[Appendices]

Appendix-1 Member List of the Study Team

(1) First and Second Outline Survey

Responsibility		Name	Position
1	Team Leader	Mr. Nobuo SAMBE	Japan International Cooperation Agency Senior Adviser
2	Project Coordinator	Ms. Makiko IWASAKI	Japan International Cooperation Agency Rural Development Department Field Crop Based Farming Area Division 2 Assistant Director
3	Chief Consultant/ Water Resources Management/ Climate Change	Mr. Kazumitsu TSUMURA	Sanyu Consultants Inc.
4	Deputy Chief Consultant/ Irrigation Facility Planning & Design/ Climate Change	Mr. Kosuke HIROTA	Sanyu Consultants Inc.
5	Domestic Water Facility Planning & Design	Mr. Tsuneyoshi OGISO	Sanyu Consultants Inc.
6	Well Rehabilitation Planning & Design	Mr. Ryu TOSHIMA	Sanyu Consultants Inc.
7	Hydrogeology/ Water quality analysis	Mr. Yasushi FUKUDA	Sanyu Consultants Inc.
8	Agriculture	Ms. Ai INOGUCHI	Sanyu Consultants Inc.
9	Organization Management/ Operation & Maintenance	Mr. Takayuki OISHI	Sanyu Consultants Inc.
10	Environmental and Social Consideration	Mr. Yoshihiro SAGAWA	Sanyu Consultants Inc.
11	Construction & Procurement Planning/ Cost Estimation	Mr. Masanori NARUKAWA	Sanyu Consultants Inc.

(2) Third Outline Survey

Responsibility		Name	Position
1	Team Leader	Mr. Nobuo SAMBE	Japan International Cooperation Agency Senior Adviser
2	Project Coordinator	Ms. Makiko IWASAKI	Japan International Cooperation Agency Rural Development Department Field Crop Based Farming Area Division 2 Assistant Director
3	Chief Consultant/ Water Resources Management/ Climate Change	Mr. Kazumitsu TSUMURA	Sanyu Consultants Inc.
4	Deputy Chief Consultant/ Irrigation Facility Planning & Design/ Climate Change	Mr. Kosuke HIROTA	Sanyu Consultants Inc.
5	Domestic Water Facility Planning & Design	Mr. Tsuneyoshi OGISO	Sanyu Consultants Inc.

Itinerary of 1st Preparatory Survey on the Project for Improvement of Domestic, Industrial and Agricultural Water Systems in Jordan Valley and Northern West Bank

Days	Date		JICA		Consultant								
			Team Leader	Project Coordinator	Chief Consultant/ Water Resources Management/ Climate Change	Deputy Chief Consultant/ Irrigation Facility Planning & Design/ Climate Change	Well Rehabilitation Planning & Design	Agriculture	Organization Management/ Operation & Maintenance	Domestic Water Facility Planning & Design	Hydrogeology/ Water Quality Analysis	Construction & Procurement Planning/ Cost Estimation	Environmental and Social Considerations
			Nobuo SAMBE	Makiko IWASAKI	Kazumitsu TSUMURA	Kosuke HIROTA	Ryu TOSHIMA	Ai INOGUCHI	Takayuki OISHI	Tsuneyoshi OGISO	Yasushi FUKUDA	Masanori NARUKAWA	Yoshihiro SAGAWA
1	9/17	Sat	Travel (Japan-Soul-Tel Aviv)										
2	9/18	Sun	Meeting at JICA office, Travel (Tel Aviv→Ramallah), Kick off meeting with MOA, and PWA (Ramallah)										
3	9/19	Mon	Courtesy call to EOJ (Ramallah), Site survey (Irrigation site) (Tubas)				Preparation of site condition survey, Data collection at MOA						
4	9/20	Tue	Site survey (Irrigation site) (Tulkarem, Qalqilya)				Arrangement of office space, Preparation of site condition survey						
5	9/21	Wed	Site survey (Irrigation site) (Jenin)			Data collection at MOA, Preparation of sub-contract survey	Site survey (Irrigation site) (Jenin)		Data collection at MOA, Preparation of sub-contract survey				
6	9/22	Thu	Site survey (Irrigation site) (Jericho)						Data collection at MOA	Travel (Japan-Soul-Tel Aviv)			
7	9/23	Fri	Team meeting, Arranging the collected data							Travel (Tel Aviv→Ramallah), Team meeting			
8	9/24	Sat	Drafting the Minutes of Meeting		Team meeting, Arranging the collected data								
9	9/25	Sun	Kick off meeting at PWA, Site survey on domestic water supply site at Jericho (Jericho No.1, New well, Akbat Jaber Camp, Ein Al Sultan Spring, JAIP site, etc)				Site survey (Irrigation site) (Tubas)			Kick off meeting at PWA, Site survey of domestic water supply site at Jericho (Jericho No.1, New well, Akbat Jaber Camp, Ein Al Sultan Spring, JAIP site, etc)			
10	9/26	Mon	Courtesy call to MoPAD, Courtesy call to Jericho City, Submission of Minutes of Meeting		Meeting with PWA, UNDP, WBWD (Ramallah)		Site survey of Irrigation sites (Arranging the Sub-contact survey, Questionnaire collection)		Meeting with EQA	Meeting with PWA, UNDP, WBWD (Ramallah)			
11	9/27	Tue	Discussion of the Minutes of Meeting, Reporting to EOJ			Site survey of Irrigation sites (Jericho, 3 sites)				Site survey on domestic water supply site, Meeting with Jericho city, Data collection		Site survey on Irrigation site (Jericho、3 site)	
12	9/28	Wed	Wrap-up meeting, Signing of the Minutes of			Discussion with Sub-contractor, Finalizing the questionnaire collection (Ramallah)				Meeting with PWA (Ramallah)		Cost estimation survey	
13	9/29	Thu	Report writing (JICA Ramallah) Travel (Ramallah→Tel Aviv)		Site survey of pilot project sites (Jericho 2 sites) Site survey of Nwaimeh spring canal					Site survey of domestic water supply sites, Meeting with Jericho city, Data collection		Site survey of pilot project sites, Nwaimeh spring canal	
14	9/30	Fri	Travel (Tel Aviv-Soul-Japan)		Team meeting, Arranging the collected data								
15	10/1	Sat			Team meeting, Arranging the collected data								Travel (Japan-Soul-Tel Aviv)
16	10/2	Sun			Site survey of 47 Irrigation sites (Qalqilya, 5 sites)	Site survey of 47 Irrigation sites (Tulkarem, 10 sites)	Data collection (Ramallah)	Site survey of 47 Irrigation sites (Tulkarem, 10 sites)	Site survey of 47 Irrigation sites (Qalqilya, 5 sites)	Site survey of 47 Irrigation sites (Qalqilya, 5 sites)	Site survey of 47 Irrigation sites (Qalqilya, 5 sites)	Data collection on cost estimation (Ramallah)	Site survey of 47 Irrigation sites (Tulkarem, 10 sites)
17	10/3	Mon			Site survey of 47 Irrigation sites (Jenin, 2 sites)	Data collection (Ramallah)	Site survey of 47 Irrigation sites (Tubas, 3 sites)	Site survey of 47 Irrigation sites (Jenin, 2 sites)	Site survey of 47 Irrigation sites (Tubas, 3 sites)	Site survey of Nablus wastewater plant	Site survey of 47 Irrigation sites (Tubas, 3 sites)	Data collection on cost estimation (Ramallah)	Site survey of 47 Irrigation sites (Jenin, 2 sites)
18	10/4	Tue			Data collection (Ramallah)	Site survey of 47 Irrigation sites (Nablus, 4 sites)	Site survey of 47 Irrigation sites (Jericho, 3 sites)	Site survey of 47 Irrigation sites (Jericho, 3 sites)	Site survey of 47 Irrigation sites (Nablus, 4 sites)	Data collection (Ramallah)	Site survey of 47 Irrigation sites (Nablus, 4 sites)	Site survey of 47 Irrigation sites (Nablus, 4 sites)	Site survey of 47 Irrigation sites (Jericho, 3 sites)
19	10/5	Wed			Site survey of 47 Irrigation sites (Jenin)	Site survey of 47 Irrigation sites (Jenin)	Data collection (Ramallah)	47 Irrigation site survey (Jenin)	Data collection (Ramallah)	Data collection (Ramallah)	Data collection (Ramallah)	Data collection on cost estimation (Ramallah)	Site survey of 47 Irrigation sites (Jenin)
20	10/6	Thu			Data collection (Ramallah)	Data collection (Ramallah)	Site survey of 11 well sites, Interview with Nwaimeh council	Data collection (Ramallah)	Site survey on 11 well sites, Interview with Nwaimeh council	Site survey of domestic water supply site, Meeting with Jericho City		Data collection on cost estimation (Ramallah)	Data collection (Ramallah)
21	10/7	Fri			Team meeting, Arranging the collected data								
22	10/8	Sat			Team meeting, Arranging the collected data								
23	10/9	Sun			Meeting with JICA technical cooperation project team	Data collection /Report drafting		Meeting with JICA technical cooperation project team on soft component planning and farming issues		Site survey of domestic water supply site, Meeting with Jericho City		Data collection /Report drafting	
24	10/10	Mon			Data collection /Report drafting					Site survey of domestic water supply site, Meeting with Jericho City		Site survey of domestic water supply site, Meeting with Jericho City	
25	10/11	Tue			Discussion with PWA		Data collection /Report drafting		Discussion with PWA	Discussion with PWA, Travel (Ramallah→Tel Aviv)		Discussion with PWA	
26	10/12	Wed			Discussion with MOA					Travel (Tel Aviv-Soul-Japan)		Discussion with MOA	
27	10/13	Thu			PWA and MOA Wrap-up meeting, reporting to JICA, Travel (Ramallah→Tel Aviv)							PWA and MOA Wrap-up meeting	
28	10/14	Fri			Travel (Tel Aviv-Soul-Japan)							Arranging the collected data	
29	10/15	Sat										Arranging the collected data	
30	10/16	Sun										Inspection of sub-contract survey report	
31	10/17	Mon										Inspection of sub-contract survey report	
32	10/18	Tue										Travel (Ramallah→Tel Aviv)	
33	10/19	Wed										Travel (Tel Aviv-Soul-Japan)	

Itinerary of 2nd Preparatory Survey on the Project for Improvement of Domestic, Industrial and Agricultural Water Systems in Jordan Valley and Northern West Bank

Days	Date		Chief Consultant/ Water Resources Management/ Climate Change	Deputy Chief Consultant/ Irrigation Facility Planning & Design/ Climate Change	Domestic Water Facility Planning & Design	Well Rehabilitation Planning & Design	Organization Management/ Operation & Maintenance	Hydrogeology/ Water Quality Analysis	Environmental and Social Considerations
			Kazumitsu TSUMURA	Kosuke HIROTA	Tsuneyoshi OGISO	Ryu TOSHIMA	Takayuki OISHI	Yasushi FUKUDA	Yoshihiro SAGAWA
1	11/17	Thu		Travel (Japan-Soul-Tel Aviv)					
2	11/18	Fri		Meeting at JICA office, Travel (Tel Aviv→Ramallah)					
3	11/19	Sat		Arranging the collected data					
4	11/20	Sun		Meeting with MOA and PWA					
5	11/21	Mon		Meeting with MOA and PWA					
6	11/22	Tue		Preparation of Sub-contract survey (Topographic survey for Irrigation project sites)	Preparation of Sub-contract survey (Topographic survey for Domestic water project sites)				
7	11/23	Wed							
8	11/24	Thu	Travel (Japan-Soul-Tel Aviv)						
9	11/25	Fri	Travel (Tel Aviv→Ramallah)	Arranging the collected data					
10	11/26	Sat	Team meeting (Ramallah)						
11	11/27	Sun	Confirmation of Reservoir tank location: (An Nazia,Farun,Kafr Zibad,Al Mudawwar,An Nabi Elyas)		Supervision of Topographic survey (Domestic water supply site)				
12	11/28	Mon	Selection of the sub-contractor (topographic survey), Arrangement of site survey, Drafting the meeting material for wrap-up meeting		Site survey on domestic water supply site(Jericho City)				
13	11/29	Tue	Attendance to the Wastewater WS	Contracting with sub-contractor, Arrangement of site survey	Attendance to the Wastewater WS	Travel (Japan-Soul-Tel Aviv)			
14	11/30	Wed	Interview with the drilling company (Al Wael company)	Supervision of Topographic survey (47 irrigation sites)	Site survey on domestic water supply site(Jericho City)	Travel (Tel Aviv→Ramallah)			
15	12/1	Thu	Wrap-up meeting with MOA ,PWA, and JICA			Meeting with MOA			
16	12/2	Fri	Arranging the collected data						
17	12/3	Sat	Supervision of Topographic survey (47 irrigation sites)		Arranging the collected data			Travel (Japan-Soul-Tel Aviv-Ramallah)	
18	12/4	Sun	Site survey at Qalqilya (Haabla 1, 2), Visit to corrugated tank factory	Site survey at Qalqilya (Al Shaykh Ahmad (new), Izbat Salman)	Review of the collected data	Arrangement of site survey	Site survey at Qalqilya (Al Shaykh Ahmad (new), Izbat Salman)	Preparation of the sub-contract survey (Test drilling, Electrical prospecting survey)	Site survey at Qalqilya (Haabla 1, 2), Visit to corrugated tank factory
19	12/5	Mon	Site survey at Qalqilya (Falamya, An Nabi Elyas, Qalqiliya city 2)	Site survey at Qalqilya (Jayyus plain 1, 2, Falamya)	Site survey at Jericho (Well No.5,4)	Site survey at Jericho (Well No.5,4)	Site survey at Qalqilya (Jayyus plain 1, 2, Falamya)		Site survey at Qalqilya (Falamya, An Nabi Elyas, Qalqiliya city 2)
20	12/6	Tue	Meeting with Jericho City	Site survey of Nwaimeh spring canal	Meeting with Jericho City	Site survey at Jericho (Well No.6,9)	Meeting with Jericho City		Discussion with MOA (Environmental issue)
21	12/7	Wed	Site survey at Tubas (Faraa 1, 3) Meeting with FAO	Site survey at Marj Naja (Jericho) and Bardala (Tubas)	Site survey at Jericho (Well No.7,11)	Site survey at Jericho (Well No.7,11)	Site survey at Marj Naja (Jericho) and Bardala (Tubas)		
22	12/8	Thu	Site survey at Nablus (An Nassarya 1,2)	Site survey at Nablus (Frush Beit Dajan1,2)	Review of the collected data	Compiling survey result	Site survey at Nablus (Frush Beit Dajan1,2)		Site survey at Nablus (An Nassarya 1,2)
23	12/9	Fri	Team meeting (Ramallah)						
24	12/10	Sat	Arranging the collected data						
25	12/11	Sun	Collection of the quotation from drilling company, Discussion with PWA	Site survey at Tulkarem (Kafr Zibad, Irtah, Farun)	Discussion with WBWD and PWA	Site survey at Nablus (Well No. 2,4)	Data collection (Budget, Organization information)	Discussion with PWA	Site survey at Tulkarem (Qaffin, An Nazia al Gharbiya, An Nazia al Sharqiya)
26	12/12	Mon	Meeting with MOA, Interview with drilling company	Site survey at Jenin, Tulkarem (Ektaba, Thennabeh)	Discussion with WBWD, Site survey of Jericho city site	Site survey at Nablus (Well No.1,8 and Pilot project site)		Visit to drilling company	Site survey at Tulkarem (Illar 2, Attli, Dir al gsoon)
27	12/13	Tue	Visit to experimental farm（Ramallah wastewater treatment plant）			Site survey at Jericho (Well No.5,4)	Visit to experimental farm（Ramallah wastewater plant）	Contracting with sub-contractor（Electrical prospecting survey）	Cost estimation, Construction company survey
28	12/14	Wed	Discussion with EOJ (Ramallah)			Site survey at Jericho (Well No.6,7,9,11)	Data collection (Budget, Organization information)	Instruction to sub-contractor（Electrical prospecting survey）	
29	12/15	Thu	Site survey at Tubas（Well No.8）	Visit to Nablus west wastewater treatment plant and Anabta forest & field, Ramin	Compiling survey result Travel (Ramallah→Tel Aviv)	Instruction to Sub-contractor on topographic survey	Visit to Nablus west wastewater plant and Anabta forest & field, Ramin	Application of borehole camera survey (PWA→WBWD)	
30	12/16	Fri	Arranging the collected data		Travel (Tel Aviv-Soul-Japan)	Arranging the collected data			
31	12/17	Sat	Team meeting (Ramallah)			Team meeting (Ramallah)			
32	12/18	Sun	Workshop for organization management（Qalquiliya city 1）	Compiling survey result		Instruction to Sub-contractor on topographic survey	Workshop for organization management（Qalquiliya city 1）	Supervision of electrical prospecting survey（Jericho）	Cost estimation, Construction company survey
33	12/19	Mon	Workshop for organization management (An Nassrya 1), Visit to Nablus west wastewater plant and Anabta forest & field, Ramin			Compiling survey result	Workshop for organization management (An Nassrya 1)		
34	12/20	Tue	Meeting with Ministry of Finance	Compiling survey result		Compiling survey result	Interview with Nwaimeh council	Borehole camera survey (Jericho)	Meeting with Ministry of Finance
35	12/21	Wed	Site survey of 11 well sites	Compiling survey result		Compiling survey result	Compiling survey result	Review of the survey report	Cost estimation, Construction company survey
36	12/22	Thu	Wrap-up meeting with MOA ,PWA, and JICA			Construction company survey	Wrap-up meeting with MOA ,PWA, and JICA		
37	12/23	Fri	Arranging the collected data			Arranging the collected data			
38	12/24	Sat	Arranging the collected data	Travel (Ramallah→Tel Aviv)		Travel (Ramallah→Tel Aviv)			
39	12/25	Sun		Travel (Tel Aviv-Soul-Japan)		Travel (Tel Aviv-Soul-Japan)			
40	12/26	Mon	Meeting with MOA and PWA (Technical Note), Inspection of sub-contract survey report						
41	12/27	Tue	Site survey of 11 well sites and Nwaimeh spring canal						
42	12/28	Wed	Visit to NARC, Inspection of sub-contract survey report						
43	12/29	Thu	Meeting with MOA, and PWA (Signing of Technical Notes) Travel (Ramallah→Tel Aviv)						
44	12/30	Fri	Travel (Tel Aviv-Soul-Japan)						

Appendix -3　List of Parties Concerned in the Recipient Country

1. Japan International Cooperation Agency (JICA)　Palestine Office

Izumi Tanaka	Chief Representative
Naoto Mukai	Senior Representative
Akiko Komori	Representative
Eiji Kubo	Representative

2. Japan International Cooperation Agency (JICA)　Ramallah Field Office

Raslan Yasin	Representative of JICA & Chief Program Coordinator
Read Hamouri	Program Coordinator
Nawras Mansour	Program Coordinator

3. Japan International Cooperation Agency (JICA)　Jericho Field Office

Abdel Nasser Makky	Program Coordinator

4. Ministry of Agriculture (MOA)

Abdullah Lahlouh	Director of Planning
Kasim Abdo	Director General of Soil and Irrigation
Issam NOFAL	Director of Water
Hassan Ashquar	Deputy Director of Irrigation Department
Muhannad HUSSEIN	Deputy Director of Irrigation Department
Ibtisam Abuhaija	Deputy Director of Water Department
Imad Khaliaf	Irrigation Department
Nisreen Mansour	Irrigation Department
Thaer Rabi	GD of Forestry and Natural Reserve
Khalil Alami	GD of Financial and Adm. Affairs

（Jenin District Office）

Wajdi Bsharat	Director
Naser	

（Jericho District Office）

Omar Bswarat	Director
Amar Hussein	Natural Resources Department
Fahmi Njoom	Irrigation and Soil Department

（Tubas District Office）

Majidi	Director
Ghassan	
Haneen	

（Tubas District Office /Bardala office）

Hashem Sawahtah	Director

（Qalqilya District Office）

Ahmad Eid	Director

（Tulkarem District Office）

Ahmad Abd Alwahhab	Director

（Nablus District Office）

Mohamad Futayeo	Director
Reema Dalal	

5. Palestinian Water Authority (PWA)

Deeb Saleh
Omar Ziad
Anwar
Hazem

6. Jericho Municipality

Ghazi Naji (Mr.)	Director of serv. Department.
Salam Abu Hantash (Ms.)	Head of section of water harvesting

7. EQA : Environment Quality Authority

Ahmed Abu Thaher (Mr.)	Director General For Projects and Int. relations

Appendix -4 Minutes of Discussions

MINUTES OF DISCUSSIONS ON THE PREPARATORY SURVEY ON THE PROJECT FOR IMPROVEMENT OF DOMESTIC, INDUSTRIAL AND AGRICULTURAL WATER SYSTEMS IN JORDAN VALLEY AND NORTHERN WEST BANK

In response to a request from the Palestinian Authority (hereinafter referred to as "the PA"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Improvement of Domestic, Industrial and Agricultural Water Systems in Jordan Valley and Northern West Bank (hereinafter referred to as "the Project") and entrusted the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the PA the Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Mr. Nobuo Sambe, Senior Advisor to JICA and is scheduled to stay from September 17 to September 29, 2011.

The Team held discussions with the officials concerned of the PA and conducted a field survey at the survey area.

As a result of discussions and field survey, both sides confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey Report.

Ramallah, September 28, 2011

Mr. Nobuo Sambe
Leader,
Preparatory Survey Team,
Japan International Cooperation Agency (JICA)

Dr. Estephan Salameh
Special Advisor to the Minister,
Ministry of Planning and Administrative Development,
Palestinian Authority

28.9.2011

Mr. Jehad Bashir
Director of the Project Management Unit,
Palestinian Water Authority,
Palestinian Authority

Mr. Abdullah Lahlouh
Deputy Assistant for Planning and Administration
Ministry of Agriculture,
Palestinian Authority

ATTACHMENT

1. Inception Report

The Team explained the objective of the Project and procedure of the Survey to be conducted in accordance with the Inception Report. After due discussions, the Team and the PA (hereinafter referred to as "the both sides") agreed the contents of the report in principle.

Main points discussed and/or confirmed are given in the following.

2. Title of the Project

The both sides agreed to change the title of the Project as "Improvement of Domestic, Industrial and Agricultural Water Systems in Jordan Valley and Northern West Bank" in accordance with the proposed project components and their sites.

3. Objective of the Project

The objective of the Project is to improve; i) agricultural water management in the Jordan Valley and Northern West Bank, and ii) domestic and industrial water supply in Jericho City.

4. Project site

The Project site will cover the Jordan Valley including Jericho City and Northern West Bank. A location map is attached as Annex-1.

5. Responsible and Implementing Agency

5-1. The responsible agencies are Ministry of Agriculture (hereinafter referred to as "MoA") and Palestinian Water Authority (hereinafter referred to as "PWA").

5-2. The implementing agencies are MoA, PWA, and Jericho Municipality.

The organization charts of MoA and PWA are given in Annex-2A. List of counterparts for the survey is given in Annex-2B

6. Committees for Project Implementation

The both sides confirmed that a steering committee and technical committees on the agricultural water component and the domestic/industrial water component should be organized as shown in Annex-3 for smooth implementation of the Project.

7. PA's Request and Project Components

After discussions between the PA side and the Team, the items described in Annex-4 were finally requested for the Survey by the Palestinian side. The both sides confirmed that appropriateness of the request would be examined through the further studies and analysis in Japan, and the Project components will be finalized accordingly. Main points to be considered in the project formulation are as follows:

- Eligibility of the components and/or sites (permission, approval, agreement among stake holders, etc.)
- Justification of the components and/or sites (public interests, technical feasibility, appropriateness as Japan's Grant Aid, consistency and conformity with the government policy, etc.)
- Priority of the components and/or sites

8. Schedule of the Preparatory Survey

8-1 The consultant will proceed to further studies in the PA until October 18, 2011.

8-2 After formulation of the Project, JICA will send the Team for second field survey for the Outline Design of the Project in November 2011.

8-3 JICA will prepare a draft report in English and dispatch a mission for explanation in May, 2012 at the earliest.

8-4 In case that the contents of the report are accepted in principle by the PA, JICA will finalize it as Final Report and send it to the PA about two months after the mission described above 8-3.

9. Japan's Grant Aid Scheme

9-1 The Palestinian side confirmed the Japan's Grant Aid Scheme explained by the Team, as described in Annex-5.

9-2 The Palestinian side will take the necessary measures, as described in Annex-6, for smooth implementation of the Project, as a condition for implementation of the Japan's Grant Aid.

10. Other Relevant Issues

10-1 The Palestinian side agreed to take necessary actions as mentioned below.

(1) Agricultural Water Systems (MoA, PWA)

a) Arrangement for necessary permission and authorization for implementation of the project components (by the time of the mission 8-3 above).

- Rehabilitation (deepening, cleaning, replacement of pump, etc.) of 11 existing wells for agricultural use in Jordan Valley, if necessary.
- Construction of reservoirs and conveying systems in area C.

b) Establishment of water users association and acquisition of written agreement among owners and water users on joint operation and management of the water systems which would be improved by the Project. (by the time of the mission 8-3- above)

c) Provision of necessary information as follows for the formulation and design of the Project.

- Exact location and alignment of facilities by site
- Basic approach of water allocation by site (volume, percentage of water allocated to expanded area, etc.)

(2) Domestic/Industrial Water System (PWA, MoA, Jericho Municipality, Ein Sultan Water Association)

a) Arrangement for necessary permission and authorization from Joint Water Committee (JWC)

- Drilling for a new well in Jericho City

  The Japanese side explained that the test drilling should be approved by the end of November, 2011 in order to include this well as a water source. The Palestinian side understood the condition.

b) Arrangement for necessary permission and authorization for construction of facilities for the Well No.1 in area C.

c) Acquisition of written consent from Ein Sultan Water Association to substitute groundwater to some extent for the water from the Ein Sultan Spring.

A checklist of the above-mentioned actions is given in Annex-7.

Survey team will provide necessary information/data for the application for the above permission.

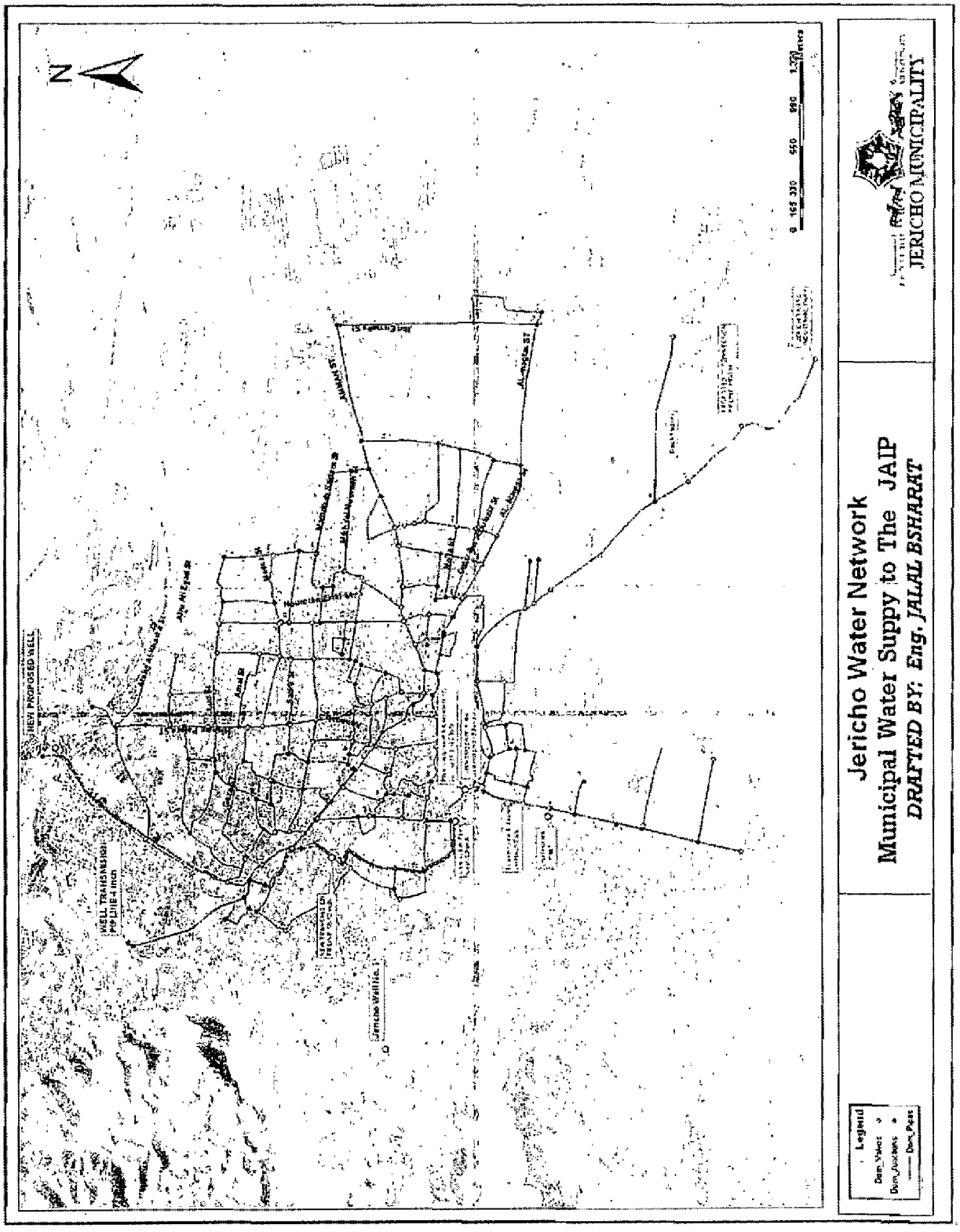
10-2 Initial Environmental Examination (IEE)

- Both sides confirmed that the Palestinian side is responsible for taking necessary measures for due environmental and social conditions in the implementation of the Project.
- The Team explained that IEE needs to be done since the Project is classified into category

B according to the JICA Guidelines for Environmental and Social Considerations (April 2010). The Palestinian side understood the condition. Both sides confirmed that IEE will be conducted according to the Palestinian law and regulation, and JICA's guideline above, referring to the IEE results of the relating feasibility study as shown in the Inception Report.

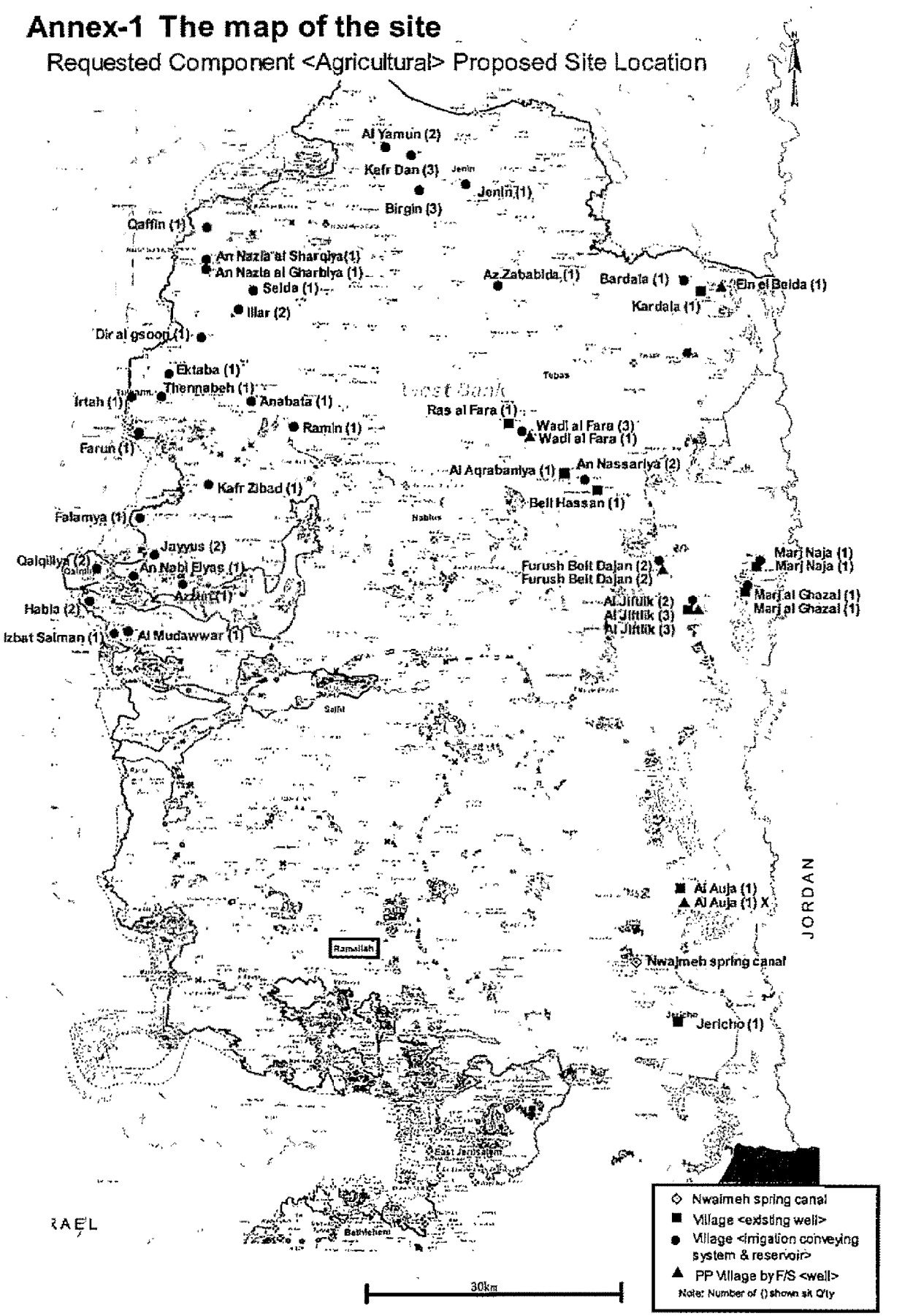
Annex-1	The map of the site
Annex-2A	The organization chart of MoA and PWA
Annex-2B	List of counterparts for the survey
Annex-3	Committees for Project Implementation
Annex-4	Items Requested by the Palestinian side
Annex-5	Japan's Grant Aid Scheme
Annex-6	Major Undertakings to be taken by Each Government
Annex-7	Check List for the necessary permission and consent

Annex-1

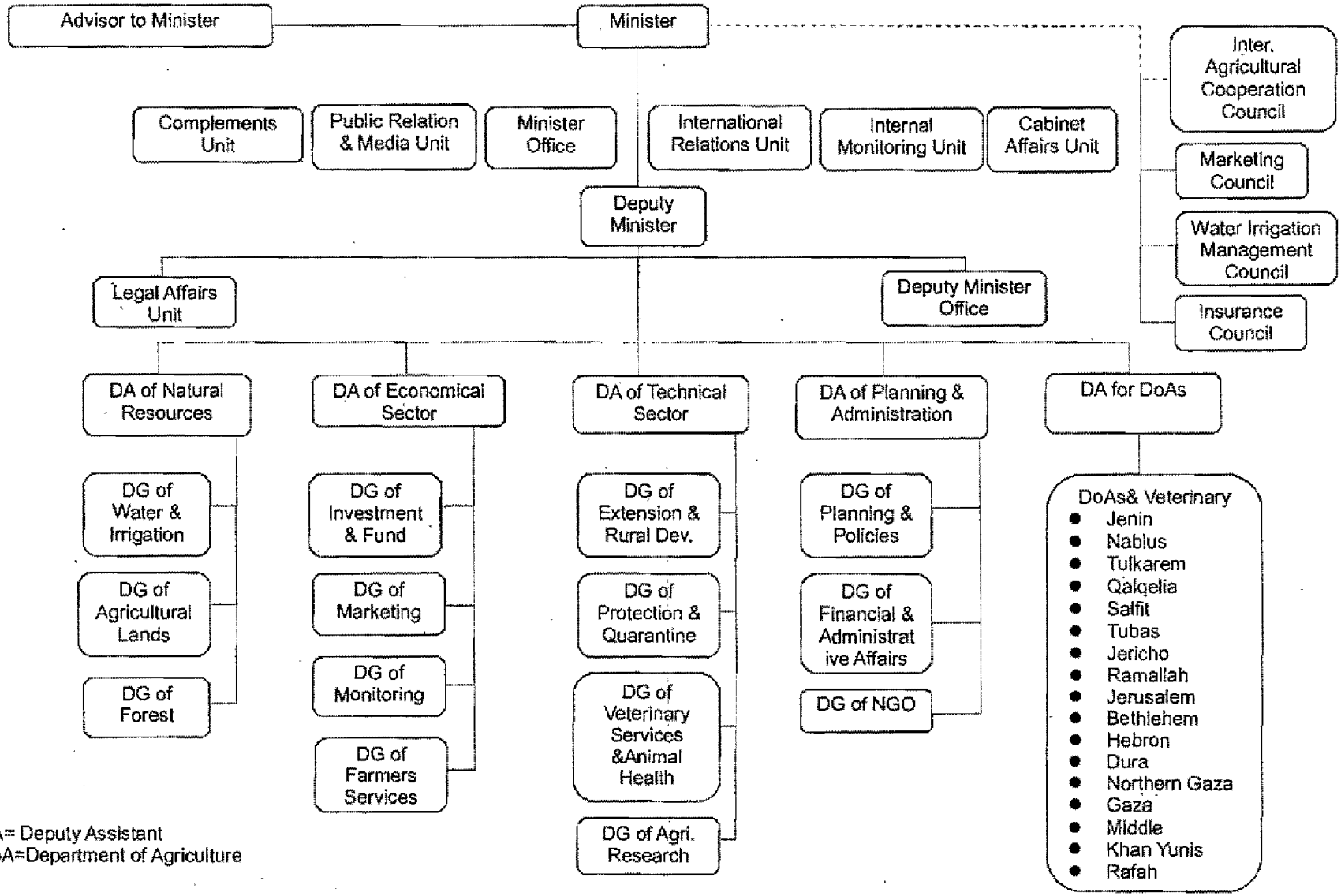

N
NEW PROPOSED WELL
WELL TRANSMISSION PIPELINE 4 inch
Jericho Water Network
Municipal Water Suppy to The JAIP
DRAFTED BY: Eng. JALAL BSHARAT
JERICHO MUNICIPALITY
Legend

Annex-1 The map of the site

Requested Component <Agricultural> Proposed Site Location



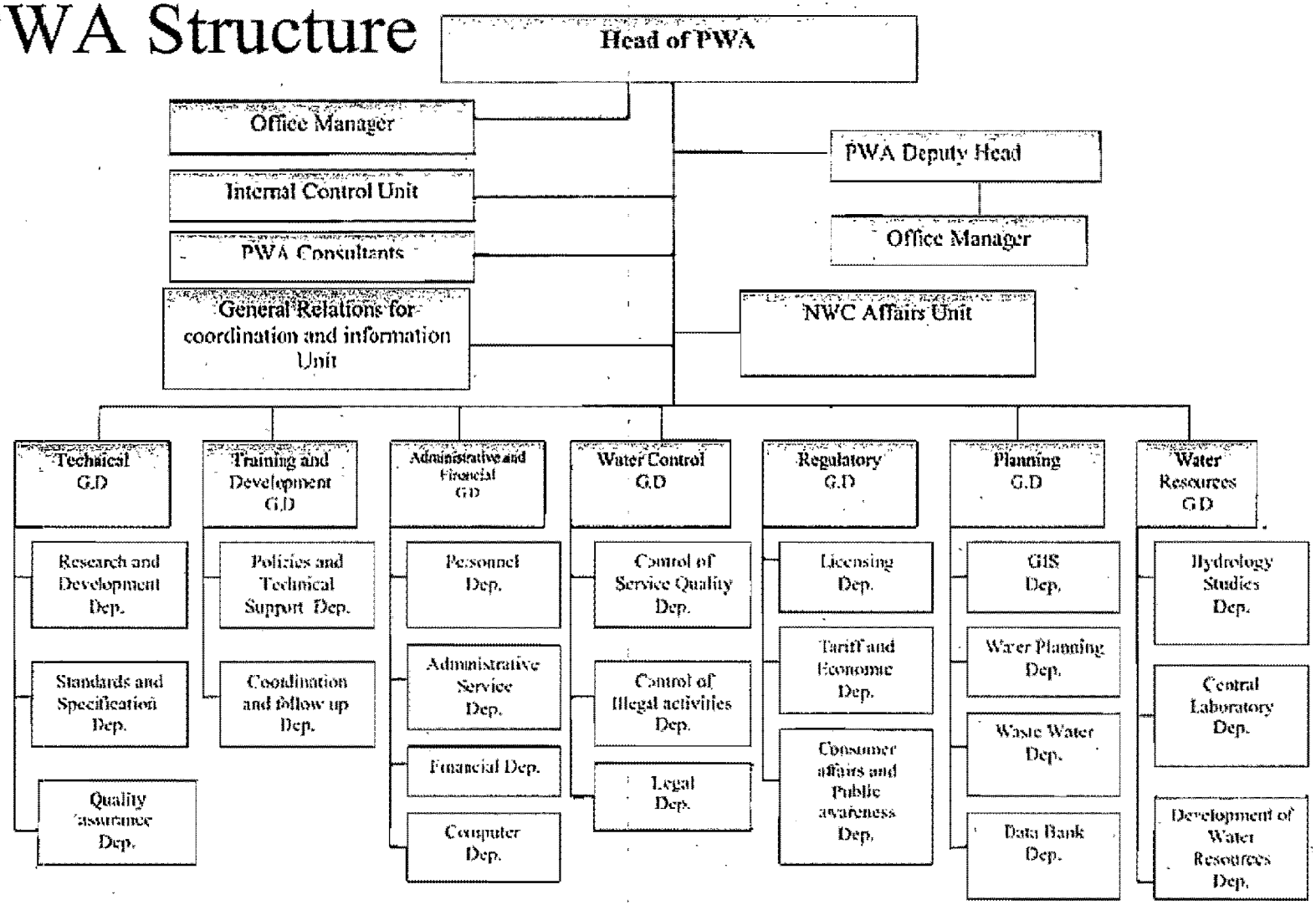
Annex-2A The organization chart of MoA



DA= Deputy Assistant
DoA=Department of Agriculture

Annex-2A The organization chart of PWA

PWA Structure

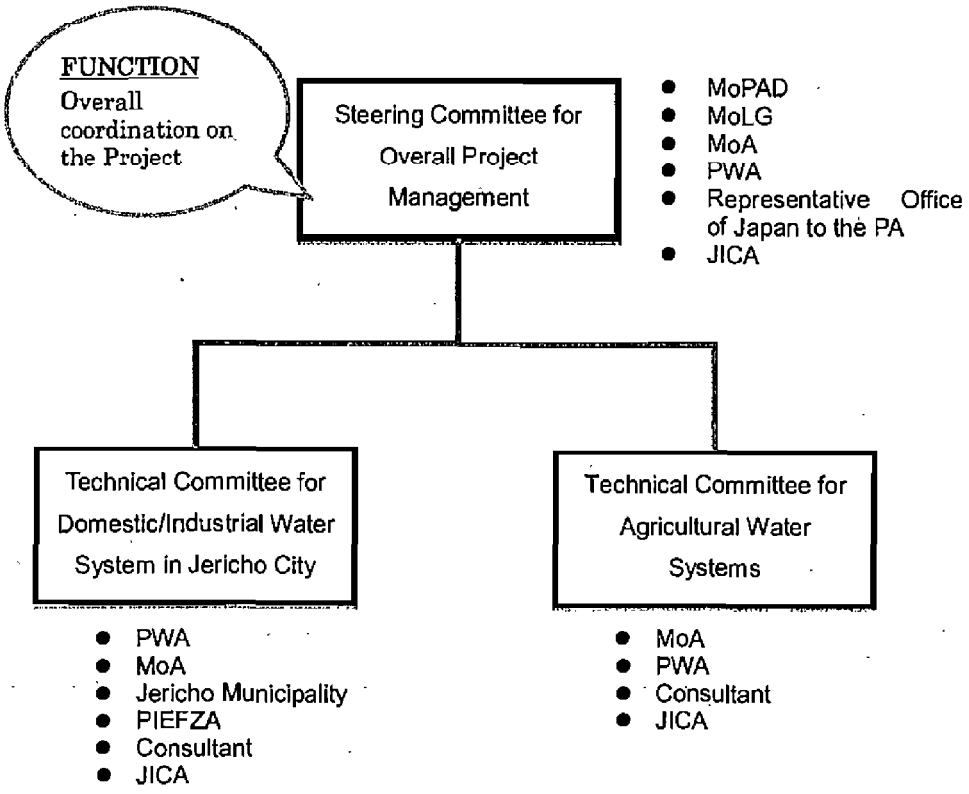


Annex-2B List of counterparts for the survey

	Consultant Member of the JICA Survey Team		MoA and PWA Focal Point		
	Name	Field	Name	Institute	Position
1	Kazumitsu TSUMURA	Chief Consultant /Water Resources Management	Issam NOFAL	MoA	Director of Water
2	Kosuke HIROTA	Deputy Chief Consultant /Irrigation Facility Planning and Design	Muhannad HUSSEIN	MoA	Deputy Director of Irrigation Dept.
3	Tsuneyoshi OGISO	Domestic Water Facilty Planning and Design	Deeb Saleh	PWA	Director of Water Resources Development Dept,
4	Ryu TOSHIMA	Agricultural Water	Ibtisam Abuhaija	MoA	Deputy Director of Water Dept.
5	Yasushi FUKUDA	Hydrologeology Water Quality Analysis	Omar Ziad	PWA	Director of Studies & Hydrological Monitoring Dept, General Directorate of Water Resources
6	Ai INOGUCHI	Agriculture	Imad Khallaf	MoA	Irrigation Dept.
7	Toshiyuki OISHI	Organization Management /Operation and Maintenance	Nisreen Mansour	MoA	Irrigation Dept.
8	Yoshiyuki SAGAWA	Environmental and Social consideration	Thaer Rabi	MoA	GD of Forestry and Natural Reserve
9	Masanori NARUKAWA	Construction & Procurement Planning / Cost Estimation	Khalil Alami	MoA	GD of Financial and Adm. Affairs
10			Kasim Abdo	MoA	Deputy Assisstant
11			Hassan Ashqar	MoA	Director of Irrigation

Annex-3

Committees for Project Implementation



FUNCTION & ROLES

- The Committee takes charge of examination and endorsement of technical issues on the domestic and industrial water component of the Project
- PWA and Jericho Municipality jointly take charge of overall management of the domestic and industrial water component.
- MoA supports technical and procedural issues in consultation with Ein Sultan Water Association.
- Consultant submits technical proposal and information to the Committee.
- JICA gives comments and advice to the Committee.

FUNCTION & ROLES

- The Committee takes charge of examination and endorsement of technical issues on the agricultural water components of the Project.
- MoA takes charge of overall management of the agricultural water components.
- PWA supports technical and procedural issues on the water systems.
- Consultant submits technical proposal and information to the Committee.
- JICA gives comments and advice to the Committee.

Annex-4 ITEMS REQUESTED BY THE PALESTINIAN SIDE

Project	Items	Confirmed
Improvement of Domestic Water System Project in Jericho City	1) Rehabilitation of existing well (Jericho No. 1 well)	1 site
	2) Drilling of a new well	1 site
	3) Installation of water distribution pipes	To be examined
	4) Installation of well pumps (Jericho No.1, new well)	2 wells
Improvement of Agricultural Water System Project	1) Rehabilitation of Nwaimeh spring water canal	3km
	2) Rehabilitation of agricultural existing wells	11 wells*
	3) Rehabilitation of irrigation water conveying systems (main pipe line)	35km**
	4) Irrigation Ponds	-
	5) Construction of water reservoirs	40 sites**
	6) Installation of modernized irrigation system	-
	7) Provision of training engineers and farmers on management, operation and maintenance of facilities	Soft component program

* See Attachment 1 for details of proposed sites.

** See Attachment 2 for details of proposed sites.

Attachment 1 for Annex 4 Rehabilitation of agricultural existing wells

No.	Code	Point Name	Location	Area A/B/C	Irrigated Area(Dunum)	Present Status	No. of Users	No. of Benif.
1	18-18/016	Mustafa abu khayzaran	Wadi Al Far'a	A	1200	Bad Condition	80	120 family
2	18-18/019	Abdul kareem saleem	Beit Hassan	B	132	Bad Condition	15	15 family
3	18-18/027A	Ibrahim Dyab	Aqrabaniyeh	B	40	Not Pumping	20	20 family
4	19-14/058B	Yunes 'Abdu	Jericho	A	150	Not Pumping	20	20 family
5	19-15/028A	Aluja	Auja	A	300	Not Pumping	the villagers	the villagers
6	19-17/012	Marji Ghazal C5	Marji Ghazal	C	97	Not Pumping	20	20 families
7	19-17/033	Deya' saleh 'Abdu	Jiftilik	C	250	Not Pumping	20	25 families
8	19-20/001A	khursheed Mbaslat	Bardalla	C	250	Not Pumping	30	30 families
9	20-17/022	Sulayman Saleh	Marji Naja	C	500	Not Pumping	30	33 families
10	19-17/056	Muhammad Damen	Jiftilik	C	500	Bad Condition	20	24 families
11	19-17/007	Fathalla Almasri	Jiftilik	C	500	Bad Condition	30	35 families

Attachment 2 for Annex 4

Basic Information on Candidate Sites for Conveyance and Reservoire for Grant Aid "Improvement of Agricultural Water Systems"

Directorate		Village	Needs	Reservoir No.	Water resource: Resource Type	Actual Volume (Discharge) CM/H	Expected Volume (Discharge) CM/H	License CM/Year *	Total Irrigation Area (DUNUM)	Agricultural Area: Field Crop Total	Field Crop Breakdown	Vegetables Total		Vegetables Breakdown	Fruits Total		Fruits Breakdown	Temperature	Rainfall	Beneficiaries
JENIN	1	Birqin 1	Rehab	1	Well #17-20/041	55	55	40,000	450	0		205	1	Greenhouses(tomato, cucumber) 75 dunum	0			13.5°C-27.1°C	468mm	15-20 farmers * 12 locations = 180-240 farmers
													2	squash 40 dunum						
													3	cabbage 40 dunum						
													4	others 50 dunum						
	2	Birqin 2	Rehab	1	Well #17-20/037	45	45	23,000	450	0		170	1	Greenhouses(tomato, cucumber)70 dunum	100	1	almond 50 dunum			
													2	cabbage 50 dunum		2	others 50 dunum			
													3	othres 50 dunum		3				
	3	Jarba	Rehab	1	Well #17-19/037	45	45	53,000	270	0		140	1	Greenhouses(tomato, cucumber) 50 dunum	80	1	orchards 80 dunum			
													2	cabbage 40 dunum						
													3	others 50 dunum						
	4	Kafr Dan 1	Rehab	1	Well #17-20/046	25	25	148,898	500	0		140	1	Greenhouses(tomato, cucumber) 50 dunum	80	1	orchards 80 dunum			
													2	squash 40 dunum						
													3	others 50 dunum						
					Well #17-21/012			80,000	400	0		160	1	Greenhouses(tomato, cucumber)80 dunum	0					
													2	eggplant 30 dunum						
													3	others 50 dunum						
	5	Kafr Dan 2	Rehab	1	Well #.17-21/009	25	25	55,000	550	0		210	1	Greenhouses(tomato, cucumber)80 dunum	0					
													2	squash 40 dunum						
													3	cabbage 40 dunum						
													4	others 50 dunum						
	6	Kafr Dan 3	Rehab	1	Well #17-21/014	25	25	17,282	600	0		155	1	Greenhouses(tomato, cucumber)80 dunum	60	1	orchards 60 dunum			
													2	thyme 35 dunum						
													3	others 50 dunum						
					Well #17-21/034			394	500	0		170	1	Greenhouses(tomato, cucumber)70 dunum	50	1	orchards 50 dunum			
													2	thyme 50 dunum						
													3	others 50 dunum						
	7	Al Yamun 1	Rehab	1	Well #17-21/013	45	45	37,000	450	0		215	1	Greenhouses(tomato, cucumber)60 dunum	0					
													2	thyme 55 dunum						
													3	cabbage 50 dunum						
													4	others 50 dunum						
	8	Al Yamun 2	New	1	Treated Wastewater	6000m3/day			250	50	1 Forage crops 50 dunum	0			145	1	almond 120 dunum			
																2	pomegranate 25 dunum			
	9	Jenin field	New	1	Treated Wastewater	6000m3/day			250	50	1 Forage crops 50 dunum	0			165	1	almond 140 dunum			
																2	pomegranate 25 dunum			
	10	Az Zababida	New	1	Treated Wastewater	500m3/day			250	50	1 Forage crops 50 dunum	0			155	1	almond 130 dunum			
																2	pomegranate 25 dunum			
	Total	Subtotal		10																

TUBAS	1	Faraa 1	Rehab	1	Well #18-18/051	45	45	120,000	275	0			170	1 2 3 4	Greenhouses(tomato, cucumber) 55 dunum eggplant 25 dunum potato 60 dunum cabbage 30 dunum	65	1 2 3	citrus 20 dunum olive 25 dunum othres 20dunum	15.4°C-29.6°C	430mm	15-20 farmers * 5 locations = 75-100 farmers
	2	Faraa 2	Rehab	1	Well #18-19/002	90	90	125,000	525	0			180	1 2 3	Greenhouses(tomato, cucumber) 50 dunum potato 60 dunum cucumber 70 dunum	95	1 2 3	citrus 35 dunum olive 40 dunum others 20 dunum			
	3	Faraa 3	Rehab	1	Well #18-18/052	55	55	115,000	315	0			170	1 2 3 4	Greenhouses(tomato, cucumber) 40 dunum cabbage 40 dunum potato 50 dunum cucumber 40 dunum	75	1 2 3	citrus 40 dunum olive 15 dunum others 20 dunum			
	4	Bardala	Rehab	1	mekerout	45	45	900,000	750	0			175	1 2 3	Greenhouses(tomato, cucumber) 120 dunum cabbage 30 dunum eggplant 25 dunum	70	1 2	palm 40 dunum others 30 dunum			
		Subtotal		4																		
QALQILYA	1	Jayyus plain 1	Rehab	1	Well #15-17/012	75	75	86,000	370	0			120	1 2	Greenhouses(tomato, cucumber) 70 dunum potato 50 dunum	85	1 2	citrus 65 dunum jawafa 20 dunum	15.6°C-22.3°C	624mm	15-20 farmers * 5 locations = 75-100 farmers
	2	Jayyus plain 2	Rehab	1	Well #14-17/040	65	65	95,000	350	0			80	1 2 3	Greenhouses(tomato, cucumber) 50 dunum beans 55 dunum potato 40 dunum	45	1 2	citrus 15 dunum others 30 dunum			
	3	Falamya	Rehab	1	Well #15-18/003	60	60	176,000	250	0			145	1 2 3	Greenhouses(tomato, cucumber) 60 dunum eggplant 25 dunum potato 60 dunum	80	1 2 3	citrus 35 dunum almond 15 dunum others 30 dunum			
	4	An Nabi Elyas	Rehab	1	Well #15-17/005	80	80	224,000	350	0			125	1 2 3	Greenhouses(tomato, cucumber) 45 dunum beans 55 dunum squash 25 dunum	80	1 2	citrus 50 dunum others 30 dunum			
	5	Azzun	Rehab	1	Well #15-17/007	35	35	90,000	200	0			125	1 2 3	Greenhouses(tomato, cucumber) 60 dunum eggplant 25 dunum potato 40 dunum	80	1 2	citrus 80 dunum others 30 dunum			
	6	Haabla 1	Rehab	1	Well #14-17/008a	55	55	950,000	320	0			155	1 2	Greenhouses(tomato, cucumber) 55 dunum potato 100 dunum	65	1 2	citrus 35 dunum others 30 dunum			
	7	Haabla 2	Rehab	1	Well #14-17/005	55	55	135,000	350	0			105	1 2	Greenhouses(tomato, cucumber) 40 dunum potato 65 dunum	115	1 2	citrus 85dunum others 30 dunum			
	8	Al Mudawwar	Rehab	1	Well #15-17/013	90	90	189,000	400	0			90	1	Greenhouses(tomato, cucumber) 90 dunum	95	1	citrus 95dunum			
	9	Izbat Salman	Rehab	1	Well #15-17/015	65	65	153,000	400	0			140	1 2 3	Greenhouses(tomato, cucumber) 55 dunum potato 35 dunum others 50 dunum	105	1 2	citrus 75 dunum others 30 dunum			
	10	Qalqiliya city 1	Rehab	1	Well #14-17/031	60	60	102,000	270	0			95	1 2 3	Greenhouses(tomato, cucumber) 35 dunum potato 35 dunum cabbage 25 dunum	135	1 2	citrus 105 dunum others 30 dunum			

	11	Qalqilya city 2	Rehab	1	Well #14-17/027	60	60	163,000	250	0			120	1 2 3 4	Greenhouses(tomato, cucumber) 25 dunum beans 35 dunum cabbage 35 dunum squash 25 dunum	105	1 2	citrus 75 dunum others 30 dunum			
		Subtotal		11																	
TULKAREM	1	Qaffin	Rehab	1	Well #15-20/007	90	90	151,000	500	0			170	1 2 3 4	Greenhouses(tomato, cucumber) 55 dunum cabbage 40 dunum eggplant 25 dunum others 50 dunum	65	1 2	citrus 35 dunum others 30 dunum			
	2	An Nazia al Gharbiya	Rehab	1	Well #15-20/004	90	90	3,450,000	700	0			180	1 2 3 4	Greenhouses(tomato, cucumber) 45 dunum cabbage 50 dunum beans 35 dunum others 30 dunum	85	1 2	citrus 55 dunum othe trees 30 dunum			
	3	Kfar 1	Rehab	1	Well #15-19/042	110	110	400,000	500	0			145	1 2 3 4	Greenhouses(tomato, cucumber) 25 dunum potato 30 dunum cabbage 40 dunum others 50 dunum	75	1 2	citrus 45 dunum othe trees 30 dunum			
	4	Kfar 2	New	1	Well #15-19/023	120	120	205,000	500	0			150	1 2 3	Greenhouses(tomato, cucumber) 65dunum cabbage 50 dunum others 35 dunum	65	1 2	citrus 65 dunum othe trees 30 dunum			
	5	Attil	Rehab	1	Well #15-19/065	90	90	299,000	700	0			135	1 2 3	Greenhouses(tomato, cucumber) 55dunum cabbage 50 dunum others 30 dunum	45	1 2	citrus 15 dunum others 30 dunum			
	6	Anabta forest & field	Rehab	1	Treated Wastewater	6,000-7,000m3/day			250	100	1	Forage crops	0			125	1 2 3 4	Almond 70 dunum olive 30 dunum pomegranate 25 dunum others 50 dunum			
	7	Ramin	New	1	Treated Wastewater	6,000-7,000m3/day			250	100	1	Forage crops	0			175	1 2 3	Almond 80 dunum pomegranate 25 dunum others 70 dunum	15.6°C-22.3°C	602mm	15-20 farmers * 4 locations = 60-80 farmers
	8	Thennabeh	Rehab	1	Well #30-19/015	80	80	113,000	700	0			175	1 2 3 4	Greenhouses(tomato, cucumber) 75 dunum potato 50 squash 25 dunum eggplant 25 dunum	60	1 2	citrus 25 dunum others 35 dunum			
	9	Irtah	Rehab	1	Well #15-18/010	90	90	163,000	300	0			160	1 2 3	Greenhouses(tomato, cucumber) 85 dunum potato 50 dunum eggplant 25 dunum	55	1 2	citrus 25 dunum others 30 dunum			
	10	Faqun	Rehab	1	Well #15-18/006	80	80	110,000	250	0			150	1 2 3	Greenhouses(tomato, cucumber) 55 dunum thyme 70 dunum eggplant 35 dunum	70	1 2	citrus 35 dunum others 35 dunum			
	11	Kafr Zibad	Rehab	1	Well #15-18/012	65	65	146,000	270	0			145	1 2 3	Greenhouses(tomato, cucumber) 25 dunum thyme 80 dunum potato 40 dunum	0					

	12	An Nazla al Sharqiya	Rehab	1	Well #16-20/005	80	80	68,000	250	0			180	1 2 3	Greenhouses(tomato, cucumber) 55 dunum cabbage 40 dunum others 35 dunum	65	1 2	citrus 35 dunum othe trees 30 dunum			
	13	Dir al gsoon	Rehab	1	Well #15-19/029	110	110	352,000	600	0			100	1 2	Greenhouses(tomato, cucumber) 65 dunum thyme 35 dunum	115	1 2	olive 60 dunum others 35 dunum			
	14	Ektaba	Rehab	1	Well #15-19/044	150	150	225,000	300	0			145	1 2 3 4	Greenhouses(tomato, cucumber) 45 dunum squash 35 dunum potato 40 dunum beans 25 dunum	55	1 2	citrus 25 dunum othe trees 30 dunum			
		Subtotal		14																		
NABLUS	1	An Nassarya	Rehab	1	Well #18-18/036	65	65	130,000	850	0			140	1 2 3	Greenhouses(tomato, cucumber) 25 dunum Cucumber 75 dunum squash 40 dunum	80	1 2	citrus 50 dunum othe trees 30 dunum			
	2	An Nassarya	Rehab	1	Well #18-18/031a	90	90	69,000	700	0			160	1 2 3	Greenhouses(tomato, cucumber) 25 dunum Cucumber 95 dunum squash 40 dunum	95	1 2	citrus 65 dunum othe trees 30 dunum			
	3	Frush Beit Dajan 1	Rehab	1	Well#19-17/044	35	35	1,260,000	700	0			140	1 2 3	Greenhouses(tomato, cucumber) 25 dunum Cucumber 75 dunum squash 40 dunum	100	1 2	citrus 70 dunum othe trees 30 dunum			15-20 farmers * 4 locations = 60-80 farmers
					Well#19-17/034	80	80	91,000	700	0			120	1 2 3	Greenhouses(tomato, cucumber) 25 dunum Cucumber 75 dunum beans 20 dunum	70	1 2	citrus 40 dunum othe trees 30 dunum			
	4	Frush Beit Dajan 2	Rehab	1	Well#19-17/047	70	70	46,000	350	0			140	1 2 3	Greenhouses(tomato, cucumber) 25 dunum Cucumber 75 dunum squash 40 dunum	120	1 2 3	citrus 90 dunum othe trees 30 dunum			
					Well#19-17/046	80	80	195,000	900	0			140	1 2 3	Greenhouses(tomato, cucumber) 25 dunum Cucumber 75 dunum squash 40 dunum	110	1 2	citrus 80 dunum othe trees 30 dunum			
		Subtotal		4																		
JERICHO	1	Al Jiftlik 1	Rehab	1	Well #19-17/023	110	110	45,000	600	0			115	1 2	Greenhouses(tomato, cucumber) 25 dunum cucumber 90 dunum	80	1 2	citrus 50 dunum othe trees 30 dunum			
	2	Al Jiftlik 2	Rehab	1	Well #19-17/055	120	120	122,480	650	0			135	1 2	Greenhouses(tomato, cucumber) 35 dunum cucumber 100 dunum	80	1 2	citrus 50 dunum othe trees 30 dunum			
	3	Marjal Ghazal	Rehab	1	Well #20-17/019	90	90	179,720	300	0			100	1 2 3	Greenhouses(tomato, cucumber) 45 dunum squash 25 dunum eggplant 30 dunum	70	1 2	palm 40 dunum othe trees 30 dunum		140 mm	15-20 farmers * 4 locations = 60-80 farmers
	4	Marj Naja	Rehab	1	Well #20-17/010	95	95	472,420	370	0			90	1 2 3	Greenhouses(tomato, cucumber) 25 dunum squash 25 dunum eggplant 50 dunum	80	1 2	palm 50 dunum othe trees 30 dunum			
		Subtotal		4																		

*License CM= Authorized volume (cubic meter) per year

Annex-5 JAPAN'S GRANT AID SCHEME

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures (Attachment 1)

The Japanese Grant Aid is supplied through following procedures:

- Preparatory Survey
  - The Survey conducted by JICA
- Appraisal &Approval
  - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
  - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
  - Agreement concluded between JICA and a recipient country
- Implementation
  - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country neeessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of *a* outline design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Outline Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as "the E/N") will be singed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant Aid,

to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

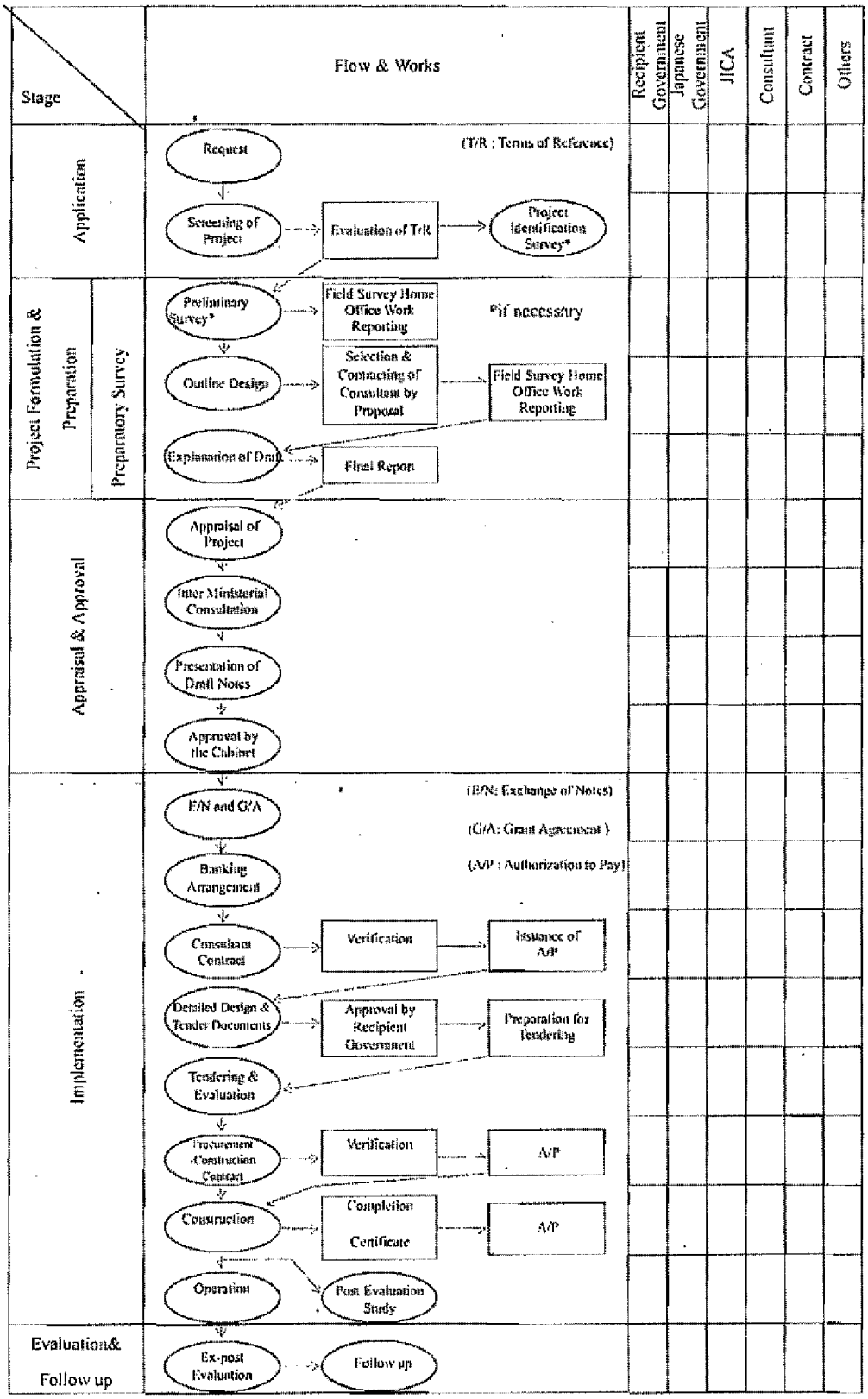
(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

FLOW CHART OF JAPAN's GRANT AID PROCEDURES



Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure lots of land necessary for the implementation of the Project and to clear the sites;		●
2	To construct the following facilities		
	1) The building	●	
	2) The gates and fences in and around the site		●
	3) The parking lot	●	
	4) The road within the site	●	
	5) The road outside the site		●
3	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites		
	1) Electricity		
	a. The distributing power line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, common waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
4	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products.		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted.		●
6	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To ensure that the Facilities be maintained and used properly and effectively for the implementation of the Project		●
8	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
9	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
10	To give due environmental and social consideration in the implementation of the Project.		●

(B/A : Banking Arrangement, A/P : Authorization to pay)

Annex-7 CHECK LIST FOR THE NECESSARY PERMISSION AND CONSENT

Following organizations take necessary measures to authority concerned for permission and consent.

	Items of permission and consent	Mainly in charge	Deadline	Remarks
1	Permission of the rehabilitation (deepening, cleaning, replacement of pump, etc.) of 11 existing wells for agricultural use	MoA/PWA	The mission	if necessary
2	Establishment of water users association and agreement among owners and water users on joint operation and management of the water systems	MoA/PWA	The mission	
3	Permission of the constructions in area C	MoA/PWA	The mission	if necessary
4	Permission of test drilling for a new well in Jericho City	PWA	The end of November, 2011	
5	Execution of land leasehold of lots necessary for reservoir construction between land owner and water users association	MoA	The mission	
6	Consent of Ein Sultan Water Association to substitute groundwater to some extent for the water from the Ein Sultan Spring	PWA/MoA	The mission	
7	Initial Environmental Examination (Agriculture water components)	MoA	The mission	
8	Initial Environmental Examination (Domestic water components)	PWA	The mission	

Note: "The mission" is mission for the draft report.

THE PROJECT FOR IMPROVEMENT OF DOMESTIC, INDUSTRIAL AND AGRICULTURAL WATER SYSTEMS IN JORDAN VALLEY AND NORTHERN WEST BANK

SOFT COMPORNENT PLAN

April 2012

Sanyu Consultants Inc.

Index

1. Background of Soft Component Planning

Palestine Authority (hereinafter as referred to "PA") relies 75% of its water use on the groundwater. Groundwater extraction amount by PA is limited to 20% of total available amount, 121 MCM out of 607 MCM, by Oslo Agreement II with Israel in 1995.

On the other hand, the water supply of the (1) domestic water, (2) industrial water and (3) agricultural water in Western Bank has been scarce due to the population increasing, development of industrial area and enhanced agricultural activities, leading to pressing need of improving water supply urgently. As mentioned above, the groundwater resources which PA enables to develop are limited. Accordingly, how to develop newly water resources in planned manner and how to effectively utilize the limited water resources have become an emergency task to be tackled immediately.

(1) Present Status and Property of the Agricultural Water Systems to be Rehabilitated/Constructed in the Project

a) Grouping by Planning Consensus

The project for Improvement of Agricultural Water Systems (hereinafter as referred to the "Project") aims to improve ineffective water use condition through the rehabilitation/construction of the irrigation facilities. The Project consists two type of planning consensus, one is 1) Construction of the reservoir tank and rehabilitation of distribution pipe (25 irrigation sites) for the sites which became their water use efficiency decreased due to the lack of the reservoir tank and due to the aged distribution pipes, another type is 2) Rehabilitation of existing well facilities (9 sites) for the sites which have the problem of aged well facility or breakdown facilities.

Table-1 Nos. of well irrigation sites grouping by planning consensus

Planning Consensus	Nos. of Sites
1) Construction of the reservoir tank and rehabilitation of distribution pipe	25
2) Rehabilitation of existing well facilities	9
Total	34

b) Grouping by the Area with the Manner of Management, Operation and Maintenance

In Palestine, the manner of management, operation and maintenance are different by the area. The type of such manner is classified as the Northern West Bank Area which consists of two districts namely, Qalqilya and Tulkarem, and the Jordan Rift Valley Area which consists of three districts namely, Jericho, Tubas and Nablus (as refereed to the appendix "Location map of the well irrigation sites under the scope of the project for improvement of agricultural water systems"). The agricultural wells in Palestine have been constructed and registered as the individual use or joint use of some farmers historically, thus the water users are divided into the well owner farmers who hold the water right and beneficial farmers. The manner of management, operation and maintenance are different by the consisting ratio of well owner farmers and beneficial farmers, and its ratio are classified by Northern West Bank Area and Jordan Rift Valley Area

Table-2 Nos. of well irrigation sites grouping by the manner of management, operation and maintenance

Area	Nos. of Sites
1) Northern West Bank Area (Qalqilya and Tulkarem)	19
2) Jordan Rift Valley Area (Jericho, Tubas and Nablus)	15
Total	34

In the well irrigation sites in 1) Northern West Bank Area, the ratio of well owner farmers is high and they organize the well management committee in most of the cases. In such sites, representatives of the well management committee manage the operation and maintenance of well and they collect the water fee. They collect water fee from farmers relied on the usage pumping hours. Although the organization for well management exists, it does not work functionally because it has no regulation, no clear rule of role sharing system.

On the other hand, in the well irrigation sites in 2) Jordan Rift Valley Area, the ratio of well owner farmers is low and the well is not managed organizationally. In such site, the operation and maintenance of well is managed by several ways, such as the way of only well owner farmer is responsible, the operator hired by well owner is responsible, and the beneficially farmers commissioned by well owner is responsible. Well owner farmer collects water fee as certain rate of selling product amount during harvest season based on the traditional contract between well owner farmer and beneficial farmers, in general.

Ministry of Agriculture (hereinafter as referred to “MOA”) intends to establish the Water Users' Association (hereinafter as referred to “WUA”) organized by all of beneficial water users in order to manage the rehabilitated/constructed well irrigation facilities organizationally and effectively, as their policy. In order to meet this policy, the JICA preparatory survey team chose sample sites from northern west bank area and Jordan rift valley area to hold the workshop for discussing about establishment of WUA. As the result of workshop, the basic understanding for WUA establishment was confirmed from both sites. On the other hand, both sites requested to continue existing water fee collection way as depending on water use quantity in northern west bank area and depending on certain rate of selling product amount in Jordan rift valley area.

(2) Need of Soft Component Implementation

From the present status of water use and the result of workshop as mentioned above, the problems to be solved for established WUA are considered as followings.

a) Problems on Water Management to be Solved

In the well irrigation sites in 1) Northern West Bank Area, although the well irrigation management committee is found in most of cases, such organization focuses only for the operation and maintenance of well, but does not have enough technical know-how for planning and controlling the water distribution to coverage area efficiently. Water quantity is not controlled accuracy because of the lack of water meter, but they control water quantity roughly by pump operation hours depending on their experience. Because the water meter will be installed on well facility, reservoir tank and each farming pipes by the Project, they need to change the way from pumping time management method to water quantity management method for efficient water use.

Furthermore, the reservoir tank will be constructed in all sites of northern west bank area. Water distribution way

will be changed from rotational direct water distribution way to the way of water distribution through the reservoir tank. By the effective utilization of the reservoir tank, farmers will be able to work for farming during daytime which was forced to work in night time due to waiting for their irrigation turn. In order to utilize reservoir tank efficiently, it is important to train how to draft new water distribution plan and operation and maintenance method for reservoir tank. Accordingly, technical assistance for new water management way utilizing reservoir tank will be needed through soft component program.

In the well irrigation sites in 2) Jordan Rift Valley Area, there is no existing organization for water management and the way of water distribution rely on individual agreement between well owner farmer and each beneficial farmers. The water distribution plan which covers whole irrigation area is not drafted and there is no other place to discuss it. It is needed to enlighten the importance of water management for whole irrigation area and technical enhancement their planning capacity for water management thorough WUA establishment.

Furthermore, in the Jordan Rift Valley Area, the project concept divides 1) the sites for construction of reservoir tank and 2) the sites for rehabilitation of existing well. For the reservoir tank construction sites, same process as mentioned above is needed. For the well rehabilitation sites, technical enhancement for operation and maintenance of new pump equipments, recording of water quantity and water level and also planning of operation program are needed besides the technical assistance for water distribution plan drafting.

b) Problems on Organization Management to be Solved

In the well irrigation sites in 1) Northern West Bank Area, existing well management committee could be the base of WUA. The existing well committee is organized by well owner farmers in present, thus it needs to involve the beneficial farmers to WUA, too. Necessary documents/programs for WUA management, such as the regulations, manuals, regular meeting holding program and management program, should be prepared. Because the water fee collection system will be changed from depending on pumping hours to depending on the water meter system, financial training adapted to new water fee collection system should be taken. Accordingly, it is necessary to rebuild the organization by WUA establishment and enhance their capacity for WUA management through the training.

In the well irrigation sites in 2) Jordan Rift Valley Area, there is no existing organization in present, thus organization set-up from the beginning is needed. Because the water distribution depends on individual agreement between well owner farmer and each beneficial farmer, relations among each beneficial farmer are weak in present. It needs to develop ownership for their irrigation site through the organization set-up and enlighten the basic function of WUA such as the sharing of information among farmers, solution of the problems among farmers and total water management. The keys of success organization set-up are well owner's understanding of WUA establishment and making clear the role between well owner farmer and beneficial farmers.

Regarding the water fee collection, it was confirmed they want to continue existing system as depending on certain rate of selling product amount. Although the water fee collection system depending on water meter is better from the public nature and efficiency point of view, sudden change from the traditional contract system may make community order worse and some farmers may be unable to pay, thus new water fee collection must be

set-up based on existing system. It is necessary to make the rule and decision process of the sharing rate between well owner farmer and beneficial farmers through the series of workshop in soft component plan in order to secure necessary operation and maintenance cost properly.

Because of the reasons and background mentioned above, “Technical Assistance on Water Management” and “Technical Assistance on Organization Management Enhancement” should be planned as Soft Component Plan.

2. Goal of Soft Component Plan

(1) Goal of the Technical Assistance on Water Management

Goal of the Technical Assistance on Water Management is “Proper water management will be undertaken by WUA” on target 34 sites.

(2) Goal of the Technical Assistance on Organization Management Enhancement

Goal of the Technical Assistance on Organization Management is “Proper operation and management of the facilities will be undertaken by WUA” on target 34 sites.

3. Achievement of Soft Component Plan

Regarding the Technical Assistance on Water Management, the water management method is different by the facility component to be constructed/rehabilitated. Thus, the soft component activities and achievements are designed by “Reservoir tank construction and distribution pipe rehabilitation sites” group and “Well rehabilitation sites” group. On the other hand, regarding the Technical Assistance on Organization Management enhancement, expected WUA structure and operation rule are different by characteristic of the community. Thus, soft component activities and achievements are designed by “Northern west bank area” group and “Jordan rift valley area” group.

Table 3- Grouping of the Target Sites by Facility Component and Area

		Grouping for Technical Assistance on Organization Management Enhancement		
		West Bank Area Group	Jordan Rift Valley Area Group	
Grouping for Technical Assistance on Water Management	Reservoir Tank Construction and Distribution Pipe Rehabilitation Sites group	Qalqilya 9 sites Tulkarem 10 sites	Nablus 4 sites Jericho 1 site Tubas 2 sites(※)	26 sites
		19 sites	7 sites	
	Well Rehabilitation Sites Group	Not Applicable	Nablus 2 sites Jericho 6 sites	8 sites
		0 site	8 sites	
		19 sites	15 sites	34 sites

(※): Both of the well rehabilitation component and the reservoir tank construction and distribution pipe rehabilitation component will be implemted at 1 site.

a) Achievement of the Technical Assistance on Water Management (Target: WUA)

① 【Both group】

Necessary irrigational information will be consolidated and shared among farmers

② 【Both group】

Technical knowledge on water saving irrigation technique will be improved by joint coordination with JICA technical cooperation project (The Project on Improved Extension for Value-Added Agriculture in the Jordan River Rift Valley)

③ 【Both group】

Efficient water management utilizing the water meter will be understood.

④ 【Reservoir tank construction and distribution pipe rehabilitation sites】

Effectiveness of the water reservoir tank will be understood.

⑤ 【Reservoir tank construction and distribution pipe rehabilitation sites】

Water management method utilizing with the water reservoir tank will be mastered.

⑥ 【Well rehabilitation sites group】

Operation and maintenance method of well irrigation facility will be mastered.

⑦ 【Both group】

Irrigation water supply will be balanced with demand

b) Achievement of the Technical Assistance on Organization Management Enhancement (Target: WUA)

① 【Both group】

WUA will be established.

② 【Both group】

Role of the well owners and farmers will be clarified.

③ 【Both group】

WUA management system will be installed adequately.

④ 【Northern west bank area group】

Water fee collection system utilizing the water meter will be installed.

⑤ 【Jordan rift valley area group】

O/M cost sharing rate among WUA members will be agreed in WUA.

⑥ 【Both group】

Necessary cost for O/M will be reserved in WUA.

⑦ 【Both category】

Monitoring support system of MOA will be established.

4. Evaluation Method of the Degree of Targeted Achievement

Goal, achievement and evaluation method of the degree of targeted achievement by each assistance program are shown in Table-4. Evaluation of the degree of targeted achievement using questionnaires is based on “three level rating system” to quantify the degree. Questionnaire will be distributed to same persons at the timing of commencement and completion of the soft component. Sample Nos. for the questionnaires will be about 170 (5 x 34 sites).

Table-4 Goal, Achievement and Evaluation Method of the Degree of Targeted Achievement

Goal/Target	Achievement	How to evaluate the degree of targeted achievement	Identifying method
1. Technical Assistance on Water Management			
[Goal] Proper water management will be undertaken by WUA	①【Both group】 Necessary irrigational information will be consolidated and shared among farmers	Farmers participation record to the irrigational information mapping activity	Activity record
	②【Both group】 Technical knowledge on water saving irrigation technique will be improved by joint coordination with JICA technical cooperation project	Degree of the influence to the clopping pattern	Identifying the clop pattern plan before/after soft component implementation
	③【Both group】 Efficient water management utilizing the water meter will be understood.	Degree of famers understanding	Questionnaire before/after soft component implementation
	④【Reservoir tank construction and distribution pipe rehabilitation sites】 Effectiveness of the water reservoir tank will be understood.	Degree of famers understanding	Questionnaire before/after soft component implementation
	⑤【Reservoir tank construction and distribution pipe rehabilitation sites】 Water management method utilizing with the water reservoir tank will be mastered.	1)Degree of WUA staffs understanding for the water management & O/M manual 2)Appropriateness of water management record	1)Questionnaire before/after soft component implementation 2)Water management record
	⑥【Well rehabilitation sites group】 Operation and maintenance method of well irrigation facility will be mastered.	1)Degree of WUA staffs understanding for the water management & O/M manual 2)Appropriateness of water management record	1)Questionnaire before/after soft component implementation 2)Water management record
	⑦【Both group】 Irrigation water supply will be balanced with demand	1)Appropriateness of water distribution plan 2)Farmers satisfaction degree	1)Comparison of the annual license water quantity and the annual water distribution quantity 2) Questionnaire before/after soft component implementation
2. Technical Assistance on Organization Management Enhancement			
[Goal] Proper operation and management of the facilities	①【Both group】 WUA will be established.	WUA registration	Confirmation of WUA registration
	②【Both group】 Role of the well owners and farmers will be clarified.	Approval of the WUA management manual	WUA assembly meeting record

Goal/Target	Achievement	How to evaluate the degree of targeted achievement	Identifying method
will be undertaken by WUA	③【Both group】 WUA management system will be installed adequately.	1)Approval of the WUA management manual 2)Implementation degree of annual action plan	1)WUA assembly meeting record 2)Monitoring record
	④【Northern west bank area group】 Water fee collection system utilizing the water meter will be installed.	1)Approval of the water fee collection system 2)Water fee collection rate	1)WUA assembly meeting record 2)WUA financial record
	⑤【Jordan rift valley area group】 O/M cost sharing rate among WUA members will be agreed in WUA.	Approval of the O/M cost sharing rate	WUA assembly meeting record
	⑥【Both group】 Necessary cost for O/M will be reserved in WUA.	O/M cost reserved rate toward necessary O/M planning cost	WUA financial record
	⑦【Both category】 Monitoring support system of MOA will be established.	Implementation degree of the monitoring plan	Monitoring record

5. Activities of Soft Component (Input Plan)

(1) Contents of Activities

Expected soft component activities are shown in Table 5.

Table 5 Soft Component Activity Plan

Component	Activities	Schedule
1. Technical assistance on water management	[For Achievement ①]【Both group】 Detail irrigation map will be drafted together with farmers through the participatory rural appraisal. Various information on the irrigation area, location of the main facility, pipeline route, inventory of the farmers, cropping pattern, and so on, will be consolidated in the map. The map will be utilized as the base map of the water distribution plan. The map also contributes to common understanding among farmers for irrigation sites.	At detail design stage
	［For Achievement②］【Both group】 The study tour toward to the model sites of the JICA technical cooperation project "The Project on Improved Extension for Value-Added Agriculture in the Jordan River Rift Valley" will be carried out. Participants will be expected to learn the knowledge of the water saving irrigation technique and related cropping/farming technique. Workshop will be held after the study tour. In the workshop, participants will be expected to discuss about adaptation of learned technique to their own farm.	At beginning of the construction stage
	[For Achievement③]【Both group】 Through holding the workshop, water management expert will explain the existing on-firm water management method relied on only pump operation hours increases the water losses and affects to household income decreasing. The water management expert will enlighten the efficient water use utilizing water meter. The expert will also enlighten the suitable water volume management by crops.	At construction stage/ At completion of construction stage
	[For Achievement④]【Reservoir tank construction and distribution pipe rehabilitation sites group】	At construction

Component	Activities	Schedule
	Through holding the workshop, water management expert explain the purpose of water reservoir tank, efficient use of water reservoir tank, and the superiority of irrigation system utilizing water reservoir tank.	stage
	[For Achievement ⑤]【Reservoir tank construction and distribution pipe rehabilitation sites group】 Water management expert will train WUA staffs to draft the water management & O/M manual adapted to the irrigation system utilizing water reservoir tank. Contents of the manual covers followings; ・ Irrigation and water distribution plan utilizing water reservoir tank, ・ Operation and maintenance plan for the irrigation system consisting of well facility, water transmission facility, water reservoir tank, water distribution facility. The manual will be drafted by WUA staffs together with the water management expert through the OJT training so that WUA staffs can update the manual by themselves in the future. At completion of construction stage, practical training will be carried out using with manual. The manual will be finalized reflecting actual operation.	At construction stage/ At completion of construction stage
	[For Achievement ⑥]【Well rehabilitation sites group】 Water management expert will train WUA staffs how to draft the water management & O/M manual adapted to rehabilitated well facility. Contents of the manual covers followings; ・ Irrigation and water distribution plan adapting new pump capacity, ・ Operation and maintenance plan for the pumps, generator and other related facilities. The manual will be drafted by WUA staffs together with the water management expert through the OJT training so that WUA staffs can update the manual by themselves in the future. At completion of construction stage, practical training will be carried out using with manual. The manual will be finalized reflecting actual operation.	At construction stage/ At completion of construction stage
	[For Achievement ⑦]【Both group】 Water management expert will review the water use volume comparing with license water volume and necessary irrigation water volume by rainy season and dry season. In accordance with the analysis result, the water management expert will draft the annual water distribution plan together with WUA staff through OJT training for optimizing limited water volume. At trial operation of the facility, water management expert will train WUA staffs how to monitor and record the pumping water volume, storage water volume and distribution water volume by OJT training.	At construction stage/ At completion of construction stage
2. Technical assistance on organization management enhancement	[For Achievement ①,②]【Both group】 WUA establishment activities will be separated by two stages, orientation stage (at detail design stage) and WUA establishment stage (at commencement of construction stage). In the orientation stage, organization management expert will make a presentation to farmers about project outline, purpose, component of the facilities, and concept of WUA for obtaining basic consensus from community. In particular, well owner's understanding is most important thing for successful WUA organizing. Therefore, the concept and role of WUA must be explained to well owner sufficiently. In the WUA establishment stage, WUA member registration, agreement of the basic policy of WUA regulation among members, will be made. WUA will be established officially with registration to the government.	At detail design stage
	[For Achievement ③]【Both group】 Through a series of workshop, the details of WUA operation system such as the organization structure, WUA regulation, annually and daily activity plan, meeting holding procedure, and so on, will be determined and consolidated to the WUA management manual. In accordance with the decision of organization structure, the WUA board member will be selected. Organization management expert will train selected board members for necessary activities. At completion of	At construction stage/ At completion of construction stage

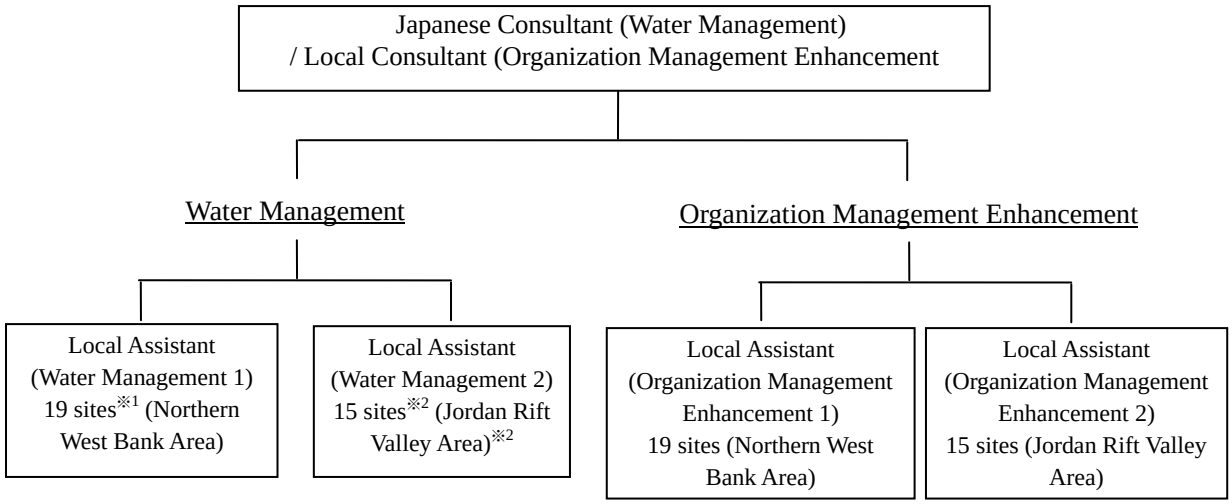
Component	Activities	Schedule
	construction stage, practical training will be carried out using with manual. The manual will be finalized reflecting actual operation.	
	[For Achievement ④、⑥]【Northern west bank area group】 Regarding the northern west bank area group, the water tariff system utilizing the water meter will be installed. In accordance with the calculation result of necessary O/M cost after the construction/rehabilitation, new water tariff and collection frequency will be determined among WUA members. Practical training for the water meter reading, water fee collection, receipt issuance and financial management will be carried out. Organization management expert will check the actual financial record book to monitor whether enough water tariffs are collected or not, comparing with the plan.	At construction stage/ At completion of construction stage
	[For Achievement ⑤、⑥]【Jordan rift valley area group】 Regarding the Jordan rift valley area group, the water payment system will be basically adapted the O/M cost sharing system among farmers and well owners. In accordance with the calculation result of necessary O/M cost after the construction/rehabilitation, the new O/M cost sharing rate will be determined among WUA members. Organization management expert will enlighten and train WUA staffs to record the collected income and the O/M expenditure in the financial record book, and open it to WUA members. Organization management expert will check the actual financial record book to monitor whether enough amount is collected or not, comparing with the plan or not.	At construction stage/ At completion of construction stage
	[For Achievement ⑦]【Both group】 Organization management expert will discuss with MOA headquarter office and district office for the selection of the department and persons in charge of WUA monitoring, at beginning of soft component implementation. Technical transfer of a series of organization management activities will be carried out to the selected department and persons through OJT training. At completion of construction stage, the organization management expert will support MOA headquarter office and district office to draft the annual WUA monitoring plan. Detail plan such as monitoring frequency, activity, budget, organization and so on, will be consolidated in the annual WUA monitoring plan.	At detail design stage/ At completion of construction stage

(2) Implementation Structure

Implementation structure for soft component implementation is as shown Figure-1. A Japanese consultant takes in charge of the technical assistance on water management and a local consultant takes in charge of the technical assistance on organization management enhancement. Japanese consultant takes in charge of overall management, too. Although the achievements and activities of water management component are different between in reservoir construction and distribution pipe rehabilitation sites and in existing well rehabilitation sites, it is efficient to implement the activities separately by area as same as organization management enhancement component. Therefore, the implementation group separates by northern west bank area (19 sites) and Jordan rift valley area (15 sites), and the local assistants are allocated in each area.

Furthermore, MOA headquarter office is requested to allocate one (1) staff for taking in charge of water management component and one (1) staff taking in charge of organization management enhancement component. MOA district offices are requested to allocate one (1) staff each as the area manager for common component

(Consultant)



※1: All sites are classified as "Reservoir tank and distribution pipe rehabilitation sites".
※2: 7 sites are classified as "Rehabilitation tank and distribution pipe rehabilitation sites" and 8 sites are classified as "Existing well rehabilitation sites"

（MOA）

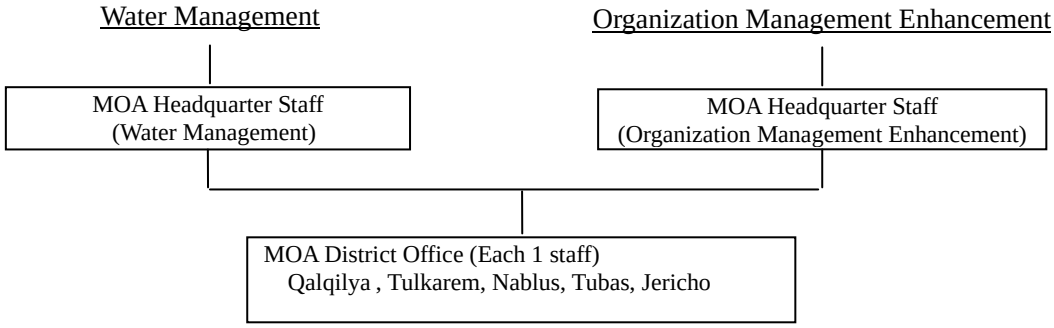


Figure-1　Soft Component Implementation Structure

(3) Target Persons

Planning Nos. of target persons by soft component activities are estimated 204 persons as mentioned below.

(a) Target Persons for Technical Assistance on Water Management (102 persons)

Regarding the reservoir tank construction and distribution pipe rehabilitation sites (25 sites), WUA water distribution manager (1 person/site, Total 25 persons) and O/M staff for reservoir tank (2 person/site, Total 50 persons) are directly involved as the target trainee. Regarding the well rehabilitation sites, WUA water distribution manager (1 person/sites, Total 9 persons) and O/M staff of well facility (2 persons/sites, Total 18 persons) are directly involved as the target trainee.

(b) Target Persons for Technical Assistance on Organization Management Enhancement (102 persons)

In the sites both of West Northern West Bank Area (19 sites) and Jordan Rift Valley (15 sites), WUA board members (WUA President, Vice president, Financial manager) (3 persons/sites, Total 102 persons) are directly

involved as the target trainee.

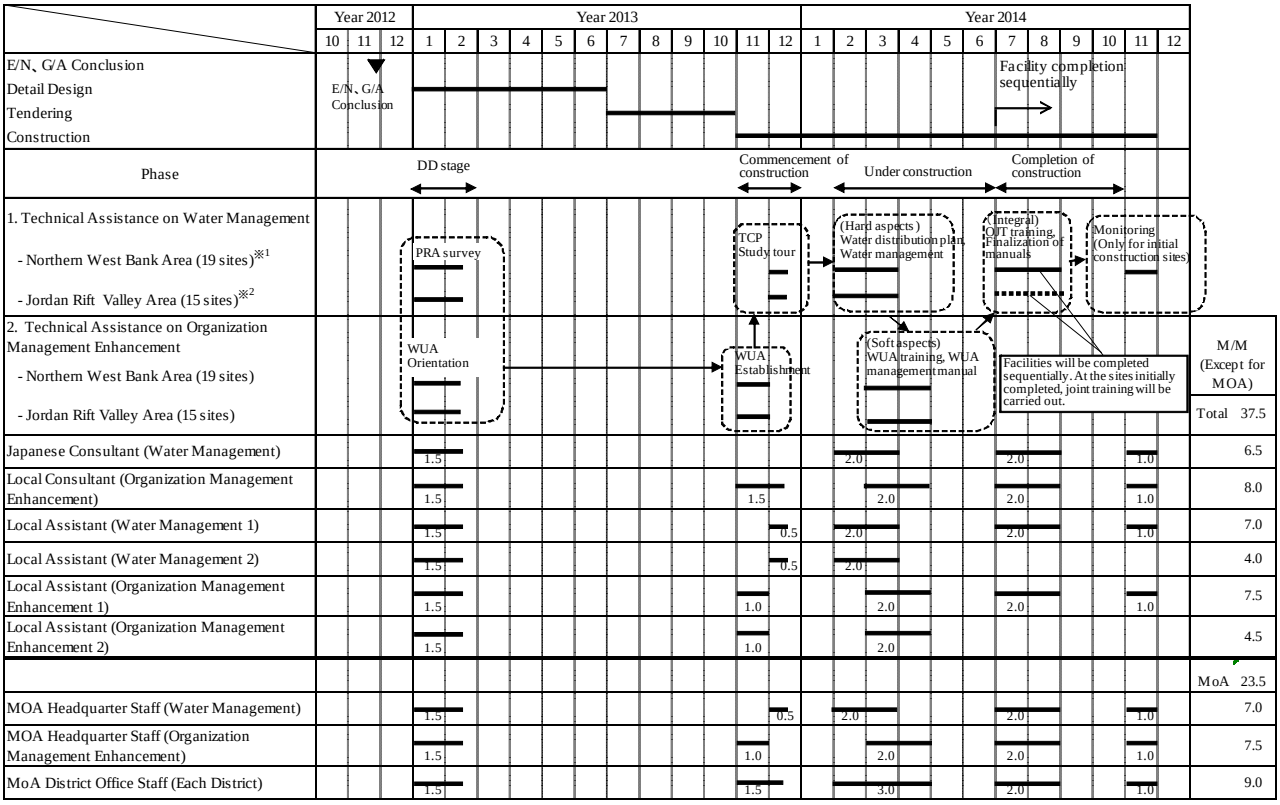
6. Procurement Plan of Implementation Resources

Expert for water management component is required to be specialized on the water management techniques using reservoir tank and water meters, and how to draft the annual water management plan considering with water allocation to the whole irrigation area. Moreover, water management expert is required to manage overall soft component activities including organization management enhancement because the actor of water management is WUA and its organizing process is related to water management closely. Accordingly, a Japanese expert who are specialized on water management and who has knowledge and experiences of organization management will take in charge of water management component and soft component overall management.

As the expert for organization management enhancement, a local consultant being familiar with social condition and manner in Palestine will be assigned. Organization management enhancement expert is desirable to have similar experiences in Palestine. Besides these experts, each two local assistants for water management and organization management enhancement component will be assigned.

7. Implementation Schedule

Soft component activities are planned to implement at detail design stage, commencement/under construction/completion of construction stage and monitoring stage, respectively. Total input from Japanese side is estimated 37.5 M/M.



※1: 19 sites are all classified as reservoir construction and distribution pipe rehabilitation site.

※2: 7 sites are classified as reservoir construction and distribution pipe rehabilitation site and 8 sites are classified as existing well rehabilitation site.

Figure-2 Implementation Schedule of Soft Component

8. Achievement Materials of Soft Component

Achievement materials on soft component are shown in below.

① Water management & operation and maintenance manual (Draft) (in English, Arabic)

② WUA management manual (Draft) (in English and Arabic)

③ Completion report (including result of questionnaire for identifying degree of achievement)

9. Rough Cost Estimation of Soft Component

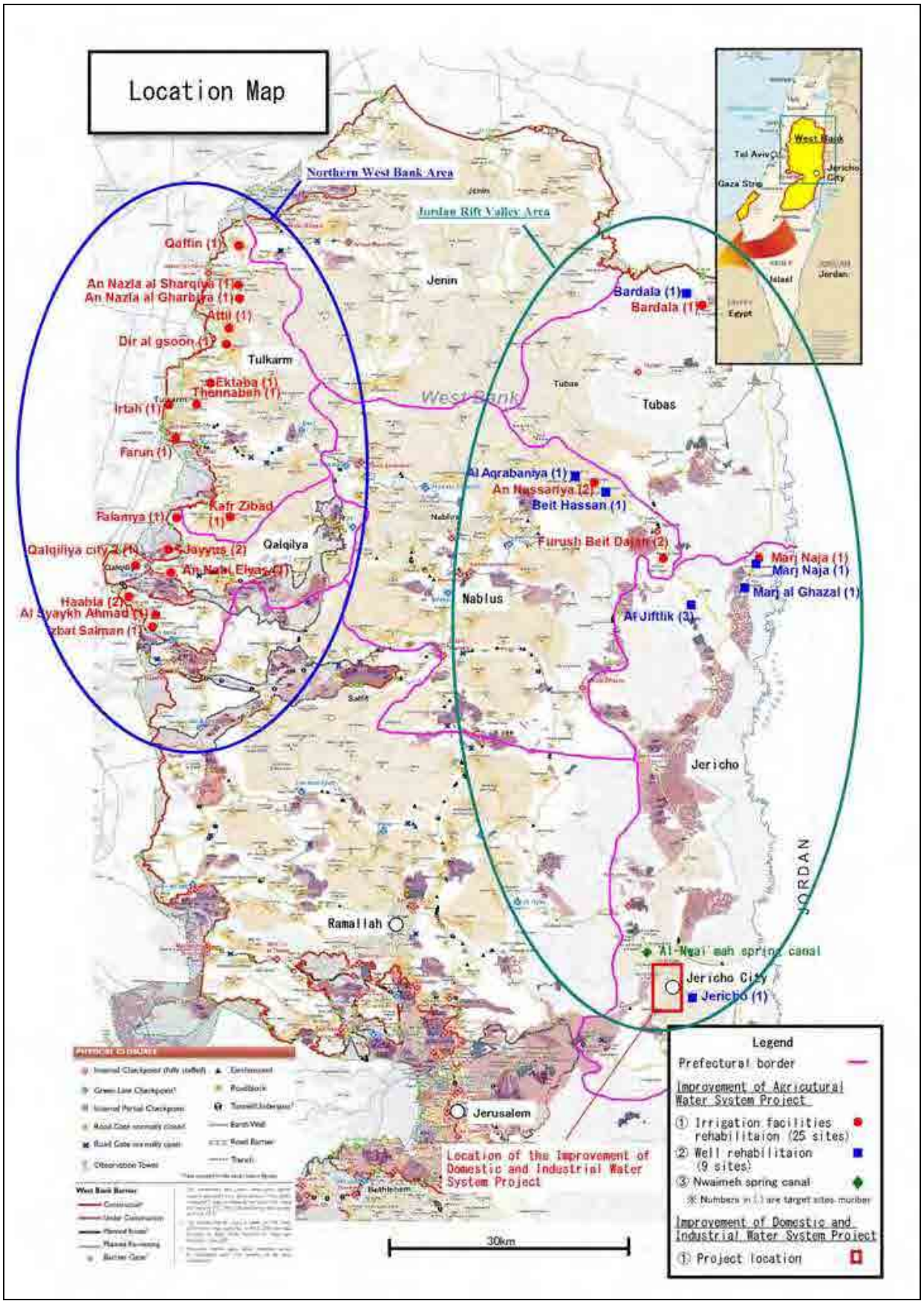
Expert Cost	5,005	Thousand Japanese Yen
Direct Cost	26,543	Thousand Japanese Yen
Indirect Cost	6,406	Thousand Japanese Yen
Total	37,954	Thousand Japanese Yen

10. Major Undertakings to be Undertaken by MOA

In principle, soft component implementation is carried out with MOA, jointly. Major undertakings by MOA are shown below.

① Allocation of MOA headquarter staffs (Water management 1 staff, Organization management enhancement 1 staff) and each 1 staff from MOA district offices
② Vehicles arrangement for MOA staffs mentioned above
③ Arrangement of office space in MOA headquarter office
④ Monitoring activities after soft component completion

Appendix　Location map of the well irrigation sites under the scope of the project for improvement of agricultural water systems



Appendix -6 Other Relevant Data

Appendix-6-1 Calculation of design abstraction volume of pumping in 9 well sites

The calculation flow of design abstraction volume in 9 well sites is shown as following.

(1)No.2 18-18/019 (Nablus Wadi Al Fara) Plan

	Crop	Irrigation area (ha)	Requirement of irrigation water volume per year (mm/year)	Water demand (m^3/year)	Requirement of maximum irrigation water volume per day(m3/day)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Wheat			-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Cabbage		150	-	-	-	-	-	-	-	-	-	-	-	-	-
3.	Califlower		150	-	-	-	-	-	-	-	-	-	-	-	-	-
4.	Cucumber	5.0	800	40,000	105	160	280	345	340	-	-	-	370	250	190	130
5.	Tomato		750	-	-	-	-	-	-	-	-	-	-	-	-	-
7.	Eggplant		778	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Onion		225	-	-	-	-	-	-	-	-	-	-	-	-	-
9.	Potato	5.0	534	26,700	-	100	185	415	490	460	-	-	-	-	-	-
10.	Zucchini		550	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Banana			-	-	-	-	-	-	-	-	-	-	-	-	-
12.	Banana 2			-	-	-	-	-	-	-	-	-	-	-	-	-
13.	Grape		900	-	-	-	-	-	-	-	-	-	-	-	-	-
14.	Citrus	10.0	921	92,100	40	40	40	400	570	600	620	580	470	250	40	40
15.	Date		1,300	-	-	-	-	-	-	-	-	-	-	-	-	-
16.	Thyme	30.0	186	55,800	120	120	120	120	1,110	-	-	-	-	-	120	120
	Total	50.0														
Net water requirement				214,600	265	420	625	1,280	2,510	1,060	620	580	840	500	350	290
Gross water requirement(Irrigation efficiency=0.68)				315,588	390	618	919	1,882	3,691	1,559	912	853	1,235	735	515	426
Requirement of abstraction volume considered of water saving efficiency				126,235	156	247	368	753	1,476	624	365	341	494	294	206	170
License volume				131,000												
Water volume from the another water source				-												
Requirement of pump power(m^3/hr)【20hour irrigation】					8	12	18	38	74	31	18	17	25	15	10	9

(2)No.3 18-18/027A (Nablus Wadi Al Fara) Plan

	Crop	Irrigation area (ha)	Requirement of irrigation	Water demand (m^3/year)	Requirement of maximum irrigation water volume per day(m3/day)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Wheat			-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Cabbage		150	-	-	-	-	-	-	-	-	-	-	-	-	-
3.	Califlower		150	-	-	-	-	-	-	-	-	-	-	-	-	-
4.	Cucumber	5.0	800	40,000	105	160	280	345	340	-	-	-	370	250	190	130
5.	Tomato	5.0	750	37,500	100	180	290	305	-	-	-	530	275	280	215	105
7.	Eggplant		778	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Onion	25.0	225	56,250	50	50	800	825	-	-	-	-	-	800	575	50
9.	Potato	15.0	534	80,100	-	300	555	1,245	1,470	1,380	-	-	-	-	-	-
10.	Zucchini		550	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Banana			-	-	-	-	-	-	-	-	-	-	-	-	-
12.	Banana 2			-	-	-	-	-	-	-	-	-	-	-	-	-
13.	Grape		900	-	-	-	-	-	-	-	-	-	-	-	-	-
14.	Citrus		921	-	-	-	-	-	-	-	-	-	-	-	-	-
15.	Date		1,300	-	-	-	-	-	-	-	-	-	-	-	-	-
16.	Thyme		186	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	50.0														
Net water requirement				213,850	255	690	1,925	2,720	1,810	1,380	-	530	645	1,330	980	285
Gross water requirement(Irrigation efficiency=0.6				314,485	375	1,015	2,831	4,000	2,662	2,029	-	779	949	1,956	1,441	419
Requirement of abstraction volume				125,794	150	406	1,132	1,600	1,065	812	-	312	380	782	576	168
License volume				30,000												
Water volume from the another water source				95,794												
Requirement of pump power(m^3/hr)【20hour irrigation】					8	20	57	80	53	41	-	16	19	39	29	8

(3)No.4 19-14/058B (Jericho Jericho) Plan

	Crop	Irrigation area (ha)	Requirement of irrigation	Water demand (m^3/year)	Requirement of maximum irrigation water volume per day(m3/day)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Wheat		659	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Cabbage	15.0	370	55,455	-	-	-	-	-	-	-	-	1,560	645	585	-
3.	Califlower		367	-	-	-	-	-	-	-	-	-	-	-	-	-
4.	Cucumber		1,004	-	-	-	-	-	-	-	-	-	-	-	-	-
5.	Tomato		1,122	-	-	-	-	-	-	-	-	-	-	-	-	-
7.	Eggplant		1,270	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Onion	5.0	300	15,000	10	10	160	165	-	-	-	-	-	160	115	10
9.	Potato		751	-	-	-	-	-	-	-	-	-	-	-	-	-
10.	Zucchini		900	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Banana		941	-	-	-	-	-	-	-	-	-	-	-	-	-
12.	Banana 2		1,988	-	-	-	-	-	-	-	-	-	-	-	-	-
13.	Grape		1,189	-	-	-	-	-	-	-	-	-	-	-	-	-
14.	Citrus		1,048	-	-	-	-	-	-	-	-	-	-	-	-	-
15.	Date		1,500	-	-	-	-	-	-	-	-	-	-	-	-	-
16.	Thyme	10.0	186	18,600	40	40	40	40	370	-	-	-	-	-	40	40
	Total	30.0														
Net water requirement				89,055	50	50	200	205	370	-	-	-	1,560	805	740	50
Gross water requirement(Irrigation efficiency=0.6				130,963	74	74	294	301	544	-	-	-	2,294	1,184	1,088	74
Requirement of abstraction volume				52,385	30	30	118	120	218	-	-	-	918	474	435	30
License volume				59,000												
Water volume from the another water source				-												
Requirement of pump power(m^3/hr)【20hour irrigation】					2	2	6	6	11	-	-	-	46	24	22	2

(4)No.6 19-17/012 (Jericho Marji Ghazal) Plan

	Crop	Irrigation area (ha)	Requirement of irrigation	Water demand (m^3/year)	Requirement of maximum irrigation water volume per day(m3/day)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Wheat		659	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Cabbage	10.0	370	36,970	-	-	-	-	-	-	-	-	1,040	430	390	-
3.	Califlower	10.0	367	36,700	-	-	-	-	-	-	-	-	1,040	470	400	-
4.	Cucumber		1,004	-	-	-	-	-	-	-	-	-	-	-	-	-
5.	Tomato		1,122	-	-	-	-	-	-	-	-	-	-	-	-	-
7.	Eggplant		1,270	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Onion	20.0	300	60,000	40	40	640	660	-	-	-	-	-	640	460	40
9.	Potato		751	-	-	-	-	-	-	-	-	-	-	-	-	-
10.	Zucchini		900	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Banana		941	-	-	-	-	-	-	-	-	-	-	-	-	-
12.	Banana 2		1,988	-	-	-	-	-	-	-	-	-	-	-	-	-
13.	Grape		1,189	-	-	-	-	-	-	-	-	-	-	-	-	-
14.	Citrus		1,048	-	-	-	-	-	-	-	-	-	-	-	-	-
15.	Date		1,500	-	-	-	-	-	-	-	-	-	-	-	-	-
16.	Thyme		186	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	40.0														
Net water requirement				133,670	40	40	640	660	-	-	-	-	2,080	1,540	1,250	40
Gross water requirement(Irrigation efficiency=0.6				196,574	59	59	941	971	-	-	-	-	3,059	2,265	1,838	59
Requirement of abstraction volume				78,630	24	24	376	388	-	-	-	-	1,224	906	735	24
License volume				-												
Water volume from the another water source				-												
Requirement of pump power(m^3/hr)【20hour irrigation】					1	1	19	19	-	-	-	-	61	45	37	1

(5)No.7 19-17/033 (Jericho Jiftlik) Plan

	Crop	Irrigation area (ha)	Requirement of irrigation	Water demand (m^3/year)	Requirement of maximum irrigation water volume per day(m3/day)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Wheat		659	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Cabbage	10.0	370	36,970	-	-	-	-	-	-	-	-	1,040	430	390	-
3.	Califlower	10.0	367	36,700	-	-	-	-	-	-	-	-	1,040	470	400	-
4.	Cucumber		1,004	-	-	-	-	-	-	-	-	-	-	-	-	-
5.	Tomato		1,122	-	-	-	-	-	-	-	-	-	-	-	-	-
7.	Eggplant		1,270	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Onion	10.0	300	30,000	20	20	320	330	-	-	-	-	-	320	230	20
9.	Potato	10.0	751	75,100	-	200	370	830	980	920	-	-	-	-	-	-
10.	Zucchini		900	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Banana		941	-	-	-	-	-	-	-	-	-	-	-	-	-
12.	Banana 2		1,988	-	-	-	-	-	-	-	-	-	-	-	-	-
13.	Grape		1,189	-	-	-	-	-	-	-	-	-	-	-	-	-
14.	Citrus		1,048	-	-	-	-	-	-	-	-	-	-	-	-	-
15.	Date		1,500	-	-	-	-	-	-	-	-	-	-	-	-	-
16.	Thyme	10.0	186	18,600	40	40	40	40	370	-	-	-	-	-	40	40
	Total	50.0														
Net water requirement				197,370	60	260	730	1,200	1,350	920	-	-	2,080	1,220	1,060	60
Gross water requirement(Irrigation efficiency=0.6				290,250	88	382	1,074	1,765	1,985	1,353	-	-	3,059	1,794	1,559	88
Requirement of abstraction volume				116,100	35	153	430	706	794	541	-	-	1,224	718	624	35
License volume				56,000												
Water volume from the another water source				60,100												
Requirement of pump power(m^3/hr)【20hour irrigation】					2	8	22	35	40	27	-	-	61	36	31	2

(6)No.8 19-20/001A (Tubas Bardalla) Plan

	Crop	Irrigation area (ha)	Requirement of irrigation	Water demand (m^3/year)	Requirement of maximum irrigation water volume per day(m3/day)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Wheat			-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Cabbage		370	-	-	-	-	-	-	-	-	-	-	-	-	-
3.	Califlower		367	-	-	-	-	-	-	-	-	-	-	-	-	-
4.	Cucumber		1,004	-	-	-	-	-	-	-	-	-	-	-	-	-
5.	Tomato		1,122	-	-	-	-	-	-	-	-	-	-	-	-	-
7.	Eggplant			-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Onion		251	-	-	-	-	-	-	-	-	-	-	-	-	-
9.	Potato		751	-	-	-	-	-	-	-	-	-	-	-	-	-
10.	Zucchini		800	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Banana			-	-	-	-	-	-	-	-	-	-	-	-	-
12.	Banana 2			-	-	-	-	-	-	-	-	-	-	-	-	-
13.	Grape			-	-	-	-	-	-	-	-	-	-	-	-	-
14.	Citrus		1,048	-	-	-	-	-	-	-	-	-	-	-	-	-
15.	Date			-	-	-	-	-	-	-	-	-	-	-	-	-
16.	Thyme	14.0	186	26,040	56	56	56	56	518	-	-	-	-	-	56	56
	Total	14.0														
Net water requirement				26,040	56	56	56	56	518	-	-	-	-	-	56	56
Gross water requirement(Irrigation efficiency=0.6				38,294	82	82	82	82	762	-	-	-	-	-	82	82
Requirement of abstraction volume				15,318	33	33	33	33	305	-	-	-	-	-	33	33
License volume				16,000												
Water volume from the another water source				-												
Requirement of pump power(m^3/hr)【20hour irrigation】					3	3	3	3	31	-	-	-	-	-	3	2

(7)No.9 20-17/022 (Jericho Marji Naja) Plan

	Crop	Irrigation area (ha)	Requirement of irrigation	Water demand (m^3/year)	Requirement of maximum irrigation water volume per day(m3/day)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Wheat		659	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Cabbage	15.0	370	55,455	-	-	-	-	-	-	-	-	1,560	645	585	-
3.	Califlower		367	-	-	-	-	-	-	-	-	-	-	-	-	-
4.	Cucumber		1,004	-	-	-	-	-	-	-	-	-	-	-	-	-
5.	Tomato	5.0	1,122	56,100	100	180	290	305	-	-	-	530	275	280	215	105
7.	Eggplant		1,270	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Onion		300	-	-	-	-	-	-	-	-	-	-	-	-	-
9.	Potato		751	-	-	-	-	-	-	-	-	-	-	-	-	-
10.	Zucchini		900	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Banana		941	-	-	-	-	-	-	-	-	-	-	-	-	-
12.	Banana 2		1,988	-	-	-	-	-	-	-	-	-	-	-	-	-
13.	Grape		1,189	-	-	-	-	-	-	-	-	-	-	-	-	-
14.	Citrus		1,048	-	-	-	-	-	-	-	-	-	-	-	-	-
15.	Date		1,500	-	-	-	-	-	-	-	-	-	-	-	-	-
16.	Thyme		186	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	20.0														
Net water requirement				111,555	100	180	290	305	-	-	-	530	1,835	925	800	105
Gross water requirement(Irrigation efficiency=0.6				164,051	147	265	426	449	-	-	-	779	2,699	1,360	1,176	154
Requirement of abstraction volume				65,620	59	106	170	180	-	-	-	312	1,080	544	470	62
License volume				73,000												
Water volume from the another water source				-												
Requirement of pump power(m^3/hr)【20hour irrigation】					3	5	9	9	-	-	-	16	54	27	24	3

(8)No.10 19-17/056 (Jericho Jiftlik) Plan

	Crop	Irrigation area (ha)	Requirement of irrigation	Water demand (m^3/year)	Requirement of maximum irrigation water volume per day(m3/day)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Wheat		659	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Cabbage	5.0	370	18,485	-	-	-	-	-	-	-	-	520	215	195	-
3.	Califlower		367	-	-	-	-	-	-	-	-	-	-	-	-	-
4.	Cucumber	5.0	1,004	50,200	105	160	280	345	340	-	-	-	370	250	190	130
5.	Tomato	10.0	1,122	112,200	200	360	580	610	-	-	-	1,060	550	560	430	210
7.	Eggplant		1,270	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Onion		300	-	-	-	-	-	-	-	-	-	-	-	-	-
9.	Potato	10.0	751	75,100	-	200	370	830	980	920	-	-	-	-	-	-
10.	Zucchini		900	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Banana		941	-	-	-	-	-	-	-	-	-	-	-	-	-
12.	Banana 2		1,988	-	-	-	-	-	-	-	-	-	-	-	-	-
13.	Grape	5.0	1,189	59,450	15	15	15	210	360	390	395	380	320	175	15	15
14.	Citrus	5.0	1,048	52,400	20	20	20	200	285	300	310	290	235	125	20	20
15.	Date		1,500	-	-	-	-	-	-	-	-	-	-	-	-	-
16.	Thyme	10.0	186	18,600	40	40	40	40	370	-	-	-	-	-	40	40
	Total	50.0														
Net water requirement				386,435	380	795	1,305	2,235	2,335	1,610	705	1,730	1,995	1,325	890	415
Gross water requirement(Irrigation efficiency=0.6				568,287	559	1,169	1,919	3,287	3,434	2,368	1,037	2,544	2,934	1,949	1,309	610
Requirement of abstraction volume				227,315	224	468	768	1,315	1,374	947	415	1,018	1,174	780	524	244
License volume				330,000												
Water volume from the another water source				-												
Requirement of pump power(m^3/hr)【20hour irrigation】					11	23	38	66	69	47	21	51	59	39	26	12

(9)No.11 19-17/007 (Jericho Jiftlik) Plan

	Crop	Irrigation area (ha)	Requirement of irrigation	Water demand (m^3/year)	Requirement of maximum irrigation water volume per day(m3/day)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Wheat		659	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	Cabbage	20.0	370	73,940	-	-	-	-	-	-	-	-	2,080	860	780	-
3.	Califlower	10.0	367	36,700	-	-	-	-	-	-	-	-	1,040	470	400	-
4.	Cucumber		1,004	-	-	-	-	-	-	-	-	-	-	-	-	-
5.	Tomato		1,122	-	-	-	-	-	-	-	-	-	-	-	-	-
7.	Eggplant		1,270	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Onion	10.0	300	30,000	20	20	320	330	-	-	-	-	-	320	230	20
9.	Potato		751	-	-	-	-	-	-	-	-	-	-	-	-	-
10.	Zucchini		900	-	-	-	-	-	-	-	-	-	-	-	-	-
11.	Banana		941	-	-	-	-	-	-	-	-	-	-	-	-	-
12.	Banana 2		1,988	-	-	-	-	-	-	-	-	-	-	-	-	-
13.	Grape		1,189	-	-	-	-	-	-	-	-	-	-	-	-	-
14.	Citrus		1,048	-	-	-	-	-	-	-	-	-	-	-	-	-
15.	Date		1,500	-	-	-	-	-	-	-	-	-	-	-	-	-
16.	Thyme	10.0	186	18,600	40	40	40	40	370	-	-	-	-	-	40	40
	Total	50.0														
Net water requirement				159,240	60	60	360	370	370	-	-	-	3,120	1,650	1,450	60
Gross water requirement(Irrigation efficiency=0.6				234,176	88	88	529	544	544	-	-	-	4,588	2,426	2,132	88
Requirement of abstraction volume				93,670	35	35	212	218	218	-	-	-	1,835	970	853	35
License volume				39,000												
Water volume from the another water source				54,670												
Requirement of pump power(m^3/hr)【20hour irrigation】					2	2	11	11	11	-	-	-	92	49	43	2

Appendix-6-2 Calculation of design total pump head

No.		Unit	2	3	4	6	7	8	9	10	11	Remarks
Well No.			18-18/019	18-18/027A	19-14/058B	19-17/012	19-17/033	19-20/001A	20-17/022	19-17/056	19-17/007	
Rehabilitation type			A	B	B	A	B	C	A	A	B	
1.Base	Abstraction volume(Q)	(m^3/h)	80	80	50	70	70	40	60	70	100	
	〃	(m^3/min)	1.33	1.33	0.83	1.17	1.17	0.67	1.00	1.17	1.67	
	〃	(m^3/s)	0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.02	0.03	
2.Actual head (ha)	Existing well bottom	GL-(m)	150	55	80	67	57	120	109	145	105	
	Deepening	(m)	80	170	80	50	100	80	0	0	0	
	Design well bottom	GL-(m)	230	225	160	117	157	200	109	145	105	
	Installing pump location	GL-(m)	220	215	150	107	147	190	99	135	95	Installing pump location=Design well bottom +10m
	pump head over ground	(m)	20	150	0	0	0	40	10	10	0	
	Actual head (ha)	(m)	240	365	150	107	147	230	109	145	95	
3.Friction head loss												
(1)Rising pipe	Pipe		Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	
	Diameter	(inch)	8	10	7	7	7	7	7	7	8	
	Diameter(D1)	(mm)	203	254	178	178	178	178	178	178	203	1inch=25.4mm
	Lenth(L1)	(m)	220	215	150	107	147	190	99	135	95	
	Flow coefficient(C1)		100	100	100	100	100	100	100	100	100	
	Watre velocity(V1)	(m/s)	0.68	0.44	0.56	0.78	0.78	0.45	0.67	0.78	0.86	V=Q/(π/4・(D1/1000)^2)、0.3m/s≦V≦2.0m/s
	Friction head loss(A1)	(m)	0.96	0.32	0.52	0.70	0.96	0.44	0.48	0.88	0.63	hf=10.67・(Q$^{1.85}$・C$^{-1.85}$・D$^{-4.87}$)・L1
(2)Existing water supply pipe	Pipe		Steel	Steel	-	-	Steel	-	Steel	PE	-	
	Diameter	(inch)	6	6			6		8	6		
	Diameter(D1)	(mm)	152	152			152		203	152		1inch=25.4mm
	Lenth(L1)	(m)	600	3,000			1,500		280	1,300		
	Flow coefficient(C1)		100	100			100		100	150		
	Watre velocity(V1)	(m/s)	1.22	1.22			1.07		0.51	1.07		V=Q/(π/4・(D1/1000)^2)、0.3m/s≦V≦2.0m/s
	Friction head loss(A1)	(m)	10.72	53.61			21.15		0.72	8.66		hf=10.67・(Q$^{1.85}$・C$^{-1.85}$・D$^{-4.87}$)・L1
(3)New water supply pipe	Pipe		-	HDPE	HDPE	-	HDPE	HDPE	-	-	HDPE	
	Diameter	(inch)		6	6		6	6			6	
	Diameter(D1)	(mm)		152	152		152	152			152	1inch=25.4mm
	Lenth(L1)	(m)		200	30		30	800			30	
	Flow coefficient(C1)			150	150		150	150			150	
	Watre velocity(V1)	(m/s)		1.22	0.76		1.07	0.62			1.22	V=Q/(π/4・(D1/1000)^2)、0.3m/s≦V≦2.0m/s
	Friction head loss(A1)	(m)		1.69	0.11		0.20	1.90			0.25	hf=10.67・(Q$^{1.85}$・C$^{-1.85}$・D$^{-4.87}$)・L1
計	A1+A2+A3		11.68	55.62	0.63	0.70	22.31	2.34	1.20	9.54	0.88	
4.Parcial head loss	90°elbow	(piece)	3	3	3	3	3	3	3	3	3	Steel pipe
		(m/piece)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	Coversion
		(m)	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	
	45°elbow	(piece)	2	2	2	2	2	2	2	2	2	Steel pipe
		(m/piece)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	Coversion
		(m)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
	Check valve	(piece)	1	1	1	1	1	1	1	1	1	Steel pipe
		(m/piece)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	Coversion
		(m)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	
	Sluice valve	(piece)	1	1	1	1	1	1	1	1	1	Steel pipe
		(m/piece)	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	Coversion
		(m)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Flow meter	(piece)	1	1	1	1	1	1	1	1	1	Steel pipe
		(m)	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	Head loss coefficient(f)
	Head loss(B)	(m)	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	h=f×(V^2/2g)
5.Remnant velocity head	Remnant velocity head(C)	(m)	0.05	0.01	0.01	0.03	0.05	0.01	0.01	0.04	0.02	h=V^2/2g
6.Head loss(hf)	Total (A)~(C)	(m)	28.61	72.51	17.52	17.61	39.24	19.23	18.09	26.46	17.78	
7.Toal head(H)	H=ha+hf	(m)	268.61	437.51	167.52	124.61	186.24	249.23	127.09	171.46	112.78	
		(m)	270	440	170	130	190	250	130	180	120	

Appendix-6-3 Size of the pump station

No.	Well No.	Power source	Right wall (m)	Affrodance (m)	Well top (m)	Valve (m)	Diesel generator (m)	Affrodance (m)	Left wall (m)	Total (m)	Design (m)
2	18-18/019	Commercial power	0.2	0.6	0.9	2.0			0.2	3.9	4.0
3	18-18/027A	Commercial power	0.2	0.6	0.9	2.0			0.2	3.9	4.0
4	19-14/058B	Commercial power	0.2	0.6	0.9	2.0			0.2	3.9	4.0
6	19-17/012	Commercial power	0.2	0.6	0.9	2.0			0.2	3.9	4.0
7	19-17/033	Diesel generator	0.2	0.6			3.2	0.6	0.2	4.8	5.0
8	19-20/001A	Diesel generator	0.2	0.6			3.4	0.6	0.2	5.0	5.0
9	20-17/022	Diesel generator	0.2	0.6			2.3	0.6	0.2	3.9	4.0
10	19-17/056	Commercial power	0.2	0.6	0.9	2.0			0.2	3.9	4.0
11	19-17/007	Diesel generator	0.2	0.6			3.2	0.6	0.2	4.8	5.0

②Breadth

No.	Well No.	Power source	Right wall (m)	Affrodance (m)	Well top (m)	Valve (m)	Diesel generator (m)	Affrodance (m)	Left wall (m)	Total (m)	Design (m)
2	18-18/019	Commercial power	0.2	0.6	0.9			2.0	0.2	3.9	4.0
3	18-18/027A	Commercial power	0.2	0.6	0.9			2.0	0.2	3.9	4.0
4	19-14/058B	Commercial power	0.2	0.6	0.9			2.0	0.2	3.9	4.0
6	19-17/012	Commercial power	0.2	0.6	0.9			2.0	0.2	3.9	4.0
7	19-17/033	Diesel generator	0.2	0.6	0.9	1.0	1.0	2.0	0.2	5.9	6.0
8	19-20/001A	Diesel generator	0.2	0.6	0.9	1.0	1.0	2.0	0.2	5.9	6.0
9	20-17/022	Diesel generator	0.2	0.6	0.9	1.0	1.0	2.0	0.2	5.9	6.0
10	19-17/056	Commercial power	0.2	0.6	0.9			2.0	0.2	3.9	4.0
11	19-17/007	Diesel generator	0.2	0.6	0.9	1.0	1.0	2.0	0.2	5.9	6.0

③heihgt

No.	Well No.	Power source	Footing (m)	Basement (m)	Well top (m)	Diesel generator (m)	Affrodance (m)	Roof (m)	Total (m)	Design (m)
2	18-18/019	Commercial power	0.15	0.2	1.8		1.0	0.175	3.3	3.5
3	18-18/027A	Commercial power	0.15	0.2	1.8		1.0	0.175	3.3	3.5
4	19-14/058B	Commercial power	0.15	0.2	1.8		1.0	0.175	3.3	3.5
6	19-17/012	Commercial power	0.15	0.2	1.8		1.0	0.175	3.3	3.5
7	19-17/033	Diesel generator	0.15	0.2		1.8	1.0	0.175	3.3	3.5
8	19-20/001A	Diesel generator	0.15	0.2		1.8	1.0	0.175	3.3	3.5
9	20-17/022	Diesel generator	0.15	0.2		1.8	1.0	0.175	3.3	3.5
10	19-17/056	Commercial power	0.15	0.2	1.8		1.0	0.175	3.3	3.5
11	19-17/007	Diesel generator	0.15	0.2		1.8	1.0	0.175	3.3	3.5

Appendix-6-4 Monitoring Form (Draft)

MONITORING FORM

-If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the project proponent. When necessary, the project proponent should refer to the following monitoring form for submitting reports.

-When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase) should be considered.

１． Responses/Actions to Comments and Guidance from Government Authorities and the Public

1) Common phase

Monitoring Item	Monitoring Results during Report Period
Responses/Actions to Comments and Guidance from Government Authorities	

２． Mitigation Measures

- Air Quality（Emission Gas / Ambient Air Quality）

Monitoring Item	Monitoring Results during Report Period
Not Applicable	

- Water Quality（Effluent/Wastewater/Ambient Water Quality）

Monitoring Item	Monitoring Results during Report Period
Not Applicable	

- Waste

1) Construction phase

Monitoring Item	Monitoring Results during Report Period
Not Applicable	

- Noise / Vibration

1) Construction phase

Monitoring Item	Monitoring Results during Report Period
(Method) ・ Physical check of the heavy machinery operational conditions, such as excavation machine, crane, etc., which occurs the noise or vibration by the site visiting. ・ Hearing of complaints from residential people nearby the construction area (Duration) During the installation work of distribution pipe for domestic water and rehabilitation work of Nwaimeh canal for agriculture water. (Frequency) Once a month	

- Odor

Monitoring Item	Monitoring Results during Report Period
Not applicable	

- Traffic

1) Construction phase

Monitoring Item	Monitoring Results during Report Period
(Method) ・ Physical check whether the traffic jam occurs or not by the site visiting. ・ Physical check whether the necessary safety measures have done or not by the site visiting. (Duration) During the installation work of distribution pipe for domestic water and rehabilitation work of Nwaimeh canal for agriculture water. (Frequency) Once a month	

３． Natural Environment

- Ecosystem

Monitoring Item	Monitoring Results during Report Period
Not applicable	

４． Social Environment

- Resettlement

Monitoring Item	Monitoring Results during Report Period
Not applicable	

- Living / Livelihood

Monitoring Item	Monitoring Results during Report Period
Not applicable	

Environmental Checklist: 16. Agriculture, Irrigation and Livestock Industry (1)

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been officially completed? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) Y (b) Y (c) N (d) Y	(a) Have submitted IEE to EQA (Environmental quality otherity) in the month of March, 2012 (b) Decision letter would be issued within 40 days after the submission date. (c) Have not received the decision letter yet. (d) you must have a permission from other authorities or government such as (MOA, MTE, MLC from the regulator EQA .
	(2) Explanation to the Public	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) Initial announcement of the project has been done to the major stakeholders. Necessary communication would be continued with them time to time as the project progression. Public meeting for the communities which is located in the project area would be planned before the construction phase. (b) Comments from public or regulatory authorities would be reflected to the project implementation plan.
2 Mitigation Measures	(1) Water Quality	(a) Are considerations given to water pollution of the surrounding water bodies, such as rivers and groundwater by effluents or leachates from agricultural lands? Are adequate use/disposal standards for fertilizers, agrochemicals, and livestock wastes established? Is a framework established to increase awareness of the standards among farmers? (b) Is a monitoring framework established for water pollution of rivers and groundwater?	(a) Y (b) Y	Effluent shall be transmited from the treatment plants into the storage reservoir by closed pipes and then to the distribution system, the quality of water is combitable with the palestinian standers
	(2) Wastes	(a) Are wastes properly treated and disposed of in accordance with the country's regulations?	(a) Y	There is no expected wasts.
	(3) Soil Contamination	(a) Is there a possibility that impacts in irrigated lands, such as salinization of soils will result? (b) Are adequate measures taken to prevent soil contamination of irrigated lands by agrochemicals, heavy metals and other hazardous substances? (c) Are any agrochemicals management plans prepared? Are any usages or any implementation structures organized for proper use of the plans?	(a) N (b) Y (c) N	(a) in the three locations will be irrigate. The salinity soilwill be monitor an the irrigation managmant shall into consederation the impact of the soil to keep the siol salinity according to global standerd (b) there is no contamination due the heavy metals (c) no
	(4) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will cause subsidence?	(a) N	(a) Extraction of a large volume of groundwater is not planned.
	(5) Odor	(a) Are there any odor sources? Is there a possibility that odor problems will occur to the inhabitants?	(a) N	(a) This project will not occur odor.
3 Natural Environment	(1) Protected Areas	(a) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) Project site is not located in the conservation area.

Environmental Checklist: 16. Agriculture, Irrigation and Livestock Industry （2）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
3 Natural Environment	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site or discharge area encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) Is there a possibility that the project will result in the loss of breeding and feeding grounds for valuable wildlife? If they are lost, are there substitutes for the grounds near the original locations? (d) Is there a possibility that overgrazing will cause ecological degradation, such as impacts on wildlife habitats and desertification? (e) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem?	(a) N (b) N (c) N (d) N (e) N	(a) Project site is not located in such area. (b) Project site is not located in such area. (c) Significant ecological impacts are not anticipated. (d) Significant adversely impact to the water source would be not occurred because the water intake source of the locations, and does not change after the rehabilitated. (e) there is no ecological impacts
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on relocation and compensation given to affected persons prior to resettlement? (c) Is the resettlement plan, including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) N (b) (c) (d) (e) (f) (g) (h) (i) (j)	There is no involuntary resettlement caused by project implementation.

Environmental Checklist: 16. Agriculture, Irrigation and Livestock Industry (3)

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? (b) Is proper allotment made for rights to agricultural land use? Is there a possibility that the allotment will result in inequitable distribution or usurpation of land and available resources? (c) Are proper allotments, such as water rights allotment in the project area made? Is there a possibility that the allotments will result in inequitable distribution or usurpation of water rights and available resources? (d) Is there a possibility that the amount of water used (surface water, groundwater) by the project will adversely the downstream fisheries and water uses? (e) Is there a possibility that water-borne or water-related diseases (e.g., schistosomiasis, malaria, filariasis) will be introduced? Is adequate consideration given to public health education, if necessary?	(a) N (b) N (c) N (d) N (e) N	Project does not adversely affect to the inhabitants.
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage sites? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) Project does not adversely affect to the heritage.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) Project does not affect to the landscape.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) N (b) N	Project does not affect to the ethnic minorities and indigenous peoples.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) N (b) N (c) N (d) N	The implementation of the project considers the safety of the working individuals by conducting proper trainings on safety. Adequate trainings are given for equipment handling to avoid accidents. Security gurads are installed in strategic location for proper implementaion of safety in the project area.

Environmental Checklist: 16. Agriculture, Irrigation and Livestock Industry (4)

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) Y (b) N (c) N	Adequate measures would be considered by the contractor accordance with the construction agreement.
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y (b) Y (c) Y (d) N	(a) Monitoring program by the implement would be conducted. (b) Refer to the monitoring plan. (c) Monitoring framework would be established including the budget plan. (d) No, the existing company monitoring framework will be used.
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Forestry checklist should also be checked. (b) For the projects including construction of large-scale weirs, reservoirs, and dams, where necessary, pertinent items described in the Hydropower, Dams and Reservoirs checklist should also be checked.	(a) N (b) N	(a) The project does not impact. (b) The project just for the small-scale locations.
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N	(a) The project does not impact.

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are made, if necessary.
In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan' experience).
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

Environmental Checklist: 14. Water Supply （1）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been officially completed? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) Y (b) Y (c) N (d) Y	(a) Have submitted IEE to EQA (Environmental quality otherity) in the month of March, 2012 (b) Decision letter would be issued within 40 days after the submission date. (c) Have not received the decision letter yet. (c) you must have a permission from other authorities or government such as (PWA, MTE, MLC from the regulator EQA .
	(2) Explanation to the Public	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) Initial announcement of the project has been done to the major stakeholders. Necessary communication would be continued with them time to time as the project progression. Public meeting for the communities which is located in the project area would be planned before the construction phase. (b) Comments from public or regulatory authorities would be reflected to the project implementation plan.
2 Mitigation Measures	(1) Air Quality	(a) Is there a possibility that chlorine from chlorine storage facilities and chlorine injection facilities will cause air pollution? Are any mitigating measures taken? (b) Do chlorine concentrations within the working environments comply with the country's occupational health and safety standards?	(a) N (b) Y	(a) Disinfection facilities are housed indoors, there is no divergence. (b) Disinfection facilities use equipment based on the criteria of Palestine.
	(2) Water Quality	(a) Do pollutants, such as SS, BOD, COD contained in effluents discharged by the facility operations comply with the country's effluent standards?	(a) Y	(a) Effluent shall be transmited from the treatment plants into the storage reservoir by closed pipes and then to the distribution system, the quality of water is combitable with the palestinian standers
	(3) Wastes	(a) Are wastes, such as sludge generated by the facility operations properly treated and disposed in accordance with the country's regulations?	(a) Y	(a) there is no expected wasts.
	(4) Noise and Vibration	(a) Do noise and vibrations generated from the facilities, such as pumping stations comply with the country's standards?	(a) Y	(a) Noise and vibration generated from newly installed major pumps of the locations would comply with the standard. These facilities are located far from the residential areas.
	(5) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will cause subsidence?	(a) N	(a) Extraction of a large volume of groundwater is not planned.
3 Natural Environment	(1) Protected Areas	(a) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) Project site is not located in the conservation area.

Environmental Checklist: 14. Water Supply （2）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
3 Natural Environment	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Is there a possibility that the amount of water (e.g., surface water, groundwater) used by the project will adversely affect aquatic environments, such as rivers? Are adequate measures taken to reduce the impacts on aquatic environments, such as aquatic organisms?	(a) N (b) N (c) N (d) N	(a) Project site is not located in such area. (b) Project site is not located in such area. (c) Significant ecological impacts are not anticipated. (d) Significant adversely impact to the water source would be not occurred because the water intake source of the locations, and does not change after the rehabilitated.
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on relocation and compensation given to affected persons prior to resettlement? (c) Is the resettlement plan, including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) N (b) (c) (d) (e) (f) (g) (h) (i) (j)	There is no involuntary resettlement caused by project implementation.
	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? (b) Is there a possibility that the amount of water used (e.g., surface water, groundwater) by the project will adversely affect the existing water uses and water area uses?	(a) N (b) N	(a) Project does not adversely affect to the inhabitants. (b) Amount of water used by the project does not adversely affect to the existing water uses and water area uses.
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage sites? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) Project does not affect to the heritage.

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Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) Project does not affect to the landscape.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) N (b) N	Project does not affect to the ethnic minorities and indigenous peoples.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) N (b) N (c) N (d) N	The implementation of the project considers the safety of the working individuals by conducting proper trainings on safety. Adequate trainings are given for equipment handling to avoid accidents. Security gurads are installed in strategic location for proper implementaion of safety in the project area.
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts? (d) If the construction activities might cause traffic congestion, are adequate measures considered to reduce such impacts?	(a) Y (b) N (c) N (d) N	Adequate measures would be considered by the contractor accordance with the construction agreement.
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y (b) Y (c) Y (d) N	(a) Monitoring program by the implement would be conducted. (b) Refer to the monitoring plan. (c) Monitoring framework would be established including the budget plan. (d) No, the existing company monitoring framework will be used.
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Dam and River Projects checklist should also be checked.	(a) N	(a) The project does not impact.

Environmental Checklist: 14. Water Supply （4）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
6 Note	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N	(a) The project does not impact.

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are made, if necessary.
In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan' experience).
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.