.	The organizational structure of the Municipality of Jericho	Letter	Copy	Jericho Municipality	
33.	Water Statistics in the Palestinian Territory (Annual Report,2008)	Letter	Copy	Palestinian Central Bureau of Statistics	September.2009
34.	Trading and Dialogue Programs (Operation and Maintenance of Sewerage System and waste water Treatment Technique	Letter	Copy	JICA	Jan.2012 to Jun 2012
35.	The Water tariff system (Arabic and English)	letter	Copy	Council of Ministers Cabinet Secretariat	18\5\2013
36.	PASSIA	Book	…	….	
37.	Documents of the fifteenth meeting for characterization committee of environment	letter	copy	PWA	22/5/2013
38.	How to rationalize water	Brochure	original	PWA	
39.	Building capacity and institutional reform for integrated management of water and sanitation services in rural communities	Brochure	original	PWA	
40.	The project on improved extension for value-added agriculture in the Jordan river rift valley	Brochure	original	PWA	
41	The optimum use of water	Brochure	original	PWA	
42	The project of building capacity and institutional reform for the integrated management of water and sanitation services in rural communities.	Brochure	original	PWA	

A 2-3-2: Groundwater Quality Survey

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Birzeit University Testing Laboratories

Environmental Unit
PS/ISO 17025 Accredited
Phone : 02-2982010/ 02-2982102
Fax : 02-2982166

Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153784
Source Sample Code	: Well # 1
Sample Name	: Sbeeru Hanhan & Rantisi
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	13.0 ppm	CIA		26 MAY 2015
Escherichia coli	Nil /100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

Signatures:

Belal Amous
Director of BZUTL

Center of BZU Testing Labs
BIRZEIT UNIVERSITY

* 1 0 4 2 7 5 5 *

Senior Analyst,
Environmental Unit

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BIRZEIT UNIVERSITY
Birzeit University Testing Laboratories

Environmental Unit
PS/ISO 17025 Accredited
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Fax : 02-2982166

Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153785
Source Sample Code	: Well # 2
Sample Name	: Fahmi Alnahhas
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	7.83 ppm	CIA		26 MAY 2015
Escherichia coli	1 cfu/100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

Signatures:

Belal Amous
Director of BZUTL

Center of BZU Testing Labs
BIRZEIT UNIVERSITY

* 1 0 4 2 7 5 6 *

Senior Analyst,
Environmental Unit

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Environmental Unit
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Fax : 02-2982166

Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153786
Source Sample Code	: Well # 3
Sample Name	: Samed
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	7.46 ppm	CIA		26 MAY 2015
Escherichia coli	Nil /100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

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Director of BZUTL

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Fax : 02-2982166

Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153787
Source Sample Code	: Well # 4
Sample Name	: Khalaf Atta Khalaf
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	15.7 ppm	CIA		26 MAY 2015
Escherichia coli	Nil /100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

Signatures:

Belal Amous
Director of BZUTL

Center of BZU Testing Labs
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Senior Analyst,
Environmental Unit

BIRZEIT UNIVERSITY
Birzeit University Testing Laboratories

Environmental Unit
PS/ISO 17025 Accredited
Phone : 02-2982010/ 02-2982102
Fax : 02-2982166

Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153788
Source Sample Code	: Well # 5
Sample Name	: Jawad Al-Masri & Mahmoud
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	5.12 ppm	CIA		26 MAY 2015
Escherichia coli	Nil /100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

Signatures:

Belal Amous
Director of BZUTL

Center of BZU Testing Labs
BIRZEIT UNIVERSITY

Senior Analyst,
Environmental Unit

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Fax : 02-2982166

Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153789
Source Sample Code	: Well # 6
Sample Name	: Kaled Dabes
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	Below Detection Limit	CIA	D.L = 50 ppb	26 MAY 2015
Escherichia coli	Nil /100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

Signatures:

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Director of BZUTL

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Senior Analyst,
Environmental Unit

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Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153790
Source Sample Code	: Well # 7
Sample Name	: Dwedar
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	Below Detection Limit	CIA	D.L = 50 ppb	26 MAY 2015
Escherichia coli	Nil /100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

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Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153791
Source Sample Code	: Well # 8
Sample Name	: A'aen Al-Soultan
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	8.02 ppm	CIA		26 MAY 2015
Escherichia coli	4 cfu/100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

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Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153792
Source Sample Code	: Well # 9
Sample Name	: Kaled Fehmi Ghanem
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	Below Detection Limit	CIA	D.L = 50 ppb	26 MAY 2015
Escherichia coli	Nil /100ml	ISO		23 MAY 2015

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Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153793
Source Sample Code	: Well # 10
Sample Name	: Majed Al-Tarifi
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	Below Detection Limit	CIA	D.L = 50 ppb	26 MAY 2015
Escherichia coli	Nil /100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

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Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153794
Source Sample Code	: Well # 11
Sample Name	: Arab Project NO. 23
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	Below Detection Limit	CIA	D.L = 50 ppb	26 MAY 2015
Escherichia coli	245 cfu/100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

Signatures:

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Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153795
Source Sample Code	: Well # 12
Sample Name	: Ismael Ad'aaq
Sample Receiving Date	: 21 May 2015
Category	: Groundwater
Batch No.	:
Sample Size	: 250 ml
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
COD	Below Detection Limit	StMe	D.L. = 10 mg/L	26 MAY 2015
Nitrate Nitrogen	5.91 ppm	CIA		26 MAY 2015
Escherichia coli	Nil /100ml	ISO		23 MAY 2015

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Signatures:

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Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153796
Source Sample Code	:
Sample Name	: Treated Water
Sample Receiving Date	: 21 May 2015
Category	: Water
Batch No.	:
Sample Size	: 1 L
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
BOD	Below Detection Limit	StMe	D.L. = 5 mg/L	28 MAY 2015
Total suspended solids	6.70 mg/L	StMe		26 MAY 2015
Fecal Coliforms	192 cfu/100ml	ISO		23 MAY 2015
COD	Below Detection Limit	StMe	D.L.= 10 mg/L	26 MAY 2015
Dissolved Oxygen	3.00 mg/L	StMe		25 MAY 2015
Total dissolved solids	884.5 mg/L	StMe		26 MAY 2015
pH	7.68	StMe		25 MAY 2015
Fat Oil and Grease	Below Detection Limit	StMe	D.L= 1 mg/L	27 MAY 2015
Phenols	18 Microgram/L	StMe		28 MAY 2015
Detergents (MBAS)	Below Detection Limit	StMe	D.L.=10 Micro-gram/L	26 MAY 2015
Chloride	232.9 ppm	CIA		25 MAY 2015
Sulfates	73.5 ppm	CIA		25 MAY 2015
PO4-P	24.5 ppm	StMe		25 MAY 2015

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Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153796
Source Sample Code	:
Sample Name	: Treated Water
Sample Receiving Date	: 21 May 2015
Category	: Water
Batch No.	:
Sample Size	: 1 L
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
NH4-N	Below Detection Limit	StMe	D.L.= 0.05 mg/L	25 MAY 2015
Total Nitrogen	10.70 mg/L	StMe		26 MAY 2015
Sodium Adsorption Ratio	2.47	StMe		28 MAY 2015
Mercury	0.15 ppb	DMA-80		27 MAY 2015
Nematodes	Absent	ISO		28 MAY 2015
Cyanide	Not Detected	StMe	D.L.= 0.03 mg/L	25 MAY 2015
B	Not detected	ICP		27 MAY 2015
Na	107.1 ppm	ICP		28 MAY 2015
Mg	34.67 ppm	ICP		28 MAY 2015
Ca	83.59 ppm	ICP		28 MAY 2015
Al	0.224 ppm	ICP		28 MAY 2015
As	Not detected	ICP		28 MAY 2015
Cu	0.011 ppm	ICP		28 MAY 2015

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Analytical Report

Report Date : 28 May 2015
Customer : شركة الصفاء لتنقية المياه العادمة

Sample Code	: ES-20153796
Source Sample Code	:
Sample Name	: Treated Water
Sample Receiving Date	: 21 May 2015
Category	: Water
Batch No.	:
Sample Size	: 1 L
Origin	: شركة الديار
Representative	:
Container Type	: Plastic
Sample Condition	: ok
Sampled By	: Qusay Attili

Test	Result	Method	Comments	Test Date
Fe	0.143 ppm	ICP		28 MAY 2015
Mn	0.041 ppm	ICP		28 MAY 2015
Ni	Not detected	ICP		28 MAY 2015
Pb	Not detected	ICP		28 MAY 2015
Se	Not detected	ICP		28 MAY 2015
Cd	Not detected	ICP		28 MAY 2015
Zn	0.046 ppm	ICP		28 MAY 2015
Cr	Not detected	ICP		28 MAY 2015
Co	Not detected	ICP		28 MAY 2015
Escherichia coli	187 cfu/100ml	ISO		23 MAY 2015

* The Center is only responsible for the results of the sample tested.

Signatures:

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Director of BZUTL

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A 2-3-3: Offensive Odor Survey

To:
NJS Consultant Co. Ltd Respected
Project Manager of NJS: Hirofumi Sano
Office Address: NJS Headquarter (Tokyo)
Office Tel: +81-3-5919-7453 (Japan)
E-mail Address: njs-sano@mbj.nifty.com

MEASUREMENT SURVEY (OFFENSIVE ODOR) IN JERICHO SANITATION PROJECT

Agreement date: **14th May 2014.**
between

Project holder (The Engineer): **NJS Consultants Co., Ltd.**
NJS Consultants Co., Ltd. Representative: **Eng. Hirofumi Sano.**

Service provider (The Contractor): **An-Najah National University.**
An-Najah National University Representative: **Dr. Amjad I.A. Hussein.**

Sampling date: 7th June, 2014.

Reporting date: 25th June, 2014.

Air sampling leader: **Ms. Asmaa Al-Asmar.**

Laboratory Superintendent: **Mr. Mohammad Abd-Al-Qader.**

Director of PCCBA Center: **Dr. Amjad I.A. Hussein.**

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Scientific Research Centers Building. P.O. Box 707, Nablus, Palestine,. Tel+(972)(9)2345115/6/7 Fax 2345982

MEASUREMENT SURVEY (OFFENSIVE ODOR) IN JERICHO SANITATION PROJECT

Following to our agreement dated 14/5/2014 to measure the air pollutants at Jericho Sanitation Project under your supervision to measure the offensive odor. An-Najah National University, Poison Control and Chemical-Biological Analysis Center team made the sampling on 7/6/2014.

An-Najah Sampling team is represented by:

1- Dr. Amjad I.A. Hussein.
2- Dr. Mohammad Sapagh.
3- Ms. Asmaa Al-Asmar.
4- Ms. Lubna Al-Shareef.

Sampling was done under the supervision of NJS consultant team represented by:

1- Eng. Satoru Oniki
2- Mr. Koji Furuhashu

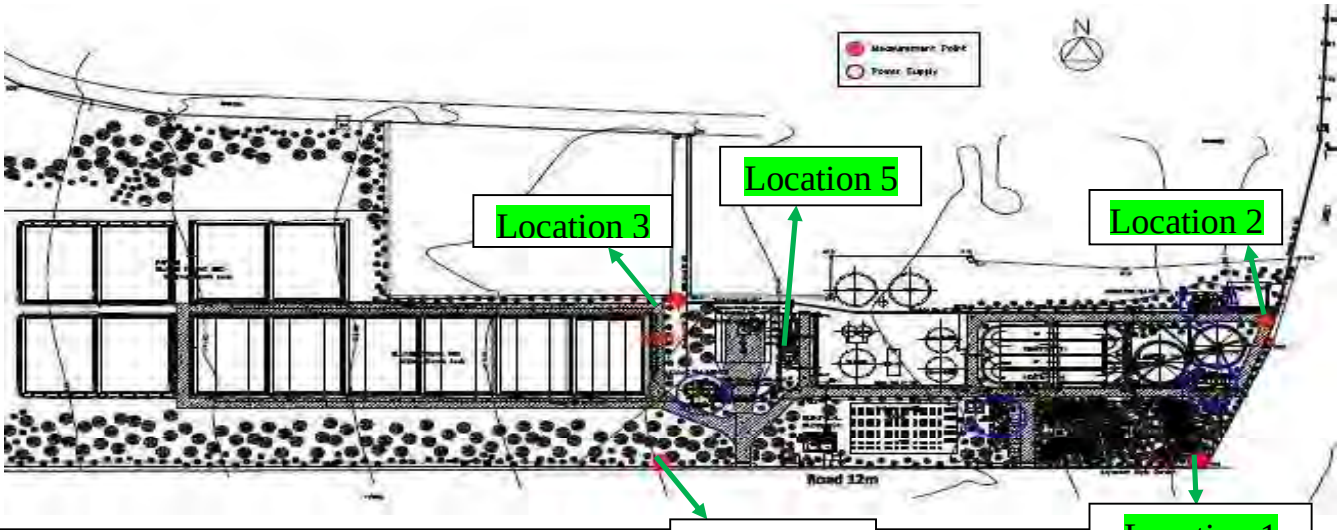
Sampling Parameters and Instruments:

1. Ammonia.
2. Hydrogen Sulfide.
3. TVOC (Total Volatile Organic Compounds).
4. Temperature.
5. Humidity.
6. Wind velocity and direction.

➔ Parameter 1 through 5 were done using Direct Sense monitoring kit with the Socket Somo 650 interface mobile equipment attached with IQ-610 (05 -728) and TG-501 (03-675) probes.
➔ Parameter 6 were manually recorded using Anemometer Extech instruments.

Locations as shown in the next figure:

Location 1: South East site.
Location 2: North East site.
Location 3: North West site.
Location 4: South West site.
Location 5: Influent collection site.



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Results

1) Location 1: South East site:

Started at: 11:01:24 AM, 7th June, 2014.

Ended at: 12:05:54 PM 7th June, 2014.

Duration: 01:04:30 h:m:s

Number of readings: 130

Location 1: South East site results					
Test	**Min**	**Max**	**Average**		
NH_3 (ppm)	0.0	0.1	0.03		
TVOC (ppb)	0	0	0.0		
H_2S (ppm)	0.00	0.00	0.000		
Temp (C°)	27.9	30.4	29.39		
RH (%RH)	39.4	42.3	40.93		

➔ **Wind speed and direction:**

Sampling was carried out while the wind direction was from south to north, i.e. the direction was from location 1 toward location 2 with angles range for maximum 45 degrees toward west.

Number	Time (min)	Angle	Max (m/s)	Min (m/s)
1	5	45°	2.88	1.00
2	10	0°	2.67	1.39
3	15	30°	3.85	2.41
4	20	45°	2.21	1.14
5	25	45°	1.26	0.89
6	30	45°	0.90	0.35
7	35	0°	3.77	2.56
8	40	0°	2.87	1.80
9	45	45°	2.31	1.48
10	50	0°	3.07	2.41
11	55	0°	1.70	1.05
12	60	0°	3.00	1.87

2) Location 2: North East site:

Started at: 12:12:31 PM, 7th June, 2014.

Ended at: 01:19:01 PM, 7th June, 2014.

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Duration: 01:06:30 h:m:s

Number of rows: 134

Location 2: North East site results:					
Test	**Min**	**Max**	**Average**		
NH_3 (ppm)	0.0	0.2	0.05		
TVOC (ppb)	0	0	0.0		
H_2S (ppm)	0.00	0.00	0.000		
Temp (C°)	30.5	34.1	32.27		
RH (%RH)	34.7	41.0	37.47		

➔ **Wind speed and direction:**

Sampling was carried out while the wind direction was from south to north, i.e. the direction was from location 1 toward location 2 with angles range for maximum -30 degrees toward east to 60 degrees toward west.

Number	Time (min)	Angle	Max (m/s)	Min (m/s)
1	0	60°	1.60	0.82
2	3	0°	1.17	0.70
3	6	0°	1.60	0.54
4	9	30°	1.37	0.86
5	12	0°	1.13	0.70
6	15	30°	1.79	0.59
7	18	0°	1.08	0.85
8	21	60°	1.99	1.18
9	24	0°	2.19	1.22
10	27	0°	0.92	0.54
11	30	60°	2.14	1.40
12	36	0°	1.16	0.92
13	39	-30°	3.10	1.72
14	42	0°	3.65	1.76
15	48	0°	3.45	1.28
16	52	-20°	3.04	0.72
17	56	0°	1.93	0.46

3) Location 3: North West site:

Started at: 01:41:44 PM, 7th June, 2014.

Ended at: 02:43:44 PM, 7th June, 2014.

Duration: 01:02:00 h:m:s.

Number of rows: 125.

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Location 3: North West site results:					
Test	**Min**	**Max**	**Average**		
NH_3 (ppm)	0.0	0.2	0.08		
TVOC (ppb)	0	0	0.0		
H_2S (ppm)	0.00	0.00	0.000		
Temp (C°)	31.3	35.4	32.99		
RH (%RH)	33.5	37.6	35.44		

➔ **Wind speed and direction:**

Sampling was carried out while the wind direction was from south to north, i.e. the direction was from location 4 toward location 3 with angles range for maximum -45 degrees toward east to 45 degrees toward west.

Number	Time (min)	Angle	Max (m/s)	Min (m/s)
1	0	0°	3.20	0.73
2	3	0°	3.89	2.57
3	6	-30°	1.65	0.77
4	9	45°	2.71	1.26
5	12	-15°	1.20	0.89
6	15	-15°	0.59	0.33
7	18	-15°	2.94	0.33
8	21	-15°	4.65	2.06
9	28	-15°	2.81	0.53
10	33	-45°	2.46	0.00
11	38	-30°	3.06	1.28
12	43	-30°	4.30	1.71

4) Location 4: South West site:

Started at: 02:55:13 PM, 7th June, 2014.

Ended at: 03:59:13 PM, 7th June, 2014.

Duration: 01:04:00 h:m:s.

Number of rows: 129.

Location 4: South West site:					
Test	**Min**	**Max**	**Average**		
NH_3 (ppm)	0.0	0.3	0.13		
TVOC (ppb)	0.00	0.00	0.000		
H_2S (ppm)	0.00	0.00	0.000		
Temp (C°)	30.5	40.8	33.4		

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RH (%RH)	28.0	36.5	33.17		

➔ **Wind speed and direction:**

Sampling was carried out while the wind direction was from south to north, i.e. the direction was from location 4 toward location 3 with angles range for maximum -20 degrees toward east to 15 degrees toward west.

Number	Time (min)	Angle	Max (m/s)	Min (m/s)
1	0	0°	3.42	1.40
2	3	0°	2.42	1.49
3	6	0°	1.10	0.69
4	9	0°	2.35	0.96
5	12	0°	3.08	1.67
6	15	-15°	5.25	1.92
7	21	-15°	1.82	0.85
8	24	0°	2.40	0.44
9	27	0°	2.36	1.48
10	30	-10°	2.23	0.89
11	33	0°	1.58	0.64
12	36	-20°	3.90	1.38
13	39	0°	1.79	0.36
15	45	0°	2.06	0.34
16	48	15°	1.02	0.34

5) Location 5: Influent collection site.

A) Device over the site (row wastewater) directly.

Started at: 04:04:30 PM, 7th June, 2014.

Ended at: 04:06:40 PM, 7th June, 2014.

Duration: 00:02:10 h:m:s

Number of rows: 14

Device over the site (row wastewater) directly.			
Test	**Min**	**Max**	**Average**
NH_3 (ppm)	0.9	16.8	6.04
TVOC (ppb)	2609	38059	14871.6
H_2S (ppm)	4.53	24.32	18.151
Temp (C°)	31.0	31.5	31.26
RH (%RH)	35.4	54.5	40.41

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B) Device near the opening of the influent site about 1 m to north from the opening

Started at: 04:07:52 PM

Ended at: 04:22:22 PM

Duration: 00:14:30 h:m:s

Number of rows: 88

Device near the opening of the influent site about 1 m to north from the opening			
Test	**Min**	**Max**	**Average**
NH_3 (ppm)	0.3	0.8	0.45
TVOC (ppb)	296	3513	1383.7
H_2S (ppm)	0.00	2.46	0.809
Temp (C^o)	31.4	33.7	32.32
RH (%RH)	33.1	36.6	34.35

Sincerely yours,

Amjad

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A 2-4-1: Social Survey

The Social Survey
of
Technical Assistance and Capacity Building Project for Jericho Sanitation Project

June 18, 2013

1. Introduction

Wastewater Plant (WWTP) and sewer network is now implementing in Jericho Municipality by Jericho Sanitation Project, funded by JICA (Japan International Corporation Agency). New sewerage system preserves the environment and the health and safety of citizen. The project includes building a processing plant for re-use of treated wastewater, also outputs hard to support the supply sources of additional water. Currently service of the project addressed for inside Jericho Municipality but it may possible to expand to the surrounding areas of the city in the future. This is how this survey include surrounding area of Jericho; Ein AsSultan camp, Aqbet Jaber camp, An Nweama, Al Duyuk Al Tahta.

The main objective of this study is to assess residents' understandings of the importance of sanitation, collect their opinion of affordable payment for sewer tariff, assess their acceptance of re-use of wastewater and sludge, and looking for better method for effective awareness in future. Number of target is 150 households in total: 100 in Jericho Municipality, and 50 in the surrounding areas.

The results showed that 64% of the respondents realized the importance and necessity of WWTP and sewage system in Jericho (as opposed to 86% in the surrounding areas) because it reduces pollution of water resources, water borne disease, and insects and animals resulting from discharge tank. Most of respondents do not have specific idea for sewer tariff, but some thought less than 50% of current water tariff is affordable. Sixty nine percent of respondents have positive opinion for re-use of wastewater, but only 40% agree with re-use of sludge. The study recommends to awareness rising and provide basic information about sewer service, such as connection fee and wastewater tariff for public awareness activities. The most important method would be public meetings and local radio.

2. Objectives of Study

There are four objectives in this study:

(1) Understanding for current sanitary situation in Jericho.
(2) Understanding for residents' opinion and interest.
(3) Assessment of residents' general knowledge and acceptance for new WWPT and sewer network.
(4) Making target for future awareness activities by analysis of respondents' opinion.

3. Method

The survey was carried out the following method.

(1) Target
One hundred and fifty household are selected for interview. In the 150 households, one hundred is from Jericho Municipality, and fifty from surrounding area of Jericho Municipality. In the future, the surrounding area might be connected to Jericho sewer system, therefore information was collected in the same social survey.

(2) Sampling Design
For selection of respondent (interview household), Jericho is divided in 6 blocks. The number of interview households were decided for 2% or 3% of population in Jericho Municipality according to the Population Census in 2007. On the other hand, since population was not sure in surrounding Area, so that number of interview was decided either twenty or thirteen. Within each block and areas, respondents were selected by method Quota Sample.

(3) Questionnaire
Questionnaire was once made in English by discussion of Jericho Municipality and Japanese Expert, and then it was translated in Arabic for easiness of interview.

(4) Interview
Interview was carried out by a team which consists of two surveyors, one is male and one is female. The surveyor visit household and read out the question according to the questionnaire, and wrote down the answers of respondents. Interview was started on April 21, and ended on May 4, 2013.

4. Demographics of the Respondents

Table 4-1 shows that the average size of households is 5.82 persons and ninety four are Muslim household in Jericho Municipality. Eighty nine percent of respondent household live in independent house while 11 percent live in apartment. In the surrounding area, the average size of household is 6.46 persons, and all (50 households) are Muslim. Ninety

two percent (46) of respondent household live in iindependent house while 8% (4) of them live in apartment.

Table 4-1: Interview and Household Information

Area		Surveyed Household	Average of Household Size	Religion			Type of Resident	
				Muslim	Christian	Other	Apartment	House
Jericho	Block 1	7	6.86	7	0	0	1	6
	Block 2	11	5.64	11	0	0	2	9
	Block 3	31	5.97	31	0	0	3	28
	Block 4	13	5.77	10	3	0	0	13
	Block 5	19	5.05	17	2	0	4	15
	Block 6	19	6.11	18	1	0	1	18
	Subtotal	**100**	**5.82**	**94**	**6**	**0**	**11**	**89**
Surrounding area	Ein AsSultan	13	5.92	13	0	0	3	10
	Aqbet Jaber	12	6.17	12	0	0	1	11
	Al Deyuk Al Tahta	13	7.62	13	0	0	0	13
	An Nweama	12	6.08	12	0	0	0	12
	Subtotal	**50**	**6.46**	**50**	**0**	**0**	**4**	**46**

Table 4-2 shows that 48 respondents were male and 52 were female, and the average age of respondents is 45.03 years old (male 46.4 years old and female 43.77 years old) in Jericho Municipality. On the other hand, male interviewees are 18 persons and females are 32 persons, and average age of respondents is 42.46 years old and male 45.56 and female 40.72 respectively in the surrounding area.

Table 4-2: Gender and Average of Age of Respondents

Area		Gender		Average of Age		
		Male	Female	Male	Female	Total
Jericho	Block 1	3	4	36.67	38.25	37.75
	Block 2	7	4	36.86	45.75	40.09
	Block 3	12	19	54	45.95	49.06
	Block 4	9	4	47.67	38	44.69
	Block 5	8	11	41.38	43.55	42.63
	Block 6	9	10	50.11	43.6	46.68
	Subtotal	**48**	**52**	**46.4**	**43.77**	**45.03**
Surrounding area	Ein AsSultan	5	8	47	42.13	44
	Aqbet Jaber	8	4	46.5	32.25	41.75
	Al Deyuk Al	2	11	42.5	40.82	41.08
	An Nweama	3	9	42.67	43.11	43
	Subtotal	**18**	**32**	**45.56**	**40.72**	**42.46**

Table 4-3 shows the most major of income range (73 households) is between 1,001-2,000 NIS (48 in Jericho Municipality, and 25 in the surrounding area) and this is followed by the range of 2,001-3,000 NIS (29 in Jericho Municipality, and 12 in the surrounding area). Ninety three percent of households get income from Wages and Salaries (58 in Jericho

Municipality, and 35 in the surrounding area), while 44 households get their income in other ways not mentioned (35 in Jericho Municipality, and 9 in the surrounding area). Regarding the rrange of monthly expenditure, we found that the major range of monthly expenditure is between 2,001-3,000 NIS (42 in Jericho Municipality, and 15 in the surrounding area), then 1,001-2,000 NIS (34 in Jericho Municipality, and 17 in the surrounding area).

Table 4-3: Monthly Income and Expenditure

	Income	Jericho	Surrounding	Total
Range of Monthly Income	Below 1,000NIS	7	3	10
	1,001-2,000NIS	48	25	73
	2,001-3,000NIS	29	12	41
	3,001-4,000NIS	7	8	15
	4,001-5,000NIS	6	1	7
	5,001-6,000NIS	3	1	4
	6,001+	0	0	0
Total		**100**	**50**	**150**
Type of Income	Remittance in Cash	6	3	9
	Wages &Salaries	58	35	93
	Household Business	0	0	0
	Seasonal work	1	3	4
	Other	35	9	44
Total		**100**	**50**	**150**
Range of Monthly Expenditure	Below 1,000NIS	2	4	6
	1,001-2,000NIS	34	17	51
	2,001-3,000NIS	42	15	57
	3,001-4,000NIS	16	8	24
	4,001-5,000NIS	5	3	8
	5,001-6,000NIS	0	2	2
	6,001+	1	1	2
Total		**100**	**50**	**150**

Table 4-4 shows that the largest percentage of respondents consumes their monthly income on food (average of monthly food expenditure about 1,131 NIS) and it shares 43% of total of all expenditure items of Table 4-4. Secondly, respondents consume their monthly income on electricity (the average of monthly electricity expenditure about 326 NIS). Thirdly, the respondents consume their monthly income on tobacco and transportation (the average of monthly expenditure about 292 NIS on tobacco, and about 280 NIS on transportation). The average of supplied water was 85.64 NIS in Jericho Municipality.

Table 4-4: Expenditure for Individual Item (Unit: NIS)

Expenditure	Average in Jericho		Average in Surrounding	
	Amount	% in [1]	Amount	% in [1]
Food	1,109.50	43%	1,152.00	44%
House-rent	27.00	1%	16.00	1%
Education	227.90	9%	299.00	11%
Tobacco	225.30	9%	358.00	14%
Medical care	79.00	3%	117.00	4%
Electricity	421.50	16%	230.60	9%
Gas	108.27	4%	102.98	4%
Supplied Water	85.64	3%	77.32	3%
Transportation	303.34	12%	257.40	10%
[1]Total of each average amount	2,587.45	100%	2,610.30	100%

5. Result

(1) Water Supply and Sanitation

Table 5-1 shows that all of interviewed households have at least one toilet. The place of toilet is, 98% is inside the home (in the surrounding area 98 % as well).

Table 5-1: Number of Toilet and its' Location

	Jericho			Surrounding		
	Inside house	Outside house	Subtotal	Inside house	Outside house	Subtotal
1 toilet	98	2	100	49	1	50
2 toilets	70	0	70	26	1	27
3 toilets+	15	1	16	2	0	2

Table 5-2 shows all the respondents of the city of Jericho (100%) have septic tank in their home (in the surrounding area 98 %), and 59% of these tank's belong to private ownership for the homeowner and not shared with other (in the surrounding area 58 %). Table 5-3 shows that 16% of discharge tanks in Jericho was cleaned (night-soil collection from there discharge tank) at least once a year (12% in the surrounding area), but most of them cleaned for 2-3 times per year. The average price of night-soil collection was 42.1 NIS (in the surrounding area 33.1 NIS).

Table 5-2: Type and Possession of Discharge Tank

		Subtotal in Jericho	Subtotal in Surrounding	Total
Type of tank	Septic	100	49	149
	Cesspit	0	1	1
Possession of Tank	Private	59	29	88
	Common	41	21	62

Table 5-3: Times and Price of Night Soil Collection

	Category	Subtotal in Jericho	Subtotal in Surrounding	Total
N. of times of night-soil collection per Year	0 time	44	26	70
	1 time	16	6	22
	2-3 times	24	12	36
	4-7 times	13	6	19
	8-12 times	3	0	3
	Average (Unit: Times)	1.81	1.3	1.6
Price	0 NIS	44	26	70
	25 NIS	1	3	4
	40-60NIS	23	9	32
	61-100NIS	29	10	39
	101-150NIS	3	2	5
	Average (Unit: NIS)	42.1	33.1	37.6

Regarding environmental problem of discharge tank, 48% of respondents in Jericho know the using of discharge tank is having environmental problem in future (in the surrounding area 66 %).

Table 5-4 shows that 45% of the respondents say that the most serious problem about sanitary condition in Jericho Municipality is leakage problem (in the surrounding area 30% dirtiness problem). On the other hand, Table 5-5 shows 36% of respondents say the most serious problem about sanitary condition in their household is bad smell problem (in the surrounding area). In the surrounding area, the most serious problem was “Children fall problem” which categorized in “Other” and 34% of them mentioned this..

Table 5-4: Problems of Sanitary Condition in Jericho

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
Overflow	1	0	1	0	0	0
Leakage	23	22	45	4	4	8
Obstacle	1	0	1	1	0	1
Insect&animal	9	15	24	1	5	6
Dirtiness	6	4	10	6	9	15
Bad smell	8	11	19	6	7	13
Other	0	0	0	0	7	7

Table 5-5 Problems of Sanitary Condition in Household

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
Overflow	1	1	2	0	0	0
Leakage	4	11	15	3	2	5
Obstacle	4	3	7	0	0	0
Insect&animal	17	11	28	8	5	13
Dirtiness	5	6	11	0	1	1
Bad smell	17	19	36	3	11	14
Other	0	1	1	4	13	17

Figure 5-1 shows difference of recognized problems in city /household in Jericho/the surrounding area. Residents in Jericho recognized leakage problem in city more compare to others. The problem of bad smell is recognized in all situations. In surrounding area, bad smell and "other" in [4], which is "children fall problem" is highly recognized. It implies the sanitary situation in the surrounding area is worse than in Jericho Municipality; maybe it is because of bad condition of sanitary equipment in the area.

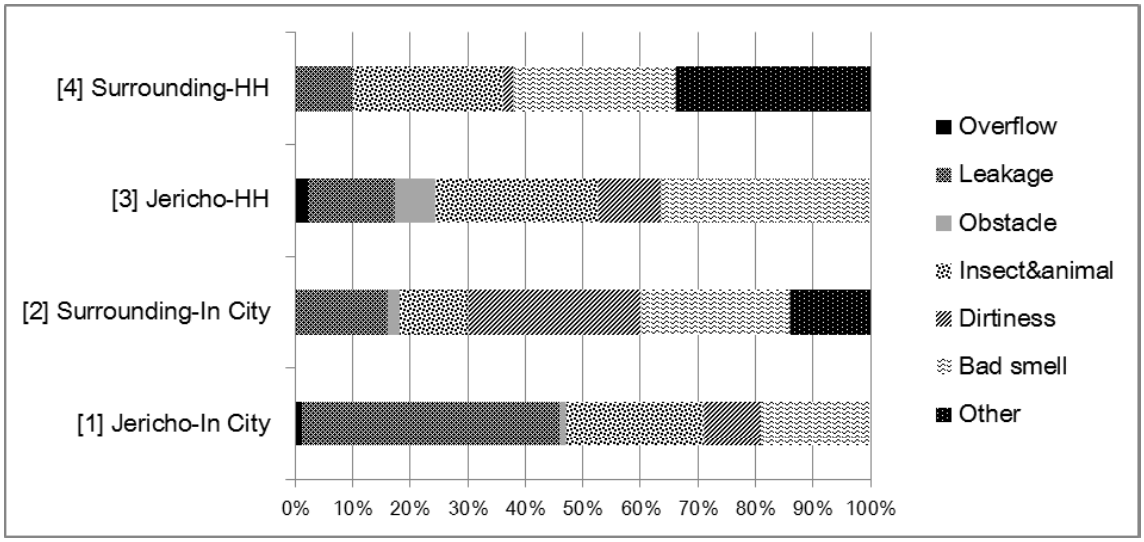


Figure 5-1: Problems of Sanitary Condition in City Center of Jericho and Household
* [1] and [2] for problems in city center, and [3] and [4] for problems in household

Regarding the level of satisfaction, 71% of the respondents satisfied to the current water supply service (in the surrounding area 78 %) while 23% of the respondents says quality of water need to be improved (in the surrounding area 18 %). Sixty five percent of respondents agreed to that the present water charge is fair (in the surrounding area 72 %), while 32% of the respondents say the present water charge is high (in the surrounding area 20 %).

(2) Sewerage

Eighty five percent of respondents in Jericho know that the sewerage system is now under construction in Jericho (in the surrounding area 82 %).

Table 5-6 shows how they know about the Jericho Sanitation Project. The most important sources of this information is public meetings (75%) (in the surrounding area 66 %), followed by local radio (70%) (in the surrounding area 62 %). Local radio and public meeting is the two major means of acquiring information, and it shares three fourth of all result in Jericho (Figure 5-2). On the other hand, though public meeting and local radio is major tools, flyers/bulletin is playing more important role in the surrounding area, and it shares 17% of all answers (Figure 5-3).

Table 5-6: Source of Information about Jericho Sanitation Project

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
Local Radio	38	32	70	10	21	31
Newspaper	0	1	1	0	3	3
Public Meeting	40	35	75	12	21	33
Flyers&bulletin	4	4	8	1	16	17
Internet	13	12	25	4	13	17
Family, friends, neigbors	11	9	20	4	2	6
Other	1	0	1	3	1	4

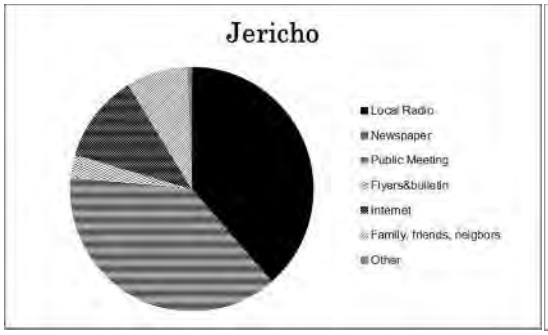


Figure 5-2: Information Route in Jericho

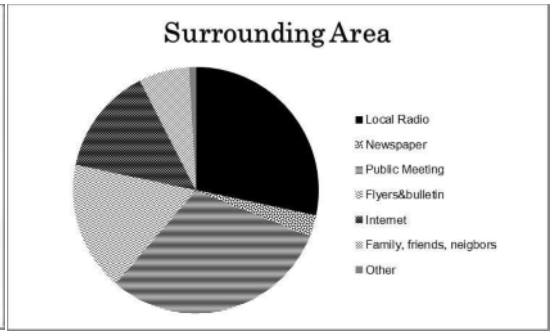


Figure 5-3: Information Route in the Surrounding area

Seventy six percent of residents in Jericho Municipality know that WWTP and sewer network is constructed by donation of Japan (JICA) (in the surrounding area 80 %). Table 5-7 shows that most of them became to know about it through public meeting (65%) and local radio (60%) (in the surrounding area 32% and 30% each). It seems public meeting and local radio is a major method for new information (Table 5-6 and Table 5-7).

Table 5-7: Source of Information about JICA's Donation

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
Local Radio	29	37	66	5	25	30
Newspaper	0	0	0	0	3	3
Public Meeting	29	36	65	6	26	32
Flyers&bulletin	2	3	5	2	16	18
Internet	11	9	20	2	13	15
Family, friends, neigbors	7	7	14	4	3	7
Other	1	0	1	1	0	1

As 64% of respondents realize the importance and necessity of WWTP in Jericho (in the surrounding area 86%). According to Table 5-8, the major four reasons of the importance of WWTP are: It reduces pollution of water resource (61% in Jericho, 74% in the surrounding area); it reduce water borne disease (60% and 64%); it reduce insects and animals (59% and 76%); and reduces bad smell (54% and 56%).

Table 5-8: Reason of Importance of Jericho WWTP

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
It reduces pollition of water course	30	31	61	14	23	37
It reduces insects and animal	28	31	59	14	24	38
It reduces oral/contagion diesase	29	31	60	11	21	32
It reduces bad smell	24	30	54	10	18	28
It contributes to save land	11	9	20	8	13	21
It eliminates maintenance of tank	6	4	10	9	8	17
It obtains more irrigation water	10	4	14	9	19	28
Other	0	0	0	1	0	1

However, the importance is somehow different in Jericho and the surrounding area. Figure 5-4 shows percentage of each answers of importance of WWTP in Jericho. While reducing water source, insects and animal, water borne disease, and bad smell are major answers and more than 50% of interviewees are mentioned that, saving land, reducing maintenance, and irrigation water are minor answers that less than 20% of respondents mentioned. On the other hand, four major answers are same both in Jericho and the surrounding area, but irrigation water (54%) is also major answer in the surrounding area, and more than 30% of respondents mentioned about saving land and reducing maintenance in the surrounding area. The reason is not sure, but it may because the difference of environment between Jericho Municipality and the surrounding area.

The results showed that 41% of them feel problems of on-going construction works of sewer networks (in the surrounding area 38 %). The most recognized problems are traffic jam and dust (dusty air) because of construction work.

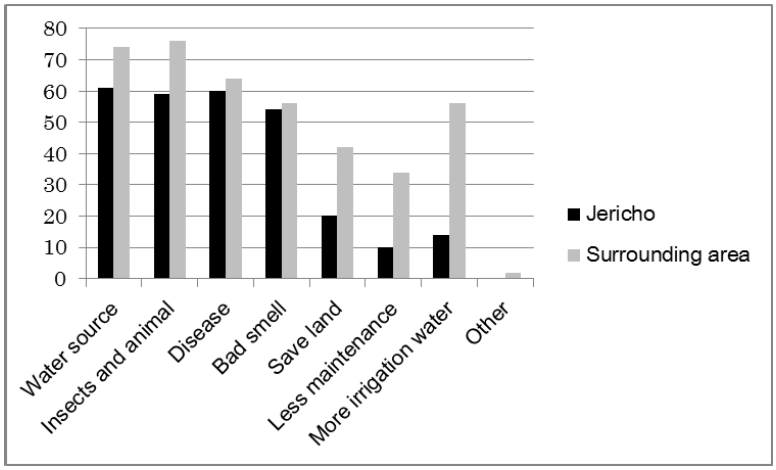


Figure 5-4: Reason of Importance of Jericho WWTP (Percentage by Area)

The answer of willingness to pay indicated that 40% of respondents ready to pay for wastewater tariff (in the surrounding area 74 %). However, the largest percentage of respondents (63%) do not have any idea about affordable for wastewater tariff (in the

surrounding area 66 %), and others are agree to pay if the tariff is less than 50% of current water tariff.

As agreed by 97% of respondents that they can't afford (even less than 4,000NIS) to the construction cost for connection pipes from the main sewer pipe to their households (90% in the surrounding area). Therefore, 96% of them thought they need financial assistance from the Municipality for a part of the costs (100% in the surrounding area).

(3) Perception of Wastewater/Sludge Re-use

Table 5-9 shows that 69% of the respondents in Jericho Municipality believe that re-use of wastewater is something useful (86% in the surrounding area). Within them, 52% thought it can be applied for agricultural irrigation (in the surrounding area 68 %), also finds 25% of them thought treated sewer water can be applied for amenity such as fountains, waterways and pounds. In the surrounding area, 26 % of respodnents thought that it could be applied for landscape irrigation such as watering of parks, roadside plantings and greenbelts (Table 5-10).

Table 5-9: Number of Respondents Who is Negative/Positive for Re-use of Wastewater

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
Positive	38	31	69	16	27	43
Negative	5	16	21	1	5	6
No idea	5	5	10	1	0	1

Table 5-10: The Places which Re-use Water Applied for

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
Landscase Irrigation	10	7	17	5	8	13
Agriculture irrigation for crops	28	24	52	13	21	34
Reclamed water for amenity	13	12	25	1	6	7
Other	0	0	0	0	0	0

On the other hand, 21% of the respondents don't think the re-use of wastewater is useful (in the surrounding area 12 %) because they feel it is dirty and it may not be safety for human health (20%) (Table 5-11). In addition, some answered it is because of against of religious belief (17%). In the surrounding area, 12 % of respondents thought it is dirty , and 10 % thought it may not be safe for human health.

Table 5-11: Reason for Negative to Re-use of Wastewater

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
Dirty	4	16	20	1	5	6
Dislike	4	13	17	1	3	4
Human health	5	15	20	1	4	5
Religious belief	4	13	17	0	1	1
Other	0	0	0	0	0	0

Under the situation that re-use water is controlled by regulation and meet standards, 50% of respondents want to use it (in the surrounding area 66 %), while 43% do not want to use it (in the surrounding area 26 %).

As for the re-use sludge, Table 5-12 showed that 52% of the respondents in Jericho Municipality know that dry sludge generated from WWTP can be used for fertilizer of agricultural products and/or plant (in the surrounding area 70 %). On the other hand, in reality, 40% of respondents agree with usage of re-use of sludge fertilizer, and 56% of respondents mentioned that him/herself does not use sludge fertilizer.

Figure 5-5 shows a comparison of these answers. Both in Jericho Municipality and the surrounding area, knowledge of dry fertilizer keeps the highest number of positive answers (answer [1]). However, in terms of actual usage of dry sludge fertilizer, number of respondents who agree with re-use of sludge is less than [1], and number of respondents who him/herself would use dry sludge fertilizer (answer [3]) is the most less within these three question. It implies that some residents knows re-use of fertilizer as knowledge, but it is not enough for starting actual use of dry sludge.

Table 5-12: Number of Respondents' Answers for Knowledge and Action for Dry Sludge Fertilizer

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
[1] N. of respondents who knows dry sludge	29	23	52	13	22	35
[2] N. of respondents who agree with re-use of sludge from Jericho WWTP	20	20	40	12	19	31
[3] N. of respondents who does use sluge fertilizer by his/herself	18	18	36	10	15	25

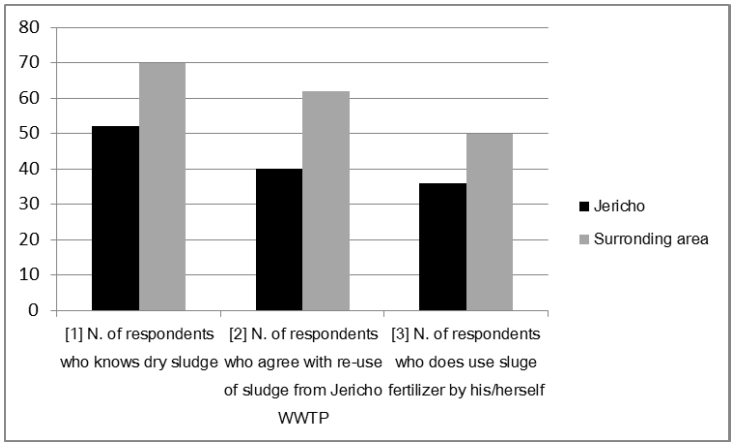


Figure 5-5 Percentage of Respondents' Answers for Knowledge and Action for Dry Sludge Fertilizer

The result also implies that 60% of them don't agree with re-use of sludge from WWTP (38 % in the surrounding area). Table 5-13 shows that these respondents do not want to use the dry sludge as fertilizer because it may not be safety for human health (54%) (in the surrounding area 38 %), also it is because bad smell (48%) and dirtiness (47%) (in the surrounding area 40 % and 34% respectively). Some are answered it is because against of religious belief (29%) (4% in the surrounding area).

Table 5-13: Reason of Disagree With Re-use of Sludge

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
Dirty	17	30	47	4	13	17
Dislike	18	27	45	3	9	12
Smells bad	21	27	48	6	14	20
Human health	24	30	54	5	14	19
Religious belief	8	21	29	0	2	2
Other	0	1	1	0	0	0

(4) Future Awareness

Table 5-14 shows that 97% of respondents in Jericho Municipality requested awareness-raising before sewer construction (in the surrounding area 96 %), and 34% of them need information about wastewater tariff. As indicated by 25% of respondents, they wanted to know information about sewerage construction period (in the surrounding area 42 %).

Table 5-14: Things that Residents want to know about Jericho Sanitation Project

	Jericho			**Surronding area**		
	Male	Femal	Total	Male	Female	Total
Sewer service coverage	6	11	17	5	11	16
Sewer service ara	6	9	15	4	10	14
Construction period	14	11	25	7	14	21
Process/Requirement for connection	3	8	11	4	5	9
Estimated cost of private sewer	6	8	14	4	3	7
Connection fee	15	15	30	6	6	12
Wastewater tariff	17	17	34	3	5	8
Awareness-rasing	48	49	97	17	31	48
Other	1	1	2	0	0	0

As for the best way to know about this Jericho Sanitation Project, the results showed that there are several ways appropriate to achieve this goal. Table 5-15 shows that the best way is public meetings (98%) (in the surrounding area 98 %), and local radio (96%) (in the surrounding area 84 %), then internet (73%) (in the surrounding area 62 %), and Flyers and Bulletin (56%) (in the surrounding area 74 %). According to Table 5-6 and Table 5-7, most of respondents answered that they became know about Jericho Sanitation Project and donation of JICA by local radio and public meeting. Therefore, it seems the two information tools are major and effective in both Jericho Municipality and the surrounding area.

Table 5-15: By Means of good Awareness Activities for Jericho Sanitation Project

	Jericho			Surronding area		
	Male	Femal	Total	Male	Female	Total
Local Radio	45	51	96	12	30	42
Newspaper	17	9	26	2	6	8
Public Meeting	47	51	98	17	32	49
Flyers&bulletin	32	24	56	11	26	37
Internet	31	42	73	8	23	31
Family, friends, neigbors	10	10	20	1	2	3
Other	0	0	0	0	0	0

6. Conclusion

Table 6-1 shows summary of important findings of the social survey. Sixty four percent of respondents are realized the importance/necessity of WWTP in Jericho, therefore further activity of awareness and publicity is important. In addition, since 40% of residents have complain because some of difficulties are occurred by the project, such as traffic jam, it is necessary have residents' understandings and corporation for construction of WWTP. Most of respondents do not have any idea about the affordable price of sewer water. This would be normal because nobody knows what sewer system is yet. However, "half price of current water tariff" is shown as a kind of acceptable price.

Regarding re-use of sewer water and sludge, more than half of respondents are positive for re-use of waste water, on the other hand, less than half of respondents are positive to re-use of sludge. Re-use of waste water is already carried out in Al-Bielh, a neighborhood community of Jericho, but not for re-use of sludge. The result also shows that some of respondents know about dry sludge fertilizer, but not all of them positive for actual usage. Some preparation needs to be carried out re-use of sludge, and awareness activities are important in this matter as well.

Table 6-1: Major findings of Social Survey

% of Respondents Who Recognize the Importance of WTP in Jericho.	64%	
Affordable Amount for Sewer Tariff *	No Idea	61%
	Less Than 50% of Current Water Tariff	37%
Current Water Tariff (Monthly Average)	85.64 NIS	
Level of Monthly Income*	1,001-2,000NIS	48%
	2,001-3,000NIS	29%
% of Respondents Who Are Positive for Re-use of Sewer Water	69%	
% of Respondents Who Are Positive for Re-use of Sludge	40%	
Top 3 Things to Learn in Awareness Activities	Information for Awareness Raising	97%
	Sewer Tariff	34%
	Construction Period	25%

*Top 2 answers

A 2-5-1: Capacity Assessment (First Implementation)

C/P and Experts List

Outputs		JICA Expert Team		Jericho Municipality	
		Name	Position	Name	Position
Project Chief /Manager		**Mr. Hirofumi Sano**	Chief Advisor /Institutional Operation /Legal System	**Mr. Basel Hijazi**	Head of Engineering Dept.
1	Establishment of organizational base for departments in charge of sewage works	Mr. Hirofumi Sano	Chief Advisor	Mr. Ghazi A. Al-Naji	Director of Water & Wastewater Department
				Mr. Iyad Hamdan	Management
		Mr. Satoru Oniki	Deputy Chief Advisor /Reuse of Treated Wastewater & Sewage Sludge	Mr. Mohammed Fetyani	Civil Engineer
		Mr. Toshihiko Tamama	Financial Management	Mr. Ibrahim Abu Seiba	Mechanical Engineer
2	Development of capacity of Jericho municipality for O&M of the WWTP	Mr. Yasuaki Konda	O&M of WWTP Mechanical-1	Mr. Ibrahim Abu Seiba	Mechanical Engineer
		Mr. Yoshikazu Nagano	O&M of WWTP Mechanical-2	Mr. Mohammed Awajneh	Technician
		Mr. Masaru Kasahara	O&M of WWTP Mechanical-3		
		Mr. Akira Hasebe	O&M of WWTP Electrical	Mr. Maher Al Swaidy	Technician (Electricity)
3	Development of capacity of Jericho municipality for O&M of sewer network and promotion for connection to public	Mr. Keiji Matsuoka	Water Quality Management /Sewer Network Construction & Maintenance-1	Mr. Mohammed Isayed	Civil Engineer
		Mr. Kozo Hayashisita	Sewer Network Construction & Maintenance-2	Mr. Mohammed Fetyani	Civil Engineer
				Mr. Ibrahim Abu Seiba	Mechanical Engineer
4	Public awareness	Ms. Yasumi Tsutsui	Awareness Raising /Project Coordinator	Mr. Mohammed Isayed	Civil Engineer
				Ms. Wiam Irekat	Public Relations
				Mr. Mohammed Azmuty	Public Relations
	Financial management	Mr. Toshihiko Tamama	Financial Management	Mr. Mohammed Abu Muhsen	Finance Management
				Mr. Baha Al Shareef	Finance Management

Mr. Basel Hijazi is the Project Manager and in charge of all categories in the Project

	Name	Position	Photo
1	**Basel Hijazi**	Head of Engineering Dept.	
2	**Mohammed Fetyani**	Civil Engineer	
3	**Mohammed Isayed**	Civil Engineer	
4	**Iyad Hamdan**	Head of Quality Dep.	
5	**Mohammed Abu Muhsen**	Section of Financial Planning	
6	**Mohammed Awajneh**	Responsible of Pumps Section	
7	**Maher Al Swaidy**	Street Lighting Maintenance	

8	**Wiam Irekat**	Head of Public Relation Dep.	
9	**Baha Al Shareef**	Head of Collection	
10	**Ibrahim Abu Seiba**	Sanitary Section	
11	**Mohammed Azmuty**	Public Relations	
12	**Ghazi A. Al-Naji**	Director of Water and Wastewater Department	

自己診断結果

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	3.6	3.7	3.8	3.7	3.7
Communication	3.8	3.8	3.8	3.8	3.8
Achievement	3.7	3.9	3.6	3.6	3.7
Process	3.8	3.9	3.6	3.5	3.7
Logic	3.4	3.1	2.9	2.8	3.0
Information	3.4	3.7	3.8	3.6	3.6
Average	3.6	3.7	3.6	3.5	3.6

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	2.3	Computer	3.7	3.3
			Reporting	3.8	
			Human relationships	3.5	
			Keeping records	3.5	
			English	2.9	
O&M of WWTP	Treatment components	2.0	Operation of mechanical equipment	1.7	1.6
	Treatment mechanism	1.8	Operation of electrical devices	1.5	
	Mechanical engineering	1.8	Reading wiring diagram	1.6	
	Testing equipment	1.7	Reading and interpreting meters	1.6	
	Electrical engineering	1.8	Recording operating conditions	1.6	
	Electrical safety	1.7	Sampling water	1.5	
	Chemistry	1.4	Analyzing water	1.4	
	Process control	1.5	Keeping lab. inventories	1.4	
Construction and O&M of Network	Sewer components	2.3	Designing sewer	1.8	2.2
	Sewer planning	2.2	Interpreting drawings	2.4	
	Civil engineering	2.3			
	Hydrology	2.2			
	Pipe materials and construction	2.4			
	Topographic survey	2.1			
Financial management and public relations	Basic accounting	2.5	Preparing budgets and financial statements	2.6	2.8
	Cash management	2.3	Analyzing financial reports	2.6	
	Payroll	2.4	Verbal presentations	3.3	
	Customers relations	2.8	Dealing customers in strained conditions	3.3	
			Resolving disputes on site	3.1	
Average		2.1		2.4	2.3

Total

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	4	5	5	4.5
Communication	4	4	5	5	4.5
Achievement	4	4	4	4	4.0
Process	5	5	4	4	4.5
Logic	4	4	3	3	3.5
Information	4	5	4	4	4.3
Average	4.2	4.3	4.2	4.2	4.2

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	4	Computer	5	4.2
			Reporting	4	
			Human relationships	4	
			Keeping records	4	
			English	4	
O&M of WWTP	Treatment components	3	Operation of mechanical equipment	1	1.6
	Treatment mechanism	3	Operation of electrical devices	1	
	Mechanical engineering	2	Reading wiring diagram	2	
	Testing equipment	1	Reading and interpreting meters	2	
	Electrical engineering	1	Recording operating conditions	1	
	Electrical safety	1	Sampling water	2	
	Chemistry	1	Analyzing water	2	
	Process control	2	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	4	Designing sewer	3	3.8
	Sewer planning	4	Interpreting drawings	4	
	Civil engineering	4			
	Hydrology	3			
	Pipe materials and construction	4			
	Topographic survey	4			
Financial management and public relations	Basic accounting	4	Preparing budgets and financial statements	4	4.0
	Cash management	4	Analyzing financial reports	4	
	Payroll	3	Verbal presentations	4	
	Customers relations	4	Dealing customers in strained conditions	5	
			Resolving disputes on site	4	
Average		2.9		3.1	3.0

BaselHijazi

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	3	4	4	3	3.5
Communication	3	4	4	4	3.8
Achievement	4	4	4	4	4.0
Process	4	4	4	4	4.0
Logic	4	4	4	4	4.0
Information	4	4	4	4	4.0
Average	3.7	4.0	4.0	3.8	3.9

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	3	Computer	3	3.3
			Reporting	4	
			Human relationships	3	
			Keeping records	4	
			English	3	
O&M of WWTP	Treatment components	3	Operation of mechanical equipment	2	2.6
	Treatment mechanism	3	Operation of electrical devices	2	
	Mechanical engineering	3	Reading wiring diagram	2	
	Testing equipment	3	Reading and interpreting meters	2	
	Electrical engineering	3	Recording operating conditions	2	
	Electrical safety	3	Sampling water	2	
	Chemistry	3	Analyzing water	2	
	Process control	3	Keeping lab. inventories	3	
Construction and O&M of Network	Sewer components	3	Designing sewer	3	3.3
	Sewer planning	3	Interpreting drawings	3	
	Civil engineering	4			
	Hydrology	4			
	Pipe materials and construction	3			
	Topographic survey	3			
Financial management and public relations	Basic accounting	3	Preparing budgets and financial statements	3	3.0
	Cash management	3	Analyzing financial reports	3	
	Payroll	3	Verbal presentations	3	
	Customers relations	3	Dealing customers in strained conditions	3	
			Resolving disputes on site	3	
Average		3.1		2.8	3.0

GaziAyyad

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	3	3	3	4	3.3
Communication	3	3	2	4	3.0
Achievement	3	3	4	3	3.3
Process	4	4	4	4	4.0
Logic	3	3	3	3	3.0
Information	3	3	3	3	3.0
Average	3.2	3.2	3.2	3.5	3.3

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	2	Computer	4	3.2
			Reporting	4	
			Human relationships	3	
			Keeping records	3	
			English	3	
O&M of WWTP	Treatment components	1	Operation of mechanical equipment	1	1
	Treatment mechanism	1	Operation of electrical devices	1	
	Mechanical engineering	1	Reading wiring diagram	1	
	Testing equipment	1	Reading and interpreting meters	1	
	Electrical engineering	1	Recording operating conditions	1	
	Electrical safety	1	Sampling water	1	
	Chemistry	1	Analyzing water	1	
	Process control	1	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	1	Designing sewer	1	1.0
	Sewer planning	1	Interpreting drawings	1	
	Civil engineering	1			
	Hydrology	1			
	Pipe materials and construction	1			
	Topographic survey	1			
Financial management and public relations	Basic accounting	3	Preparing budgets and financial statements	3	2.8
	Cash management	3	Analyzing financial reports	3	
	Payroll	3	Verbal presentations	3	
	Customers relations	3	Dealing customers in strained conditions	2	
			Resolving disputes on site	2	
Average		1.5		2.0	1.8

Hamdan

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	4	3	3	3.5
Communication	3	3	3	3	3.0
Achievement	4	4	3	3	3.5
Process	4	4	3	3	3.5
Logic	4	4	3	3	3.5
Information	3.5	3.5	3.5	3.5	3.5
Average	3.8	3.8	3.1	3.1	3.4

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	3	Computer	1	2.7
			Reporting	2	
			Human relationships	3	
			Keeping records	3	
			English	4	
O&M of WWTP	Treatment components	3	Operation of mechanical equipment	1	1.1
	Treatment mechanism	1	Operation of electrical devices	1	
	Mechanical engineering	1	Reading wiring diagram	1	
	Testing equipment	1	Reading and interpreting meters	1	
	Electrical engineering	1	Recording operating conditions	1	
	Electrical safety	1	Sampling water	1	
	Chemistry	1	Analyzing water	1	
	Process control	1	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	3	Designing sewer	2	3.3
	Sewer planning	3	Interpreting drawings	4	
	Civil engineering	4			
	Hydrology	3			
	Pipe materials and construction	4			
	Topographic survey	3			
Financial management and public relations	Basic accounting	1	Preparing budgets and financial statements	1	1.9
	Cash management	1	Analyzing financial reports	1	
	Payroll	1	Verbal presentations	3	
	Customers relations	3	Dealing customers in strained conditions	3	
			Resolving disputes on site	3	
Average		2.1		1.9	2.0

Fetyani

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	3	3	3	3	3.0
Communication	3	3	3	3	3.0
Achievement	3	3	3	3	3.0
Process	3	3	3	3	3.0
Logic	3	3	3	3	3.0
Information	3	3	3	3	3.0
Average	3.0	3.0	3.0	3.0	3.0

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	3	Computer	4	3.7
			Reporting	4	
			Human relationships	4	
			Keeping records	4	
			English	3	
O&M of WWTP	Treatment components	4	Operation of mechanical equipment	3	2.6
	Treatment mechanism	4	Operation of electrical devices	2	
	Mechanical engineering	4	Reading wiring diagram	2	
	Testing equipment	3	Reading and interpreting meters	3	
	Electrical engineering	2	Recording operating conditions	3	
	Electrical safety	2	Sampling water	2	
	Chemistry	2	Analyzing water	2	
	Process control	2	Keeping lab. inventories	2	
Construction and O&M of Network	Sewer components	4	Designing sewer	2	3.1
	Sewer planning	4	Interpreting drawings	3	
	Civil engineering	3			
	Hydrology	3			
	Pipe materials and construction	3			
	Topographic survey	3			
Financial management and public relations	Basic accounting	2	Preparing budgets and financial statements	2	2
	Cash management	2	Analyzing financial reports	2	
	Payroll	2	Verbal presentations	2	
	Customers relations	2	Dealing customers in strained conditions	2	
			Resolving disputes on site	2	
Average		2.8		2.7	2.8

AbuSeiba

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	4	4	4	4.0
Communication	5	4	4	4	4.3
Achievement	3	4	4	4	3.8
Process	4	4	4	4	4.0
Logic	4	3	3	3	3.3
Information	3	4	4	4	3.8
Average	3.8	3.8	3.8	3.8	3.9

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	2	Computer	3	2
			Reporting	2	
			Human relationships	2	
			Keeping records	2	
			English	1	
O&M of WWTP	Treatment components	2	Operation of mechanical equipment	3	2.8
	Treatment mechanism	2	Operation of electrical devices	3	
	Mechanical engineering	3	Reading wiring diagram	3	
	Testing equipment	3	Reading and interpreting meters	3	
	Electrical engineering	3	Recording operating conditions	3	
	Electrical safety	3	Sampling water	3	
	Chemistry	2	Analyzing water	3	
	Process control	2	Keeping lab. inventories	3	
Construction and O&M of Network	Sewer components	4	Designing sewer	2	2.8
	Sewer planning	2	Interpreting drawings	3	
	Civil engineering	2			
	Hydrology	3			
	Pipe materials and construction	4			
	Topographic survey	2			
Financial management and public relations	Basic accounting	2	Preparing budgets and financial statements	1	1.8
	Cash management	1	Analyzing financial reports	1	
	Payroll	1	Verbal presentations	3	
	Customers relations	2	Dealing customers in strained conditions	3	
			Resolving disputes on site	2	
Average		2.4		2.5	2.5

Awajneh

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	3	3	4	5	3.8
Communication	4	4	4	4	4.0
Achievement	5	4	3	4	4.0
Process	4	3	4	3	3.5
Logic	4	2	2	3	2.8
Information	3	4	4	3	3.5
Average	3.8	3.3	3.5	3.7	3.6

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	2	Computer	3	2.5
			Reporting	3	
			Human relationships	2	
			Keeping records	2	
			English	3	
O&M of WWTP	Treatment components	1	Operation of mechanical equipment	3	1.8
	Treatment mechanism	1	Operation of electrical devices	3	
	Mechanical engineering	1	Reading wiring diagram	3	
	Testing equipment	1	Reading and interpreting meters	2	
	Electrical engineering	3	Recording operating conditions	2	
	Electrical safety	3	Sampling water	1	
	Chemistry	1	Analyzing water	1	
	Process control	1	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	1	Designing sewer	1	1.4
	Sewer planning	1	Interpreting drawings	3	
	Civil engineering	2			
	Hydrology	1			
	Pipe materials and construction	1			
	Topographic survey	1			
Financial management and public relations	Basic accounting	2	Preparing budgets and financial statements	1	1.3
	Cash management	1	Analyzing financial reports	1	
	Payroll	1	Verbal presentations	2	
	Customers relations	1	Dealing customers in strained conditions	1	
			Resolving disputes on site	2	
Average		1.4		2.0	1.7

Swaidy

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	4	5	4	4.3
Communication	4	4	4	4	4.0
Achievement	4	5	4	5	4.5
Process	4	5	4	5	4.5
Logic	3	4	4	3	3.5
Information	4	4	5	4	4.3
Average	3.8	4.3	4.3	4.2	4.2

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	3	Computer	5	4
			Reporting	5	
			Human relationships	4	
			Keeping records	4	
			English	3	
O&M of WWTP	Treatment components	2	Operation of mechanical equipment	2	1.9
	Treatment mechanism	2	Operation of electrical devices	1	
	Mechanical engineering	3	Reading wiring diagram	1	
	Testing equipment	3	Reading and interpreting meters	1	
	Electrical engineering	3	Recording operating conditions	2	
	Electrical safety	2	Sampling water	2	
	Chemistry	2	Analyzing water	1	
	Process control	2	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	3	Designing sewer	3	3.6
	Sewer planning	3	Interpreting drawings	4	
	Civil engineering	4			
	Hydrology	4			
	Pipe materials and construction	4			
	Topographic survey	4			
Financial management and public relations	Basic accounting	3	Preparing budgets and financial statements	2	2.7
	Cash management	2	Analyzing financial reports	2	
	Payroll	3	Verbal presentations	4	
	Customers relations	2	Dealing customers in strained conditions	3	
			Resolving disputes on site	3	
Average		2.8		2.7	2.8

Isayed

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	4	4	3	3.8
Communication	4	4	4	4	4.0
Achievement	4	4	3	4	3.8
Process	3	4	4	3	3.5
Logic	3	3	4	2	3.0
Information	3	3	4	4	3.5
Average	3.5	3.7	3.8	3.3	3.6

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	2	Computer	4	3.3
			Reporting	4	
			Human relationships	4	
			Keeping records	3	
			English	3	
O&M of WWTP	Treatment components	2	Operation of mechanical equipment	1	1.1
	Treatment mechanism	1	Operation of electrical devices	1	
	Mechanical engineering	1	Reading wiring diagram	1	
	Testing equipment	1	Reading and interpreting meters	1	
	Electrical engineering	1	Recording operating conditions	1	
	Electrical safety	1	Sampling water	1	
	Chemistry	1	Analyzing water	1	
	Process control	1	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	2	Designing sewer	1	1.4
	Sewer planning	2	Interpreting drawings	1	
	Civil engineering	1			
	Hydrology	1			
	Pipe materials and construction	2			
	Topographic survey	1			
Financial management and public relations	Basic accounting	2	Preparing budgets and financial statements	3	3.1
	Cash management	2	Analyzing financial reports	3	
	Payroll	3	Verbal presentations	4	
	Customers relations	4	Dealing customers in strained conditions	4	
			Resolving disputes on site	3	
Average		1.6		2.3	2.0

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	3	3	3	3	3.0
Communication	4	4	4	4	4.0
Achievement	3	3	3	3	3.0
Process	3	4	3	3	3.3
Logic	3	2	2	2	2.3
Information	3	3	3	3	3.0
Average	3.2	3.2	3.0	3.0	3.1

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	1	Computer	5	4
			Reporting	5	
			Human relationships	5	
			Keeping records	5	
			English	3	
O&M of WWTP	Treatment components	1	Operation of mechanical equipment	1	1
	Treatment mechanism	1	Operation of electrical devices	1	
	Mechanical engineering	1	Reading wiring diagram	1	
	Testing equipment	1	Reading and interpreting meters	1	
	Electrical engineering	1	Recording operating conditions	1	
	Electrical safety	1	Sampling water	1	
	Chemistry	1	Analyzing water	1	
	Process control	1	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	1	Designing sewer	1	1.0
	Sewer planning	1	Interpreting drawings	1	
	Civil engineering	1			
	Hydrology	1			
	Pipe materials and construction	1			
	Topographic survey	1			
Financial management and public relations	Basic accounting	1	Preparing budgets and financial statements	3	3.2
	Cash management	3	Analyzing financial reports	3	
	Payroll	3	Verbal presentations	5	
	Customers relations	1	Dealing customers in strained conditions	5	
			Resolving disputes on site	5	
Average		1.2		2.7	2.0

Azmuty

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	5	4	4	4.3
Communication	4	4	4	3	3.8
Achievement	4	5	4	3	4.0
Process	4	4	4	4	4.0
Logic	3	2	2	1	2.0
Information	4	4	5	4	4.3
Average	3.8	4.0	3.8	3.2	3.7

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	2	Computer	4	3.5
			Reporting	4	
			Human relationships	4	
			Keeping records	4	
			English	3	
O&M of WWTP	Treatment components	1	Operation of mechanical equipment	1	1
	Treatment mechanism	1	Operation of electrical devices	1	
	Mechanical engineering	1	Reading wiring diagram	1	
	Testing equipment	1	Reading and interpreting meters	1	
	Electrical engineering	1	Recording operating conditions	1	
	Electrical safety	1	Sampling water	1	
	Chemistry	1	Analyzing water	1	
	Process control	1	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	1	Designing sewer	1	1.0
	Sewer planning	1	Interpreting drawings	1	
	Civil engineering	1			
	Hydrology	1			
	Pipe materials and construction	1			
	Topographic survey	1			
Financial management and public relations	Basic accounting	4	Preparing budgets and financial statements	5	4.2
	Cash management	4	Analyzing financial reports	5	
	Payroll	4	Verbal presentations	3	
	Customers relations	4	Dealing customers in strained conditions	5	
			Resolving disputes on site	4	
Average		1.7		2.6	2.2

AbuMohsen

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	3	4	3	3.5
Communication	4	4	4	3	3.8
Achievement	3	4	4	3	3.5
Process	4	3	2	2	2.8
Logic	3	3	2	3	2.8
Information	3	4	3	4	3.5
Average	3.5	3.5	3.2	3.0	3.3

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	1	Computer	3	3
			Reporting	4	
			Human relationships	4	
			Keeping records	4	
			English	2	
O&M of WWTP	Treatment components	1	Operation of mechanical equipment	1	1
	Treatment mechanism	1	Operation of electrical devices	1	
	Mechanical engineering	1	Reading wiring diagram	1	
	Testing equipment	1	Reading and interpreting meters	1	
	Electrical engineering	1	Recording operating conditions	1	
	Electrical safety	1	Sampling water	1	
	Chemistry	1	Analyzing water	1	
	Process control	1	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	1	Designing sewer	1	1.0
	Sewer planning	1	Interpreting drawings	1	
	Civil engineering	1			
	Hydrology	1			
	Pipe materials and construction	1			
	Topographic survey	1			
Financial management and public relations	Basic accounting	3	Preparing budgets and financial statements	3	3.1
	Cash management	2	Analyzing financial reports	3	
	Payroll	2	Verbal presentations	3	
	Customers relations	4	Dealing customers in strained conditions	4	
			Resolving disputes on site	4	
Average		1.4		2.2	1.8

AlShareef

A 2-5-2: Capacity Assessment (Second Implementation)

No.	Field	Name	Qualification
1	Operation of WWTP	Omran Khalaf	Operator
2		Adan Ashoor	Worker/guard
3		Ibrahim Jalaytah	Worker/guard
4		Ramadan Jalaytah	Worker/guard
5		Mosa Barahmeh	Worker/guard
6		Hanan Yaghi	Water quality analysis
7	Maitenance and C/S of Sewer Networks	Majdi Mohammad Al-Ghouj	Technician
8		Thaer Dodeen	Worker
9	Management of Finance	Abdul Fatah Haddad	Tariff collection

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	3	3	1	3	2.5
Communication	4	4	3	2	3.3
Achievement	3	4	3	3	3.3
Process	4	4	3	3	3.5
Logic	4	2	3	3	3.0
Information	4	4	4	3	3.8
Average	3.7	3.5	2.8	2.8	3.2

Specific Knowledge/ Skill

	Knowledge		Average Skill		
General	Sewerage system	3	Computer	4	3.2
			Reporting	3	
			Human relationships	3	
			Keeping records	2	
			English	4	
O&M of WWTP	Treatment components	2	Operation of mechanical equipment	1	1.8
	Treatment mechanism	2	Operation of electrical devices	1	
	Mechanical engineering	2	Reading wiring diagram	3	
	Testing equipment	1	Reading and interpreting meters	3	
	Electrical engineering	1	Recording operating conditions	2	
	Electrical safety	1	Sampling water	2	
	Chemistry	2	Analyzing water	3	
	Process control	1	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	3	Designing sewer	3	2.9
	Sewer planning	1	Interpreting drawings	4	
	Civil engineering	3			
	Hydrology	3			
	Pipe materials and construction	3			
	Topographic survey	3			
Financial management and public relations	Basic accounting	4	Preparing budgets and financial statements	3	2.8
	Cash management	4	Analyzing financial reports	2	
	Payroll	3	Verbal presentations	2	
	Customers relations	3	Dealing customers in strained conditions	2	
			Resolving disputes on site	2	
Average		2.4		2.5	2.5

1.Majdi Mohammad Al-Ghouj

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	2	2	2	1	1.8
Communication	3	3	2	1	2.3
Achievement	3	3	2	1	2.3
Process	3	3	1	1	2.0
Logic	3	1	1	1	1.5
Information	2	2	1	1	1.5
Average	2.7	2.3	1.5	1.0	1.9

Specific Knowledge/ Skill

	Knowledge		Average Skill		
General	Sewerage system	3	Computer	1	1.5
			Reporting	1	
			Human relationships	1	
			Keeping records	1	
			English	2	
O&M of WWTP	Treatment components	2	Operation of mechanical equipment	1	1.1
	Treatment mechanism	1	Operation of electrical devices	1	
	Mechanical engineering	1	Reading wiring diagram	1	
	Testing equipment	1	Reading and interpreting meters	1	
	Electrical engineering	1	Recording operating conditions	1	
	Electrical safety	1	Sampling water	1	
	Chemistry	1	Analyzing water	1	
	Process control	1	Keeping lab. inventories	1	
Construction and O&M of Network	Sewer components	3	Designing sewer	1	1.4
	Sewer planning	1	Interpreting drawings	1	
	Civil engineering	1			
	Hydrology	1			
	Pipe materials and construction	2			
	Topographic survey	1			
Financial management and public relations	Basic accounting	1	Preparing budgets and financial statements	1	1
	Cash management	1	Analyzing financial reports	1	
	Payroll	1	Verbal presentations	1	
	Customers relations	1	Dealing customers in strained conditions	1	
			Resolving disputes on site	1	
Average		1.3		1.1	1.2

2.Thaer Dodeen

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	5	5	4	5	4.8
Communication	4	4	4	4	4.0
Achievement	4	5	4	4	4.3
Process	5	4	4	4	4.3
Logic	5	4	5	5	4.8
Information	4	5	5	No answer	4.7
Average	4.5	4.5	4.3	4.4	4.5

Specific Knowledge/ Skill

		Knowledge		Skill		Average
General	Sewerage system	4	Computer	5		
			Reporting			
			Human relationships	4		4.4
			Keeping records	5		
			English	4		
O&M of WWTP	Treatment components	5	Operation of mechanical equipment	4		
	Treatment mechanism	5	Operation of electrical devices	3		
	Mechanical engineering	5	Reading wiring diagram	3		
	Testing equipment	3	Reading and interpreting meters	4		3.9
	Electrical engineering	3	Recording operating conditions	5		
	Electrical safety	4	Sampling water	4		
	Chemistry	4	Analyzing water	3		
	Process control	4	Keeping lab. inventories	4		
Construction and O&M of Network	Sewer components	4	Designing sewer	3		
	Sewer planning	3	Interpreting drawings	3		
	Civil engineering	3				3.1
	Hydrology	3				
	Pipe materials and construction	3				
	Topographic survey	3				
Financial management and public relations	Basic accounting	1	Preparing budgets and financial statements	2		
	Cash management	2	Analyzing financial reports	4		
	Payroll	2	Verbal presentations	2		2.2
	Customers relations	2	Dealing customers in strained conditions	2		
			Resolving disputes on site	3		
Average		3.3		3.5		3.4

3.Omran Khalaf

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	4	4	4	4.0
Communication	4	4	3	3	3.5
Achievement	4	4	4	3	3.8
Process	3	4	2	2	2.8
Logic	3	4	2	2	2.8
Information	4	4	3	4	3.8
Average	3.7	4.0	3.0	3.0	3.5

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	2	Computer	3	2.8
			Reporting	3	
			Human relationships	3	
			Keeping records	3	
			English	3	
O&M of WWTP	Treatment components	3	Operation of mechanical equipment	3	2
	Treatment mechanism		Operation of electrical devices	2	
	Mechanical engineering	2	Reading wiring diagram	2	
	Testing equipment	1	Reading and interpreting meters	3	
	Electrical engineering	1	Recording operating conditions	3	
	Electrical safety	1	Sampling water	2	
	Chemistry	1	Analyzing water	1	
	Process control	2	Keeping lab. inventories	3	
Construction and O&M of Network	Sewer components	2	Designing sewer	2	1.4
	Sewer planning	2	Interpreting drawings	1	
	Civil engineering	1			
	Hydrology	1			
	Pipe materials and construction	1			
	Topographic survey	1			
Financial management and public relations	Basic accounting	2	Preparing budgets and financial statements	2	2.6
	Cash management	3	Analyzing financial reports	2	
	Payroll	3	Verbal presentations	2	
	Customers relations	1	Dealing customers in strained conditions	4	
			Resolving disputes on site	4	
Average		1.7		2.6	2.2

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	3	4	3	3	3.3
Communication	2	2	3	3	2.5
Achievement	3	3	3	3	3.0
Process	3	3	2	2	2.5
Logic	3	2	2	2	2.3
Information	3	3	3	3	3.0
Average	2.8	2.8	2.7	2.7	2.8

Specific Knowledge/ Skill

	Knowledge		Average Skill		
General	Sewerage system	2	Computer	4	3.2
			Reporting	3	
			Human relationships	3	
			Keeping records	3	
			English	4	
O&M of WWTP	Treatment components	3	Operation of mechanical equipment	3	2.6
	Treatment mechanism	2	Operation of electrical devices	3	
	Mechanical engineering	2	Reading wiring diagram	3	
	Testing equipment		Reading and interpreting meters	3	
	Electrical engineering	2	Recording operating conditions	3	
	Electrical safety	3	Sampling water	3	
	Chemistry	2	Analyzing water	2	
	Process control	3	Keeping lab. inventories	2	
Construction and O&M of Network	Sewer components	3	Designing sewer	1	2.3
	Sewer planning	3	Interpreting drawings	2	
	Civil engineering	3			
	Hydrology	2			
	Pipe materials and construction	2			
	Topographic survey	2			
Financial management and public relations	Basic accounting	2	Preparing budgets and financial statements	3	2.4
	Cash management	2	Analyzing financial reports	3	
	Payroll	2	Verbal presentations	3	
	Customers relations	2	Dealing customers in strained conditions	3	
			Resolving disputes on site	2	
Average		2.3		2.8	2.6

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	4	4	4	4.0
Communication	4	3	4	4	3.8
Achievement	4	4	4	4	4.0
Process	4	4	4	4	4.0
Logic	4	4	3	2	3.3
Information	4	4	4	4	4.0
Average	4.0	3.8	3.8	3.7	3.9

Specific Knowledge/ Skill

	Knowledge		Average Skill		
General	Sewerage system	1	Computer	1	2.5
			Reporting	4	
			Human relationships	4	
			Keeping records	4	
			English	1	
O&M of WWTP	Treatment components	3	Operation of mechanical equipment	1	1.6
	Treatment mechanism	3	Operation of electrical devices	1	
	Mechanical engineering	1	Reading wiring diagram	1	
	Testing equipment	1	Reading and interpreting meters	1	
	Electrical engineering	1	Recording operating conditions	1	
	Electrical safety	1	Sampling water	4	
	Chemistry	1	Analyzing water	1	
	Process control	1	Keeping lab. inventories	3	
Construction and O&M of Network	Sewer components	3	Designing sewer	1	1.3
	Sewer planning	1	Interpreting drawings	1	
	Civil engineering	1			
	Hydrology	1			
	Pipe materials and construction	1			
	Topographic survey	1			
Financial management and public relations	Basic accounting	1	Preparing budgets and financial statements	1	1.7
	Cash management	3	Analyzing financial reports	1	
	Payroll	3	Verbal presentations	1	
	Customers relations	3	Dealing customers in strained conditions	1	
			Resolving disputes on site	1	
Average		1.6		1.7	1.7

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	4	3	4	3.8
Communication	3	3	3	3	3.0
Achievement	3	3	3	3	3.0
Process	4	3	2	3	3.0
Logic	2	2	2	1	1.8
Information	1	2	1	2	1.5
Average	2.8	2.8	2.3	2.7	2.7

Specific Knowledge/ Skill

		Knowledge		Skill		Average
General	Sewerage system	3	Computer	1		
			Reporting	1		
			Human relationships	3	2	
			Keeping records	3		
			English	1		
O&M of WWTP	Treatment components	3	Operation of mechanical equipment	3	1.4	
	Treatment mechanism	1	Operation of electrical devices	1		
	Mechanical engineering	1	Reading wiring diagram	1		
	Testing equipment	1	Reading and interpreting meters	1		
	Electrical engineering	1	Recording operating conditions	2		
	Electrical safety	1	Sampling water	2		
	Chemistry	1	Analyzing water	1		
	Process control	1	Keeping lab. inventories	2		
Construction and O&M of Network	Sewer components	3	Designing sewer	1	1.6	
	Sewer planning	2	Interpreting drawings	1		
	Civil engineering	1				
	Hydrology	2				
	Pipe materials and construction	1				
	Topographic survey	2				
Financial management and public relations	Basic accounting	1	Preparing budgets and financial statements	1	1.3	
	Cash management	1	Analyzing financial reports	1		
	Payroll	1	Verbal presentations	2		
	Customers relations	1	Dealing customers in strained conditions	2		
			Resolving disputes on site	2		
Average		1.5		1.6	1.6	

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	4	3	3	4	3.5
Communication	3	3	2	2	2.5
Achievement	3	2	3	4	3.0
Process	4	2	3	4	3.3
Logic	3	3	3	2	2.8
Information	3	3	4	3	3.3
Average	3.3	2.7	3.0	3.2	3.1

Specific Knowledge/ Skill

	Knowledge		Skill		Average
General	Sewerage system	3	Computer	3	3.2
			Reporting	3	
			Human relationships	3	
			Keeping records	4	
			English	3	
O&M of WWTP	Treatment components	3	Operation of mechanical equipment	2	2.8
	Treatment mechanism	3	Operation of electrical devices	2	
	Mechanical engineering	2	Reading wiring diagram	3	
	Testing equipment	2	Reading and interpreting meters	4	
	Electrical engineering	2	Recording operating conditions	3	
	Electrical safety	2	Sampling water	4	
	Chemistry	3	Analyzing water	3	
	Process control	3	Keeping lab. inventories	3	
Construction and O&M of Network	Sewer components	3	Designing sewer	1	2.1
	Sewer planning	2	Interpreting drawings	2	
	Civil engineering	2			
	Hydrology	2			
	Pipe materials and construction	3			
	Topographic survey	2			
Financial management and public relations	Basic accounting	1	Preparing budgets and financial statements	1	1.2
	Cash management	1	Analyzing financial reports	2	
	Payroll	1	Verbal presentations	2	
	Customers relations	1	Dealing customers in strained conditions	1	
			Resolving disputes on site	1	
Average		2.2		2.5	2.4

General Skill/ Competency

	Consistent	Interactive	Integrating and Organizing	Creative	Average
Self management	3	3	4	3	3.3
Communication	3	2	4	3	3.0
Achievement	3	3	4	3	3.3
Process	No answer	3	3	3	3.0
Logic	4	3	2	3	3.0
Information	2	3	3	4	3.0
Average	3.0	2.8	3.3	3.2	3.1

Specific Knowledge/ Skill

		Knowledge		Skill		Average
General	Sewerage system	3	Computer	4		
			Reporting	3		
			Human relationships	3		3.2
			Keeping records	3		
			English	3		
O&M of WWTP	Treatment components	2	Operation of mechanical equipment	1		
	Treatment mechanism	1	Operation of electrical devices	1		
	Mechanical engineering	1	Reading wiring diagram	1		
	Testing equipment	1	Reading and interpreting meters	1		1.1
	Electrical engineering	1	Recording operating conditions	1		
	Electrical safety	1	Sampling water	1		
	Chemistry	1	Analyzing water	1		
	Process control	1	Keeping lab. inventories	2		
Construction and O&M of Network	Sewer components	1	Designing sewer	1		
	Sewer planning	1	Interpreting drawings	1		
	Civil engineering	1				1.0
	Hydrology	1				
	Pipe materials and construction	1				
	Topographic survey	1				
Financial management and public relations	Basic accounting	3	Preparing budgets and financial statements	3		
	Cash management	3	Analyzing financial reports	3		
	Payroll	3	Verbal presentations	2		2.9
	Customers relations	3	Dealing customers in strained conditions	3		
			Resolving disputes on site	3		
Average		1.6		2.1		1.9

9.Abdul Fatah Haddad

A 2-6-1: Activities of Public Awareness

Appendix A 2-6-1

Public Awareness

In April 2014, the public awareness Expert visited Jericho for a period of 45 days in order to conduct an awareness campaign. It aimed to strengthen the system of sewage collection and treatment in Jericho by promoting public awareness on the benefits of house connection, proper use of sewerage system, paying the sewerage fees. The overall purpose was to support the City's new sewerage system operation and management.

The area covered by the campaign activities was mainly the Pilot Project Area 1 but also extended to Pilot Project area 2. The reason was that the PP1 area is small and mostly commercial but PP2 is more residential and covers a larger part of the city.

Several public awareness activities were conducted by C/P during the campaign. It also included an awareness survey. This report outlines the outcomes of the activities and provides a summary of the survey results. In the end it presents an awareness plan for future activities.

A. Public Awareness Events and Survey

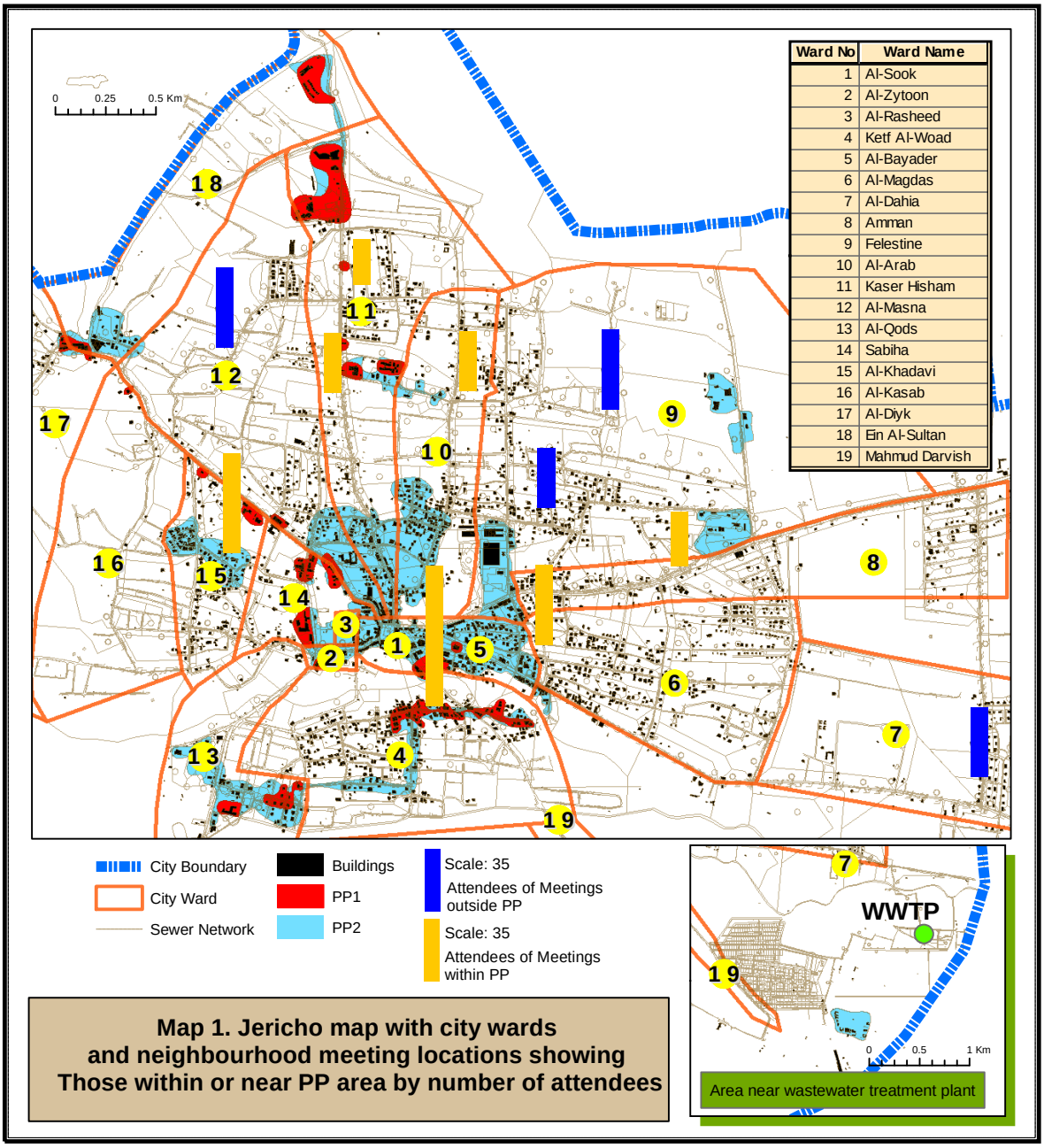
1) Neighborhood Meetings within the City Wards

These were meetings joint with the Jericho Municipality's Clean City project funded by USAID but performed by the Municipality. The Clean City project purpose was to promote public awareness on how to keep the city clean. In addition to some other activities, its awareness plan included evening neighborhood meetings at the city ward levels. Using this coincident local opportunity, the C/P suggested joining TeCSOM's neighborhood meetings with the Clean City project's meetings instead of conducting separate ones. The reason of this change was because it would have been difficult to gather everyone for separate neighborhood meetings.

TeCSOM, however, needed to make sure that neighborhoods (city wards) within the pilot project area obtain meetings during this campaign period (the month of April). With the Clean City project cooperation and adjustments to the pre-scheduled neighborhood meeting days, C/P was able to re-schedule the days by giving the TeCSOM neighborhoods a priority.

Jericho City has 19 wards. A number of 11 joint meetings were hold at 9 wards (two bigger wards received more than one meeting) during the TeCSOM public awareness campaign with 7 meetings within or near the pilot project areas. Map # 1 displays location of the meetings at each yard with number of attendees.

The purpose of these meetings was to raise public meeting participation and reaching out a higher number of residents. By inviting residents to meetings at their neighborhoods, more people had a chance to attend, hear, and discuss about the City's new sewerage system. As another strategy to attract more participants, the meetings were hold in evenings to not only to avoid the day heat but also to provide a better time frame to those who weren't, otherwise, able to attend during working hours.



Map 1. Jericho map with city wards and neighbourhood meeting locations showing Those within or near PP area by number of attendees

The campaign was successful in reaching out a higher number of residents. A total of 415 people attended the meetings of which 270 attended the meetings within the pilot areas (compare with only 30 participants at the last campaign's public meeting hold in October 2013). The attendance number ranged from 23 to 70 people with an average of 37.

The meeting locations were chosen based on the space and time availability. They were hold at open spaces within the neighborhood, at house yards of well-known neighbors, or at the neighborhood school yards.

Starting from late March 2014, three issues were discussed at all of the 11 meetings including the 7 meetings at pilot project areas; the city's new sewerage system, the water related matters, and keeping the city environment

clean. In addition to the Mayor, the City Council members, the Municipality's Department of Public Relations and its Department of Environment and Health, also some of the TeCSOM members attended the meetings and were ready to answer any questions. Though the meetings time in evening was not suitable for the JICA Expert team's office schedule but they managed to attend three of the meetings.

Format of the meetings were similar for all. The meetings started with a speech by the Mayor followed by an open discussion session where the project members provided answers to the guests' questions and comments.

The speech included the city's sewer system matters as well such as:

- the project coverage area
- environmental impacts of the existing system and requesting attendees to connect to public sewer
- the fees for public sewer connections and usage and how fairly they were estimated
- possible financial assistance for those who need
- addressed technical matters of house connections such as elevated lands and neighbor disputes
- re-use of treated waste water, etc.

Below are photos for some of the meetings during the campaign.

Al-Arab Ward Meeting, March 30

Kasar-Hisham Ward, April 6

Al-Felestin Ward Meeting, April

Al-Aman Ward Meeting, April 16

Al-Dahia Ward, April 23

Al-Dahia Ward, April 23

Al-Dahia Ward, April 23

Kelf-Al Woad Ward, April 29

Kelf-Al Woad Ward, April 29

The meetings were reported on Facebook. The TeCSOM's public awareness materials were distributed among the attendees.

There was a discussion time where attendees asked questions or commented on the project. Below are some of the questions and comments:

- regarding large properties: I have a 10,000sq^2 land with a building of 1000sq^2 which 7 families live at. The connection and usage fee will be so high. How this kind of properties are calculated?
- why JICA didn't cover all of the costs?
- is there any financial assistance for connection fees?
- we heard that the pipelines are too small in diameters and will cause clogging problems. Is it correct?
- won't mice get into our houses through the pipes?
- the pipeline construction sites are not filled back after excavation and are causing problems.
- the sanitation project was donated. Why does the Municipality ask us to pay?

In addition to the questions above, some attendees were reluctant to connect their houses and pay for the sewerage fee. C/P believes that this could be because of the economic characteristics of Jericho since the residents are mostly from middle or low income families. As other reason, the City's clay soil type could also contribute to the resident's reluctance because they believe that their existing tanks can work for over 15 years because of the City's clay type of soil. A comparison between the water and sewerage fees could also cause the resident complains about the fees as they believe that the water fee is more reasonable.

2) TeCSOM Public Meeting

This was a one-time public meeting in April 30th exclusively for the TeCSOM project where *all* neighborhoods within the PP area were invited. It was a chance for those who were not able to attend the neighborhood meetings as well.

In order to raise the public attendance, several strategies were taken into action. Customized invitation letters were not only distributed among residents but also among the local government bodies, universities, churches, mosques, and police stations. About 500 SMS messages were sent out by the Municipality. Sending out joint invitation letters with the city's Board of Education and Chamber of Commerce to teachers, parents, and business owners was another way to raise meeting participation. The meeting was also advertized on Facebook and at the local radio for three days prior to the meeting. As another strategy, the meeting was set for evening to avoid the high day temperature in April. For those who had no chance to attend, a summary of the meeting was broadcasted by the Palestine TV channel and the local radio.

The focus of the meeting was on encouraging house connection and the related technical concerns, also about the connection and sewerage tariff. Users' responsibilities such as paying the sewerage fee and proper use of the service were also among the discussed matters. The meeting also concluded with an interactive question and

answer session.

Generally, though some complained about the cost of house connection and sewerage tariff, many were interested in using the public sewer. Some with large size buildings or different type of apartments showed concern about the connection cost or issues. Few still believed that their current cesspit tanks are in good working condition so they do not need to pay for the public sewer service. However, there were many attendees who were eager to use the system because of their costly and problematic cesspit tanks.

Some also wanted to learn that how the treated waste water will be used. One of the questions was that whether the Municipality has any plan on selling the re-treated water and that if such revenue will reduce the usage tariff fee in the future.



3) Announcements at Mosques and Churches

During the campaign, C/P attempted to reach out the city's mosque imams and church priests for raising public participation in sewer connection and fee payment at the Friday and Sunday ceremonies.

Six out of the city's 8 mosques and 5 out of the city's 6 churches are located within or near PP areas. Thus, announcements at the mosques and churches could be an effective way to disseminate the project benefits for the city and to promote TeCSOM.

In Muslim societies, the Imam leads Islamic prayers and services at mosques. He's the respected member of community and takes on a larger role in providing community support and spiritual advice. He also gives speeches after the pray ceremonies especially on Fridays about the social and economic matters of the city and neighborhood.

A joint meeting with the city imams was set up by the Municipality for both Clean City and TeCSOM projects. The purpose of the meeting was to ask for help in raising public awareness on Friday speeches. At the meeting, the Municipality requested the Imams that three major issues to be announced at Friday ceremonies; keeping the city environment clean, the drinking water issues, and the new sewage system. The Mayor, City Council members, the Municipality's Department of Public Relations (C/P's PR staff) and Department of Environment and Health were present at the meeting.

Due to lack of time, C/P was not able to set up a meeting with church priests but the Christians representative

at the City Council was invited to the TeCSOM public meeting to become more familiar with the project matters and was requested to pass the information on among the priests for Sunday ceremony announcements.

4) School Morning Announcements

At a meeting with the Jericho's Director of Education, C/P requested that schools especially those in the PP areas conduct morning announcements for the students about the TeCSOM project. The focus was on the project benefits for the city's environment and the importance of a public sewer system.

An official request letter by the Director of Education was sent out to the school principals at all education levels. One of the TeCSOM's flyers with general information especially the environment aspects of the project was also attached to the letter as a source of information for the announcements.

5) Use of Social, News, and Print Media

Social media, news media, and print media were also utilized to disseminate information on TeCSOM and to raise public awareness.

Below is an example of the City's Facebook page in April 30th where it posted information about one of the neighborhood meetings with photos. As seen, the post received 45 visits, one *share*, and many comments.

Facebook as social media was widely used to advertize the neighborhood meeting schedule, the photos, and to interact with residents who commented on the posts. The campaign posts on the City's facebook received more than 300 "Like" marks and 40 comments. Also, more than 20 people shared the posts on their own Facebook

pages to help spread the information about TeCSOM.

Use of TV reports was also another method to promote TeCSOM during this campaign. Requested by the C/P's public relation department, the Palestine TV channel prepared a sixteen minutes program about the city's infrastructure projects in the last 10 years which also included TeCSOM project. In the program, the Mayor and some of the residents were interviewed. The Mayor emphasized importance of the TeCSOM for the city and recommended that residents connect their properties to the new public sewer system. The interviewed residents also expressed the value of the sewerage system for the city and that how cesspit tanks can create environmental issues for the city. The program was broadcasted live in end of April. Below are two screenshots of the program scene where the Mayor and residents were interviewed.

Newspapers were also utilized for public awareness. Reports of the TeCSOM public meeting was published by Al-Bayader and Maqdas newspapers.

6) Awareness Survey

Objective

The survey purpose was to assess the current community support for the City's sanitation project and understanding their legal obligations. It also aimed to target awareness issues that need further attention in next TeCSOM campaigns and activities. Not initially planned but the survey, somewhat, provided a measure to evaluate how successful the past awareness activities were.

Survey Method and Target Population

The draft questionnaire was prepared in English and was then finalized after discussion with C/P and JICA Expert Team. C/P distributed the survey sheets among the adult attendees at the five neighborhood and public meetings. Socio-economic characteristics of the respondents like age, gender, or income were not of concern as it was a general awareness survey. A total of one hundred and eleven (111) filled out questionnaires was collected for analysis.

Questionnaire

The questionnaire included a one-page sheet with 9 questions in Arabic. They were designed to not only assess the residents understanding of TeCSOM importance for the city but also to evaluate their knowledge about legal

obligations for house connections and sewerage fee. The questionnaire was divided to three sections: Current sanitation issues and connection to public sewer, wastewater treatment plant, and willingness to pay for sewerage charge with five, two, and two questions for each section respectively.

Result

1. Public support of the City's sanitation project

As seen in the Table 1, the survey showed that a high percentage of the respondents admitted the importance of the City's public sewer project. Eighty eight percent (88%) realized the environmental problems in the city which are caused by cesspit tanks. Respondents also acknowledged that their households are suffering from unhealthy living environment like overflowing and leaking cesspits which attract insects and create bad smell. Among these unsanitary living conditions, bad smell (38%) and insects (35%) were more common issues.

Table 1. Survey results on public support of the sanitation project by number of responses and percentage

Do you know using cesspit causes environmental problems at present and future?				Yes		No		No Answer	
				98		10		3	
				88%		9%		3%	
Do you have any sanitary problems in your household? (*Multiple answers allowed)*	Overflow	Leakage	Obstacle to Bath	Insect	Not Clean	Bad Smell	Other	No Answer	No Problem
	22	26	11	39	25	42	9	7	25
	20%	23%	10%	35%	22.5%	38%	8%	6%	22.5%
Wastewater Treatment Plant (WWTP) and Sewer networks are now being constructed in Jericho. Do you agree that it's an important project and Jericho needs it?				Yes		No		No Answer	
				95		9		7	
				86%		8%		6%	
If you answered “Yes” on question above, why do you think WWTP is important for Jericho? *(Multiple answers allowed)*	Because it reduces pollution of water and wells							65	58.5%
	Because it reduces insects							57	51%
	Because it reduces oral/contagion disease							54	49%
	Because it reduces bad smell from stagnant wastewater							55	49.5%
	Because it contributes to save land space by backfilling abandoned cesspit							57	51%
	Because it eliminates maintenance of cesspit							54	49%
	Other							20	18%
	No Answer							7	6%

Majority of the respondents also acknowledged that the WWTP is a vital project. Eighty six (86%) believed that Jericho needed such project while only a small percentage of eight (8%) disagreed though some preferred not to answer the question.

The survey also showed that the WWTP's positive impacts on the city are highly recognized by the respondents. This is one of the key assets in convincing the public for using the new public sewer system. An analysis of the answers showed that ninety four percent (94%) were able to list one or more of the positive impacts including pollution reduction (58.5%), reduction of insects (51%), saving land space (51%), reduction of the city's bad smell (49.5%), disease cutback (49%), and eliminating cesspit maintenance (49%).

2. Public intention for house connections and service payment

At the meetings the attendees were explained the connection fees and sewerage tariff based on by-laws. The survey revealed that majority of the respondents intent to connect to the public sewer but some have difficulties in funding the connection cost.

The awareness survey analysis indicated that a total of eighty three percent (54% + 29%) intend to connect from which twenty nine percent (29%) have financial difficulties (Table 2).

Though a large number of respondents intend to pay for discharging sewer to public network and treatment, yet some have objections. Sixty seven percent (67%) of the surveyed residents had no objections and acknowledged that such payment is necessary to recover the operation and maintenance cost of the sewerage system. However, almost one third of the respondents (27%) disagreed with the payment requirement for different reasons. Some believed that the fees are unclear, unaffordable, or unreasonable compare with water fees. In some opinions, the Donor must pay for the service not the citizens since it is a donated project. It was also commented that the Municipality should offer a two or three years of free sewerage service to ensure the residents that the new sewerage system will be working thoroughly.

Table 2. Survey results on public intention for house connections and service payment by number of responses and percentage

When will you connect your building to the public sewer?	I intend to connect soon after the public sewer construction is completed near my building	60	54%
	I intend to connect but have financial difficulties.	32	29%
	I do not intend to connect.	10	9%
	No Answer	9	8%

Once you connect to sewer network, you have to pay the wastewater tariff (the tariff will recover the operation and maintenance cost of sewerage system). Do you have any objections for payment?	Yes	No	No Answer
	30	74	7
	27%	67%	6 %

3. Public awareness of legal obligations

This campaign was coincident with completion of the City's sewerage by-laws. It is necessary to disseminate the by-laws especially those that concern the public directly including the resident's obligation towards the connections and payments. Thus, some of the laws were included in the awareness survey to not only receive

an initial assessment of the public knowledge of the by-laws but also to spread such information among those respondents who were unaware about it (Table 3).

Expectedly, the result showed that most of the surveyed people were unaware of their legal obligations about house connections and tariff payments. Such low awareness was expected since the public awareness activities on the by-laws have just been started. Fifty four percent (54%) of the respondents did not know it is *mandatory* that residents backfill their cesspits and be connected to the public sewer network. Also, only thirty four percent (34%) knew that the Jericho Municipality has the legal right to connect their buildings and charge extra fees if they reject connection. Many also refused to answer the questions.

Table 3. Survey results on public awareness of legal obligations by number of responses and percentage

Do you know that by the Sewerage Law of the Jericho Municipality you must backfill your cesspit and connect to the public sewer network on your own expense?	Yes	No	No Answer
	38	60	13
	34%	54%	12%
Do you know that Jericho Municipality has the legal right to connect your building and charge you extra fees if you refuse to connect?	Yes	No	No Answer
	38	35	38
	34%	32%	34%

Conclusion

A comparative analysis of the awareness survey and the past social survey shows that the public awareness activities have successfully raised the community support and recognition of the City's public sewer and the WWTP projects. Figure 1 shows the results on three subjects including the public awareness of the existing environmental issues, their support for the sanitation project, and if they are willing to pay for the project.

As an essential key in obtaining support for TeCSOM, it is important that the community is aware of the existing cesspit tank-related environmental issues. An analysis of awareness survey shows that the local environmental awareness has tremendously grown in contrast with the past social survey. While only forty eight percent (48%) of the past respondents admitted cesspit related environmental issues in the City, currently eighty eight percent (88%) believe that the City is suffering from such issues. This indicates a growing support for the City's sanitation project. The percentage of the surveyed people who favor the project has risen from sixty four (64%) to eighty six (86%).

They survey also shows that more people are willing to pay for the sanitation service given a growth from forty percent (40%) to sixty seven percent (67%) but still lower than what is expected. The reason could be the on-going argument on the connection cost and usage tariff among some of the residents. TeCSOM needs to put more effort in raising the number of residents who are willing to pay for the service in its public awareness

campaigns and activities.

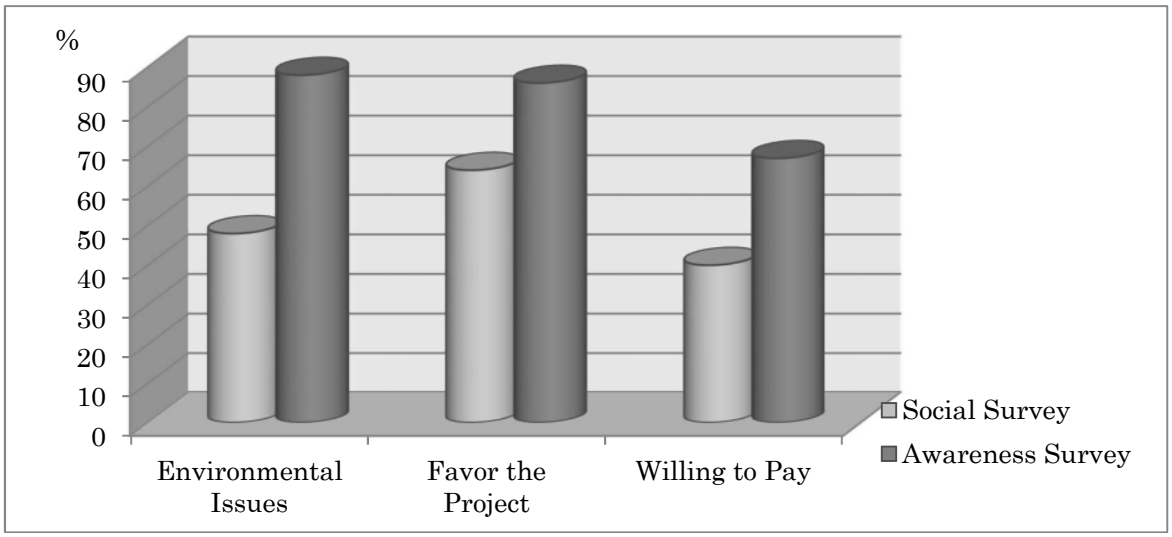


Figure 1. Comparative results of responses to the awareness survey and the social survey

The survey also showed some financial difficulties among those who want to be connected to the public sewer. This means that C/P should discuss if any financial assistance can be available to those residents who need. Once it is finalized, next public awareness should inform residents about any available financial assistance.

Low awareness among residents on their legal obligations towards house connection and fee payments indicated that public awareness campaigns and activities should further notify community about the laws to avoid any misunderstandings and complications. Though TeCSOM has already started disseminating such information but it should be continual and persistent.

B. Public Awareness Materials and Give-Away Items

The campaign prepared some new awareness materials and give-away items to be used during the campaign and for future along with materials from previous campaign materials (stickers and pamphlets).

In addition to providing a project map for the public, they also included a project roll up, a Q&A pamphlet, a paper flyer, a drawing card for kids, a refrigerator magnet, and a project folder to hold public awareness materials.

1. An Easy-to-Understand Map

Maps that are prepared specifically for public could also be effective tools in the success of public awareness programs. PR staff can, for example, use such maps when planning public awareness activities, distribute them at public meetings, print them on pamphlets, or post them on websites.

During the last awareness program (October 2013), there was a need for an easy-to-understand map to show areas that will be connected to the public sewer networks as the pilot project. This could, for example, help the

public awareness members decide whom to send the invitation letters to for the public meetings. Such maps also needed to be distributed among the meeting attendees to learn which pilot project areas their properties are located in. Based on the recommendation of the past campaign, the public were provided with a project map.

A public-friendly GIS map was prepared using the AutoCAD drawings which showed the whole city with distinctive colors for each pilot area and the sewer pipelines. Some other local facilities like schools, universities, mosques, churches, etc were also digitized using the Municipality paper map sources. The city wards were also digitized and added to the map using a mental sketch provided by the Municipality.

The map was very useful and handy during the campaign. It was provided to the public as a pamphlet page as a source to estimate their property location if located within the pilot area. The map was also utilized throughout the campaign for planning. It helped decide to schedule neighborhood meetings and also selection of those local facilities such as mosques, churches, or schools that are located within the target pilot areas.

2. Project Roll-Up Banner Stand

It was an 80 in 200 cm medium-duty "roll-up" with leather-like fabric and a metal stand. It was first displayed at project public and neighborhood meeting entrances and was then displayed at the Municipality's entrance for public information when no meeting. The Expert recommended C/P to order one for displaying at the JICA's office entrance as well in order to publicize the project.

The purpose of roll up is to disseminate information about the project and the work that has been done. It includes seven photos on different stages and aspects of the project work. It also gives the residents the project messages in short sentences. In addition to the project name, three logos (JICA, the Municipality of Jericho, and TecSOM) are printed.

Photos include the sewer network installation, house connections, and the WWTP. Also some shows the public meetings and the project training workshop by the Experts.

The roll up also displays the two following messages:

- Jericho without Cesspits (in yellow on the top of the banner)
- Support an Environmentally safe city (in green on bottom of the banner)

3. Q&A Pamphlet

This is a folded four-page pamphlet with nineteen project related Q&A (questions and answers) printed on an 18 in 23 cm light-duty paper cardboard. The questions were originally prepared in English and the answers were confirmed by the C/P and the Expert team members. The document was then translated in Arabic.

The questions include those frequently asked and also some new information on the house connection issues, costs, and sewerage tariff. It also provides some tables and figures for a better understanding of the concepts. The last page of the Q&A pamphlet provides a color GIS-based map showing the project two pilot areas and the sewer network so residents can, approximately, estimate if their properties are located within the project pilot areas.

Next page provides a screenshot of each page in Arabic. For the English translation of the pamphlet refer to the project appendix. The Municipality's contact address is also provided in the end of the pamphlet for residents for further information about the project.

The pamphlet includes the sections and questions below:

About the Project:

Q1. What is the Jericho Sanitary Sewerage project?

Q2: What does TeCSOM stand for?

Q3. What areas are located within PP1 and PP2?

Why Connect to the Public Sewer:

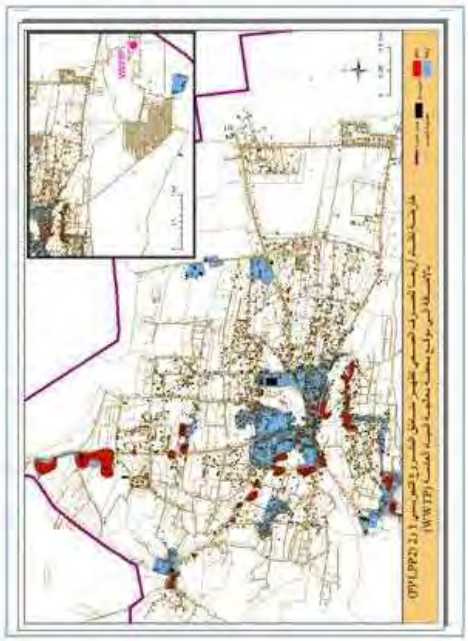
Q4. Why should I disconnect my cesspit and connect to the public sewer? How do I benefit from the Project?

Municipality and Citizen Obligations:

Q5. What are my obligations?

Q6. Can I refuse connection to the public sewer system?

Q7. What does Private Connection mean?



Q8. What are the Municipality obligations?

Q9. What should I do with the septic tank within my property after connection?

Branch Sewer Pipelines and Building Connection Periods

Q10. Is the branch sewer pipeline construction completed?

Q11. Some people in Jericho think that the installed branch pipes with 20cm of diameter are too small. Is this correct?

Q12. When can I connect my property to the network?

Q13. My property has no access to a sewer pipe. And/or the only way is to use my neighbor's land for connecting pipes. What should I do?

Q14. I understand that the sewerage system uses gravity for the sewer flow so no pumping stations are needed. How about if my property is located lower than the public sewer pipeline?

Dust and Traffic Issues related to Sewer Pipeline Installation Sites

Q15. There have been some dust and traffic related issues in the construction area. What has the Project done to reduce the issue?

Q16. The pipeline installation areas are still uncovered. When will the construction sites be paved back to the previous status?

Connections:

Q17. Can I hire a worker/local contractor for installation of my private sewer lines?

Fees:

Q18. Will I be financial responsible for the connection and sewer line installations within my owned private property?

Q19. Will I be required to pay my usage fees on a monthly base?

4. Paper Flyer

It is an A4 size paper flyer which provides information on the WWTP function and the resident's responsibility on protecting the City's sanitation.

It was originally prepared in English and then translated in Arabic. Below is a screenshot of the Arabic flyer. For the English version please refer to the project report appendix.

It starts with a title of: "Where Does All the Dirty Water Go? What Can You Do to Protect Jericho from Wastewater?" and then information on the following matters were provided:

- Where does the water go after you flush the toilet or drain the sinks in your home?
- What happens to the treated water when it leaves the wastewater treatment plant?
- About Jericho new wastewater treatment plant (WWTP)
- How to flush responsibly!

5. Drawing Card for Kids

This give-away item is prepared for kids and is planned to be distributed at schools or at any public meetings so it can be passed on to kids.

It is a 15 in 21 cm two sided medium-duty paper cardboard. One side includes a coloring draw showing clean water leaves a wastewater treatment plant to river where fish lives happily. A sentence is also provided under the drawing so kids can mark it as a wrong or correct sentence. The sentence says "Wastewater treatment plants clean city's dirty water." The purpose is to educate kids that wastewater treatment plants keep our environment clean and safe to live.

The other side provides kids with a schedule table where they can use it for noting weekly class schedule by day (six school days in Palestine) and class period.

It was originally prepared in English and then translated in Arabic. Below is a screenshot of the Arabic one. For the English version please refer to the project report appendix.

6. Refrigerator Magnet

This give-away item was originally prepared at the pervious awareness campaign as an information sheet and was printed on an A4 size paper. Since public showed interest in the information, it was re-designed and printed as a refrigerator magnet with some additional informative notes.

The purpose is to make the community aware of ways to prevent clogging the sewer pipes and help building a functioning wastewater treatment system. The magnet requests the community to avoid draining cooking oil and fat into the kitchen sink. It explains five easy steps on how to discharge the oils and fats.

The magnet provides the information below:

"How to Protect the Sewer Pipes in Your House

Keep fats and oils out of your drain to prevent sewer backups and clogs in your home!

Five easy steps:

1. Pour cooled fat into a container.
2. Put container in the freezer.
3. Scrape frozen fat from container into the garbage.
4. Scrape food scraps and fat from plates, pots and pans into the garbage.
5. Soak up remaining fats with a paper towel.

Not Down My Drain

The list included "Cleaners, Beauty products, Medicine, Auto oil, Grease, Feminine hygiene products, Chemicals, Paint"

The magnet was distributed at public meetings. The C/P was also advised to pass the magnet at any proper opportunities.

7. Project Paper Folder

With the growing number of public awareness materials, a folder needed to hold all of the paper materials when distributing at meetings or events. In addition, the paper folder could itself be a public awareness give-away item. With this in mind, a medium-duty cardboard folder was prepared as the project folder with information printed in the front and back of the folder

The front, in addition to the TeCSOM logo and the name of the project, provides 12 project photos of the WWTP, sewer pipe installation, workshops, public meetings, and educational activities for kids. On the side, a message of "let's live in an environmentally safe city" requests the community's support of the project.

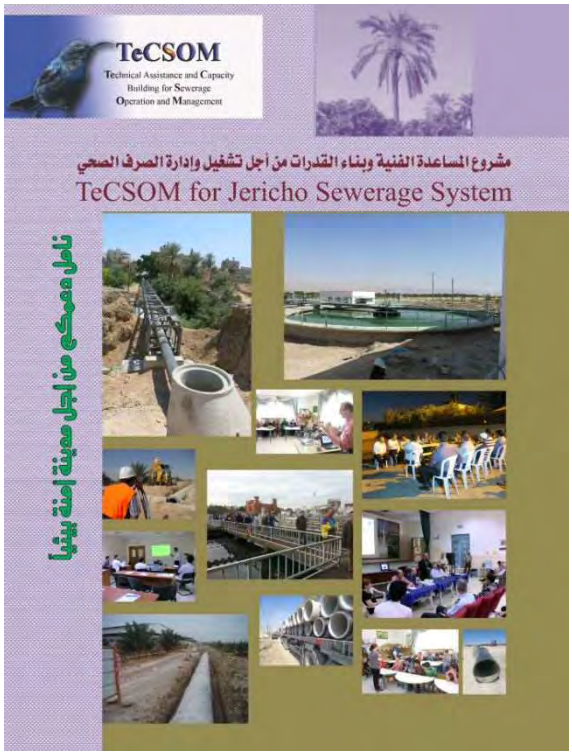
On the back side, in addition to the JICA and the Municipality logos, the following messages are printed:

"Do you know that by law you are required to connect to the Jericho's public sewer network?

In case you refuse to do so, the Municipality has the legal right to connect your private sewer to the public one and will charge you the fees and costs in addition to 20% for management and supervision. You may object and go to official courts."

"Why should I connect to the City's public sewer network?

- Sewage collected by sewer lines can be treated at the City's new wastewater treatment plant. It will prevent the contamination by Cesspit tank system, from which pollutant is penetrated to ground and pollute ground water as the most important water resource in this area.
- When above public sewer system is completed, treated water can be recycled for irrigation and treated dried sludge can be recycled as fertilizer which is not possible by cesspit system.
- Current cesspits must be closed to avoid penetration of wastewater.
- Problematic cesspit tanks can contaminate the soil nearby and the vegetables and trees.
- You will experience living in a more environmentally safe city; no bad smells or insects from (overflowed) cesspit tanks and no contaminated surrounding environment.
- After connecting to public sewer, the cesspit tank area can be used as an additional space to your property like a room, or yard.
- No need for construction of a cesspit tank for your new building; pay only a one-time sewer connection fee and a low by-monthly usage fee.
- No need to pump out, fix, or maintain a cesspit tank any more.
- Connecting to public sewer will be much cheaper than constructing a new cesspit tank and discharging sewage under the new regulation."



B. <u>Conclusion and Tentative Plan for Next Project Public Awareness Campaign</u>

The awareness survey result is a good source for target issues that need to be discussed in next public awareness activities.

The awareness survey showed that not many residents were aware of their legal obligations towards the house connection and sewerage fee payments. Though the Project by-laws were already covered in this awareness activities (April 2014) but C/P needs to put more efforts. It also showed that many, still, concern about the house connection cost and tariff fees.

Residents also need information about house connection procedure. The April awareness campaign aimed to inform residents about such procedure however C/P had not yet decided for such process which is, time wise, considered late. C/P should put every effort to complete the procedure and inform residents about using different means of communication.

With the WWTP started to operate, next awareness activities should also further spread information about the plant importance for the City and that its proper operation needs public support.

Thus, next Project awareness campaign should continue promoting the benefits of the public sewer, proper use of sewerage system, and paying the service fees. The overall objective should be to support sewerage system operation and management in Jericho.

Objectives

- Disseminate information about application process, and fees
- Increase the people commitment to connect to the system and pay their bills
- Raise proper use of the public sewer system
- Inform the public about the Project benefits for the City.
- Persist to raise awareness within the population on the cesspits related environmental issues

Coverage area

The area to be covered by the next campaign is same as the past ones mainly the Pilot Project area 1 and will extend to Pilot Project area 2. The city neighbourhoods both residential and commercial should be targeted.

Target groups

The following categories should be considered:

- Households
- Teacher and students (all levels including kindergarten and universities within the target area)
- Business owners
- Large consumers: Police academies and military compounds, administrative offices, health care centres, hotels, restaurants, factories and shops

Target communication methods

a) Tools

Including, but not limited to the following:

- Print media advertisement, news materials; local TV, radio channels, City website
- Social networks : Facebook etc
- Distribution of give-away items, leaflets, stickers, pamphlets, poster, kids educational materials
- Announcements by mosques and churches, also school morning announcements
- Making an educational movie (if cost approved by JICA)
- Building an educational model for the city's sanitation work including public sewer lines and WWTP (if cost approved by JICA)

b) Events:

- Continue to conduct neighbourhood meetings
- Monthly public meetings
- Meetings with parents and teachers
- Conduct campaign through cell phone SMS;
- Use of social media tools…
- WWTP tour visits
- Educational workshops for kids and adults
- Use of local opportunities to promote project like festivals

A 2-6-2: Awareness Survey

Appendix A 2-6-2

Awareness Survey

Objective

The survey purpose was to assess the current community support for the City's sanitation project and understanding their legal obligations. It also aimed to make target awareness issues that need further attention in next TeCSOM campaigns and activities. Not initially planned but the survey, somewhat, provided a measure to evaluate how successful the past awareness activities were.

Survey Method and Target Population

The draft questionnaire was prepared in English and was then finalized after discussion with C/P and JICA Expert Team. C/P distributed the survey sheets among the adult attendees at the five neighborhood and public meetings. Socio-economic characteristics of the respondents like age, gender, or income were not of concern as it was a general awareness survey. A total of one hundred and eleven (111) filled out questionnaires was collected for analysis.

Questionnaire

The questionnaire included a one-page sheet with 9 questions in Arabic. They were designed to not only assess the residents understanding of TeCSOM importance for the city but also to evaluate their knowledge about legal obligations for house connections and service fees. The questionnaire was divided to three sections: Current sanitation issues and connection to public sewer, wastewater treatment plant, and willingness to pay for sewerage charge with five, two, and two questions for each section respectively.

Result

1. Public support of the City's sanitation project

As seen in the Table 1, the survey showed that a high percentage of the respondents admitted the importance of the City's public sewer project. Eighty eight percent (88%) realized the environmental problems in the city which are caused by cesspit tanks. Respondents also acknowledged that their households are suffering from unhealthy living environment like overflowing and leaking cesspits which attract insects and create bad smell. Among these unsanitary living conditions, bad smell (38%) and insects (35%) were more common issues.

Majority of the respondents also acknowledged that the WWTP is a vital project. Eighty six (86%) believed that Jericho needed such project while only a small percentage of eight (8%) disagreed though some preferred not to answer the question.

The survey also showed that the WWTP's positive impacts on the city are highly recognized by the respondents. This is one of the key assets in convincing the public for using the new public sewer system. An analysis of the answers showed that ninety four percent (94%) were able to list one or more of the positive impacts including pollution reduction (58.5%), reduction of insects (51%), saving land space (51%), reduction

of the city's bad smell (49.5%), disease cutback (49%), and eliminating cesspit maintenance (49%).

Table 1. Survey results on public support of the sanitation project by number of responses and percentage

Do you know using cesspit causes environmental problems at present and future?					Yes	No	No Answer		
					98	10	3		
					88%	9%	3%		
Do you have any sanitary problems in your household? (*Multiple answers allowed)*	Overflow	Leakage	Obstacle to Bath	Insect	Not Clean	Bad Smell	Other	No Answer	No Problem
	22	26	11	39	25	42	9	7	25
	20%	23%	10%	35%	22.5%	38%	8%	6%	22.5%
Wastewater Treatment Plant (WWTP) and Sewer networks are now being constructed in Jericho. Do you agree that it's an important project and Jericho needs it?					Yes	No	No Answer		
					95	9	7		
					86%	8%	6%		

If you answered “Yes” on question above, why do you think WWTP is important for Jericho? *(Multiple answers allowed)*	Because it reduces pollution of water and wells	65	58.5%
	Because it reduces insects	57	51%
	Because it reduces oral/contagion disease	54	49%
	Because it reduces bad smell from stagnant wastewater	55	49.5%
	Because it contributes to save land space by backfilling abandoned cesspit	57	51%
	Because it eliminates maintenance of cesspit	54	49%
	Other	20	18%
	No Answer	7	6%

2. Public intention for house connections and service payment

This survey revealed that majority of the respondents intent to connect to the public sewer but some have difficulties in funding the connection cost. The awareness survey analysis indicated that a total of eighty three percent (54% + 29%) intend to connect from which twenty nine percent (29%) have financial difficulties (Table 2).

Though a large number of respondents intend to pay for discharging sewer to public network and treatment, yet some have objections. Sixty seven percent (67%) of the surveyed residents had no objections and acknowledged that such payment is necessary to recover the operation and maintenance cost of the sewerage system. However, almost one third of the respondents (27%) disagreed with the payment requirement for different reasons. Some believed that the fees are unclear, unaffordable, or unreasonable compare with water fees. In some opinions, the Donor must pay for the service not the citizens since it is a donated project. It was also commented that the Municipality should offer a two or three years of free service to ensure the residents that the new sewerage system will be working thoroughly.

Table 2. Survey results on public intention for house connections and service payment by number of responses

and percentage

When will you connect your building to the public sewer?	I intend to connect soon after the public sewer construction is completed near my building	60	54%
	I intend to connect but have financial difficulties.	32	29%
	I do not intend to connect.	10	9%
	No Answer	9	8%

Once you connect to sewer network, you have to pay the wastewater tariff (the tariff will recover the operation and maintenance cost of sewerage system). Do you have any objections for payment?	Yes	No	No Answer
	30	74	7
	27%	67%	6 %

3. Public awareness of legal obligations

This campaign was coincident with completion of the City's sewerage by-laws. It is necessary to disseminate the by-laws especially those that concern the public directly including the resident's obligation towards the connections and payments. Thus, some of the laws were included in the awareness survey to not only receive an initial assessment of the public knowledge of the by-laws but also to spread such information among those respondents who were unaware about it (Table 3).

Expectedly, the result showed that most of the surveyed people were unaware of their legal obligations about house connections and tariff payments. Fifty four percent (54%) of the respondents did not know it is *mandatory* that residents backfill their cesspits and be connected to the public sewer network. Also, only thirty four percent (34%) knew that the Jericho Municipality has the legal right to connect their buildings and charge extra fees if they reject connection. Many also refused to answer the questions. Such low awareness was expected since the public awareness activities on the by-laws have just been started.

Table 3. Survey results on public awareness of legal obligations by number of responses and percentage

Do you know that by the Sewerage Law of the Jericho Municipality you must backfill your cesspit and connect to the public sewer network on your own expense?	Yes	No	No Answer
	38	60	13
	34%	54%	12%
Do you know that Jericho Municipality has the legal right to connect your building and charge you extra fees if you refuse to connect?	Yes	No	No Answer
	38	35	38
	34%	32%	34%

Conclusion

A comparative analysis of the awareness survey and the past social survey shows that the public awareness activities have successfully raised the community support and recognition of the City's public sewer and the WWTP projects. Figure 1 shows the results on three subjects including the public awareness of the existing environmental issues, their support for the sanitation project, and if they are willing to pay for the project.

As an essential key in obtaining support for TeCSOM, it is important that the community is aware of the existing cesspit tank-related environmental issues. An analysis of awareness survey shows that the local environmental awareness has tremendously grown in contrast with the past social survey. While only forty eight percent (48%) of the past respondents admitted cesspit related environmental issues in the City, currently ninety eight percent (88%) believe that the City is suffering from such issues. This indicates a growing support for the City's sanitation project. The percentage of the surveyed people who favor the project has risen from sixty four (64%) to eighty six (86%).

They survey also shows that more people are willing to pay for the sanitation service given a growth from forty percent (40%) to sixty seven percent (67%) but still lower than what is expected. The reason could be the on-going argument on the connection cost and usage tariff among some of the residents. TeCSOM needs to put more effort in raising the number of residents who are willing to pay for the service in its public awareness campaigns and activities.

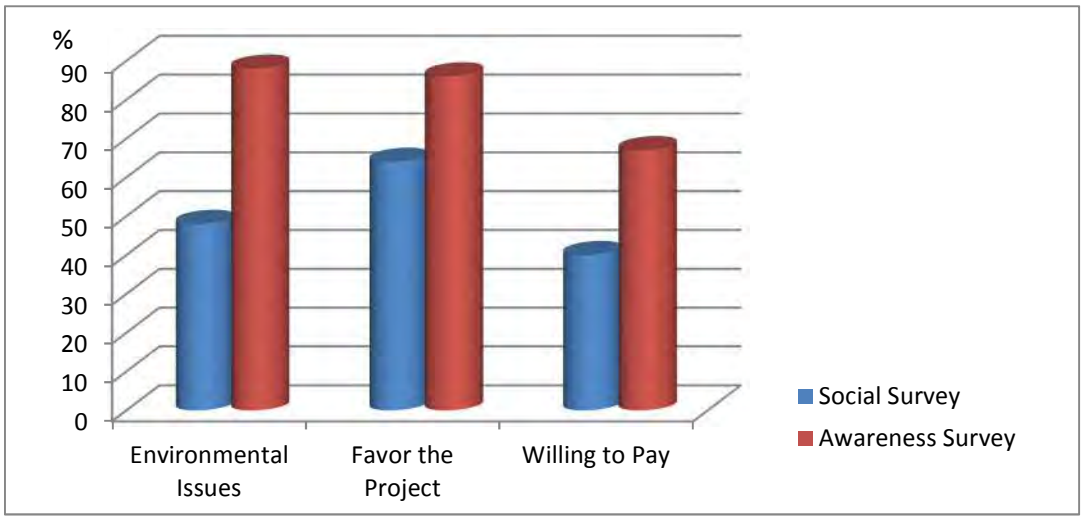


Figure 1. Comparative results of responses to the awareness survey and the social survey

The survey also showed some financial difficulties among those who want to be connected to the public sewer. This means that C/P should discuss if any financial assistance can be available to those residents who need. Once it is finalized, next public awareness should inform residents about any available financial assistance.

Low awareness among residents on their legal obligations towards house connection and fee payments indicated that public awareness campaigns and activities should further notify community about the laws to avoid any misunderstandings and complications. Though TeCSOM has already started disseminating such information but it should be continual and persistent.

A 2-6-3: Modified Door-to-Door Visit Survey Materials

Appendix A 2-6-3

Survey Plan for Unconnected Houses (from Jan 2017)

- Survey team: Mr. Omran, Ms. Sundus and Mr. Abed Moghrabi
- Survey coordinator: Mr. Abed Moghrabi
- The person in charge of weekly reports: Mr. Abed Moghrabi
- The person in charge of filling out the survey forms: Mr. Abed Moghrabi
- The person in charge of emailing soft copy of the survey forms and weekly report sheet: Mr. Abed Moghrabi
- Person in charge of the printed PR materials: Mr. Azmoty, Mr. Abed Moghrabi
- Activity:

Every week consists of 2 planned days for visiting a total of 20 houses.

1. If the team is not available for the planned days, make-up days of choice (within the same week) must be used to complete the weekly target visits of 20 by the weekly report day.
2. The survey forms and all its fields must be filled out. No field should be left blank. This would help avoid any confusion when preparing the survey GIS database.
3. The filled out survey form must be emailed to the Expert (Ms. Fatemeh Masouleh) on the reporting day of the week -as stated on the record sheet. Both sides of the survey form (technical section and the PR gray section must be completed by the report day.
4. The Weekly Report excel sheet must be filled out for each week by the survey coordinator and emailed to the Expert by the reporting day of the week.
5. Firmness of the survey`s weekly plan would avoid any complications thus the team is expected to reach the weekly target of 20 houses.

Survey Form of Un-Connected Buildings within the Project Areas

System coding #: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐								Date of survey: mm/dd/yy	
Name of house owner:									
Name of interviewee:									
Phone number if available: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐									
Address:									
Confirm that his property is not connected to sewer network by marking this box.									
Building features	Number of floors:								
	Estimated age of building:						Under construction:		
	Number of water meter (s): ☐☐☐☐☐☐☐☐☐ ☐☐☐☐☐☐☐☐☐ ☐☐☐☐☐☐☐☐☐								
	If Residential, # of houses/HH:				# of total residents:				
	If Shop, # of shops:								
	Church	Mosque	Office	School	Restaurant	Institution	Hotel	Museum	Others:
Sewer network	Located within;								
	Japan Sewer Network Area				USAID Network Area				
	PP1	PP2	Main trunks		USAID/PP3		Rest of USAID		
	Distance to the closest sewer network;								
	To closest connection pit:				To closest manhole:				
	Level to the street;								
	Lower			Same level			Higher		
	Note:								
	Estimated internal length:								
Reason(s) for not beeing connected	Technical				Far from closest manhole/connection pit				
	Lack of fund for internal connection cost				Family/Neigbour dispute			Other:	
Confirm that this property exists on the Project /GIS map by marking the box.									
If this building does not exist on the Project/GIS map draw a sketch below for an update.									
Mark in the box if this property/house needs to be visited for door to door PR.									
PR visit(s)	1st PR visit:		Date:				mm/dd/yy		
	Agreed to connect				Not agreed to connect				
	Note:								
	2nd PR visit/Fllow-up call;		Date:				mm/dd/yy		
	Agreed to connect				Not agreed to connect				
	Note:								

Un-Connected Buildings displayed on this map (as of April 26, 2017)	
Destroyed	35
Abandon	67
Main Buildings	563
Under Construction	54
Cowshed	1
Renovation	3
Farmhouse	8
Abandon Under Construction	14
Second House	270
Total	1015

- Unconnected_Survey_WM
- Unconnected_Buildings
- Main Trunk
- JICA Branch
- USAID Sewer
- Connection Pipe
- 1st Priority
- 2nd Priority
- USAID Planned Sewer (Not Constructed)
- Additinal Area
- JICA/PP1 Area
- JICA/PP2 Area
- Proposed Area
- USAID/PP3 Area

0 0.45 0.9 1.8 Kilometers

N

Un-connected water meters displayed on this map (as of April 26, 2017)		
		Total
Buildings	Residential	949
	Government-Residential	8
	Shop	9
	Shop-Residential	58
	Private Business-Residential	14
	Private Business	13
	Car Washer	1
	Institution-Residential	1
	Kindergarten-Residential	4
	Factory	2
	Government	7
	TV Station	1
	Storage	3
	Shop-Offices	2
	Church	2
	Wedding Hall	2
	Cowshed	1
Projects Area	JICA/PP1	46
	JICA/PP2	27
	Main Trunk	490
	USAID/PP3	456
	Rest of USAID	24
	First Priority	23
	Second Priority	3
	USAID Planned Sewer (Not Constructed)	7
Level to Street	Lower	360
	Same	248
	Higher	187
	Unknown	281
Attitude	No Answer	859
	Disapointe	1
	Applied	63
	Rejected	30
	Acceptable	123
Total estimated internal length		10940

A 2-6-4: Public Meeting at the Aqbat Jabel (AJ) Camp

Appendix A 2-6-4

Aqbat-Jaber Camp Sewerage System Project

Meeting Agenda
Public Awareness Meeting with Residents of the Project`s 1st Phase Area

1. Date and Time: February 25th, 2017, 11:00-12:30

2. Location: Office of Public Committee Services for Aqbat-Jaber Camp, 2nd floor

3. Invitees: Residents of the Project`s 1st Phase Area

4. Agenda:

1. Opening Statement/Introduction of the Project (Mr. Jamal Awwadat, Committee President)	11:00-11:20
2. Jericho City`s Sewerage System; An Introduction (Mr. Mohammad Azmoty, Jericho Municipality)	11:20-11:40
3. Technical Aspects of the Project (Ms. Asma Fayoumi, Project Engineer)	11:40-12:00
4. Discussion/ Q&A Session	12:00-12:30

End

Aqbat-Jaber Camp Sewerage System Project

Public Awareness Meeting with Residents of the Project`s 1st Phase Area

in Aqabat- Jaber Camp

February 25th, 2017

Questions and Answers discussed at the public meeting

Q1): how much do we pay and how we will agree on the payment

A): Mr. Azmoti: the top priority is the public awareness for the people, and we want to see if people are satisfied of the project, then we will tell u more details about the the fees and the payments. And the payments depends on the meters of the building "the Area: 7 NIS per Meter Square".

Q2): how long is the duration of the project?

A): Ms. Asma Fayomi: Around 52 months (barely one year), But the project long for 25 years.

Q3): how we will drainage the water and how we will use the system, "we should learn more about the project you increase the public awareness and the knowledge"?

A): Mr. Azmoti: we already identified how we will increase the public awareness, we still working in that in Jericho as well as we will work in Aqabat Jaber Camp, we started to distribute posters, Stickers, flayers and brochures for the people, more over the door to door visit.

Q4): according of returning the water to the trees "we need contentment about the purification and the clearance of the water to reassure from economical view especially that the Jewish through the waste water to the palms farms?

A): Mr. Azmoti: all the threats area already exist in people minds, and we are working to get rid of these threats by public awareness.

The Jewish irrigate the palms trees with a waste water which doesn't pass in a good treatment process like us, In our project the water intervene in more processes, Treated in a better process, More treatment stages, under controlled from the ministry of agriculture and under supervision from Japanese experts.

Q5): there are houses which locate lower level than the street, how will you manage with this issue?

A): Ms. Fayomi: the connection operation from the last manhole which delivered the waste water to the hole, and the connection will be in a good way under Engineers supervision and in good methods.

Mr. Azmouti: in some cases pumps were used to transfer water to the main trunk.

6): is there contentment for the water not to return again "we are afraid from rats and insects to come back to our house through the sanitation?

Ms. Fayomi: Everything is under control, we assure that this will not happen in any line whether it is main trunk or minor line, and the system works by the gravity, "the network depends on the slope of the earth".

A 2-6-5: Workshop for Women of the AJ Camp

Appendix A 2-6-5

Aqbat-Jaber Camp Sewerage System Project

Agenda
Public Awareness Workshop for Members of Women Association of Aqbat Jaber

1. Date and Time: March7th, 2017, 10:00-11:15

2. Venue: Office of Public Committee Services for Aqbat-Jaber, 2nd floor

3. Invitees: Members of Women Association of Aqbat Jaber

4. Agenda:

1. Opening Statement/Introduction of Aqbat Jaber Sewer Network Project (Mr. Jamal Awwadat, Committee President)	10:00-10:15
2. Jericho City`s Sewerage System (Mr. Mohammad Azmoty, Jericho Municipality)	10:15-10:30
3. Jericho City`s Waste Water Treatment Plant (WWTP) (Mr. Omran Khalaf, Jericho WWTP)	10:30-10:45
4. Technical Aspects of Aqbat Jaber Sewer Network Project (Ms. Asma Fayoumi, Project Engineer, UNRWA)	10:45-11:00
4. Discussion/ Q&A Session	11:00-11:15

End

A 2-6-6: World Water Day Exhibition

UN WATER
22 MARCH
WORLD WATER DAY 2015
WATER AND SUSTAINABLE DEVELOPMENT

PROGRAM
official ceremony of the WWD 2015 in Palestine
25 March 2015

09:30 - 10:00	Welcome and registration
10:00 - 10:10	Welcome speech by Eng. Mazen Ghunaim, Head of Palestinian Water Authority
10:10 - 10:20	Welcome speech by Dr. Rami Al Hamdallah, Prime Minister
10:20 - 10:45	Exhibition opening
10:45 - 11:00	Coffee break
11:00 - 12:30	Panels and discussion
12:30 - 12:45	Coffee break
12:45 - 13:00	Closing and conclusion

PANEL
Venue: Allegro VIP

THE ROLE OF GOOD GOVERNANCE

Key questions
•What are the mechanisms required to implement the new Water Law? What are the roles and responsibilities of each stakeholder? What are the needeed policies/strategies/regulations to ensure sustainable development?
•What strategy does the government need to adopt to bridge the gaps for cost recovery?
•What operators' capabilities are needed from technical and administrative perspectives?
•What role can the private sector have in water governance?
•What are the lessons learned from the Palestinian leading experience of good governance in the Energy Sector?

Panel moderated by Mr. Abd El Karim Sidr, Ministry of Local Government
Speakers
Dr. Omar Kittaneh, Palestinian Energy and Natural Resources Authority
Mr. Abd Al Kareem Assad, Water Sector Regulatory Council
Mr. Mojahed Salameh, Ministry of Finance
Dr. Samih Al Abed, Palestine Investment Fund
Mr. Ahmad Hindi, Palestinian Water Authority

PANEL
Venue: Yabus 1

SOCIO-ECONOMIC AND ENVIRONMENTAL IMPLICATIONS

Key questions
•What is the relation between water and social development?
•What is the relation between water and economic development?
•How does water contribute to food security?
•How is the environment being degraded in the absence of water?
•What is the role of water in the sustainable development of Gaza Strip?

Panel moderated by Dr. Maher Abu Madi, Institute of Environmental and Water Studies at Birzeit University
Speakers
Eng. Adalah Atteereh, Environment Quality Authority
Dr. Abdelrahman Tamimi, Palestinian Hydrology Group
Dr. Ali Shaath, Palestinian Industrial Estates and Free Zones Authority
Eng. Qasim Abdo, Ministry of Agriculture
Mr. Monther Shoblak, Costal Municipal Water Utility

PANEL
Venue: Yabus 2

IMPLICATION OF PALESTINE'S ACCESSION TO THE UNITED NATIONS CONVENTION ON THE LAW OF THE NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES (1997 UNWC)

Key questions
•How does the accession to UN conventions contribute to the process of state building of Palestine?
•How does the UNWC provide a framework for equitable and reasonable allocation in the Jordan River Basin?
•What are equitable allocations in the Jordan River Basin using factors of the UNWC?
•How does access to Jordan River Basin allocations assist in the implementation of the long term strategy of the water sector?

Panel moderated by Dr. Saeb Erekat, Member of the Executing Committee of PLO and Head of the Negotiations Affairs Department.
Speakers
Dr. Omar Awadallah, Ministry of Foreign Affairs
Eng. Natasha Carmi, Negotiations Affairs Department
Dr. Anan Al Jayyousi, An-Najah National University
Eng. Deeb Abd El Ghafour, Palestinian Water Authority

UN WATER

22 مارس

اليوم العالمي للمياه 2015

المياه والتنمية المستدامة

برنامج

الاحتفال الرسمي بيوم المياه العالمي2015 في فلسطين

25 أذار2015

09:30 - 10:00	الافتتاح والتسجيل
10:00 - 10:10	كلمة ترحيبية: م.مازن غنيم - رئيس سلطة المياه
10:10 - 10:20	كلمة ترحيبية: د.رامي الحمد الله - رئيس الوزراء
10:20 - 10:45	افتتاح المعرض
10:45 - 11:00	استراحة
11:00 - 12:30	حلقات نقاش
12:30 - 12:45	استراحة
12:45 - 13:00	الختام والتوصيات

حلقة نقاش

قاعة Allegro VIP

دور الحوكمة الرشيدة

- ما هي الآليات المطلوبة لتطبيق قانون المياه الجديد؟ ما هو دور ومسؤولية شركاء قطاع المياه؟ وما هي السياسات والاستراتيجيات والتشريعات المطلوبة لتحقيق التنمية المستدامة؟
- ما هي الاستراتيجية التي يجب اعتمادها من قبل الحكومة الفلسطينية لسد الفجوة في عملية استرداد التكاليف؟
- ما هي القدرات والامكانيات المطلوبة للمشغلين من الناحية الفنية والادارية؟
- ما هو الدورالذي يمكن أن يلعبه القطاع الخاص في حوكمة قطاع المياه؟
- ما هي الدروس المستقاه من تجربة فلسطين الرائدة في الحوكمة الرشيدة في قطاع الطاقة؟

رئيس حلقة النقاش: السيد عبد الكريم سدر، وزارة الحكم المحلي

أعضاء حلقة النقاش:

د.عمر كتانة، سلطة الطاقة والموارد الطبيعية

السيد عبد الكريم اسعد، مجلس تنظيم قطاع المياه

السيد مجاهد سلامة، وزارة المالية

د.سميح العبد، صندوق الاستثمار الفلسطيني

السيد أحمد الهندي، سلطة المياه

حلقة نقاش

قاعة Yabus 1

الآثار الاجتماعية والاقتصادية والبيئية

- ما هي العلاقة بين المياه والتنمية الاجتماعية؟
- ما هي العلاقة بين المياه والتنمية الاقتصادية؟
- كيف تساهم المياه في تحقيق الأمن الغذائي؟
- كيف يتدهورالوضع البيئي مع عدم توفر المياه؟
- ما هو دور المياه في التنمية المستدامة بقطاع غزة؟

رئيس حلقة النقاش: الدكتور ماهر أبو ماضي، معهد الدراسات البيئية والمائية في جامعة بيرزيت

أعضاء حلقة النقاش:

م.عدالة الأتيرة، سلطة جودة البيئة

د.عبد الرحمن التميمي، مجموعة الهيدرولوجيين الفلسطينيين

د.علي شعث، الهيئة العامة للمدن الصناعية والمناطق الصناعية الحرة

السيد قاسم عبدو، وزارة الزراعة

م.منذر شبلاق، مصلحة مياه الساحل

حلقة نقاش

قاعة Yabus 2

الآثار المترتبة على انضمام فلسطين إلى اتفاقية الأمم المتحدة المتعلقة بقانون استخدام المجاري المائية الدولية في الأغراض غير الملاحية

- كيف يمكن لانضمام فلسطين للإتفاقيات والمعاهدات الدولية المساهمة في عملية بناء الدولة؟
- كيف تشكل الاتفاقية إطار لتخصيص منصف وعادل في حوض نهر الأردن؟
- ما هي الحصص الناتجة عن التوزيع المنصف والعادل في حوض نهر الأردن باستخدام العوامل المقترحة في الإتفاقية؟
- كيف سيساعد الحصول على حقوقنا المائية في حوض نهر الأردن في تنفيذ استراتيجية قطاع المياه على المدى البعيد؟

رئيس حلقة النقاش: معالي الدكتور صائب عريقات، عضو اللجنة التنفيذية م.ت.ف، رئيس دائرة شؤون المفاوضات

أعضاء حلقة النقاش:

د.عمر عوض الله، وزارة الشؤون الخارجية

م.نتاشا كارمي، دائرة شؤون المفاوضات

د.عنان الجيوسي، جامعة النجاح الوطنية

م.ذيب عبد الغفور، سلطة المياه

<Outputs-1>

A 2-7-1: Responsibility of each Section in Water and Sewerage Department

Appendix A 2-7-1

Jericho Municipality
(Job Description)

Job Title : Director of water and sanitation Department.	**Job ID :**
Who is responsible for: the director of the municipality	**Version Number: (1/01)**
	Version Date:

Main Responsibilities	Basic Activities
1. Planning and Budgeting	• Prepare the annual plan for the water and sanitation department and follow up its implementation. • Prepare the annual budget for the water and sanitation department. • Adopt the sections plans in the department and follow up its implementation.
2. Water Services in the City	• Follow up the projects of the extension and determining of the water lines and networks in the city. • Supervise on the process of delivery water services in the city and ensure of probably functioning. • Follow up conduction the various studies about water services in the city (consumption, wastage, fees, coverage and sources…). • Follow up implement the activities for educating the residents in water rationalization section. • Follow up the cases of the wrong using of the water (thefts, misuse and waste). • Follow up the works of preventive and curative maintenance for the water networks in the city and ensure its implementation on time. • Follow up the administrative services of the proprieties and uses of irrigation water in the city and ensure its implementation on time. • Supervise on the plans and activities of the water rationalization and its implementation and following up according to the chart. • Monitoring on applying the regulations and the requirements of the water services in appropriate way. • Conduct periodic visits on the water networks and sources in the city to ensure its safety work. • Follow up the results of water tests in the city and take immediate action for the protection of the residents from any negative results in provided water sources. • Follow up resolving the residents' complaints.
3. Sanitation Services	• Follow up the sanitation projects in the city. • Follow up the public sanitation network in the city.

	• Follow up the reports of the sanitation and treatment plant and ensure its managing in appropriate way and follow up developing the service in the city and provide the necessary needs of the service. • Monitoring on applying the regulations, laws and the requirements of the sanitation services in appropriate way. • Conduct periodic visits on the sanitation networks in the city to ensure its safety work. • Follow up implementing the awareness-raising campaigns for the sanitation service in the city. • Follow up and implement the studies of the sanitation service in the city and make recommendation around it for the decision-makers in the municipality. • Follow up resolving the residents' complaints.
4. Other Tasks	• Follow up any studies and brochures issued by the relevant bodies of the department work. • Follow up the efforts of developing updating the administration and computerized regulation of the water and sanitation in the city. • Submit and follow up the development proposals of the department work. • Evaluate the performance of the sections heads of the department and adopt their stuff evaluation. • Identify the training needs of the department staff. • Participate in the preparation and development of the human resources plans of the department. • Prepare the periodic and non-periodic reports. • Perform any other works within the range of the work assigned by the responsible. • Full coordination between the department and the other relevant bodies of the department work. • Held the periodic and necessary meetings in the department to evaluate the performance and to resolve the problems.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of Consumers (Data) Services Division	**Job ID :**
Who is responsible for: Head of Drinking Water Section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/01)	**Version Date:**

Main Responsibilities	Basic Activities
5. Drinking water services	• Receive the citizens' statements and ensure that the requirements of drinking water services are completed. • Follow up the statements progress in the water department and the other sections in the municipality. • Achieve the statements during the specified period of time. • Entry and modifying of the basic data of the drinking water service customers of the drinking water computerized system. • Organize and maintain the basic consumers' documents in particular files.
6. Supervision on the staff work in the division	• Evaluate the staff of the division and submit the evaluations to the head of drinking water section. • Prepare the periodic and emergency reports. • Perform any other work within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of consumption data Division	**Job ID :**
Who is responsible for: Head of drinking water Section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
7. Work plans and programs of data entry and billing	• Prepare and implement the work plans and programs of data entry and check the consumption data. • Prepare and implement the work plans and programs of issuing the bills.
8. Consumption data (readings)	• Consumption data entry (readings). • Check the data. • Report if there are mistakes in consumption data.
9. Billing	• Prepare and print the bills. • Maintain the subscribers' data. • Perform any other tasks within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of Drinking Water Networks Maintenance Division	**Job ID :**
Who is responsible for: Head of Water Supply and Maintenance Section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
10. maintenance and installation of the drinking water lines and networks	• Installation new water lines in the network. • Transfer, reconnect and stop drinking water lines. • Installation and inspection of water meters. • Installation of main and branch water lines.

	• Periodic inspection for the drinking water network. • Periodic and preventive maintenance for the drinking water network. • Curative maintenance (fractures in the main and branch lines) for the drinking water network. • Delivery the materials of preventive and curative maintenance of the drinking water network. • Control over using the materials in the maintenance process.
11. Other Tasks	• Organize the files of the drinking water network maintenance division. • Data entry of the division on the computer. • Distribute the maintenance workers on the work sites. • Follow up the working of the maintenance workers. • Prepare periodic and necessary reports. • Evaluate the staff of the division. • Perform any other task within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of drinking Water Section	**Job ID :**
Who is responsible for: Director of water and sanitation Department	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
12. Prepare the plans and budgets	• Prepare the annual plan and budget for the irrigation water section. • Prepare the periodic work programs in the irrigation water section. • Follow up preparing the plans of irrigation water distribution.
13. Drinking Water Services	• Achieve the drinking water services during the specified period of time and make sure to complete the requirements and service conditions of the statement before accepted.

	• Implement the drinking water system used in the municipality on the different drinking water requests (new subscriptions, transferring lines and reconnect) • Prepare work programs for meters readers and ensure its implementation. • Follow up issuing bills in a proper time and make sure of its data validity and follow up its delivery to the collection section. • Follow up maintaining the data of the debtors.
14. Other Tasks	• Provide proposals related to the section work development and submit them to the director of the department and to the mayor. • Follow up organizing the data of the citizen and make sure of its maintaining in a proper way. • Follow up data entry of the citizen and meters reading. • The periodic reports for the section works. • Evaluate the performance of the divisions' heads and adopt the staff performance in those divisions and submit them to the department director for approval. • Perform any other task within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of irrigation water distribution Division	**Job ID : 043300**
Who is responsible for: Head of irrigation water Section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
15. Irrigation water control and distribution	• Receive the main irrigation water distribution schedules from the head of irrigation water following and distribution division. • Prepare a form of irrigation water distribution for each irrigation water supplier to ensure the proper way for water distribution on the Jericho city farmers.

	• Follow up the processes of water distribution through the irrigation water suppliers.
16. Irrigation water meters reading	• Prepare and implement programs for irrigation water meters reading and distribute it on the meters readers. • Distribute the statements of meters reading on the meters readers. • Follow up the process of meter reading. • Check the statements of meters readings after finishing the process of meters reading. • Delivery of meters reading statements to the head of irrigation water schedules division.
17. Other tasks	• Prepare periodic and necessary reports. • Perform any other task within the range of the work assigned by the responsible. • Report any offenses or problems.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of Irrigation Water Network Maintenance Division	**Job ID :**
Who is responsible for: Head of Water Supply and Maintenance Section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities

18. Irrigation Water Network Maintenance	• Installation new water lines in the network. • Transfer, reconnect and stop irrigation water line. • Irrigation water meters maintenance. • Follow up the Installation of main and branch water lines. • Periodic inspection for the irrigation water network. • Periodic and preventive maintenance for the irrigation water network. • Curative maintenance (fractures in the main and branch lines). • Receive the preventive and curative materials of irrigation water network maintenance. • Control over using the materials in the maintenance process. • Follow up the working of the maintenance workers. • Follow up the working of the maintenance workers.
19. Other Tasks	• Follow up organizing the files of the irrigation water maintenance division. • Follow up data entry of the division work on the computerized system. • Prepare periodic and necessary reports. • Evaluate the staff of the division. • Perform any other task within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of irrigation water planning and distribution schedule Division	**Job ID :**
Who is responsible for: Head of Irrigation Water Section	**Administrative Subordination: Services Department**
Version Number: (1/00)	**Version Date: 1/8/2005**

Main Responsibilities	Basic Activities
20. Irrigation water distribution schedule	• Follow up the movements of irrigation water quotas and properties. • Follow up the movements of irrigation water distribution on its beneficiaries in the city.

	• Follow up the debtors data (basic and consumption) on the computerized system. • Maintain the debtors' documents in its files and make sure they are completed. • Prepare the irrigation water distribution schedules on the agriculture lands in Jericho city on the leases contracts received from the head of the section.
21. Other Tasks	• Conduct periodic visits to make sure the safety of irrigation water distribution in the city. • Prepare periodic and necessary reports. • Perform any other task within the range of the work assigned by the responsible.

Powers
• Administrative • Financial • Technical

Jericho Municipality
(Job Description)

Job Title : Head of Irrigation Water Section	**Job ID :**
Who is responsible for: Director of water and sanitation Department	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/01)	**Version Date:**

Main Responsibilities	Basic Activities
22. Annual plans and work programs	• Prepare the annual plan and budget for the irrigation water section. • Prepare the periodic work programs in the irrigation water section. • Follow up preparing the plans of irrigation water distribution.
23. Lease contracts conclusion	• Implement sale and buy requests of the irrigation water between the seller and the buyer. • Implement requests of leasing of irrigation water between the owner and the tenant. • Make sure that the statement is complete in terms of documents, signatures and release,, etc.. • Install the processes that made on the properties and the rights of using the irrigation water on its own computerized system. • Follow up maintaining the citizens' statements which are in progress or pending to ensure the safety until closing it.

24. Follow up the residents' complaints	• Follow up the farmers complaints of the irrigation water and ensure its solution and find out the causes and take the necessary actions to solve them and to prevent its recurrence. • Perform any other works within the range of the work assigned by the responsible. • Prepare the necessary reports to describe the section state and its achievement for the municipality administration if necessary. • Maintain the citizens' statements which are in progress or pending to ensure the safety until closing it.
25. Other tasks	• Provide proposals related to the section works and submit them to the director of the department. • Participate in the preparation and implementation of statistical and strategic studies for the section tasks. • Evaluate the performance of the section staff and submit it to the director of the department for approval. • Identify the training needs of the section staff and submit them to the department director for approval. • Prepare necessary periodic reports of the section events and activities and submit them to the department director for approval. • Submit the periodic reports of the section actions to the director of the water department.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of laboratory Division	**Job ID :**
Who is responsible for: Head of Water Supply and Maintenance Section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/01)	**Version Date:**

Main Responsibilities	Basic Activities
26. Conducting laboratory tests for the drinking water	• Follow up the international standards of the drinking water quality and its validity and applying it in the municipality laboratory. • Daily sampling from the main drinking water resources and conducting required chemical, physical and

	biological tests of the water to ensure compliance with the specifications. • Conduct required chemical, physical and biological tests of the water to ensure compliance with the specifications. • Direct contact (telephone) and written with (the head of inspecting and water supply section, the director of water and sanitation department, the director of the municipality and the mayor) in the case of negative results of the water quality in the city. • Conduct the periodic studies about the water quality in the city.
27. Other Tasks	• Evaluate the staff of the division. • Prepare periodic and necessary reports. • Perform any other task within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of meters reading division	**Job ID :**
Who is responsible for: head of drinking water section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
28. Work plans	• Prepare the plans of meters reading in cooperation with the head of the section. • Prepare the work programs of meters readers.
29. Meters reading	• Implement the plan of meters reading. • Implement the work programs of the meters reading. • Check the statements of meters reading.
30. Other Tasks	• Write the periodic and emergency reports. • Evaluate the performance of the staff. • Perform any other work within the range of the work assigned by the responsible.

Powers

- Administrative

• Financial • Technical

Jericho Municipality
(Job Description)

Job Title : Head of Pumps Maintenance Division	**Job ID :**
Who is responsible for: Head of Water Supply and Maintenance Section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
31. Pumps follow up and operation	• Prepare and follow up the program of pumps operation. • Pumps operation according to programs and instructions of the operation.
32. Preventive and curative maintenance	• Periodic inspection of pumps. • Preventive and curative maintenance for pumps. • Curative maintenance for pumps.
33. Other tasks	• Follow up maintaining the file of the pumps maintenance division. • Follow up data entry of the division on the computer. • Follow up selling the water tanks in the spring. • Prepare periodic and necessary reports. • Evaluate the staff of the division. • Perform any other task within the range of the work assigned by the responsible.

Powers • Administrative • Financial • Technical

Jericho Municipality
(Job Description)

Job Title: Head of Rationalization of Water Consumption and control division.	**Job ID : 045200**
Who is responsible for: the Director of Water and Sanitation Department	**Administrative Subordination: Water and Sanitation Department.**
Version Number: (1/01)	**Version Date:**

Main Responsibilities	Basic Activities
34. Prepare the plans and programs of water networks maintenance and inspection	• Prepare the plan of maintenance and inspection of the annual water networks. • Prepare the programs of maintenance and inspection of the periodic water networks.
35. Prepare the community awareness plans and programs in the aspect of water consumption	• Prepare the community awareness plan (rationalization of water consumption) in cooperation with culture and public relation department. • Prepare the awareness work program of the consumption rationalization.
36. Implement the processes of maintenance and inspection	• Implement the periodic and emergency inspecting tours to the water networks to ensure the validity of main and branch water networks in terms of: - The inspection of the meters seal, validity and reading. - The inspection of the validity of water pipes which connected to the citizens' houses and lands. - The inspection of the technical mistakes in water connection to the people. - The inspection of the illegal connectors for connecting the water to the citizens' houses and lands. - The inspection of the illegal matters in water connection. • Follow up the violators' citizens for the applicable system in the city which related to water use.
37. implement the community awareness programs in the aspect of water consumption	• Arranging workshops and community meetings to demonstrate the means of rationalization of water consumption and to reduce of wastage. • Prepare the technical material for brochures and advertisement and promotional materials of the rationalization of water consumption. • Coordination with the section of water supply and maintenance that related to the wastage studies and the necessary data for consumption rationalization.
38. Conduct other Tasks	• Writing the periodic and emergency reports. • Evaluate the performance of the division staff. • Perform any other task within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial

• Technical

Jericho Municipality
(Job Description)

Job Title : Head of Sewer Networks Maintenance Division	**Job ID :**
Who is responsible for: Head of Sanitation Section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
39. Sewer networks maintenance and connection (public and domestic)	• Prepare work programs of sewer extension inspection in the city. • Participate in the preparation of necessary schemes and designs for sanitation projects. • Follow up the implementation of the main plans for the sanitation projects (connection, manholes and maintenance). • Follow up the achievement level in the stages of sanitation projects activities and provide all the necessary reports to describe the achievement state. • Implement the processes of periodic detection and following up of the public sewer networks and manholes. • Prepare and follow up the technical designs (standards) of the domestic connecters. • Follow up the implementation of sewer requests (domestic connectors). • Follow up the maintenance requests of the domestic connectors to make sure of the achievement in proper way. • Implement the processes of regular inspection of the domestic connectors.
40. Other Tasks	• Follow up data entry of the division work on the computerized system. • Prepare periodic and necessary reports. • Evaluate the staff of the division. • Perform any other task within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of water supply and Maintenance Section	**Job ID :**
Who is responsible for: The Director of Water and Sanitation Dept.	**Administrative Subordination: Water and Sanitation Dept.**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
41. Preparing Plans and Budgets	• Prepare the annual plan for the water and sanitation department and follow up its implementation. • Prepare the annual budget for the water and sanitation department.
42. Controlling and executing projects	• Prepare the plans and work program to implement water networks maintenance projects. • Participate in the preparation of the necessary schemes and designs for the projects of extension and water networks maintenance. • Participate in the preparation and following up the main plans for project implementation. • Follow up the achievement level in the project stages and provide all the necessary reports to describe the achievement state. • Coordinate and contact with the funders of the project. • Coordinate and contact with the companies and contractors implementing the project stages. • Participate in the tenders of water networks maintenance.
43. Supervising and following up water networks maintenance	• Follow up the implementation of periodic maintenance programs for the water networks and pumps. • Follow up the works of the curative maintenance for the drinking water, irrigation water and pumps. • Follow up repairing the faults and fractures in the water networks and pumps. • Control over the use of the materials in the maintenance process. • Follow up installing new water lines. • Follow up transfer, cut and reconnect the water lines. • Follow up meters checking and maintenance. • Follow up water pipes extension and cost calculation
44. Follow up working in the pumps and Ein Al Sultan spring	• Follow up the pumping program of drinking and irrigation water. • Follow up the periodic and curative maintenance works for the pumps.

	• Follow up the work time of staff and guards in Ein Al Sultan spring.
45. The quality of drinking water in the city	• Follow up the international standards for drinking water quality and suitability and ensure its applying in the municipality laboratory. • Monitor and follow up the results of daily laboratory tests for drinking water in the city. • Follow up the results of water tests in the city and take immediate action to protect the residents from any negative results in provided water resources. • Implement the wastage studies and the water consumptions in the city. • Follow up the various studies about the water quality in the city.
46. Other Tasks	• Evaluate the performance of the section staff and submit that to the department director to adopt it. • Identify the training needs for the section staff. • Prepare the periodic and necessary reports. • Perform any other tasks within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description)

Job Title : Head of WWTP	**Job ID :**
Who is responsible for: Head of Sanitation Section	**Administrative Subordination: Water and Sanitation Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
47. Work plans	• Prepare the annual plan and the estimated budget for the treatment plant work. • Prepare the plant work programs and operational equipment. • Follow up preparation the technical regulations for wastewater laboratory including determining the maximum acceptable of the daily and periodic tests results.
48. Operate and follow up the treatment plant	• Operate, follow up and direct and continuous supervise for treatment plant work.

	• Monitor the levels of wastewater flow to the plant and taking precautions to prevent the misuse of the work in the plant or exceed the allowed energies and standards. • Analyze the daily routine reports that come from the workers in the plant and take the necessary technical actions and follow up taking the administrative actions by the head of the section. • Conduct regular inspection processes for all the plant assets and make sure of proper implementation for polices, actions and standards.
49. Follow up the curative and preventive maintenance for the treatment plant	• Follow up the preventive technical inspection for all the operation elements in the plant and follow up providing the necessary maintenance. • Follow up conducting the necessary curative maintenance processes as quickly as possible to avoid any crashes or bad work in the plant.
50. Other Tasks	• Follow up organizing the files of the of the plant work and maintain all the data of the plant. • Follow up data entry of the plant work on the computerized system of the plant operation and maintenance. • Prepare periodic and emergency reports about the plant work. • Evaluate the staff of the plant. • Perform any other task within the range of the work assigned by the responsible.

Powers

- Administrative
- Financial
- Technical

A 2-7-2: Approval Letter by the Mayor on the New Department

To: Mr. Hirofumi SANO

Chief Advisor –Institutional system.

Subject: structure of water and sanitation Department.

In reference to the above mentioned subject, I would like to inform you that Jericho Municipality approved the structure of water and sanitation Department as attached.

Best Regards

Mohammad JALAYTA

Mayor of Jericho

الهيكل التنظيمي لدائرة المياه والصرف الصحي

A 2-7-3: Staff Assignment in the beginning Establishment of the New Sewerage Section

Appendix A 2-7-3

Jericho Municipality
(Job Description - 1)

Job Title : Head of Sewerage Section	**Job ID :**
Who is responsible for: Director of Water and Sewerage Department	**Administrative Subordination: Water and Sewerage Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
1. Executing programs and plans of the sewerage service	• Prepare the plans and the work program to implement the Sewerage project. • Follow up the Sewerage project in the city in terms of (plan, scope, designs, the various, budget). • Participate in the preparation of the main plans to implement the Sewerage project in the city. • Follow up the progress in the project stages and provide all the necessary reports to describe the project progress. • Coordinate and contact with the funders of the projects. • Coordinate and contact with the companies and contractors who implement the project. • Find out and follow up the development ways of the sewerage service in the city to ensure the full coverage of the service. • Implement workshops to beneficiaries and prepare the guidelines pamphlets for the sewerage service. • Prepare and submit the technical papers and present it in the seminars and technical conferences to support developing the service in the city. • Prepare an annual public awareness program and conduct the program to use sewers properly. • Selection and management of reuse of treated wastewater.
2. Sewerage service management	• Follow up the process of establishment and maintenance of the sewers in the city. • Follow up the house connection process to the public sewer network according to the specified criteria. • Evaluate the alternatives of using the treated wastewater in the city with beneficiaries. • Find out and follow up the residents' complaints. • Implement the various studies relating to the sewerage service (tariff, service level and sewerage service coverage, the amount of received wastewater and the amount of treated wastewater.

3. Operating and maintenance the wastewater treatment plant and the sewer network	• Follow up the implementation of periodic maintenance for the sewer network and the wastewater treatment plant. • Follow up the corrective maintenance works for the sewer network and the wastewater treatment plant. • Follow up repairing the faults and malfunctions in the sewer network and wastewater treatment plant. • Daily Supervision (periodic) of operation of the wastewater treatment plant and ensure its safety.
4. Developing the work in the section	• Prepare and implement the strategic studies for the sewerage service. • Evaluate the performance of the section staff and submit it to the director of the department for approval. • Identify the required training of the section staff. • Prepare periodic reports for the sewerage service. • Perform any other works related sewerage service work assigned by the director of the Water and Sewerage department. • Follow up developing computerized systems of the sewerage service in the city.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description - 2)

Job Title : Head of Sewer Network and House Connection Division	**Job ID :**
Who is responsible for: Head of Sewerage Section	**Administrative Subordination: Water and Sewerage Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
5. Sewer networks and house connection (public and domestic)	• Prepare work programs of sewer extension plan in the city. • Participate in the preparation of necessary schemes and designs for sanitation projects. • Follow up the implementation of the main plans for the sanitation projects (connection, manholes and maintenance).

	• Follow up the achievement level in the stages of sanitation projects activities and provide all the necessary reports to describe the achievement state. • Implement the processes of periodic inspection and following up of the public sewer networks and manholes. • Prepare and follow up the technical designs (standards) of the house connections. • Follow up the implementation of sewer requests (domestic connectors). • Follow up the connection pipe maintenance of the domestic/commercial/industrial to make sure of the achievement in proper method. • Implement the processes of regular inspection of the domestic connectors. • Treatment of customer complaints. • Monitoring and preventing from illegal house connections. • Management of a house connection from user's premises/buildings to the public sewer which a user applies for new house connection. • Follow up the cleaning process of sewer networks.
6. Other Tasks	• Follow up data entry of the division work on the computerized system. • Prepare periodic and necessary reports. • Evaluate the staff of the division. • Perform any other tasks within the related work assigned by the director and/or section chief.

Powers

- Administrative
- Financial
- Technical

Jericho Municipality
(Job Description - 3)

Job Title : Head of Wastewater Treatment Plant	**Job ID :**
Who is responsible for: Head of Sewerage Section	**Administrative Subordination: Water and Sewerage Department**
Version Number: (1/00)	**Version Date:**

Main Responsibilities	Basic Activities
7. Work plans	• Prepare the annual plan and the estimated budget for the treatment plant work. • Prepare the plant work programs and operational equipment. • Follow up preparation the technical regulations for wastewater laboratory including determining the maximum acceptable of the daily and periodic tests results.
8. Operate and follow up the treatment plant	• Operate, follow up and direct and continuous supervise for wastewater treatment plant work. • Monitor the levels of wastewater flow to the plant and taking precautions to prevent the misuse of the work in the plant or exceed the facility capacities and standards. • Analyze the daily routine reports that come from the workers in the plant and take the necessary technical actions and follow up taking the administrative actions by the head of the section. • Conduct regular inspection processes for all facility assets and make sure of proper implementation according to regulations, manuals and other instructions.
9. Follow up the corrective and preventive maintenance for the wastewater treatment plant	• Follow up the preventive technical inspection for all the operation elements in the wastewater treatment plant and follow up providing the necessary maintenance. • Follow up conducting the necessary corrective maintenance processes as quickly as possible to avoid any crashes or improper work in the wastewater treatment plant.
10. Other Tasks	• Follow up organizing the files of the plant work and maintain all the data of the plant. • Guiding educational facility tour for visitors in the Wastewater Treatment Plant • Follow up data entry of the plant work on the computerized system of the plant operation and maintenance. • Prepare periodic and emergency reports about the plant work. • Evaluate the staff of the plant.

	• Perform any other task within the range of the work assigned by the responsible.

Powers
• Administrative • Financial • Technical

Jericho Municipality

(Job Description - 4)

Job Title : Maintenance employee of the Plant	**Job NO.**
Who is responsible for: The Responsible of Wastewater Treatment Plant Division	**Administrative Subordination: Sanitary Sect.**
Version Number: (1/01)	**Version Date:**

Main Responsibilities	Basic Activities
11. Ensure the safety of all the plant parts	• Prepare the maintenance and operation budget of the wastewater treatment plant. • Conduct the periodic inspection (preventive) and control the facility parts and the systems of the plant in cooperation with the operator and/or worker. • Conduct the corrective maintenance works for the facility parts of the plant in cooperation with the operator and/or worker. • Ongoing coordination with the plants' operators before and during conducting the maintenance works. • Prepare the regular reports which describe the technical situation of the plant with its various parts. • In case of emergency situation such as deterioration of treated wastewater quality, malfunction of equipment, power failure, faire and so on, staff report to the manager and section chief immediately and then follow their instructions. • When a staff stops and resumes the whole the Wastewater Treatment Plant, the manager and/or the section chief's approval is required. • When a staff found a malfunction in a regular inspection, the staff informs the manager and/or the section chief of it immediately, and then follows their instructions. • Inspection, adjustment, maintenance and cleaning of equipment in the Wastewater Treatment Plant • Operation and monitoring in the Wastewater Treatment Plant

	• Record the operation data, inspection results on record sheets. • Record mechanical and electrical equipment and consumable stores for O&M on ledgers. • Submitting the regular report to the WWTP Manager

Jericho Municipality
(Job Description - 5)

Job Title : The Operator and Worker of the Wastewater Treatment Plant	**Version Number: (1/00)**
Who is responsible for: The Responsible of the Wastewater Treatment Plant Division	**Version Date:**

Main Responsibilities	Basic Activities
12. Operate the plant technically	• Maintain and operate the units of wastewater treatment process and evaluate it. • Follow up the facility operation through the control room. • Conduct periodic inspection for all processes in the plant and inform the section chief and manager of the plant operation status. • Prepare the operation and maintenance reports which are recorded the wastewater treatment progress. • In case of emergency situation such as deterioration of treated wastewater quality, malfunction of equipment, power failure, faire and so on, staff report to the manager and section chief immediately and then follow their instructions. • When a staff stops and resumes the whole the Wastewater Treatment Plant, the manager and/or the section chief's approval is required. • When a staff found a malfunction in a regular inspection, the staff informs the manager and/or the section chief of it immediately, and then follows their instructions. • Inspection, adjustment, maintenance and cleaning of equipment in the Wastewater Treatment Plant • Operation and monitoring in the Wastewater Treatment Plant • Record the operation data, inspection results on record sheets • Conveyance of dry sludge from the Wastewater Treatment Plant to another site such as dumping site • Remove detritus from a grid chamber at the Wastewater Treatment Plant

	• Cleaning rooms in the buildings at the Wastewater Treatment Plant. • Cleaning the garden and yard in the Wastewater Treatment Plant. • Maintain trees in the Wastewater Treatment Plant. • Guiding educational facility tour for visitors in the Wastewater Treatment Plant.
13. Other tasks	• Prepare the periodic reports. • Perform any other tasks within the scope of the works assigned by the responsible person.

Powers
• Administrative • Financial • Technical

Jericho Municipality

(Job Description - 6)

Job Title : The Security Guard of the Wastewater Treatment Plant	**Job No.**
Who is responsible for: The Responsible of the Wastewater Treatment Plant Division	**Administrative Subordination: Sewerage Sect.**
Version Number: (1/01)	**Version Date:**

Main Responsibilities	**Basic Activities**
14. Guarding the Wastewater Treatment Plant	• Protect the site and prevent a non-staff from entering the wastewater treatment plant. • Protect the assets of the plant and prevent from getting out any material and equipment except the permission of the manager and/or section chief. • Inspect the assets of the plant periodically and immediate report it to the manager and/or section chief when any problem occurred. • Perform any other task within the scope of the work assigned by the director and/or section chief.

Jericho Municipality
(Job Description - 7)

Job Title : The Treated Wastewater Laboratory	**Who is responsible for:**
Version Number:	**Version Date:**

Main Responsibilities	Basic Activities
15. Conduct water quality tests at the laboratory	• Conduct periodic sampling of the wastewater at the inflow point of the wastewater treatment plant and the wastewater at the final effluent point from the wastewater treatment plant. • Conduct the required water quality tests according to standard specifications. • Conducts the treated wastewater quality test. • Report the water quality test results to Sewerage Section • Prepare the periodic reports. • Examination of water quality and sewage sludge, and monitor inflow water quality. • Maintain computers, reagents and water quality test equipment in the laboratory
16. Other Tasks	• Evaluate the staff performance in the division. • Perform any other task within the scope of the work assigned by the director and/or section chief.

Powers

- Administrative
- Financial
- Technical

A 2-7-4: Recommendation of Employment for Jericho Municipality

NJS CONSULTANTS CO., LTD.
TeCSOM
Technical Assistance and Capacity Building Project for the Jericho Sanitation Project

1-1-1, Shibaura, Minato-ku, Tokyo
105-0023 Japan

TEL:+81-3-6324-4346
FAX:+81-3-6324-4345

Date: July 16, 2017

Re: TeCSOM-July1-2017

Mr. Salem Ghrouf
The Mayor of Jericho Municipality

Subject: The Letter of Recommendation for Employment

Dear Mr. Salem Ghrouf,

It is my pleasure to recommend Ms. Sondos Shaalan to the Jericho Municipality. She worked as the junior engineer in my office for 9 months. During nine months, in my view, Ms. Sondos Shaalan has high skill in the GIS engineering field. In addition, based on her work, I would rank her as one of the best specialists we have ever had. Ms. Sondos Shaalan possesses fine character traits. She has always pursued her own task, excelled in what she set out to do, and carried through on assigned tasks.

The employment contract of TeCSOM with her expires at the end of September 2017. I am sure that it is meaningful for the Jericho Municipality to hire her to manage on the infrastructural facilities including the sewerage information.
If you need further information, please do not hesitate to contact me.

Yours Sincerely,

Hirofumi Sano

佐野博文

Chief Advisor of TeCSOM
NJS CONSULTANTS CO., LTD.

NJS CONSULTANTS CO., LTD.
TeCSOM
Technical Assistance and Capacity Building Project for the Jericho Sanitation Project

1-1-1, Shibaura, Minato-ku, Tokyo
105-0023 Japan

TEL:+81-3-6324-4346
FAX:+81-3-6324-4345

Date: July 16, 2017

Re: TeCSOM-July 2-2017

Mr. Salem Ghrouf
The Mayor of Jericho Municipality

Subject: The Letter of Recommendation for Employment

Dear Mr. Salem Ghrouf,

It is my pleasure to recommend Ms. Hanan Yaghi to the Jericho Municipality. She worked as the junior engineer in my office for 6 months. During six months, in my view, Ms. Hanan Yaghi has good experience in the field of water quality analysis. In addition, based on her work, I would rank her as one of the best specialists we have ever had. Ms. Hanan Yaghi possesses fine character traits. She has always pursued her own task, excelled in what she set out to do, and carried through on assigned tasks.

The employment contract of TeCSOM with her expires at the end of September 2017. I am sure that it is meaningful for the Jericho Municipality to hire her to manage on the water quality including the wastewater treatment plant.
If you need further information, please do not hesitate to contact me.

Yours Sincerely,

Hirofumi Sano

佐野博文

Chief Advisor of TeCSOM
NJS CONSULTANTS CO., LTD.