APPENDICES

APPENDICES

Preparatory Survey on
The Project for Introduction of Clean Energy by Solar Electricity Generation System in Palestinian Authority

Member List of the 1st Preparatory Survey Team

1.	Mr. Toshinobu KATO Team Leader	Deputy Director General, and Group Director for Natural Resources and Energy, Industrial Development Department Japan International Cooperation Agency (JICA)
2.	Mr. Yoshiki EHARA Planning Management	Assistant Director, Natural Resources and Energy Conservation Division, Natural Resource and Energy Group, Industrial Development Department Japan International Cooperation Agency (JICA)
3.	Mr. Kazunori OGAGUCHI Procurement Agent	Second Construction Management Division, First Management Department Japan International Cooperation System (JICS)
4.	Mr. Mitsuo OCHI Chief Consultant/ Photovoltaic System Planner	ORIENTAL CONSULTANTS CO., LTD.
5.	Mr. Fumitaka KAMON Interconnected Photovoltaic Power System Specialist	ORIENTAL CONSULTANTS CO., LTD.
6.	Mr. Ado KAMAGATA Equipment and Facilities Planner	ORIENTAL CONSULTANTS CO., LTD.
7.	Mr. Takatsugu SHIMADA Procurement Planner and Cost Estimator-1	ORIENTAL CONSULTANTS CO., LTD.
8.	Mr. Kiyoshi YASAKI Regulations/ Environment-Social Considerations Specialist	ORIENTAL CONSULTANTS CO., LTD.
9.	Mr. Masahiko SUZUKI System Operating Specialist	ORIENTAL CONSULTANTS CO., LTD.
10.	Mr. Tatsuo KOIKE Architectural Planner	ORIENTAL CONSULTANTS CO., LTD.
11.	Ms. Asuka TODA Coordinator	ORIENTAL CONSULTANTS CO., LTD.

Preparatory Survey on
The Project for Introduction of Clean Energy by Solar Electricity Generation System in Palestinian Authority

Member List of the 2nd Preparatory Survey Team

1.	Mr. Mitsuo OCHI Chief Consultant/ Photovoltaic System Planner	ORIENTAL CONSULTANTS CO., LTD.
2.	Mr. Fumitaka KAMON Interconnected Photovoltaic Power System Specialist	ORIENTAL CONSULTANTS CO., LTD.
3.	Mr. Ado KAMAGATA Equipment and Facilities Planner	ORIENTAL CONSULTANTS CO., LTD.
4.	Mr. Takatsugu SHIMADA Procurement Planner and Cost Estimator-1	ORIENTAL CONSULTANTS CO., LTD.
5.	Mr. Kiyoshi YASAKI Regulations/ Environment-Social Considerations Specialist	ORIENTAL CONSULTANTS CO., LTD.
6.	Mr. Masahiko SUZUKI System Operating Specialist	ORIENTAL CONSULTANTS CO., LTD.
7.	Mr. Tatsuo KOIKE Architectural Planner	ORIENTAL CONSULTANTS CO., LTD.
8.	Ms. Asuka TODA Coordinator	ORIENTAL CONSULTANTS CO., LTD.

Preparatory Survey on
The Project for Introduction of Clean Energy by Solar Electricity Generation System in Palestinian Authority

Member List of the 3rd Preparatory Survey Team
(Explanation of Draft Final Report)

1.	Mr. Tsutomu KOBAYASHI Team Leader	Senior Representative, Japan International Cooperation Agency (JICA) Tel-Aviv Office
2.	Ms. Michiko Hatakenaka Planning Management	Assistant Director, Grant Aid Project Management Division 2, Financing Facilitation and Procurement Supervision Department Japan International Cooperation Agency (JICA)
3.	Mr. Mitsuo OCHI Chief Consultant/ Photovoltaic System Planner	ORIENTAL CONSULTANTS CO., LTD.
4.	Mr. Fumitaka KAMON Interconnected Photovoltaic Power System Specialist	ORIENTAL CONSULTANTS CO., LTD.
5.	Mr. Ado KAMAGATA Equipment and Facilities Planner	ORIENTAL CONSULTANTS CO., LTD.
6.	Ms. Asuka TODA Coordinator	ORIENTAL CONSULTANTS CO., LTD.

Preparatory Survey on
The Project for Introduction of Clean Energy by Solar Electricity Generation System in Palestinian Authority

Survey Schedule of the 1st Preparatory Survey（10 - 23 October, 2009）

No.	Date		Team Leader (JICA)	Planning Management (JICA)	Chief Consultant/ Photovoltaic System Planner (Consultant)	Interconnected Photovoltaic Power System Specialist (Consultant)	Equipment and Facilities Planner (Consultant)	Procurement Planner and Cost Estimator (Consultant)	Regulations/Environment·Social Considerations Specialist (Consultant)	System Operating Specialist (Consultant)	Architectural Planner (Consultant)	Coordinator (Consultant)
			Mr. KATO	MR. EHARA	Mr. OCHI	Mr. KAMON	Mr. KAMAGATA	Mr. SHIMADA	Mr. YASAKI	Mr. SUZUKI	Mr. KOIKE	Ms. TODA
1	10-Oct	Sat	NRT－CDG（JL405 11:05-16:40） CDG－TLV（AF2220 18:45-23:10） Tel Aviv－Ramallah（Move by Car）		NRT－FRA（LH711 09:35-14:15） FRA－（LH690 22:30-）			Same as Chief Consultant	NRT－VIE（OS52 10:55-15:55） VIE－TLV（OS859 20:25-23:55） Tel Aviv－Ramallah（Move by Car）			Same as Chief Consultant
2	11-Oct	Sun	Courtesy Visit to PEA, Internal Meeting, Joint Meeting（PEA, MOPAD, PIEFZA）		－TLV（＞-2:20） Tel Aviv－Ramallah（Move by Car）			Same as Chief Consultant				
3	12-Oct	Mon	Courtesy Visit to Jericho Municipality, Site Visit (accompanied with PEA/PEC), Discussion with JDECO, Internal Meeting at Jericho JICA Field Office				NRT－VIE（OS52 10:55-15:55） VIE－TLV（OS859 20:25-23:55） Tel Aviv－Ramallah（Move by Car）	Same as Chief Consultant				
4	13-Oct	Tue	Discussion with PEA			Survey for Isolation	Survey for Equipment, Site Survey	Survey for Procurement, Site Survey	Regulations Survey, Site Survey	Survey for Insolation	Facility Planning, Site Survey	Same as Chief Consultant
5	14-Oct	Wed	Discussion with PEA				Survey for Equipment, Site Survey	Survey for Procurement, Site Survey	Regulations Survey, Site Survey	Same as Chief Consultant	Facility Planning, Site Survey	Same as Chief Consultant
6	15-Oct	Thu	Signing of Minutes of Discussions（PEA, MOPAD, MONE, PIEFZA), Report to JICA Tel-Aviv Office				Survey for Equipment, Site Survey	Same as Chief Consultant	Regulations Survey, Site Survey	Survey for Insolation	Facility Planning, Site Survey	Same as Chief Consultant
7	16-Oct	Fri	Report to EOJ, Review of Field Survey				Review of Field Survey	Same as Chief Consultant	Review of Field Survey			Same as Chief Consultant
8	17-Oct	Sat	TLV－CDG（AF221 07:05-12:15） CDG－（JAL406 19:20-）		Meeting with C/P		Survey for Equipment, Site Survey	Survey for Procurement, Site Survey	Regulations Survey, Site Survey	System Operating Survey	Facility Planning, Site Survey	Same as Chief Consultant
9	18-Oct	Sun	－NRT（＞-14:10）		Meeting with PEA	Meeting with PEA, Meeting with Engineers Association (Ramallah Center)		Survey for Procurement, Site Survey	Regulations Survey, Site Survey	System Operating Survey	Facility Planning, Site Survey	Same as Chief Consultant
10	19-Oct	Mon			Meeting with MOF, Meeting with PEA	Meeting with PEA, Survey for Equipment		Survey for Procurement, Site Survey	Regulations Survey, Site Survey	System Operating Survey	Facility Planning, Site Survey	Same as Chief Consultant
11	20-Oct	Tue			Meeting with PEA, Meeting with JDECO, Meeting with PIEFZA			Survey for Procurement, Site Survey	Regulations Survey, Site Survey	System Operating Survey	Facility Planning, Site Survey	Same as Chief Consultant
12	21-Oct	Wed			Meeting with C/P		Survey for Equipment, Site Survey	Survey for Procurement, Site Survey	Regulations Survey, Site Survey	System Operating Survey	Facility Planning, Site Survey	Same as Chief Consultant
13	22-Oct	Thu			Report to EOJ, JICA Tel-Aviv Office							Same as Chief Consultant
14	23-Oct	Fri			TLV－VIE（OS860 05:45-09:40） VIE－KIV（OS655 13:45-16:30）							Same as Chief Consultant

NRT: Narita (Tokyo), TLV: Tel-Aviv, VIE: Vienna, FRA: Frankfurt, CDG: Charles de Gaulle, KIV:Chisinau

Survey Schedule of the 2nd Preparatory Survey（18 November- 15 December, 2009）

No.	Date		Chief Consultant/ Photovoltaic System Planner (Consultant)	Interconnected Photovoltaic Power System Specialist (Consultant)	Equipment and Facilities Planner (Consultant)	Procurement Planner and Cost Estimator (Consultant)	Regulations/Environment-Social Considerations Specialist (Consultant)	System Operating Specialist (Consultant)	Architectural Planner (Consultant)	Coordinator (Consultant)
			Mr. OCHI	Mr. KAMON	Mr. KAMAGATA	Mr. SHIMADA	Mr. YASAKI	Mr. SUZUKI	Mr. KOIKE	Ms. TODA
1	18-Nov	WE	NRT－VIE（OS52 12:05-16:00） VIE－（OS859 20:00-）				Same as Chief Consultant			Same as Chief Consultant
2	19-Nov	TH	－TLV（＞-00:30），Tel Aviv－Ramallah（Move by Car） Joint Meeting（PEA, MOPAD, PIEFZA）			NRT-FRA（LH711 10:20-14:05） FRA-（LH690 22:50-）	Same as Chief Consultant			Same as Chief Consultant
3	20-Nov	FR	Internal Meeting etc.			－TLV（＞-03:45） Tel Aviv－Ramallah（Move by Car）				Same as Chief Consultant
4	21-Nov	SA	Visit Concrete Testing Laboratory, Concrete Block Factory, Hot-dip Galvanizing Factory, Ready-mixed Concrete Factory				Set up Weather Station for monitoring of insolation, etc			Same as Chief Consultant
5	22-Nov	SU	Meeting with JDECO (Jerusalem) Meeting with JDECO (Jericho)			Survey for Procurement	Same as Chief Consultant			Same as Chief Consultant
6	23-Nov	MO	Visit Engineers Association and Contractors Union		Meeting with and fact-finding from Local Contractors in Ramallah		Regulations Survey	Same as Chief Consultant		Same as Chief Consultant
7	24-Nov	TU	Meeting with Ministry of Environmental Affairs	Visit JDECO Existing Electrical Facility / Substation	Same as Chief Consultant	Survey for Procurement	Regulations Survey	Visit JDECO Existing Electrical Facility / Substation		Same as Chief Consultant
8	25-Nov	WE	Meeting with Ministry of Public Works and Housing, Meeting with Bureau of Statistics	Monitoring of Insolation, Data Analysis	Survey for Equipment	Survey for Procurement	Regulations Survey	Monitoring of Insolation, Data Analysis		Same as Chief Consultant
9	26-Nov	TH	Building Facility Planning	Remove Weather Station, Insolation Data Analysis		Survey for Procurement	Remove Weather Station Insolation Data Analysis			Same as Chief Consultant
10	27-Nov	FR	Review of Field Survey, Internal Meeting							Same as Chief Consultant
11	28-Nov	SA	Building Facility Planning	Equipment Planning for Substation	PV System Equipment Planning, Prepare Layout Plan	Survey for Procurement	Environment Survey	Equipment Planning for Substation		Same as Chief Consultant
12	29-Nov	SU	Building Facility Planning	Equipment Planning for Substation	PV System Equipment Planning, Prepare Layout Plan	Survey for Procurement	Environment Survey	Equipment Planning for Substation		Same as Chief Consultant
13	30-Nov	MO	Move to Jericho, Review of Field Survey, Internal Meeting						NRT－VIE（OS52 12:05-16:00） VIE－（OS859 20:00-）	Same as Chief Consultant
14	1-Dec	TU	Visit Iron Factory, Meeting with and fact-finding from Local Contractors in Jericho	Meeting with JDECO	Same as Chief Consultant		Meeting with JDECO		-TLV（＞-00:30）Tel Aviv－Ramallah（Move by Car） Same as Chief Consultant	Same as Chief Consultant
15	2-Dec	WE	Meeting with Ministry of Environmental Affairs	Prepare Draft BOQ for Substation	M & E Facility Planning	TLV－FRA（LH691 05:30-09:10） FRA－（LH710 13:35-）	Same as Chief Consultant	Prepare Draft BOQ for Substation	Field Survey for Construction Market, Building Facility Planning	TLV－VIE（OS858 15:55-18:55）
16	3-Dec	TH	Meeting with Jericho Municipal Government	Meeting with JDECO, Request Cost Estimate	Same as Chief Consultant	-NRT（＞-08:35）	Meeting with JDECO, Request Cost Estimate		Meeting with Jericho Municipal Government, Building Facility Planning	VIE－（OS51 14:10-）
17	4-Dec	FR	Review of Field Survey, Internal Meeting				TLV－VIE（OS858 15:55-18:55）	Same as Chief Consultant		-NRT（＞-09:30）
18	5-Dec	SA	Move from Jericho to Ramallah, Planning of Facilities and Equipment				VIE－（OS51 14:10-）	Same as Chief Consultant		
19	6-Dec	SU	Joint Meeting（PEA, MOPAD, PIEFZA）				-NRT（＞-09:30）	Same as Chief Consultant		
20	7-Dec	MO	Meeting with Meteorological Agency, Survey for Procurement	Meeting with JDECO	Same as Chief Consultant			Meeting with JDECO	Same as Chief Consultant	
21	8-Dec	TU	Meeting with JDECO, Ministry of Finance	Meeting with JDECO				Meeting with JDECO	Meeting with Ministry of Finance	
22	9-Dec	WE	Data Analysis, Prepare Summary Report		Survey for Equipment			Same as Chief Consultant	Field Survey for Construction Market	
23	10-Dec	TH	Prepare Summary Report for 2nd Preparatory Study		Request Cost Estimate for PV System Equipment/ M & E Facility			Data Analysis, Prepare Summary Report	Request Cost Estimate for Construction Work	
24	11-Dec	FR	Report to EOJ, JICA Tel-Aviv Office					Same as Chief Consultant		
25	12-Dec	SA	Prepare Report for Survey Results					Same as Chief Consultant		
26	13-Dec	SU	Report to PEA, TLV－VIE（OS858 15:55-18:55）					Same as Chief Consultant		
27	14-Dec	MO	VIE－（OS51 14:10-）					Same as Chief Consultant		
28	15-Dec	TU	-NRT（＞-09:30）					Same as Chief Consultant		

NRT: Narita (Tokyo), TLV: Tel-Aviv, VIE: Vienna, FRA: Frankfurt

Survey Schedule of the 3rd Preparatory Survey（24 April - 4 May, 2010）
(Explanation of Draft Final Report)

No.	Date		Planning & Management (JICA)	Chief Consultant/ Photovoltaic System Planner (Consultant)	Interconnected Photovoltaic Power System Specialist (Consultant)	Equipment and Facilities Planner (Consultant)	Coordinator (Consultant)
			Ms. HATAKENAKA	Mr. OCHI	Mr. KAMON	Mr. KAMAGATA	Ms. TODA
1	24-Apr	Sat	NRT－IST (TK051 13:35-19:40) IST－ (TK792 23:30-)	NRT－VIE (OS052 10:55-15:55) VIE－(OS859 20:25-)			Same as Chief Consultant
2	25-Apr	Sun	－TLV (> - 01:40) Tel Aviv－Ramallah (Move by Car)	－TLV (> - 00:55) Tel Aviv－Ramallah (Move by Car)			Same as Chief Consultant
			Courtesy Visit to PEA, MOPAD				
3	26-Apr	Mon	Joint Meeting (PEA, MOPAD)				
			Meeting with PIEFZA	Explanation of Technical Specification for Equipment at PEA			Same as Chief Consultant
4	27-Apr	Tue	Discussion of M/D	Explanation of Technical Specification for Equipment at PEA			Same as Chief Consultant
	28-Apr	Wed	Site Visit				
5			Site Visit	Meeting with UNDP			Same as Chief Consultant
6	29-Apr	Thu	Signing of Minutes of Discussion, Report to EOJ, JICA Tel-Aviv Office				Same as Chief Consultant
7	30-Apr	Fri	TLV－IST (TK785 10:45-13:00) IST- (TK050 18:30-)	Internal Meeting, Preparation of Report for Survey Results			Same as Chief Consultant
8	1-May	Sat	-NRT (> -11:45)	Internal Meeting, Preparation of Report for Survey Results			Same as Chief Consultant
9	2-May	Sun		Meeting with PEA, Tel Aviv－Ramallah (Move by Car), TLV－VIE (OS858 16:00-18:50)			Same as Chief Consultant
10	3-May	Mon		VIE- (OS051 13:55-)			Same as Chief Consultant
11	4-May	Tue		- NRT (> -08:05)			Same as Chief Consultant

NRT: Narita (Tokyo), IST: Istanbul, TLV: Tel-Aviv, VIE: Vienna

List of Parties Concerned in the Recipient Country
1st Preparatory Survey（10 - 23 October, 2009）

1. Embassy of Japan in Israel

Mr. Naofumi Hashimoto	:	Minister-Counselor
Mr. Tatsushi Nishioka	:	Counselor
Mr. Hideaki Yamamoto	:	First Secretary
Mr. Noriyuki Takahashi	:	Second Secretary
Mr. Daisuke Shibasaki	:	Third Secretary

2. JICA Tel-Aviv Office

Mr. Seiichi Koike	:	Chief Representative
Mr. Tsutomu Kobayashi	:	Senior Representative
Mr. Eiji Kubo	:	Representative
Mr. Hideaki	:	Project Formulation Officer

3. Palestinian Energy Authority: PEA/PEC

Eng. Jamal Abu Ghoush	:	Director, Program Monitoring Unit, Energy Sector Assistance Phase V, PEA
Eng. Zafer Milhem	:	PEA
Eng. Ayman Ismail	:	General Director, PEC
Eng. Basel T. Yaseen	:	Director, Acting Technical Department, PEC
Eng. Falah Demery	:	Responsible of Renewal Energy Division, PEC

4. Ministry of Planning and Administrative Development: MOPAD

Dr. Cairo Arafat	:	Director General
Mr. Ibrahim Abdelrahim	:	Director of Asia and America Department Aid Management and Coordination

5. Palestine Industrial Estate and Free Zone Authority: PIEFZA

Eng. Ahmad Hasasneh	:	Director General

6. Ministry of Finance

Mr. Hussein Jaloudi	:	Director of International Agreements
Mr. Nasser Jian	:	Director of Exemption Department & International Organization

7. Ministry of Environmental Affairs

Mr. Ayman Thaher	:	-
Mr. Mahmoud Abu-Shanab	:	-

8. Municipality Office of Jericho

Mr. Hassan Saleh Hussein	:	Mayor
Eng. Ghazi A. Al-Naji	:	Director of General Service

9. JDECO: Jerusalem District Electricity Company

Eng. Nayef Khashan	:	Jericho Branch Manager
Eng. Suhilu Daban	:	Electrical Engineer

10. Engineers Association-Ramallah Center

Eng. Faisal Diab	:	Director, Tech. Affairs Department

List of Parties Concerned in the Recipient Country
2nd Preparatory Survey（11 November - 15 December, 2009）

1. Embassy of Japan in Israel

Mr. Hideaki Yamamoto	:	Counselor
Mr. Noriyuki Takahashi	:	Second Secretary
Mr. Kaori Tanaka	:	Second Secretary

2. JICA Tel-Aviv Office

Mr. Tsutomu Kobayashi	:	Senior Representative
Mr. Eiji Kubo	:	Representative
Mr. Hideaki	:	Project Formulation Officer

3. Palestinian Energy Authority: PEA/PEC

Dr. Omar Kittaneh	:	Minister
Dr. Abdel-Kareem Abdeen	:	Deputy Minister
Eng. Jamal Abu Ghoush	:	Director, Program Monitoring Unit, Energy Sector Assistance Phase V, PEA
Eng. Hussein Alnabih	:	General Director
Eng. Falah Demery	:	Responsible of Renewal Energy Division, PEC

4. Ministry of Planning and Administrative Development: MOPAD

Mr. Ibrahim Abdelrahim	:	Director of Asia and America Department

5. Palestine Industrial Estate and Free Zone Authority: PIEFZA

Eng. Ahmad Hasasneh	:	Director General

6. Ministry of Finance

Mr. Hussein Jaloud	:	Director of International Agreements
Mr. Fuad Shobaki	:	Director of General Service
Mr.Sabah Nabulsi	:	National Coordinator of Exemptions, Department of Customs & Excise
Mr. Quadri Bsharat	:	Budget Department

7. Ministry of Environmental Affairs

Dr. ISSA Musa Albaradeiya	:	-

8. Ministry of Public Works and Housing

Eng. Bassam Jaber	:	Chairman of Central Tendering Department

9. Municipality Office of Jericho

Eng. Ghazi A. Al-Naji	:	Director of General Services
Mr. Basel A. Hijazi	:	Head of Engineering Department

10. Palestinian Meteorology, Ministry of Transportation

Mr. Isam Isa	:	-

11. JDECO (Jerusalem District Electricity Company)

Mr. Hisham Omari	:	Director Manager
Eng. Mansour Nassar	:	Technical Director
Eng. Ahmad Ghosh	:	Director Public Relation
Eng. Nayef Khashan	:	Jericho Branch Manager

12. Engineers Association-Ramallah Center

Eng. Ahmad Edaily	:	Chairman
Eng. Moh'd Abu Ajamieh	:	Vice Chairman
Eng. Ma'moun Abu Rayyan	:	Acting Director Planning & Development Department

13. UNDP

Mr. Nader Atta	:	Programme Analyst Infrastructure, Youth and Culture Poverty Reduction and Economic Development
Mr. Jhony F. Theodory	:	Projects Manager
Mr. Shinji Hirose	:	Programme Analyst

List of Parties Concerned in the Recipient Country
3rd Preparatory Survey (Explanation of Draft Final Report)（24 April - 4 May, 2010）

1. Embassy of Japan in Israel

Mr. Hideaki Yamamoto	:	Counselor
Mr. Noriyuki Takahashi	:	Second Secretary
Mr. Kaori Tanaka	:	Second Secretary

2. JICA Tel-Aviv Office

Mr. Tsutomu Kobayashi	:	Senior Representative
Mr. Eiji Kubo	:	Representative
Mr. Hideaki	:	Project Formulation Officer

3. Palestinian Energy Authority: PEA/PEC

Eng. Jamal Abu Ghoush	:	Director, Program Monitoring Unit, Energy Sector Assistance Phase V, PEA
Eng. Falah Demery	:	Responsible of Renewal Energy Division, PEC

4. Ministry of Planning and Administrative Development: MOPAD

Dr. Estephan Salameh	:	Special Advisor to the Minister
Mr. Ibrahim Abdelrahim	:	Director of Asia and America Department
Ms. Taghreed Hithnawi	:	Director of Infrastructure Planning Directorate
Mr. Firas Farsakh	:	Asia + America Dep.

5. Palestine Industrial Estate and Free Zone Authority: PIEFZA

Mr. Abdel Rahman Shteyeh	:	Acting Director General
Mr. Mohammed Thekri	:	Project Manager of JAIP

6. UNDP

Mr. Nader Atta	:	Programme Analyst Infrastructure, Youth and Culture Poverty Reduction and Economic Development
Mr. Jhony F. Theodory	:	Projects Manager

Minutes of Discussions
on the Preparatory Survey
on the Project for Clean Energy Promotion Using Solar Photovoltaic System

The Government of Japan (hereinafter referred to as "GoJ") has established Cool Earth Partnership as a new financial mechanism. Through this, GoJ is cooperating actively with developing countries' efforts to reduce greenhouse gasses emissions, such as efforts to promote clean energy. A new scheme of grant aid, "Program Grant Aid for Environment and Climate Change", was also created by GoJ as a component of this financial mechanism. According to the initiative of Cool Earth Partnership, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), in consultation with GoJ, decided to conduct a Preparatory Survey (hereinafter referred to as "the Survey") on the Project for Clean Energy Promotion Using Solar Photovoltaic System(hereinafter referred to as "the Project").

JICA sent to West Bank the Preparatory Survey Team (hereinafter referred to as "the Team"), headed by Mr. Toshinobu KATO, Deputy Director General, Industrial Development Department, JICA, and is scheduled to stay in West Bank from October 10th to 15th, 2009.

The Team held discussions with the concerned officials of the Palestinian Authority and conducted a field survey.

In the course of discussions and field survey, both sides confirmed the main items described in the attached sheets.

Ramallah
October 15, 2009

Mr. Toshinobu Kato
Leader
Preparatory Survey Team
Japan International Cooperation Agency

Eng. Jamal Abu Ghoush
Director, Program Monitoring Unit,
Energy Sector Assistance Phase V
Palestinian Energy Authority
Palestinian Authority

Dr. Cairo Arafat
Director General
Aid Management and Coordination
Ministry of Planning and Administrative Development
Palestinian Authority

Mr. Ahmad Hasasneh
Director General
Palestine Industrial Estate and Free Zone Authority
Palestinian Authority

ATTACHMENT

1. Current Situation

Palestinian Authority recognizes that Jordan rift valley area has enormous potential of solar energy and trying to apply as energy resource in its national development plan including "National Plan for Development of Renewable Energy & Energy Efficiency".

Palestinian Authority has been developing its economy by improvement of agriculture, promotion of agro-industry, and improvement of competitiveness of export industry among others. Palestinian Authority is strongly preceding "Jericho Agro-Industrial Estate (hereinafter referred to as "JAIE")" to contribute value-addition of Palestinian agri-business. Palestinian Authority is also planning to establish JAIE as an eco-friendly park.

2. Objective of the Project

The objective of the Project is to promote clean energy utilization and achieve greenhouse gasses emissions reductions by installing the photovoltaic system to be connected to the grid.

This project is also expected to contribute to the development of JAIE as renewable energy supply facility.

3. Responsible Organization and Implementing Organization

The responsible organization and implementing organization is the Palestinian Energy Authority. (The organization chart of the responsible organization is shown in Annex-1.) Palestinian Energy and Environment Research Center will support the implementation of the Project as a part of Palestinian Energy Authority.

4. Items Requested by Palestinian Authority

4-1. After discussions with the Team, the installation of the on-grid power generating system using photovoltaic including following equipment was requested by the Palestinian side.

(1) Solar module (panel) total capacity might be 550kw
(2) Junction Box
(3) Power Conditioner
(4) Transformer
(5) Data collecting and display device
(6) Training

The Team took note the request from Palestinian side, and explained that the amount of capacity might be reduced through assessment by relevant Japanese authorities.

4-2. The Palestinian side recommended the land for Jericho Agricultural Industrial Park (Stage I) as a candidate site for installation of the system. The candidate site of the Project is shown in Annex-2.

4-3. The Palestinian side explained that there is no duplication between requested contents of the

Project and any other plans implemented by the other donors or the Palestinian side.

4-4. The Palestinian side has understood that the detailed component and the design of the Project shall be confirmed at the timing of 2nd phase of the Preparatory Survey.

4-5. The Team will report the findings and items requested by the Palestinian side to JICA Headquarters and the GoJ.

5. Japan's Program Grant Aid for Environment and Climate Change

The Palestinian side understood the Japan's Program Grant Aid for Environment and Climate Change scheme explained by the Team, (as described in Annex-3, 4, 5, 6 and 7).

6. Schedule of the Study

6-1. The Team will proceed to further survey in West Bank until October 22nd 2009 as the 1st phase of the Preparatory Survey.

6-2. After the completion of the 1st phase of the Preparatory Survey, the Team will report the results to Palestinian side, JICA Headquarters and GoJ.

6-3. Based on the results of the 1st phase of the Preparatory Survey, JICA will conduct the 2nd phase of Preparatory Survey for design on November 2009.

6-4. JICA will conduct the 3rd phase of Preparatory Survey to explain the draft report on April 2010.

7. Other Relevant Issues

7-1 Preparation of the site

The Palestinian side agreed that the land to be installed the PV system shall be allocated by the Responsible Organization and necessary arrangement shall be completed by the time of the 2nd Phase of the Preparatory Survey.

The Palestinian side mentioned that the land preparation including leveling would start in a few weeks.

7-2 Procurement of Equipment

The Team explained that, in accordance with the policy of GoJ, products of Japan shall be procured for major equipment in the Project. The Palestinian side also requested products of Japan for major equipment.

7-3 Coordination with Relevant Organizations

The Responsible Organization for the Project shall be the focal point for the Team, and responsible for the coordination with relevant organizations and the Palestinian side agreed to establish a consultative committee in the implementation stage in order to coordinate with the

Japanese side. Palestinian relevant organization will include PEA, Ministry of Planning and Administrative Development, PIEFZA and Environment Quality Authority. Japanese side will consist of the Embassy of Japan, the JICA office and the procurement agency. Terms of Reference of the Consultative Committee is referred to Annex-8.

7-4 Necessary arrangements on Grid-Connection PV system

The Responsible Organization for the Project shall be responsible for the necessary arrangements for the operation of the Grid-Connected PV system before commissioning of the Project. These arrangements might include agreement with the power supply company (i.e. Jerusalem District Electricity Co. Ltd.) for the sales of power. Another arrangement might be necessary by responsible organization with related organizations including PIEFZA to supply the electricity generated by the PV system to factories in JAIE.

Palestinian side expressed that they will establish an appropriate framework for utilizing power generated by the PV system which would benefit sustainable development of JAIE.

7-5 Environmental and Social Considerations

The Team explained the outline of JICA Environmental and Social Considerations Guideline (hereinafter referred to as "the JICA Guideline") to the Palestinian side. The Palestinian side took the JICA Guideline into consideration, and shall complete the necessary procedures

7-6 Operation and Maintenance

The Responsible Organization agreed to secure and allocate the necessary budget and personnel for the operation and maintenance of grid-connected PV system procured and installed under the Project.

7-7 Customs and Tax exemption

The Palestinian side agreed that the Palestinian side shall be responsible for the exemption and/or reimbursement (payment/assumption) of all customs, tax, levies and duties incurred in West Bank for implementation of the Project.

7-8 The Palestinian side shall ensure the security of all concerned Japanese nationals working for the Project, if deemed necessary.

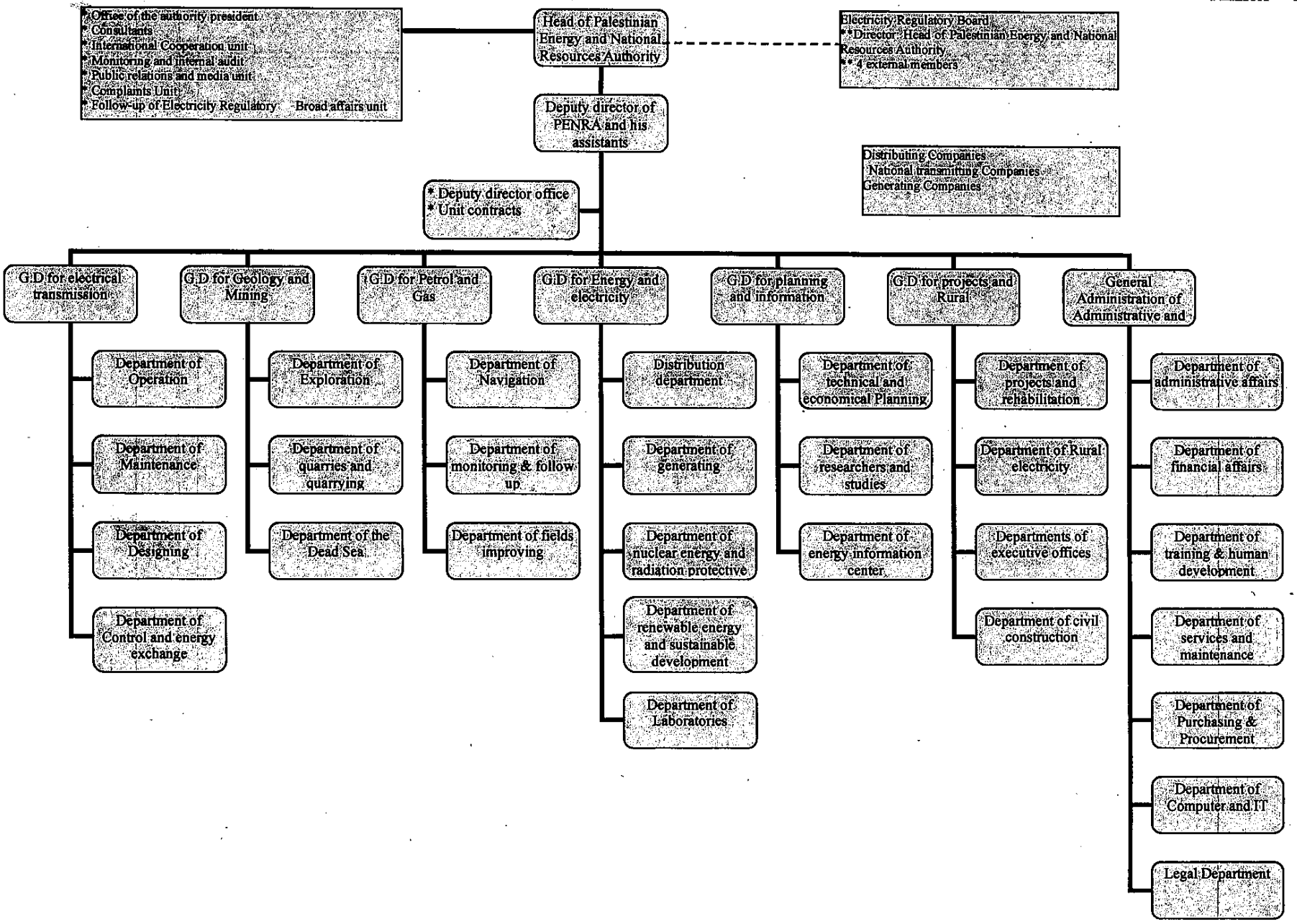
7-9 The Palestinian side shall provide necessary numbers of counterpart personnel to the Team during the period of their studies in West Bank.

7-10 The Palestinian side shall submit all the answers to the Questionnaire, which the Team handed to the Palestinian side, by October 21st.

<List of Annex>

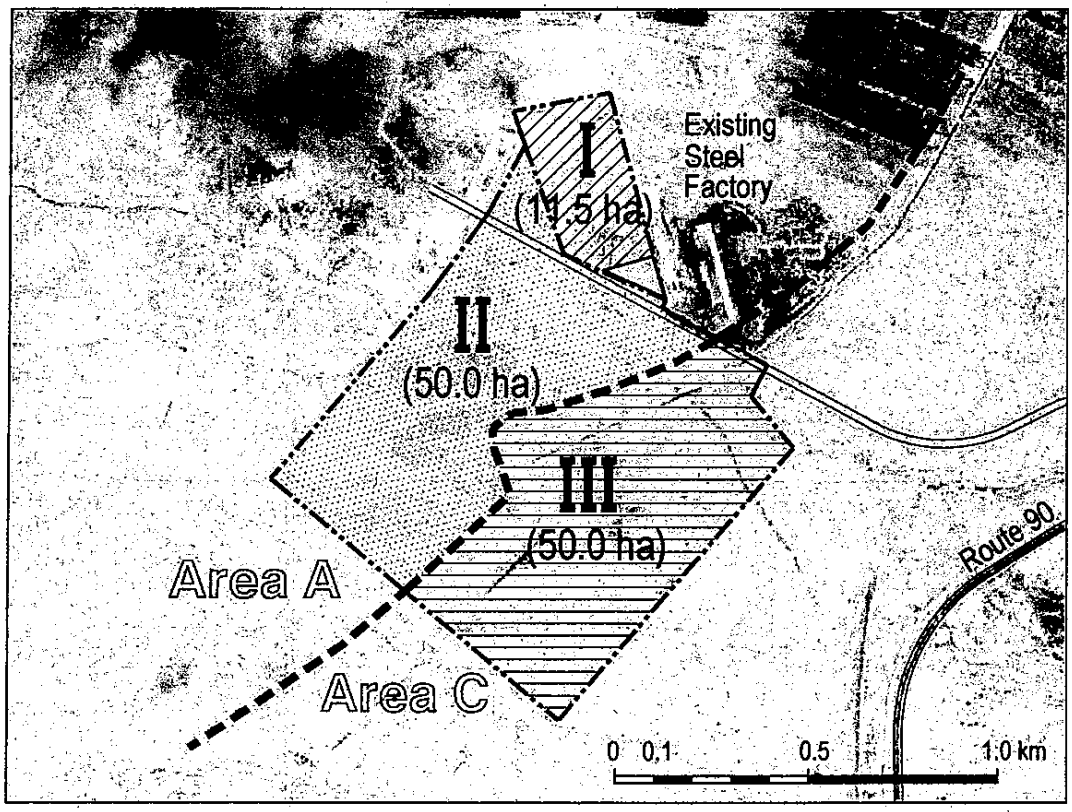
Palestinian Energy and National Resources Authority
Proposal Organizational Structure -2008

Annex – 1



Annex – 2

Candidate Site for PV System supported by the Project
Location: Jericho Agro-Industry Estate in Jericho City, West Bank



Annex – 3

Program Grant Aid for Environment and Climate Change of the Government of Japan
(Provisional)

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

Based on "Cool Earth Partnership" initiative of the Government of Japan, the Program Grant Aid for Environment and Climate Change (hereafter referred to as "GAEC") aims to mitigate effects of global warming by reducing GHGs emission (mitigation; e.g. improvement of energy efficiency) and to take adaptive measures (adaptation; e.g. measures against disasters related to climate change, including disaster prevention such as enhancing disaster risk management).GAEC may contain multiple components that can be combined to effectively meet these needs.

1. Procedures for GAEC

GAEC is executed through the following procedures.

Preparatory Survey 1	Preparatory Survey for project identification conducted by Japan International Cooperation Agency (JICA)
Application	Request made by a recipient country
Appraisal & Approval	Appraisal by the Government of Japan and Approval by the Cabinet
Determination of Implementation	The Notes exchanged between the Government of Japan and the Recipient Country
Grant Agreement (hereinafter referred to as the "G/A")	Agreement concluded between JICA and the Recipient
Preparatory Survey 2	Preparatory Survey for design conducted by JICA
Implementation	Procurement through the Procurement Agency by the Recipient

Firstly, if the candidate project for a GAEC is identified by the Recipient and the Government of Japan, the Government of Japan (the Ministry of Foreign Affairs) examines it whether it is eligible for GAEC. When the request is deemed appropriate, JICA, in consultation with the Government of Japan, conducts the Preparatory Survey (hereafter referred to as "the Survey") on the candidate project as Phase 1 of the Survey with Japanese consulting firms.

Secondly, the Recipient submits the official request to the Government of Japan, while the appropriateness, necessity and the basic components of the project are examined in the course of Phase 1 of the Survey,

Thirdly, the Government of Japan appraises the project to see whether it is suitable for Japan's GAEC, based on the Survey report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the Recipient.

Fifthly, JICA engages Grant Agreement (G/A) with the Recipient and executes the Grant by making payments of the amount agreed in the E/N and strictly monitors that the funds of the Grant are properly and effectively used.

Procurement Management Agent is designated to conduct the procurement services of products and services (including fund management, preparing tenders, contracts) for GAEC on behalf of the Recipient. The Agent is an impartial and specialized organization that will render services according to the Agent Agreement with the Recipient. The Agent is recommended to the Recipient by the Government of Japan and agreed between the two Governments in the Agreed Minutes ("A/M").

2 Preparatory Survey

1) Contents of the Survey

The purpose of the Preparatory Survey (hereafter referred to as "the Survey"), conducted by JICA on a requested project (hereafter referred to as "the Project"), is to provide the basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Survey are as follows:

- Confirmation of background, objectives, and benefits of the Project and institutional capacity of agencies and communities concerned of the Recipient necessary for project implementation.
- Evaluation of relevance of the Project to be implemented under the Grant Aid Scheme for Environment and Climate Change from a technical, social, and economic point of view.
- Confirmation of items agreed upon by both parties concerning the basic concept of the Project.
- Preparation of the design of the Project and reference document for tender.
- Estimation of cost for the Project.

The contents of the original request will be modified, as found necessary, in the design of the Project according to the guidelines of Japan's Grant Aid scheme.

The Government of Japan requests the Government of the Recipient to take whatever measures necessary to ensure its responsibility in implementing the Project. Such measures must be guaranteed even if they may fall outside the jurisdiction of the implementing organization of the Recipient. This has been confirmed by all relevant organizations of the Recipient through the Minutes of Discussions.

2) Selection of consulting firms

For the smooth implementation of the Survey, JICA will conduct the Survey with registered consulting firms. JICA selects the firms based on proposals submitted by firms with interest in implementing the Survey. The firms selected will carry out the Preparatory Survey and prepare a report, based on the terms of reference set by JICA.

3. Implementation of GAEC after the E/N

1) Exchange of Notes (E/N)

The content of GAEC will be determined in accordance with the Notes exchanged by the two

Governments concerned, in which items including, objectives of the project, period of execution, conditions and amount of the Grant Aid are confirmed.

2) Details of Procedures

Details of procedures on procurement and services under GAEC will be agreed between the authorities of the two governments concerned at the time of the signing of the G/A.

Essential points to be agreed are outlined as follows:

a) JICA will supervise the implementation of the Project.
b) Products and services will be procured and provided in accordance with JICA's "Procurement Guidelines for the Program Grant Aid for Environment and Climate Change."
c) The Recipient will conclude a contract with the Agent.
d) The Agent is the representative acting in the name of the Recipient concerning all transfers of funds to the Agent.

3) Focal points of "Procurement Guidelines for the Program Grant Aid for Environment and Climate Change"

a) The Agent

The Agent is the organization, which provides procurement of products and services on behalf of the Recipient according to the Agent Agreement with the Recipient. The Agent is recommended to the Recipient by the Government of Japan and agreed between the two Governments in the A/M.

b) Agent Agreement

The Recipient will conclude the Agent Agreement, in principle, within two months after the signing of the G/A, in accordance with the A/M. The scope of the Agent's services will be clearly specified in the Agent Agreement.

c) Approval of the Agent Agreement

The Agent Agreement is prepared as two identical documents and the copy of the Agent Agreement will be submitted to JICA by the Recipient through the Agent. JICA confirms whether the Agent Agreement is concluded in conformity with the E/N, A/M, and G/A and the Procurement Guidelines for the Program Grant Aid for Environment and Climate Change then approves the Agent Agreement.

The Agent Agreement concluded between the Recipient and the Agent will become effective after the approval by JICA in a written form.

d) Payment Methods

The Agent Agreement will stipulate that "Regarding all transfers of the fund to the Agent, the Recipient will designate the Agent to act on behalf of the Recipient and issue a Blanket Disbursement Authorization ("the BDA")to conduct the transfer of the fund (hereinafter referred to as "the Advances") to the Procurement Account from the Recipient Account.

The Agent Agreement will clearly state that the payment to the Agent will be made in Japanese yen from the Advances and that the final payment to the Agent will be made when the total remaining amount become less than three percent (3%) of the Grant and its accrued interests excluding the Agent's fees.

e) Products and Services Eligible for Procurement

Products and services to be procured will be selected from those defined in the G/A.

f) Firm and Consultant

The firm and consultant who would contract with the Agent shall be Japanese Nationals.

The consultants that will be employed to do detail design and supervise the work for the Project, however will be in principle, Japanese nationals recommended by JICA for the purpose of maintaining technical consistency with the Study.

g) Method of Procurement
When conducting the procurement, sufficient attention will be paid to transparency in selecting the firms and for this purpose, competitive tendering will be employed in principle.

h) Tender Documents
The tender documents should contain all information necessary to enable tenderers to prepare valid offers for the products and services to be procured by GAEC.

The rights and obligations of the Recipient, the Agent and the firms supplying products and services should be stipulated in the tender documents to be prepared by the Agent. Aside from this, the tender documents will be prepared in consultation with the Recipient.

i) Pre-qualification Examination of Tenderers
The Agent may conduct a pre-qualification examination of tenderers in advance of the tender so that the invitation to the tender can be extended only to eligible firms. The pre-qualification examination should be performed only with respect to whether the prospective tenderers have the capability of concluding the contracts.

For this, the following points should be taken into consideration:
(1) Experience and past performance in contracts of similar kind
(2) Financial credibility (including assets such as real estate)
(3) Existence of offices and other items to be specified in the tender documents.
(4) Their potentialities to use necessary personnel and facilities.

j) Tender Evaluation
The tender evaluation should be implemented on the basis of the conditions specified in the tender documents.

Those tenderers which substantially conform to the technical specifications and other stipulations of the tender documents, will be judged in principle on the basis of the submitted price, and the tenderer who offers the lowest price will be designated as the successful tenderer.

The Agent will submit a detailed evaluation report of tenders to JICA for its information, while the notification of the results to the tenderers will not be premised on the confirmation by JICA.

k) Additional procurement
If there is any remaining balance after the competitive and/or selective tendering and/or direct negotiation for a contract, and if the Recipient would like to procure additional items, the Agent is allowed to conduct this additional procurement, following the points mentioned below:
(1) Procurement of same products and services
When the products and services to be additionally procured are identical with the initial tender and a competitive tendering is judged not efficient, additional procurement can be conducted by a negotiated contract with the successful tenderer of the initial tender.
(2) Other procurements

When products and services other than those mentioned above in (1) are to be procured, the procurement should be conducted through competitive tendering. In this case, the products and services for additional procurement will be selected from among those in accordance with the G/A.

l) Conclusion of the Contracts
In order to procure products and services in accordance with the guideline, the Agent will conclude contracts with firms selected by tendering or other methods.

m) Terms of Payment
The contract will clearly state the terms of payment. The Agent will make payment from the "advances," against the submission of the necessary documents from the firm on the basis of the conditions specified in the contract. When the services are the object of procurement, the Agent may pay certain portion of the contract amount in advance to the firms on the conditions that such firms submit the advance payment guarantee worth the amount of the advance payment to the Agent.

4) Undertakings required by the Government of the Recipient Country
In the implementation of the Grant Aid Project, the Recipient is required to undertake necessary measures as the following:

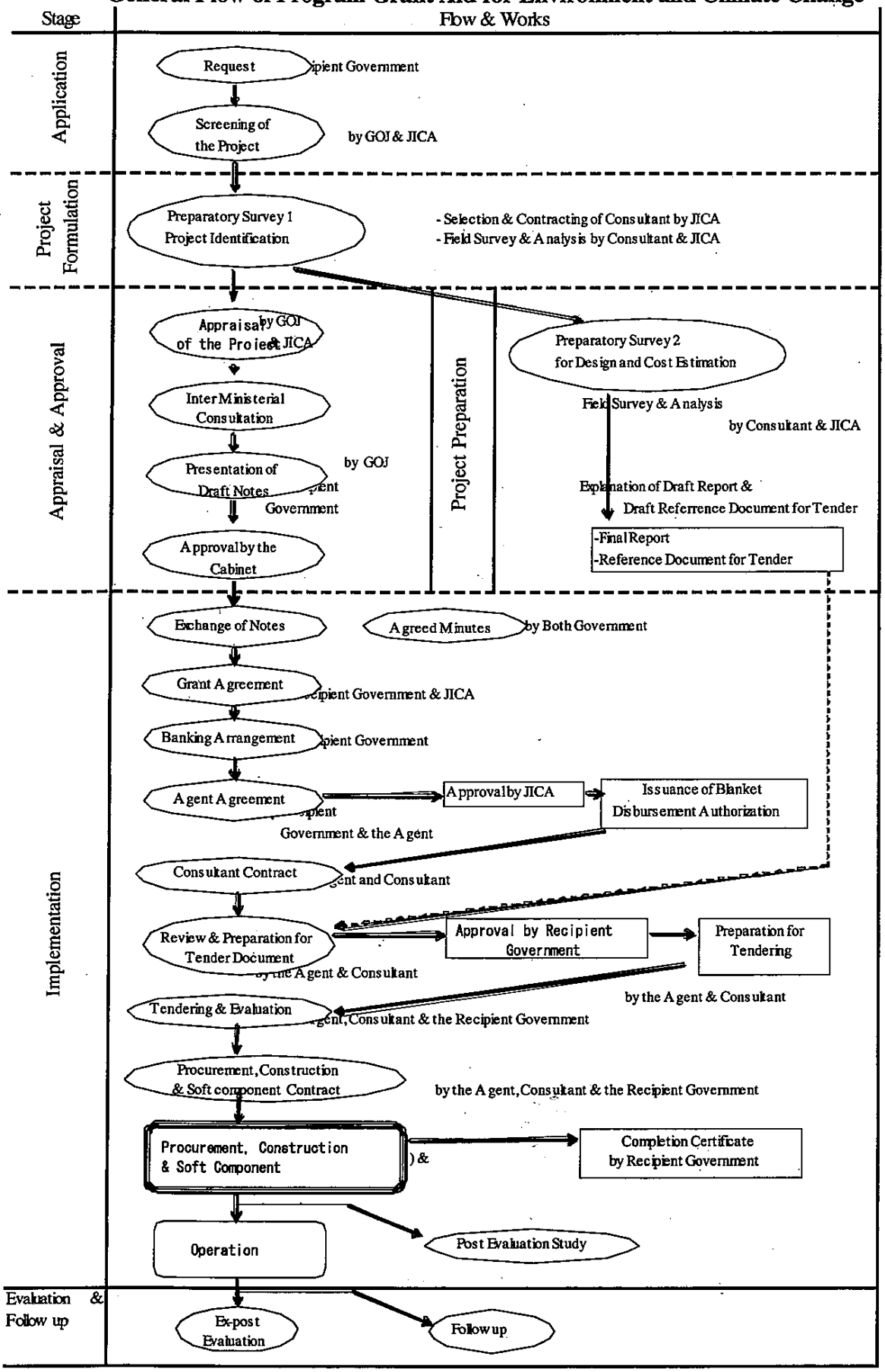
a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the Project.
b) To provide facilities for distributing electricity, water supply and drainage and other incidental facilities in and around the sites.
c) To ensure all the expense and prompt execution for unloading, customs clearing at the port of disembarkation and domestic transportation of products purchased under the Grant Aid,
d) To ensure that customs duty, internal taxes and other fiscal levies that may be imposed in the Recipient with respect to the purchase of the Components and the Agent's services will be exempted by the Government of the Recipient.
e) To accord all the concerned parties, whose services may be required in connection with supply of the products and services under the contracts, such facilities as may be necessary for their entry into the Recipient and stay therein for the performance of their work.

5) "Proper use of funds"
The Recipient is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign personnel necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

6) "Export and Re-export" of products
The products purchased under the Grant and its accrued interest will not be exported or re-exported from the Recipient.

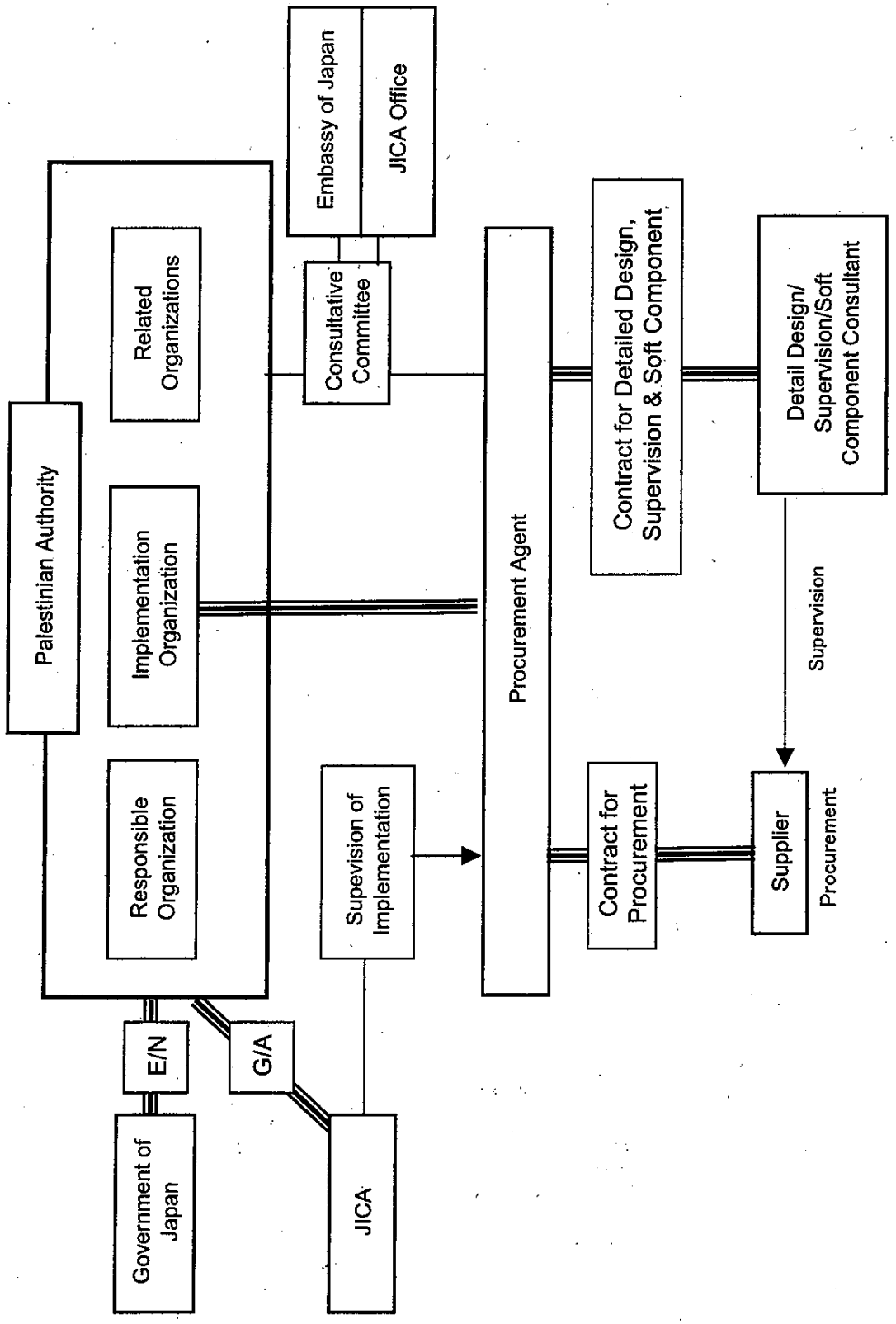
Annex-4

General Flow of Program Grant Aid for Environment and Climate Change

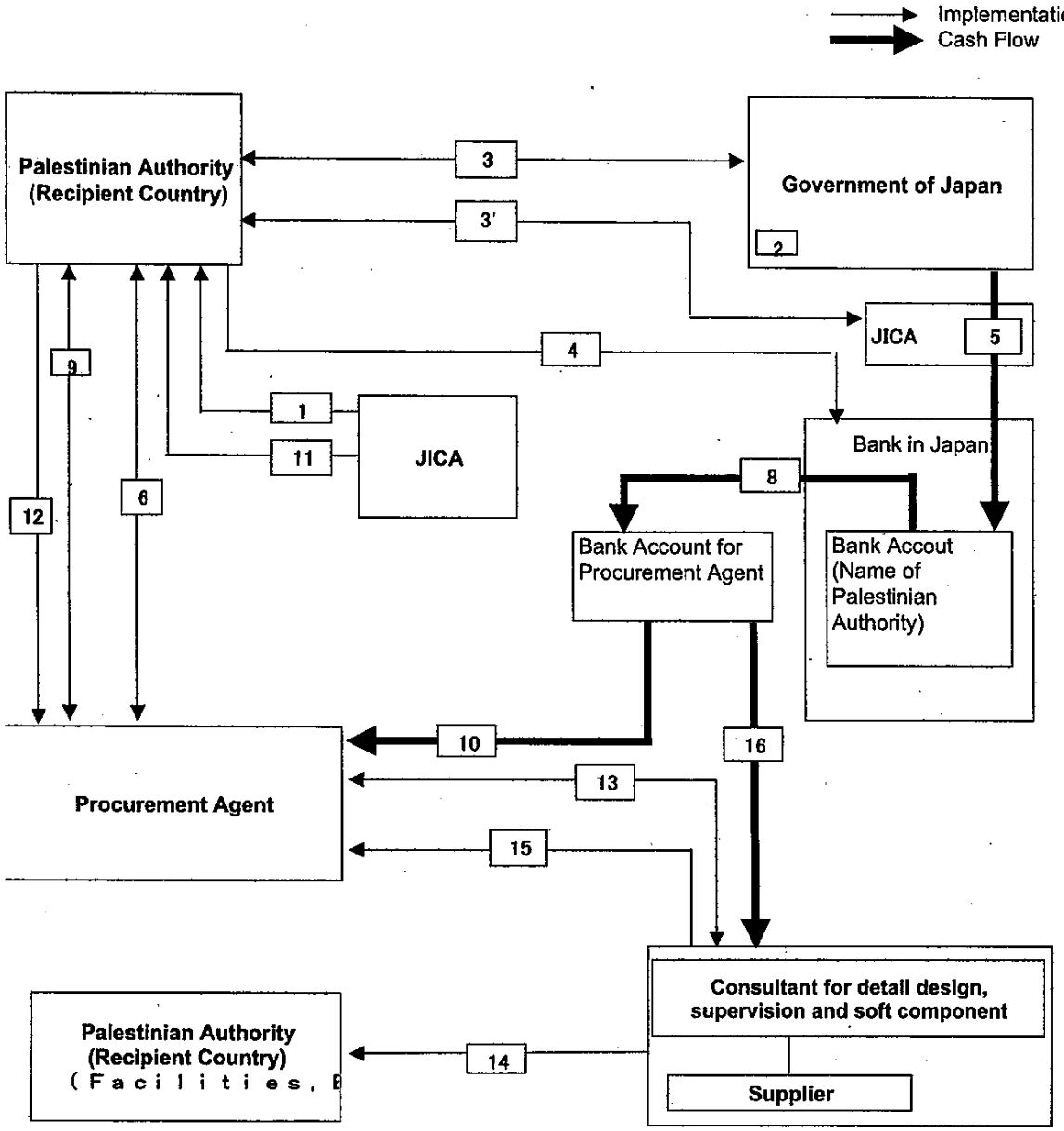


Annex-5

Project Implementation System



Flow of Funds for Project Implementation



1 Preparatory Survey / Reference Document for Tender
2 Approval of Cabinet
3 Signing of Exchange of Notes (E/N)
3' Signing of Grant Agreement (G/A)
4 Banking Arrangement (B/A)
5 Disbursement of Funds from the Government of Japan
6 Signing of Agent Agreement (A/A)'+B D A
7 N/A
8 Transfer of Funds
9 Decision of Project Components
10 Payment of Remuneration for Agent
11 Recommendation of Consultant for Detail Design/Supervision (JICA→Palestinian Authority)
12 Recommendation of Consultant for Detail Design / Supervision (Palestinian Authority→ Procurement Agent)
13 Conclusion of Contract
14 Construction and Procurement
15 Application for Payment
16 Payment

Annex-7

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 land		●
2	To clear, level and reclaim the site when needed urgently		●
3	To construct gates and fences in and around the site		●
4	To construct a parking lot if necessary		●
5	To construct roads		
	1) Within the site	●	
	2) Outside the site and Access road		●
6	To construct the facility and install the equipment	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities if necessary:		
	1)Electricity		
	a. The power distribution line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer for the site	●	
	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 conveying storm water, sewage, etc. from the site)		●
	b. The drainage system within the site (for sewage, ordinary waste, storm water, etc.)	●	
	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	●	
8	To bear the following commissions applied by the bank in Japan for banking services based upon the Bank Arrangement (B/A):		
	1) Payment of bank commission		●
9	To ensure all the expense and prompt execution of unloading and customs clearance at the port of disembarkation in the recipient country		
	1) Marine or air transportation of the products from Japan or third countries to the recipient	●	
	2) To ensure all the expense and prompt execution of unloading, tax exemption and customs clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
10	To accord Japanese nationals and / or nationals of third countries, including persons employed by the agent whose services may be required in connection with the Components such facilities as may be necessary for their entry into recipient country and stay therein for the performance of their work.		●
11	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 Components and to the employment of the Agent will be exempted by the Government of recipient country		●
12	To maintain and use properly and effectively the facilities that are constructed and the equipment that is provided under the Grant.		●
13	To bear all the expenses, other than those covered by the Grant and its accrued interest, necessary for the purchase of the Components as well as for the agent's fees.		●
14	To ensure environmental and social consideration for the Programme.		●

Annex- 8

Terms of Reference of the Consultative Committee (Provisional)

1. To confirm an implementation schedule of the Program for the speedy and effective utilization of the Grant and its accrued interest.

2. To discuss the modifications of the Program, including modification of the design of the facility.

3. To exchange views on allocations of the Grant and its accrued interest as well as on potential end-users.

4. To identify problems which may delay the utilization of the Grant and its accrued interest, and to explore solutions to such problems.

5. To exchange views on publicity related to the utilization of the Grant and its accrued interest.

6. To discuss any other matters that may arise from or in connection with the G/A.

Minutes of Discussions
on the Preparatory Survey
on the Project for Introduction of Clean Energy by Solar Electricity Generation System
(Explanation on Draft Final Report)

In October and from November to December 2009, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey Team on the Project for Clean Energy Promoting Using Solar Photovoltaic System (hereinafter referred to as "the Project") in West Bank, and through discussions, field surveys and technical examination of the results of the surveys in Japan, JICA prepared a Draft Final Report of the Outline Design.

In order to explain and to consult with the concerned officials of the Palestinian Authority on the component of the Draft Final Report, JICA sent West Bank the Preparatory Survey Team for Draft Final Report Explanation (hereinafter referred to as "the Team"), which is headed by Mr. Tsutomu KOBAYASHI, Senior Representative of JICA Palestine Office, from April 25th to May 3rd, 2010.

And, as a result of discussion, both sides confirmed the main items described on the attached sheets.

Ramallah, April 29th, 2010

Tsutomu Kobayashi
Leader
Preparatory Survey Team
Japan International Cooperation Agency
JAPAN

Eng. Jamal Abu Ghoush
Director, Program Monitoring Unit,
Energy Sector Assistance Phase V
Palestinian Energy Authority
Palestinian Authority

Mr. Ibrahim Abdelrahim
Director of Asia and America Department
Aid Management and Coordination
Ministry of Planning and Administrative Development
Palestinian Authority

Mr. Abdel Rahman Shtayeh
Acting Director General
Palestine Industrial Estate and Free Zone Authority
Palestinian Authority

ATTACHMENT

1. Components of the Draft Final Report

The Palestinian side agreed and accepted in principle the components of the Draft Final Report explained by the Team.

2. Program Grant Aid for Environment and Climate Change of the Government of Japan

The Palestinian side understood components of the Minutes of Discussions signed by both sides on October 15th, 2009 (hereinafter referred to as "the previous M/D"), and would take the necessary measures confirmed on the previous M/D for smooth implementation of the Project following procedures of the Program Grant Aid for Environment and Climate Change of the Government of Japan as shown in **Annex-1**.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Palestinian Energy Authority (hereinafter referred to as "PNA") by August 2010.

4. Confirmation of progress made for the previous M/D

4.1. Project site and capacity of PV module

Both sides confirmed that project site is the land for Jericho Agro-Industrial Park (Stage I) (hereinafter referred to as "JAIP"). The Team explained that the design capacity of Photovoltaic (PV) module is 300kW based on the result of outline design and cost estimation.

4.2. Application of the Related Laws and Regulations

In the previous M/D, it was stated that PEA shall be responsible for the necessary arrangements for the operation of the Grid-Connected PV system before commissioning of the Project. These arrangements might include the conclusion of the agreement with the power supply company (i.e. Jerusalem District Electricity Company (hereinafter referred to as "JDECO") for the sale of power as well as the maintenance of high tension transformer and its auxiliary equipment. Both sides reconfirmed that PEA should complete those arrangements before the tender notice; by September, 2010.

5. Items of Equipment to be procured

The Team explained that the items of equipment to be procured as shown in Annex-2 based on the result of the 1st and 2nd Preparatory Survey conducted in October and from November to December 2009. After discussion, both side confirmed to procure the major equipment such as PV modules consist of PV cells and Power Conditioners should be products of Japan.

6. Soft Component

The Palestinian side agreed that the following items are included in the soft component; the implementation of which will be focused on the operation and maintenance of the equipments to be

provided by the Project. Temporary schedule for the soft component is shown in Annex-4.

1) To give a lecture on the outline of photovoltaic (PV) system
2) To give a lecture on the outline of grid-connected PV system
3) To conduct theoretical and practical training for operation and maintenance of system components and system as a whole
4) To support preparation of manuals for the operation and maintenance by the trainees
5) To conduct theoretical and practical training for troubleshooting
6) To give a lecture on how to prepare diagnostic report for troubles encountered
7) To support preparation of manuals for the troubleshooting by the trainees
8) To conduct theoretical and practical training for collection, analysis and utilization of meteorological data and other monitoring data
9) To conduct achievement tests

7. Project Cost

The Palestinian side agreed that the Project cost should not exceed the upper limit of amount agreed on in E/N. Both sides also confirmed that the Project cost contains procurement cost of equipment, the cost for transportation up to the Project Site, installation cost, the Agent fee, and the consultant fee that includes the cost for soft component for the technical assistance of operation and maintenance of the equipment and PV system as a whole.

The Palestinian side understood that the Project Cost Estimation presented by the team is not final draft which means that it might have some change by the result of examination through revision of the Outline Design Study as well as the tender result.

8. Project Schedule

Both sides confirmed the tentative implementation schedule as shown in the draft final report and ANNEX4.. The handing over of the plant is expected to be on November 2011.

9. Ownership and Responsibilities for Operation and Maintenance

The Palestinian side has reconfirmed that PEA represented by the Palestine Authority is the owner of the equipment for the PV system and its ancillary facilities to be procured by the Project, and PEA is responsible for Operation and Maintenance (O&M) of the said equipment and facilities.

The Palestinian side confirmed that the estimated cost for O&M described in the draft Final Report and agreed to secure necessary budget and personnel for the O&M of Grid-connected PV system procured and installed under the Project.

10. Procurement Process of the Project

Both sides reconfirmed that procurement process would be supervised by the Procurement Agent (hereinafter referred to as "the Agent") with necessary consultation by the Consultative Committee (hereinafter referred to as "the Committee"). And, both sides also reconfirmed roles of the Agent as follows:

(1) The Agent renders the services stipulated in the provisions of the G/A as well as the E/N for

the Program;

(2) The Agent will undertake the procurement procedure necessary for the Program according to the provisions of the G/A and E/N and any other concerned guidelines; and

(3) The Agent will commence the procurement according to the contents of the Final Report of the Outline Design.

(4)The Palestinian side agreed if tender price exceeds the amount agreed on G/A and E/N, quantity or/and items of the equipment would be reduced until the cost for the Program comes down to the amount agreed on G/A and E/N.

And also if there is a remaining amount of the cost for the Program after tenders, additional items of equipment would be procured based on priorities which were set in the Final Report.

(5)The Palestinian side understood that decision on addition or reduction of the equipment to be procured would be made through necessary consultation among members of the Committee.

11. The Consultative Committee

The Palestinian side understood that PEA will chair the Committee in order to facilitate consultation and procurement process. The Terms of Reference of the Committee was settled in Annex-9 of the previous M/D.

The members of the Committee are as follows:

(1) Representative of Palestinian Energy Authority (Chair)

(2) Representative of Ministry of Planning and Administrative Development

(3) Representative of PIEFZA

(4) Representative of Environment Quality Authority

(5) Representative of JICA Office

The both side agreed to choose the member of the Committee before the tender notice to be announced in September 2010. The meeting of the Committee shall be held immediately after the signing of the contract between the Agent and the consultant.

Further meetings shall be held upon request of either the Palestinian side or the Japanese side. The Agent may advise both sides on the necessity to call a meeting of the Committee.

12. Undertakings required by Palestinian Authority

The Team requested the Palestinian side to abide by the following undertakings by the Palestinian side in addition to major undertakings described in the previous M/D. The Palestinian side agreed to do so.

(1) Allocation of land/space for installation of PV system

The owner of the land where the following equipment and materials for PV system will be installed is PIEFZA. PEA and PIEFZA will make necessary agreement to use necessary land space within the JAIP (Stage I) for the implementation of the Project by September 2010.

1) for PV Modules
2) for underground cables between equipment
3) for Monitor building

4) for Substation building
5) for Temporary stockyard

(2) Preparation for the Site

PEA should undertake the following works for the preparation of the site until September.2010.

1) Laying conduit pipes to be completed before the compression of the land development to be executed by UNDP
2) High tension (33kv) underground cable from the existing JDECO's switching gear station to the planned substation, to be installed by the time of completion of the substation building .

(3) Environment and Social Considerations

PEA should take necessary procedures concerning environmental and social consideration for the Project until September, 2010.

(4) Building permit

PEA should take necessary procedures required for obtaining building permit for monitor building and substation building which will be issued by the Municipality of Jericho.

(5) Application of related laws and regulations

The Palestinian side agreed that the structural design for the installation of PV system and its ancillary facilities shall comply with the relevant standards and regulations in Japan as long as it doesn't conflict with Palestinian standards and regulations.

Electrical design for Grid-connected PV system should be done in accordance with JIS/IEC.

(6) Assignment of Counterpart Personnel

1) Overall project management

The Palestinian side assigned following personnel for overall project management and coordination in each organization.

Palestinian Energy Authority: Mr.,Falah Demery, Responsible of Renewal Energy Division, PEC

2) Soft Component

The Palestinian side agreed to assign necessary personnel in accordance with the soft component implementation plan proposed by the Team.

The Palestinian side shall inform the name of the focal Counterpart Personnel from the following organizations to JICA office at the first Consultative Committee meeting.

- Palestinian Energy Authority
- Palestinian Energy and Environment Research Center
- PIEFZA

- JDECO (HQ and Jericho branch)

Other personnel will be assigned from each organization as required at the time of installation.

(7) Customs and Tax Exemption

The Palestinian side agreed that PEA shall be responsible for the exemption of all customs, tax, levies and duties incurred in Palestine for the implementation of the Project.

13. Confidentiality of the Project

Both sides confirmed that all the information related to the Project shall not be released to any outside parties before conclusion of all the contract(s) for the Project because they are confidential document that contains information related to the tender.

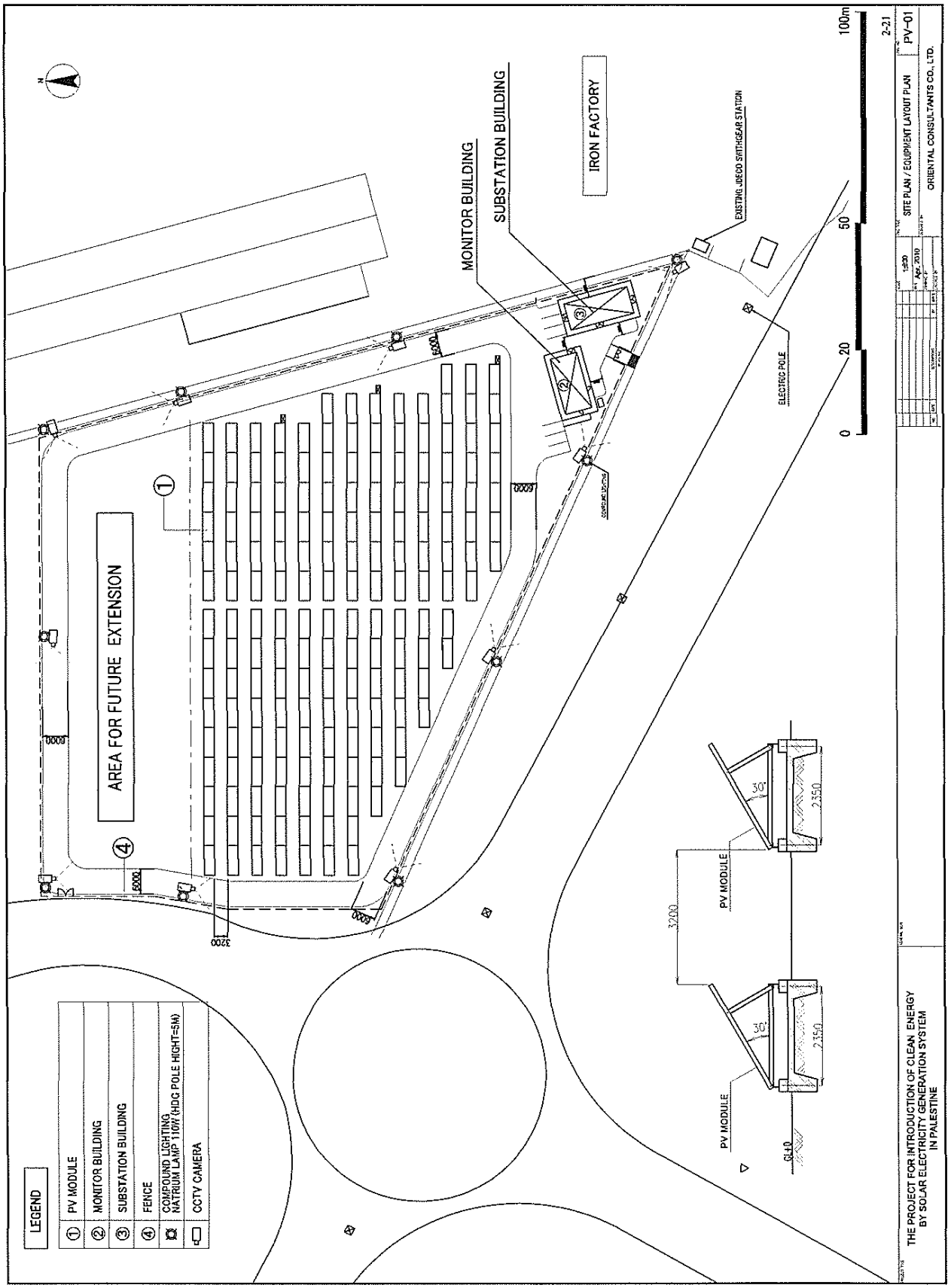
Such information includes the followings:

1) detailed drawings, specifications, and other technical information of the facilities and equipment;
2) cost estimation;
3) the Draft Final report; and
4) the Final Report

<List of Annex>

Annex-1 Site Plan / Equipment Layout
Annex-2 List of Equipments
Annex-3 Project Cost Estimation (Confidential)
Annex-4 Implementation Schedule

Site Plan / Equipment Layout



List of Equipment

Item	Specification	Qty	Uses
Photovoltaic modules	Mono or poly-crystalline cells or thin film amorphous cells with rating capacity of 300KWp or more	1 lot	To transform solar light to electricity.
Supporting structures for PV modules	Hot-dipped galvanized steel frames	1 lot	Supporting frame to fix PV modules which will be placed on concrete slab foundation.
Power conditioners	Rating capacity of 300KW or more and output voltage shall be 400V	1 lot	To convert direct current power generated by PV modules to alternating current power and to be with protective function for grid-connected PV system
Data management and monitoring system (incl. personal computer)	・Personal computer ・CRT (15 inch or bigger) ・Data sensing instruments ・Signal transmitter ・UPS (more than 10 minutes capacity) ・Color printer (compatible with A3 size printing) ・Software for data monitoring ・Software for display	1 lot	To track the amount of generated power, input and output voltage to and from power conditioners, solar radiation and air temperature as well as to record and display them in the specified format to be set, and in addition, it shall keep monitoring of the performance of the whole PV system and shall control operation of display system.
Meteorological observation instruments	Solar radiation meter	1 No.	To observe solar radiation.
	Thermometer	1 No.	To observe air temperature.
Display	Flat panel 32 inch or bigger (Liquid crystal or PDP)	1 No.	To indicate the amount of generated power (present, daily, monthly and annual), meteorological data (air temperature, solar radiation), the expected reduction of carbon dioxide gas and general deseription of the PV system.
Substation equipment	Including a network transformer (33KV→400V、630kVA)	1 lot	To reverse the output power (400V) generated by PV system to 33 KV high tension grid with protective devices.
Camera	Fixed outdoor colored camera	14 No.	To observe the boundary of project site for security and to transmit image data to a LCD monitor
LCD Monitor	Flat panel 21 inch or bigger (Liquid crystal)	1 No.	To monitor the images captured by cameras
Digital Video Recorder	Digital image recorder with hard disk (600GB or more)	1 No.	To record and store the images captured by cameras
Additional Hard Disk	Internal hard disk (2.4TB or more)	1 No.	To reserve additional capacity for storage of image data
Power Supply Unit	Input: AC 220V, Output: AC 24V, 5 ampere or more	1 No.	To distribute 24V power to the cameras
Cabinet Rack	Indoor self standing type Dimension: 570 mm (W) x 440 mm (D) x 2000mm (H)	1 No.	To enclose LCD monitor, Digital Video Recorder, Additional Hard Disk and Power supply unit, etc.

Annex – 3

Project Cost Estimation (Confidential)

This cost estimate is provisional and would be further examined by the Government of Japan for the approval of the Grant Aid.

(1) Cost to be borne by Japan

This Article is closed due to the confidentiality.

(2) Cost to be borne by Palestine NIS 480,000 (Approx. JPY 1.2 Million)
① Laying incoming electrical cable NIS 480,000 (Approx. JPY1.2 Million)

(3) Conditions for estimation
① Time of estimation : December 2009
② Foreign exchange rate : US$1.00 = JPY93.97, NIS 1.00 = JPY25.14
③ Implementation period : November 2010 to November 2011

Operation and Maintenance Cost on the Palestinian side are as follow;

(1) Cost for administration of sale of power generated by photovoltaic (PV) system
Although it is assumed that the sale price of the electricity and administration system of the sale volume of the electricity will be set forth as the terms and conditions in the agreement to be concluded between the Palestinian Energy Authority and JDECO, any expenses to be incurred for administration of the sale volume of the electricity shall be supplemented by the sales of the electricity.

(2) Electricity charges for operation of measurement and monitoring system, display, etc.
Electricity charge to be incurred for the operation of the measurement and monitoring system and a display (32 inch) as well as for the ancillary facilities such as monitor building and substation and outdoor light and so on is estimated at NIS 7,200 per annum.

(3) Cost of personnel expenses for regular cleaning for PV modules
Cost of personal expenses for regular cleaning of the photovoltaic (PV) modules once a

month is estimated at NIS 9,000 per annum.

(4) Cost of personnel expenses for operation and maintenance for photovoltaic (PV) system, substation, and mechanical and electrical works in general for ancillary facilities

Since the photovoltaic (PV) system and its ancillary facilities that will be procured and installed by this Project is completely a new facility, it is assumed that two (2) operation and maintenance staff and a security guard will have to be newly employed. Thus, cost of personnel expenses i.e. salaries for such new employees are estimated at NIS 108,000 per annum.

(5) Cost of procurement of water for living

There is no piped water distribution network on the project site. And, therefore, water for living for operation and maintenance staff to be stationed at the monitor building has to be procured from other source until the time Jericho Agro-Industrial Estate would start operation. Cost of procurement of such water is estimated at NIS 1,200 per annum with assumption of monthly average consumption of 4.0 m3 of water.

(6) Cost of spare parts and consumables

Measurement and monitoring system to be installed on site will include an ink-jet printer that will be placed in the monitor building. And, it is assumed that ink cartridge of the printer has to be replaced four (4) times a year. Thus, cost of replacing ink cartridge is estimated at NIS 600 per annum.

Furthermore, procurement of spare parts and consumables for ancillary facilities such as monitor building and substation building as well as compound lighting will also be required.

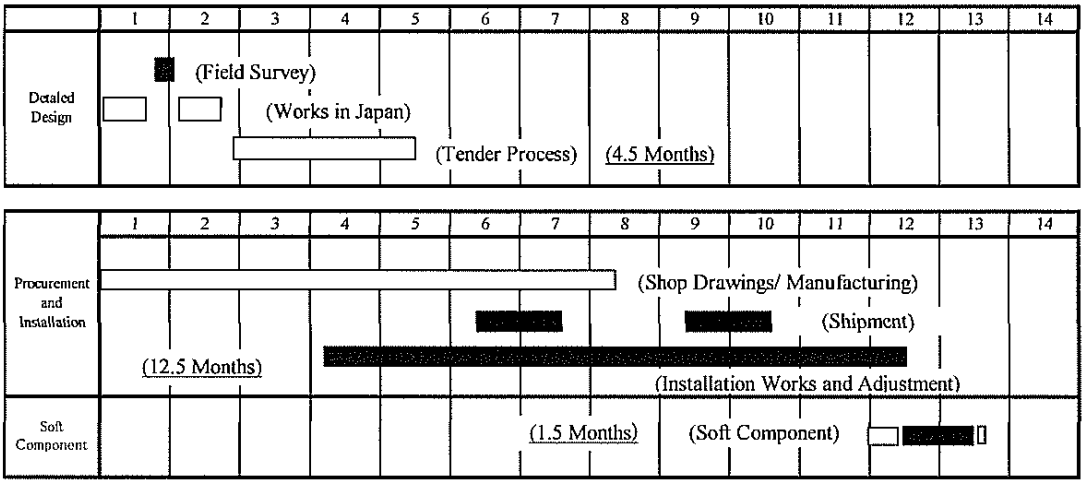
Costs mentioned above are summarized in Table below:

Unit: New Israel Shekel (NIS)

Cost Item	1st year	2nd year and after	Remarks
Cost for administration of sale of power generated by photovoltaic (PV) system	0.00	0.00	
Electricity charge for operation of measurement and monitoring system, display and so on	7,740	7,740	1,500KWh/month
Cost of personnel expenses for regular cleaning for PV modules	9,000	9,000	30 man-days/month
Cost of personnel expenses for operation and maintenance for photovoltaic (PV) system, substation, and mechanical and electrical works in general for ancillary facilities	108,000	108,000	
Cost of procurement of water for living	1,200	1,200	4.0 m3 /month
Cost of spare parts and consumables	2,400	2,400	
TOTAL	128,340	128,340	

Note: NIS 1.00 = JPY 25.15

Implementation Schedule



JAPAN INTERNATIONAL COOPERATION AGENCY

THE PROJECT FOR INTRODUCTION OF CLEANING ENERGY BY SOLAR ELECTRICITY GENERATION SYSTEM IN PALESTINIAN AUTHORITY

SOFT COMPONENT (TECHNICAL ASSISTANCE) PLAN

July 2010

ORIENTAL CONSULTANTS CO., LTD.

CONTENTS

1 Background of the Soft-Component Works

1-1 Grant Aid Scheme "The Project for Introduction of Clean Energy by Solar Electricity Generation System"

According to the Survey Report entitled "1999－2005 West Bank and Gaza Energy Sector Review May, 2007" which conducted for energy sector of Palestine Authority (hereinafter referred to as "Palestine") by the World Bank and a five-year plan entitled "National Plan for Development of Renewable Energy & Efficiency 2007-2012, June 2007" which was established by Palestinian Energy & Environment Research Center (PEC) which is an agency within jurisdiction of Palestinian Energy Authority (PEA), Palestine imports more than 90% of its total energy consumption and, as for the electricity, Palestine also imports more than 90% (100% for the West Bank) of its total consumption from Israel, Jordan and Egypt[1].

On the other hand, in recent years (1999-2005), electricity demands have increased by 6.4% in the West Bank and 10%[2] in the Gaza Strip and Palestinian Authority is having a hard time to bear the increased cost of its procurement.

Therefore, since an energy development is an urgent requisite in Palestine, PEC taking the lead in positive utilization of the renewable energy which is an agency within jurisdiction of PEA of Palestine established a five-year plan entitled "National Plan for Development of Renewable Energy & Efficiency 2007-2012" in June 2007 which adopts their objectives such as 1) to raise the rate of renewable energy contribution in the Palestine energy balance to reach 20% of the final total consumption of energy and 2) to improve energy usage especially in the industrial and construction sectors and to reduce their needs of imported energy.

A main objective of the said 5 years plan is to raise or improve the balance of clean energy such as solar power to more than 20% of the total energy consumption while Palestine is groping for cooperation in measures for climate change with international organizations and an application of Clean Development Mechanism (CDM).

And, as a component of "Cool Earth Partnership[3]", a new scheme of grant aid called "Program Grant Aid for Environment and Climate Change (GAEC) was introduced in 2008 by Government of Japan (hereinafter referred to as "GoJ") in order to support developing countries struggling to contribute for the climate change due to lack of abilities and funds for balancing their economic growth with reduction of greenhouses gases emissions. A policy of GAEC is to positively utilize Japanese advanced technologies including the technologies among private sector in aiming to utilize clean energy including the renewable energy. Under these circumstances, Palestine has decided to join the Cool Earth Partnership and to aim balancing

[1] Palestine has a power generating plant with nominal capacity of 140MW just in Gaza Strip.

[2] 1995-2005 World Bank Report, West Bank and Gaza Energy Sector Review

[3] The new financial mechanism for the developing countries making an effort to contribute to the climate change ($ 10 billion in 5years) , made by the then Prime Minister Fukuda of Japan during World Economic Forum held in Davos, Switzerland in January 2008.

economic growth and greenhouse gases emissions with adaptation activities to climate change.

With such background, the Ministry of Foreign Affairs of GoJ conducted the survey in Palestine on the needs for GAEC in utilization of photovoltaic (PV) system. And, as a result of the said survey, the implementation of the preparatory survey of the Project was decided as Palestine submitted its Application for GAEC of this Project. Outline of the Project is as shown in the Table-1 below:

Table-1 GAEC Project Outline of the Project for Introduction of Clean Energy By Solar Electricity Generation System

Project Goal	The project goal is to establish an energy supply system utilizing the energy that can be obtained in Palestine that will contribute to the diversification of source of energy and measures for climate change.
Project Objectives	The objectives of the Project are to promote clean energy utilization and to achieve stable power supply including financial aspect in Palestine through the operation of the grid-connected PV system as well as to contribute to reduction of greenhouse gases emissions.
Project Effects	(1) Reduction of 290.6 tons of greenhouse gas (CO_2) will be achieved. (2) Expenditures by the National Treasury can be reduced because of reduction of imports of electricity due to own power generation by PV system. Furthermore, electricity charges for common facilities for Agro-Industrial Park can be saved in future.
Project Support Plan	(1) Power generated by grid-connected PV system will supply power to Agro-Industrial Estate planned to be constructed in a suburb of Jericho city as well as to supply to Jericho city that will contribute to supplement the power supplies in Jericho by connecting the system to a secondary side of transformer to be placed in newly installed substation which will enable a reverse power flow to an existing 33kv power distribution grid operated and managed by Jerusalem District Electricity Company (JDECO[4]). (2) Technical training necessary for appropriate operation and maintenance of grid-connected PV system which include basic knowledge, coordination with existing power distribution system, method of inspection and maintenance, troubleshooting, etc.

Source: Preparatory Survey Team

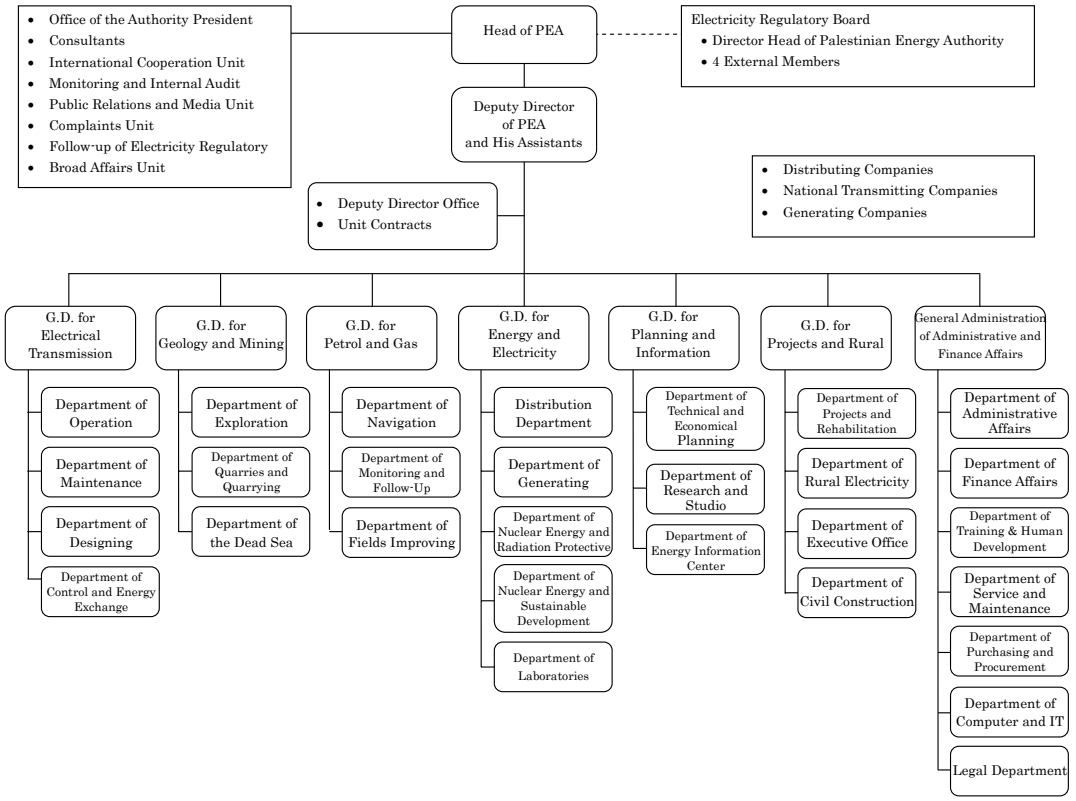
Jericho Municipality where the target site of the Project is located at is situated in the West Bank where an electricity demands have increased by 6.4%[5] in recent years and is a town having the population of about 40,000. At present, all electricity demands for Jericho are being supplied by JDECO, all of which are being supplied from National Electric Power Co. in Jordan except in case of an emergency when the electricity is to be supplied from Israel by Israel Electric Corporation Limited (IEC).

[4] JDECO was established by Geek man in 1926 as a company to supply electricity within Jerusalem but now it supplies electricity to Ramallah, Jericho and Bethlehem in the West Bank in addition to Jerusalem. Ramallah, Jericho, Bethlehem and other municipalities in the Palestinian Authority hold 49% of JDECO shares while remaining 51% is held by the private sector. Number of employee of JDECO is more than 800.

[5] World Bank Report 1999～2005, West Bank and Gaza Energy Sector Review, 10% increase in Gaza Strip.

1-2 Necessity of the Soft-Component Works (Technical Assistance)

PV system to be procured and installed by the Project is expected to be operated and maintained by PEA (incl. PEC) and it was confirmed during the preparatory surveys that its staff in charge of the Project is already quite motivated for its implementation. Organization chart of PEA which is the Implementation Agency of the Project is as shown in Fig.-1 below:



Source: Preparatory Survey Team

Fig.-1 Organization Chart of PEA

In Palestine, although there are a few PV systems with a capacity of 5 to 10 kWp, the PV system with a capacity of 300kWp to be procured and installed by the Project is relatively quite large-scale when compared to those PV systems available in Palestine. And, therefore, it will be a first time to operate and manage the said PV system with a capacity of 300kWp for not only PEA but also JDECO which is the power distribution company.

On the occasion of the introduction of the above-mentioned PV system, it is required not only to provide guidance on operation and maintenance but also to newly construct a work flow to be managed by the maintenance staff starting from sorting out, compiling and managing the data which will be automatically displayed and collected to analyzing and application thereof. And, such maintenance staff and any other persons concerned must be familiar with troubleshooting of the PV system so as to be enabling to conduct necessary repair works. Furthermore, a close cooperation with JDECO is indispensable for safe and stable operation of the grid-connected

PV system.

As explained above, it is indispensable to improve knowledge and skills of such maintenance staff and any other persons concerned with regard to the operation of the grid-connected PV system in order to accomplish the aforementioned objectives of the Project to be implemented by GAEC. Thus, the technical assistance "Capacity Building for the Operation and Maintenance Skills of the PV System" is hereby proposed to be implemented as the Soft-Component Works of the Project.

Skills to be acquired through the Soft-Component Works and reasons thereof are described hereinafter:

1-2-1 Necessity of Management Skills for Power Supply System

PEA is expected to be responsible for the operation and maintenance of the grid-connected PV system to be procured and installed by the Project in cooperation with Palestine Industrial Estate and Free Zone Authority (PIEFZA) and JDECO.

Undertakings to be required for the Implementing Agency in order to secure at least the durability of the outputs for the Project are management and analysis of various data collected from the PV system and an appropriate operation of the said PV system as well as autonomous troubleshooting when the malfunction of the system occurred; thus, acquiring of the management skills relevant to the electric power supply system are indispensable.

1-2-2 Necessity of Operation and Management Skills for Grid-connected PV System

It is planned for the meantime after the completion of the Project to feed the power being generated by the PV system into nearby power distribution line (33kV) network which is owned and managed by JDECO by providing the grid-connected system in order to supplement the power supply to Jericho Municipality. Providing various data collected from the PV system to JDECO and other relevant authorities and organizations will help positive utilization of the renewable energy for Palestine that is groping for cooperation in measures for climate change with international organizations and an application of CDM; thus, acquiring the operation and management skills relevant to the grid-connected PV system are indispensable.

2 Outlines of the Soft-Component Works "Capacity Building for the Operation and Management Skills for the Photovoltaic (PV) System"

Outlines of the Soft-Component Works "Capacity Building for the Operation and Management Skills for the PV System" are described below. And, the said outlines are constituted to explain items described in the Project Design Matrix (hereinafter referred to as "PDM") prepared for the said Soft-Component Works and attached hereto as Annex.

2-1 Object of the Soft-Component Works

Objective of the Soft-Component Works is to formulate a basis for smooth starting of a grant aid scheme "The Project for Introduction of Clean Energy by Solar Electricity Generation System in Palestinian Authority".

2-2 Outputs of the Soft-Component Works

Outputs to be accomplished at the end of the Soft-Component Works are as follows:

1. The trainees understand the operation and maintenance method of the PV system and equipment
2. The trainees understand its purpose and method of data accumulation including data compilation and processing
3. The trainees understand how to prevent and handle with the system troubles and/or malfunctions concerning the PV system and grid-connection with power distribution network
4. The trainees understand the continuous power supply system to the power distribution network owned and managed by JDECO (grid-connected system)

2-3 Means of Confirming Achievement Level of the Results

For the Training, an interactive training program incorporated not only lectures but also practices shall be planned in order to draw out trainees' independent measures. Basic policy is to confirm an achievement of the results through conducting achievement tests so that trainees' level of understanding of the said training program. In the said achievement tests, it is recommended to include descriptive questions as necessary. And, when intended outputs were accomplished, it would be judged that "Necessary skills and system for smooth starting of the project has been acquired and established" indicated in the Guidelines[6] has been complied with.

However, since the soft component of the Project shall to be commenced at the time of completion of the Project, monitoring of the operation thereafter shall not be included in the scope of works for the said soft component of the Project; thus, the Consultant shall not be responsible for the operation thereof.

Indicators for the confirmation of a level of achievement of the outputs are as shown in the Table-2 below:

[6] Soft Component Guideline for the Consultant (revised version), April 2004, JICA

Table-2 Indicators for the confirmation of a level of achievement of the outputs

Outputs	Indicators	Means of Data Collection
1. The trainees understand the operation and maintenance method of the PV system and its equipment	1-1 At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of operation and maintenance of the PV system and its equipment.	1-1 Results of achievement tests
	1-2 Safety regulations for the PV system and its equipment shall be prepared by the trainees.	1-2 Prepared safety regulations
	1-3 Maintenance manuals including maintenance structure for the PV system and its equipment shall be prepared by the trainees.	1-3 Prepared maintenance manuals
2. The trainees understand its purpose and method of data accumulation including data compilation and processing	2-1 At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of electricity related data and meteorological data including its purpose and method.	2-1 Results of achievement tests
	2-2 Manuals for accumulation, compilation and utilization of electricity related data and meteorological data including its purpose and method shall be prepared by the trainees.	2-2 Prepared manuals for accumulation, compilation and utilization of electricity related data and meteorological data
3. The trainees understand how to prevent and handle with the system troubles and/or malfunctions concerning the PV system and grid-connection with power distribution network	3-1 At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of prevention and troubleshooting of the PV system and grid-connection.	3-1 Results of achievement tests
	3-2 At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of preparation of diagnostic reports made automatically during troubleshooting and safekeeping and transferring thereof shall be confirmed.	3-2 Results of achievement tests
	3-3 Manuals for troubleshooting and preparation of diagnostic reports and safekeeping and transferring thereof shall be prepared by the trainees.	3-3 Manuals prepared for troubleshooting and preparation of diagnostic reports and safekeeping and transferring thereof
4. The trainees understand the continuous power system to the power distribution network owned and managed by JDECO (grid-connected system)	4-1 At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of grid-connection shall be confirmed.	4-1 Results of achievement tests

Source: Preparatory Survey Team

2-4 Activities of the Soft-Component Works (Input Plan)

2-4-1 Activities

Activities for the expected outputs through the implementation of the Soft-Component Works are as shown in the Table-3 below:

Table-3 Outputs and activities of the Training Program

Outputs	Activities	Necessary Skills and Type of Industry	Level of Skills at Present and Required in Future
1. The trainees understand the operation and maintenance method of the PV system and its equipment	1-1 Provide technical guidance for planning of equipment renewal since service life of each component for PV system varies and it is required to renew each component appropriately 1-2 Provide technical guidance for appropriate dispatching of expert since it is recommended that periodical inspection and/or repairing work shall be carried out by the expert from manufacturer of the equipment 1-3 Develop textbook about PV system and conduct the training program including practical training 1-4 Conduct the trainees to develop a maintenance manual, which includes the maintenance structure 1-5 Conduct the trainees to develop the utilities maintenance guideline 1-6 Test the trainees' comprehension at the end of the training program	Facilities Maintenance Skills	Grid-connected PV System Maintenance Skills
2. The trainees understand its purpose and method of data accumulation including data compilation and processing.	2-1 Develop textbook about the purpose and method of data accumulation including data compilation and processing, and conduct training program including practical training 2-2 Develop textbook about the method of data archive/utilization, and conduct training program including practical training 2-3 Conduct the trainees to develop a manual for data accumulation method	PC Operation Skills	Data Analysis and Application Skills
3. The trainees understand how to prevent and handle with the system troubles and/or malfunctions concerning the PV system and grid-connection with power distribution network	3-1 Develop textbook about how to prevent and handle with the PV system trouble, and conduct training program including practical training 3-2 Develop textbook about how to prepare and accumulate the trouble shooting reports and conduct the training program including practical training 3-3 Test the trainees' comprehension at the end of the training program 3-4 Conduct the trainees to develop a manual on prevention and handling with the system troubles, which includes daily level troubleshooting way and preparation/accumulation way of trouble reports	Facilities Maintenance Skills	Grid-connected PV System Maintenance Skills
4. The trainees understand the continuous power supply system to the power distribution network owned and managed by JDECO (grid-connected system)	4-1 Develop textbook about network system and conduct the training program including practical training.	Facilities Management Skills	Grid-connected PV System Management Skills

Source: Preparatory Survey Team

And, contents of technical guidance to be provided for each output are described hereinafter:

Output 1 : The trainees understand the operation and maintenance method of the PV system and its equipment

Explanatory lectures by using manuals for the PV system and its equipment and materials showing the work flow, and other relevant manuals correspond with planned training activities shall be given and the practical training by using the PV system to be installed by the Project shall be implemented.

a) Guidance on understanding the principle of PV system and composition thereof

b) Guidance on understanding functions and characteristics of main components of the PV system such as PV module, connection box, power conditioner, etc.

c) Guidance on understanding various troubled cases and preventive system thereof etc. which will enable speedy and appropriate troubleshooting

d) Guidance on technologies, skills and planning for daily and periodical inspections

e) Guidance on technologies and skills for various tests such as measurement of grounding resistance and insulation resistance

f) Guidance on renewal of equipment and facilities including dispatching manufacturer's expert at the time of inspection and repairing thereof

g) Guidance on cleaning of PV modules giving consideration of climate conditions

Output 2 : The trainees understand its purpose and method of data accumulation including data compilation and processing

Explanatory lectures in regard to the functions and characteristics of various measuring and meteorological equipment by using installed actual equipment shall be given. Furthermore, explanatory lectures by using manuals for processing, analyzing and displaying various collected data and materials showing the work flow shall be given and the practical training by using the meteorological and display system installed by the Project shall be implemented.

a) Guidance on various measuring equipment for PV system and composition thereof

b) Guidance on understanding functions and characteristics of meteorological observation equipment

c) Guidance on appropriate collection of data from PV system and its measuring and meteorological equipment which will enable sorting out, compiling and making graphs of such data

d) Guidance on understanding relation between amount of power generation and climate and meaning of various data and acquiring knowledge for analysis and verification thereof which will enable to calculate amount of sales and purchase of power that can be utilized for the management of the PV system

e) Guidance on how to transfer various data made as graphs to the Display which will enable to carry out publicity work appropriately

Output 3 : The trainees understand how to prevent and handle with the system troubles and/or malfunctions concerning the PV system and grid-connection with power distribution network; and

Output 4 : The trainees understand the continuous power system and grid-connection with distribution network system owned and managed by JDECO (grid-connected system)

Explanatory lectures in regard to the functions and characteristics of substation equipment by using installed actual equipment shall be given. Furthermore, explanatory lectures by using manuals for troubleshooting of the PV system and its equipment including an emergency network and materials showing the work flow shall be given and the practical training by using the PV system and substation equipment installed by the Project shall be implemented.

a) Guidance on understanding substation equipment which is a point for grid connection and compositions thereof

b) Guidance on understanding functions and characteristics of main components of substation equipment such as switching gear, various protection devices, network transformer, measuring equipment, etc.

c) Guidance on speedy and appropriate troubleshooting

d) Guidance on technologies, skills and planning for daily and periodical inspections

e) Guidance on technologies and skills for various tests such as measurement of grounding resistance and insulation resistance

f) Guidance on renewal of equipment and facilities including dispatching manufacturer's expert at the time of inspection and repairing thereof

2-4-2 Palestinian Side Outputs

Palestinian side outputs which shall be prepared during the Training are following manuals:

- Safety regulation
- PV System maintenance manual
- Manual for measuring and meteorological observation equipment
- Manual for troubleshooting and preparation of diagnostic report and safekeeping and transferring thereof

2-4-3 Inputs

Inputs are as shown in the Table-4 below. Trainees are from the Implementing Agency (PEA including PEC), PIEFZA and JDECO which are the target group of the Soft-Component Works as shown in the said Table-4.

Although operation and maintenance of the PV system and ancillary facilities procured, installed and constructed by the Project will be carried out by PEA, two (2) engineers from PIEFZA are included in the list of trainees since their cooperation will be inevitable after Jericho Agro-Industrial Park (JAIP) has been commenced its operation.

Table-4 Inputs

	Palestinian Side	Japan Side
Inputs	Trainees (Target Group): PEA Maintenance Staff: 4 person (see **Note 1**) PEA-PEC Renewable Energy: 1 person PIEFZA Engineers: 2 person (see **Note 2**) JDECO Head Office: 1 person JDECO Jericho Branch: 2 person Training Facilities: PEA Conference Room and/or JDECO Technical Training Centre in Jericho Operation and Maintenance Cost: NIS 128,340 / Year	Instructors: 1. PV System Management Expert/ Training Coordinator: 1.5 M/M 2. Data Processing and Data Analysis Expert: 1.5 M/M 3. PV System Maintenance Expert: 1.5 M/M On-the-spot Training Period: Thirty (30) days from around December 2011

Note 1 : PEA is planning to newly employ maintenance staff
Note 2 : PIEFZA is not responsible for the operation and maintenance of the PV system but their cooperation is indispensable
Source : Preparatory Survey Team

As shown in the Table-4 above, it is planned to assign three (3) instructors for the Soft-Component Works that is 1) PV System Management Expert/ Training Coordinator who will be responsible for Outputs 1, 3 and 4, 2) Data Processing and Data Analysis Expert who will be responsible for Output 2 and 3) PV System Maintenance Expert.

Manuals for collection, sorting out, compilation and analysis of the meteorological data and materials showing work flow, and other relevant manuals correspond with planned training activities will be used for the Training. Furthermore, the PV system, display system and measuring system are also planed to be used for practical training in addition to the explanatory guidance by lectures. Lectures and practical training with regard to the method of maintenance and troubleshooting will be provided for other systems as well.

With consideration of specialized technologies with accumulated know-how from past experiences, it is recommended to select instructors from the PV system manufacturers.

And, the PV System Management Expert will also be responsible for implementation schedule for training as a whole, logistics, preparation and compilation of the reports as training coordinator.

2-5 Procurement Method of Resources for Soft-Component Works

2-5-1 Dispatch of Japanese Experts

Since introduction of PV system of the scale implemented by the Project is a first case in Palestine, it is quite difficult to plan training activities using local resources. It is therefore to propose the implementation of the training activities utilizing resources from abroad; thus, it is planed to implement the Soft-Component Works on the assumption of Japanese instructors.

As for the communication skills of the candidate in the target group, it is confirmed during the preparatory surveys that they are well qualified for receiving lectures and practical trainings in English. And, therefore, it is appropriate to dispatch instructors who can conduct technical guidance in English.

2-5-2 Selection Method of Instructors

With consideration of skills and past experiences, it is appropriate to select the instructors for the Soft-Component Works from PV system manufacturers having an experience of conducting similar training program. On the said selection, the specialists expected to provide high performance within the budget have to be selected as instructors after examination of the technical proposal with curriculum vitae submitted by plural candidates followed by undergoing an oral examination.

2-6 Implementation Schedule of the Soft-Component Works

Assumed implementation schedule of the Soft-Component Works of the Project is as shown in the Table-5 below:

Table-5 Schedule of the Training Program

Work Item	November 2011	December 2011	January 2012
Preparation work In Japan	0.4 M/M		
Training Program In Palestine	1.0 M/M		
Reporting etc. In Japan		0.1 M/M	

2-7 Outputs of the Soft-Component Works

Outputs of the Soft-Component Works are as shown in the Table-6 below. Since the period of this Soft-Component Works is quite short i.e. 0.4 month for preparation work in Japan, 1.0 month for training program in Palestine and 0.1 month for reporting etc in Japan, progress report and soft-component implementation report will not be submitted. And instead, reporting will be made by Final Report written in English to Palestinian side and Completion Report with the said Final Report as attachment to JICA. The said Completion Report shall

include evaluation results being prepared based on PDM which is attached hereto as Annex.

Table-6 List of Outputs

1. Final Report (submit English version to Palestinian Side)
(1) Plan and Implementation of Activities
(2) Plan and Accomplishment of Outputs
(3) Factors that have affected Accomplishment of Outputs
(4) Problems on Development and Recommendations for Sustainability of Outputs
(5) Items of documents etc. as the part of Outputs
2. Completion Report (submit Japanese version to JICA prepared by using a format specified in the guidelines)
(1) Outline of the Project (Name of the Project, Date of E/N, Amount of E/N, Consultant Fee)
(2) Outline of Soft-Component Works (Expenses, Background, Planned Objectives, Planned Outputs, Planned Activities, Assigned Personnel, Participants of Palestinian Side, Implementing Agency including M/M, Activities Achievement, Situation of Outputs Achievement)
(3) Issues and suggestions for achieving objectives while sustaining and extending the effects
(4) Attachments (Implementation Schedule for Soft-Component Works, Curriculum Vitae for Assigned Personnel, Participants from Palestinian Side, Attendance List, List of Outputs)
(5) Other materials (Outputs including Final Report submitted to Palestinian Side, Prepared Manuals, Used Text, Results of Achievement Tests and others including Video Clips, Photos, Newspaper Articles, etc.)

Source: Preparatory Survey Team

2-8 Palestinian Side Responsibilities

In order to utilize the PV system with its composite equipment introduced by a grant aid scheme effectively and continuously, PEA which is the Implementing Agency of the Project is required to implement and/or attend to the followings:

- Revise “Operation and Maintenance Manual” as necessary
- Make explanation of collected data periodically to JDECO as necessary
- Continue conducting capacity building of staff with regard to grid-connected PV system with reverse power flow in order to continue and maintain above-mentioned activities

Name of Project: The Project for Introduction of Clean Energy by Solar Electricity Generation System in Palestinian Authority
Implementation Period: November 2011 – January 2012
Target Area: Jericho Municipality in the West Bank in the Palestinian Authority
Target Group and Number of Trainees: Ten (10) trainees for PEA (incl. PEC), PIEFZA and JDECO Prepared on: 30th June 2010

Project Summary	Indicators	Means of Data Collection	External Factors
Project Goal: The project goal is to establish an energy supply system utilizing the energy that can be obtained in Palestine that will contribute to the diversification of source of energy and measures for climate change.			- Power demand in Jericho Municipality will not increase drastically - Proportion of the uses of renewable energy other than solar power will increase
Project Objectives: The objectives of the Project are to promote clean energy utilization and to achieve stable power supply including financial aspect in Palestine through the operation of the grid-connected PV system as well as to contribute to reduction of greenhouse gases emissions.	1-1: Make use of training experiences and outputs thereof for practical business affairs 1-2: Let trainees to be in charge for operation and maintenance of the PV system 1-3: Prepare safety regulations	1-1: Keep monitoring after completion of the training during warranty period 1-2: Confirm during warrantee inspection 1-3: Confirm during warrantee inspection	- The Project will be implemented as scheduled - Trainees will be assigned in the field of solar power generation - Operation and maintenance cost will be secured by the Implementing Agency (PEA)
Outputs: 1. The trainees understand the operation and maintenance method of the PV system and its equipment	1-1: At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of operation and maintenance of the PV system and its equipment. 1-2: Safety regulations for the PV system and its equipment shall be prepared by the trainees. 1-3: Maintenance manuals including maintenance structure for the PV system and its equipment shall be prepared by the trainees	1-1: Results of achievement tests 1-2: Prepared safety regulations 1-3: Prepared maintenance manuals	All trainees will participate in all training programs
2. The trainees understand its purpose and method of data accumulation including data compilation and processing	2-1: At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of electricity related data and meteorological data includes its purpose and method.	2-1: Results of achievement tests	

Project Summary	Indicators	Means of Data Collection	External Factors
	2-2: Manuals for accumulation, compilation and utilization of electricity related data and meteorological data including its purpose and method shall be prepared by the trainees.	2-2: Prepared manuals for accumulation, compilation and utilization of electricity related data and meteorological data	
3. The trainees understand how to prevent and handle with the system troubles and/or malfunctions concerning the PV system and grid-connection with power distribution network	3-1: At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of prevention and troubleshooting of the PV system and grid-connection. 3-2: At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of preparation of diagnostic reports made automatically during troubleshooting and safekeeping and transferring thereof shall be confirmed. 3-3: Manuals for troubleshooting and preparation of diagnostic reports and safekeeping and transferring thereof shall be prepared by the trainees.	3-1: Results of achievement tests 3-2: Results of achievement tests 3-3: Manuals prepared for troubleshooting and preparation of diagnostic reports and safekeeping and transferring thereof	
4. The trainees understand the continuous power supply system to the power distribution network owned and managed by JDECO (grid-connected system)	4-1: At the end of the training, more than 80% of correct answers for the achievement tests including practical exercises in the matter of grid-connection shall be confirmed.	4-1: Results of achievement tests	
Activities: 1-1 Provide technical guidance for planning of equipment renewal since service life of each component for PV system varies and it is required to renew each component appropriately 1-2 Provide technical guidance for appropriate dispatching of expert since it is recommended that periodical inspection and/or repairing work shall be carried out by the expert from manufacturer of the equipment 1-3 Develop textbook about PV system and conduct the training program including practical training 1-4 Conduct the trainees to develop a maintenance manual, which includes the maintenance structure	Inputs: Palestinian Side Trainees: PEA Maintenance Staff: 4 person PEA-PEC Renewable Energy: 1 person PIEFZA Engineers: 2 person JDECO Head Office: 1 person JDECO Jericho Branch: 2 person Training Venue: PEA Conference Room and/or JDECO Technical Training Centre in Jericho Operation and Maintenance Cost: NIS 128,340 / Year Japan Side Instructors: 1. PV System Management Expert/ Training Coordinator: 1.5 M/M 2. Data Processing and Data Analysis Expert: 1.5 M/M 3. PV System Maintenance Expert: 1.5 M/M On-the-spot Training Period: Thirty (30) days from December 2011		PEA/PEC and other target group will select and dispatch appropriate trainees Preconditions:

Project Summary	Indicators	Means of Data Collection	External Factors
1-5 Conduct the trainees to develop the utilities maintenance guideline 1-6 Test the trainees' comprehension at the end of the training program 2-1 Develop textbook about the purpose and method of data accumulation including data compilation and processing, and conduct training program including practical training 2-2 Develop textbook about the method of data archive/utilization, and conduct training program including practical training 2-3 Conduct the trainees to develop a manual for data accumulation method 3-1 Develop textbook about how to prevent and handle with the PV system trouble, and conduct training program including practical training 3-2 Develop textbook about how to prepare and accumulate the trouble shooting reports and conduct the training program including practical training 3-3 Test the trainees' comprehension at the end of the training program 3-4 Conduct the trainees to develop a manual on prevention and handling with the system troubles, which includes daily level troubleshooting way and preparation/accumulation way of trouble reports 4-1 Develop textbook about network system and conduct the training program including practical training.			

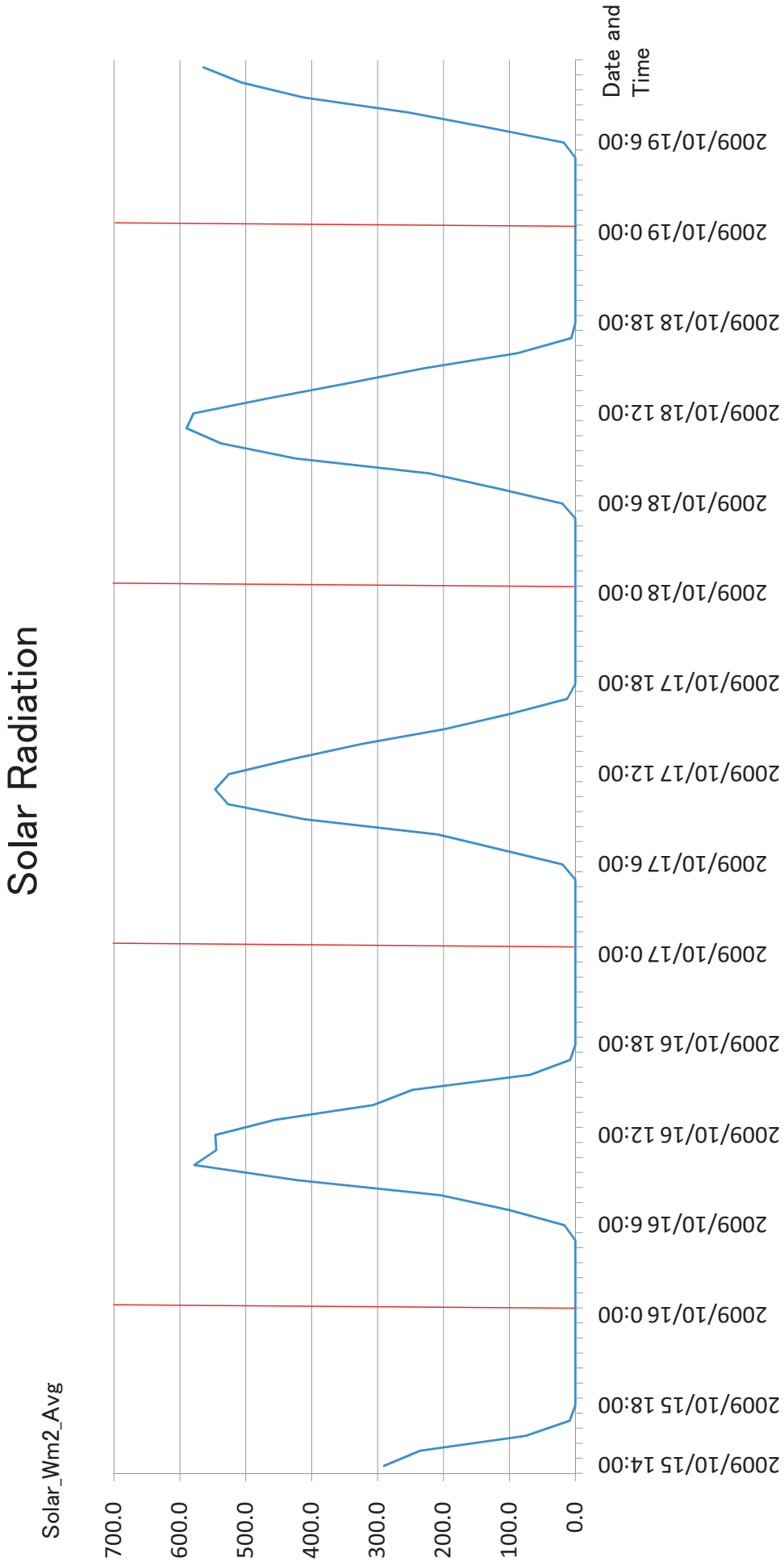
Environmental Checklist (Other Power Generation)
The Project for Introduction of Clean Energy by Solar Electricity Generation System

No	Category	Environmental Items	Main Checking Items	Environmental Impact				Environmental Problem	Confirmatory Result / Easing Plan
				Big	Small	None	Unknown		
1	Permit Approval, Explanation	(1) EIA and Environmental Permit Approval	①Is EIA Report etc. already completed?						PEA, the Implementing Agency of the project, submit the documents for application to the Ministry of Environment (MOE), to check the EIA is required or not. In terms of this project, EIA will not be required, but if necessary, PEA should conduct EIA and get permit approval from the MOE.
			②Is EIA including Initial Environmental Examination (IEE) required for the project according to the laws or guidelines in Palestine?						
			③In the case when EIA steps were taken, was the EIA approved by the relevant laws in Palestine?						
			④If the project requires a certificate pertaining to the environment and society other than the EIA, is it already certificated?						
		(2) Explanation to Resident	①Did the proponent give an explanation to the local resident for understandings of the outline and affects of the project?						PEA give an explanation to the local residents for understanding.
			②Did the proponent respond appropriately to the comments by local residents or governing agency?						PEA respond appropriately to the comments by local residents or governing agency.
2	Pollution Control Measures	(1) Air quality	①In case of generating facilities (burning biomass energy etc.), does the air pollutant such as Sox, Nox, dust which comes up from operation, meets the emission standards or environmental standards in Palestine?					No air pollutants, in Solar Electricity Generation System Project.	
			②In case of geothermal plant emit the air pollutants such as hydrogen sulfide, does the air pollutant meets the standards in Palestine? Does the vegetation in surrounding area unaffected by hydrogen sulfide?			✔			
			③Does the Air pollutant emitted (by other facilities) meets the standards in Palestine?						
		(2) Water quality	①Does the Drain water (including warm water) from power generation facilities meets the effluent standards in Palestine? Does the environment standard level surrounding area fall below by the drain water?			✔		Same as above	
			②In case of using geothermal plant, does the water pollution by arsenic, mercury etc. that caused by utilization of geothermal energy, not arise? If any, does the measure already prepared?			✔		Same as above	
			③Does the seeping water from the waste disposal plant meets the standards in Palestine? Does the measure for pollution of soil, underwater, seawater etc. caused by seeping water, already prepared?			✔		Same as above	
		(3) Wastes	Does the wastes caused by the facility operation, disposed properly, meets the standards in Palestine (particularly for biomass energy) ?			✔		No waste generation.	
		(4) Soil Contamination	Does the project site soil contaminated in the past? Does the measure for soil contamination already prepared?			✔			
		(5) Noise & Vibration	Does the noise and vibration meets the standards in Palestine?		✔				Contractor Should observe the Palestinian Environmental Standards in execution of constriction work.
		(6) Subsidence	Does the subsidence caused by pumping up a lot of ground water or taking steam for geothermal generation arise?			✔			
		(7) Odor	Is there any offensive odor emission source? If any, does the measure already prepared?			✔			
3	Natural Environment	(1) Protected Region	Does the project site located outside of the preservation area to be protected by the laws in Palestine or International Treaties? Does the project make an impact to the preservation area?			✔			
		(2) Ecosystem	①Is there any old growth forest, tropical forest, ecologically-important habitat (coral reef, mangrove wetland, tidal flat, etc.) exist in the project site?			✔			
			②Is there any precious species habitat to be protected by laws or International Treaties exist in the project site?			✔			
			③ In case that has an important impact on the Ecosystem, does the measure already prepared?			✔			
			④Does the precious vegetations around the project site affected by changing micrometeorology from wind electricity? Is there any precious vegetation exist around the wind electricity facilities? In case that has an impact on precious vegetations, does the measure already prepared?			✔			
			⑤Are the wind electricity facilities (wind mills) considered the location, which related with the precious bird habitats or flying courses of migratory bird?			✔			
		(3) Hydrology	Are there any effects on surface and ground water flows by changing the water system caused by installation of structures such as dams (In particular, in case of run-of-river type of hydroelectric generation)?			✔			
		(4) Geography & Geology	Are there any big change in geography and geological structure or any disappearance of seaside, surrounding the project site (In particular, run-of-river type of hydroelectric generation and geothermal generation)?			✔			

No	Category	Environmental Items	Main Checking Items	Environmental Impact				Environmental Problem	Confirmatory Result / Easing Plan
				Big	Small	None	unknown		
4	Social Environment	(1) Resident Relocation	①Does the project causes resident to remove their residence? If so, does the impact can be kept to the minimum?			✔			
			②Does the proponent gives an explanation to the local resident about removing and compensation before remove?			✔			
			③Was the survey of resident remove done by the proponent? Does the proponent already has a plan about just compensation and recovering of their living after the remove?			✔			
			④Is the remove plan properly dealt with socially-vulnerable people such as females, children, seniors and minority people?			✔			
			⑤Do they have a consensus among the resident and proponent of the project before remove?			✔			
			⑥Is the framework already prepared to make a resident remove smoothly? Does the proponent has a steps for the implementation capability and budget?			✔			
			⑦Is the Monitoring of movement impact already Planned?			✔			
		(2) Life & Livelihood	①Does the project makes no affect to the Lives of Residents? If any, is the measure to reduce their affect already prepared?			✔			
			②Does the project has no affect to the water use, caused by the pumping up a ground water, surface water, and discharge of drain water?			✔			
		(3) Cultural Heritage	Does the precious world heritage or historic sites (archaeological, historical, cultural, spiritual etc.) have no damaged by the project? Is it considered to meet the laws or standards in Palestine?			✔			
		(4) Landscape	Does the project concerned about the landscape in especial? Is the measure for that already prepared?			✔			
		(5) Minority & Indigenous people	①Does the project keep the low of minority and indigenous people's right?			✔			
			②Does the project concerned about the culture, lifestyle of minority and indigenous people, to reduce their affect?			✔			
5	Others	(1) Influence During Construction	①Does the project concerned about the pollution (noise, vibration, sewage, dust, air pollutant, waste) that arise during the construction work?		✔			Noise, Vibration, Muddy Water, Dust, Exhaust Gas, Waste, etc.	Contractor Should observe the Palestinian Environmental Standards in execution of constriction work.
			②Does the project has no affect to the natural environment (ecosystem), during the construction works? Is the measure of reducing their affect already			✔			
			③Does the project has no affect to the social environment, during the construction works? Is the measure of reducing their affect already prepared?		✔			Traffic detour, Traffic Jam, etc.	Contractor should consider the environmental problems and make a Plan of Execution Scheme. The Execution Scheme Plan should be responded appropriately.
			④Is the safety training (traffic safety, public health, etc.) already planned for the staffs involved in the project (if necessary)?		✔			Traffic safety	Contractor should supervise the Safety Planning to the employees.
		(2) Monitoring	①Is the monitoring planned and implemented for the above items by the Implementing Agency (if necessary)?		✔				PEA should monitor a variety of effects during construction.
			②Are the project of items, method, frequency, etc. appropriate decision to this project?		✔				Same as above
			③Is the Implementing Agency's monitoring system (organization, staff, equipment, budget and their maintainability) already established?		✔				Same as above
			④Is the report (submit to the governing agency from Implementing Agency) method and frequency are stipulated already?		✔				Same as above
6	Precautions	Refer to Other Checklists	If necessary, the items that concerns to power transmission and transformation, shall be added in this check list. (in such cases, construction of transmission lines and distribution facility)			✔			
		Precautions using Environmental Checklist	If necessary, check the effect of transboundary and global environmental matters. (in such cases, factors involving transboundary wastes, acid rain, ozone depletion, global warming , etc)			✔			

1) When "the standards in Palestine" in the list differ from the internationally accepted standards, countermeasures will be reviewed as needed. For those items for which standards are not stipulated in the country, review will be made in comparison with proper standards of other countries (including experiences in Japan).

2) The environmental checklist lists are just shown the standard of environmental checking items, so the items will be added or deleted by the property of the project or area.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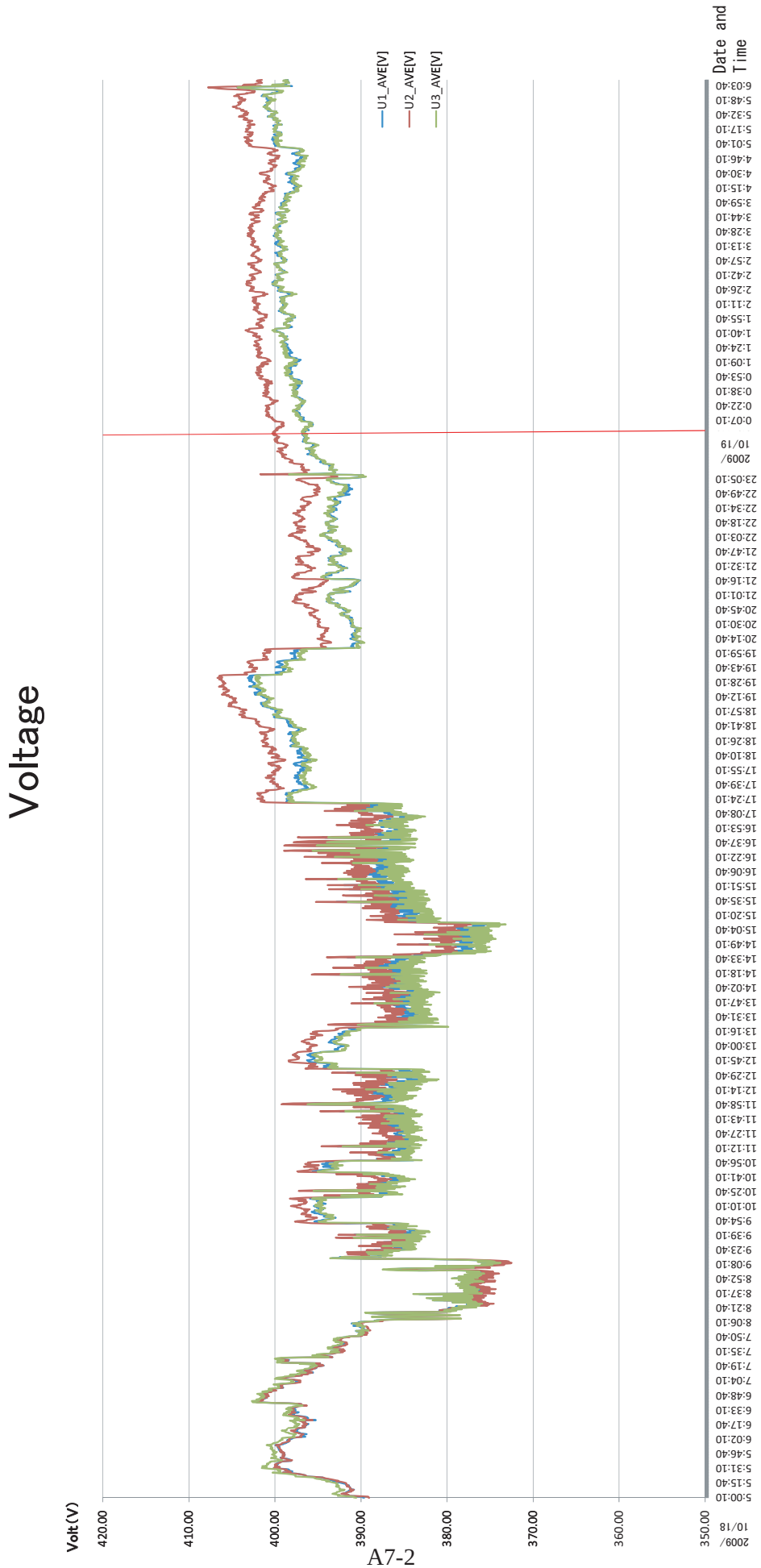
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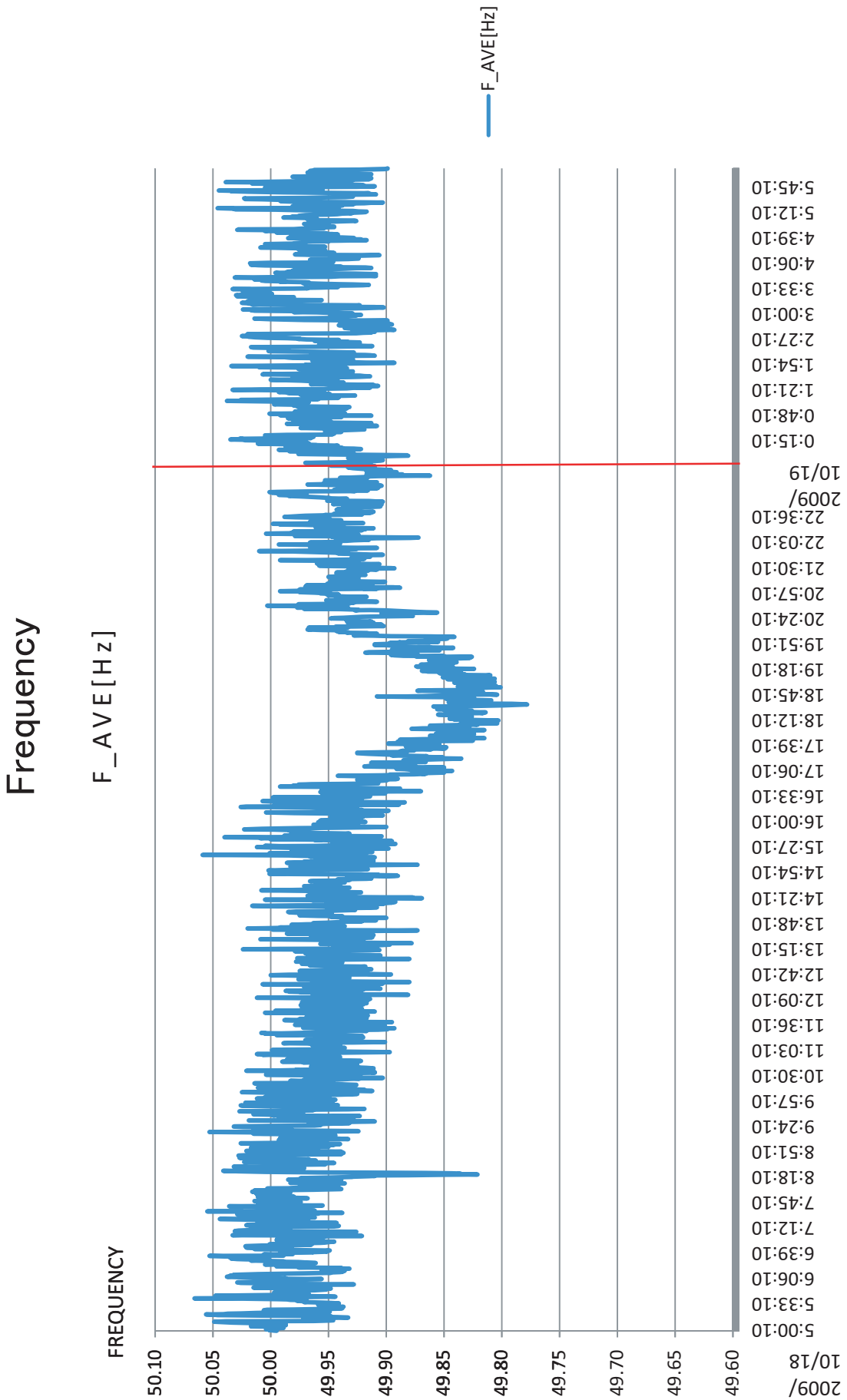
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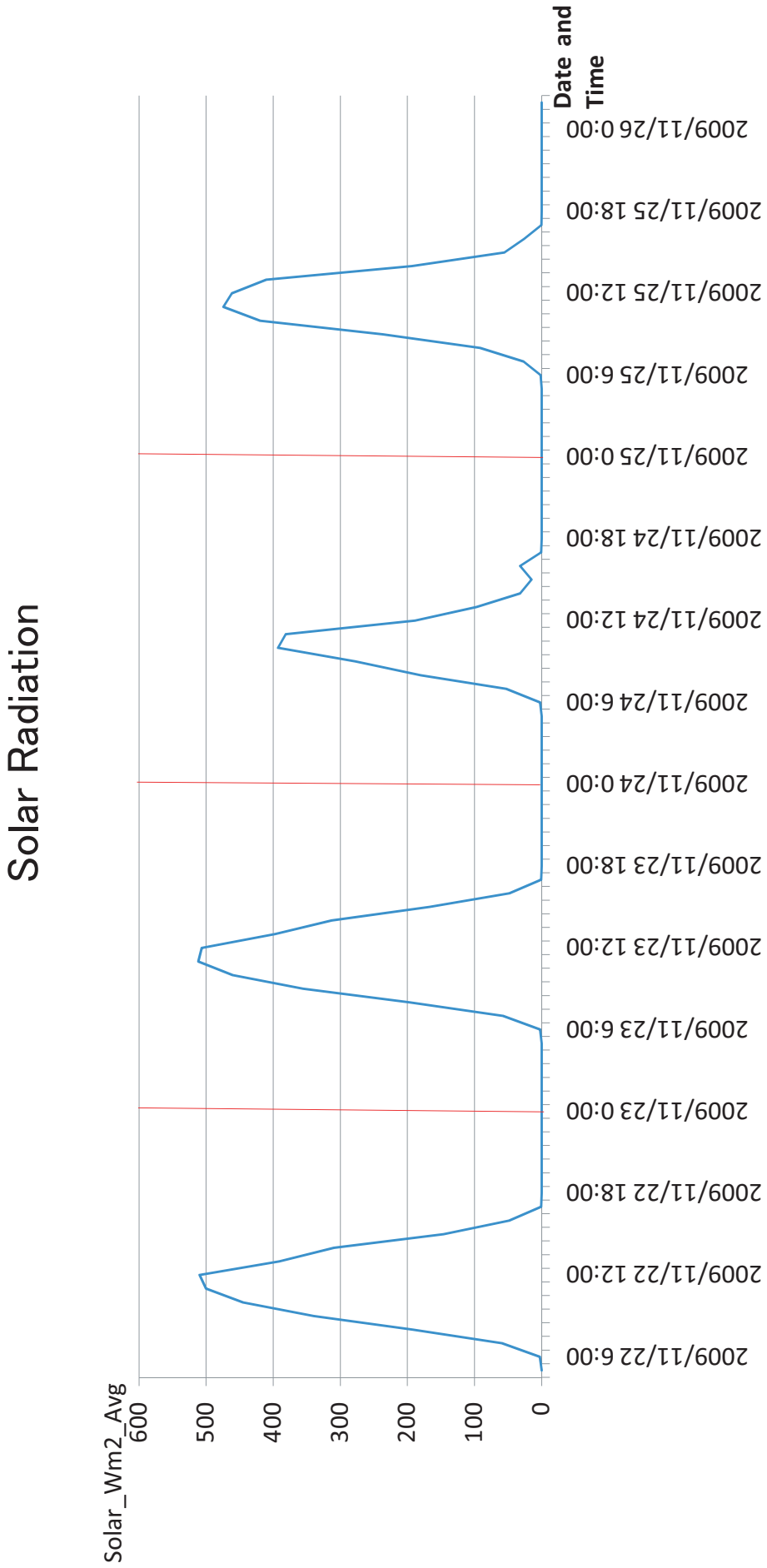
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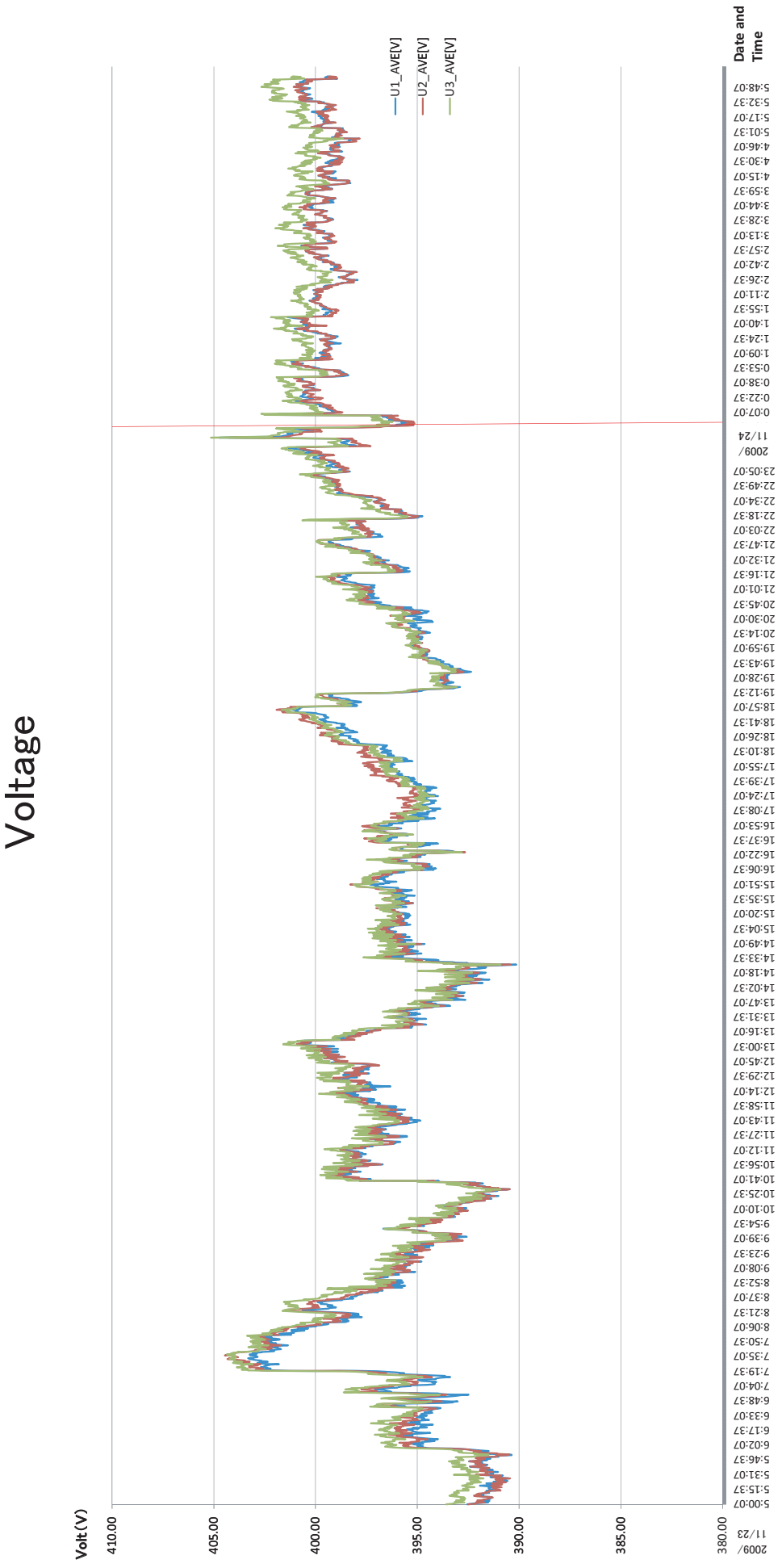
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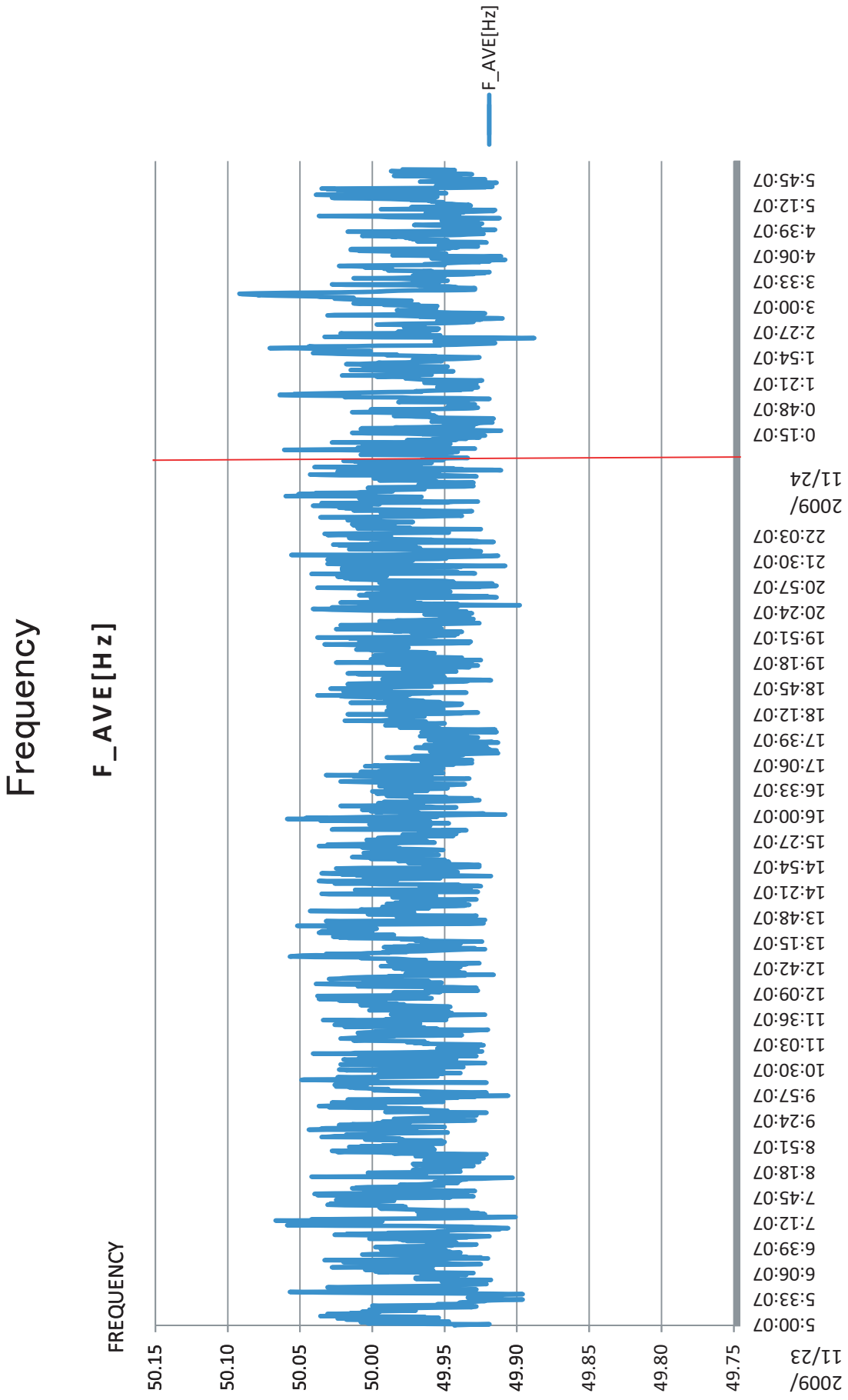
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