3. 事前評価調査 Minutes of Meeting (M/M)

MINUTES OF MEETING BETWEEN

THE JAPAN INTERNATIONAL COOPERATION AGENCY

AND

AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE REPUBLIC OF GHANA ON

JAPANESE TECHNICAL COOPERATION

FOR

THE PROJECT FOR HUMAN RESOURCE DEVELOPMENT FOR DISSEMINATING PV SYSTEMS

For the purpose of working out the details of the technical cooperation programme concerning the Project for HUMAN RESOURCE DEVELOPMENT FOR DISSEMINATING PV SYSTEMS (hereinafter referred to as "the Project") in the Republic of Ghana, Japan International Cooperation Agency (hereinafter referred to as "JICA") sent to the Republic of Ghana the Preliminary Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Toshiyuki Hayashi, Senior Adviser, JICA, and will stay in the country from 12 February, 2007 to 02 March, 2007. The Team held discussions with the authorities concerned with the Government of the Republic of Ghana (hereinafter referred to as "the Ghanaian authorities concerned"). In the course of discussions, the Team and the Ghanaian authorities concerned confirmed the main items described on the attached sheets.

Accra, 22 February, 2007

Mr. Toshiyuki Hayashi

Leader

Preliminary Study Team

Japan International Cooperation Agency

Mrs. Dina Hammond

Chief Director

Ministry of Energy

ATTACHMENT

1. Title of the project

The Title of this technical project was changed as follows:

Before: RURAL ELECTRIFICATION BY SOLAR ENERGY RESOURCES

After: HUMAN RESOURCE DEVELOPMENT FOR DISSEMINATING PV

SYSTEMS

2. Counterpart Organizations and Assignment of Counterpart Personnel

(1) Ministry of Energy

Ministry of Energy (MOE) is the chief counterpart of this Project and has overall responsibility for organizing and coordinating other counterparts and stakeholders of the Project, and Project activities, together with Ministry of Education.

(2) Ministry of Education, Science and Sports

Ministry of Education, Science and Sports (MOESS) is another counterpart responsible for organizing and coordinating training resources and other necessary arrangement together with Ministry of Energy. However, as MOESS has not yet been involved in the process of project preliminary study, it is MOE's responsibility to inform and explain MOESS of the Project and obtain their consent for smooth implementation of the Project before signing Record of Discussion (R/D). JICA will assist MOE in obtaining the consent of MOESS.

(3) Other Counterparts

Energy Commission, Ghana Standards Board and Association of Ghana Solar Industry (AGSI) are other counterparts of this Project.

(4) Counterpart Personnel

All of these counterparts are required to assign counterpart personnel who will work with Japanese experts for the Project.

3. Candidates of Test/Training facilities

The Team recommends the Solar Energy Application Laboratory in the Department of Mechanical Engineering, Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, and Tamale Polytechnic as Test/Training facilities. Final Decision will be made during the first stage of the project.

4. Involvement of PV industry

It was confirmed that solar energy industrial association, namely Association of Ghana Solar Industry (AGSI), has been formally created in Ghana. Both parties have agreed that AGSI represents the solar energy industry in Ghana and the involvement of AGSI in





the Project is essential for disseminating PV systems in rural areas.

5. Workshop for the Project

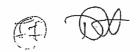
The Team held the "Preliminary Study Workshop on Human Resource Development for Disseminating PV Systems" on 19 February 2007 so as to share ideas and understandings on present state and future direction of PV dissemination for rural electrification and to exchange opinions about PDM draft. Participants list and Agenda are shown in Appendix I.

6. Drafts of Project Design Matrix (PDM) and Plan of Operation (PO)

Based on the discussion in the workshop, PDM draft has been prepared. When Record of Discussions (R/D) is signed, finalized PDM will be attached to R/D. At the same time, finalized PO also will be attached. The drafts of PDM and PO are shown in Appendix II and Appendix III.

7. Record of Discussions

Draft R/D is shown in Appendix IV. MOE, MOESS and JICA Ghana Office will finalize the draft R/D before signing it. MOE, MOESS and JICA Ghana Office will coordinate each other for finalizing the draft R/D.



19th Feb 2007 Novotel Hotel

AGENDA of

Preliminary Study Workshop on

Human Resource Development for Disseminating PV Systems Project

in the Republic of Ghana

		in the Republic of Ghana
9:00-9:20	Opening	·Opening Address
	Session	Mr. Murakami Representative JICA Ghana Office
		·Introduction of Participants
	·	·Today's Schedule
9:20-12:00	Discussion	Where we are and where to go
		·Where we are:
		Mr. Hayashi Senior Advisor JICA Headquarter
		·Difficulties the past PV projects have faced:
		Mr. Tanaka Official JICA Headquarter
		Coffee Beak
		·Suggested PV Rural Electrification Program:
		Mr. Tanaka
		·Salient Conditions for Disseminating PV systems in
		Ghana:
		Mr. Hayashi
11:40-12:00	Explanation	·JICA Technical Assistance Projects:
		Mr. Okumoto Official JICA Ghana Office
12:00-13:00	Lunch Time	
13:00-13:30	Introduction	Introduction of PDM
		·What PDM is:
		Ms. Shimizu
		Overseas Survey Specialist JICA Ghana Office
		·Introduction of draft PDM for the Project:
		Mr. Okumoto
13:30-15:40	Discussion	·Discussion on Draft PDM:
		facilitated by Ms Shimizu
		· Way Forward:
		Mr. Tanaka
15:40-15:50	Closing	·Closing Remarks:
	Session	Mr. C.Abavana
		Technical Advisor to Minister of MOE



Participants List of Preliminary Survey Workshop on

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Project Design Matrix

Project name: The Project on Human Resource Development for Disseminating PV Systems in the Republic of Ghana Duration: 3 years (From 2007 to 2010)

Target Group: Officials of concerned Ministries and Agencies, PV engineers, technicians

UMMARK	OBJECTIVELY VERIFIABLE INDICATORS	WEANS OF VERIFICATION	Mood Anna Continue Co
Super Goal: The PV (Photovoltaic) industry develops.	- The sales of the PV industry - The number of companies and enterprisers belonging to AGSI (Association of Ghana Solar Industries)	- The AGSI reports	מסטובשמממט ואלואס אים
Overall Goal: PV systems are in sustainable use.	 The number of PV systems in use The number of PV systems in use at public facilities more than five years after installation. 	- The reports of concerned Ministries and Agencies	- AGSI continuously exists. - Appropriate regulation is
Project Purpose: The bases for the human resource development for PV rural electrification are prepared.	- The number of times of the training courses (more than 10 times) - The number of certified PV system components (more than 10 models of panels, more than 5 models of controllers, more than 5 models of inverter) - The number of certified technicians	The Project reports	- Necessary budget will be allocated.
1. Trainers are trained through the in-service trainers' training system 2. Technicians are trained and certificated. 3. The certification systems for the technicians' training are prepared. 4. The roles of the respective stakeholders are clarified and the collaboration among the stakeholders is strengthened.	- Development of training materials - Contents of the training curriculum - The number of trained training curriculum - The number of traines of the training courses (more than 10 times) - The percentage of certificated technicians among all the trainees (2) - The number of certified PV system components (more than 10 models of panels, more than 5 models of ontrollers, more than 5 models of batteries & more than 3 models of inverters) - The number of certified technicians (4) - The number of stakeholders' meetings - The minutes of stakeholders' meetings - The minutes of stakeholders' meetings	- The Project reports	Trained counterparts will continue to work for rural electrification. MOE/EC provides institutional and financial assistance to the stakeholders concerned. stakeholders concerned.
	- The number of public relations and their contents		

practice for the PV systems are prepared. 1-2. Training facilities are arranged. 1-3. The curriculum of trainers' training is drawn up. 1-5. The technicians' training materials are developed. 1-6. The examinations for certifying technicians are drawn up. 1-7. The training schedule is made. 2-1. Candidates for the technicians' training courses 3. Operational expenses are properties are arranged. 1-2. Training facilities are arranged. 1-3. The training schedule is made. 3. Operational expenses.	(Long term and/or short term)		- THE GRINES TRAINED IN the
The curriculum of trainers' training is drawn up. The technical service guidelines are drawn up. The technicians' training materials are loped. The examinations for certifying technicians are n up. The training schedule is made. Candidates for the technicians' training courses		Assignment of counterparts and administrative personnel	
I. Examinations for certifying technicians are aining schedule is made. Idates for the technicians' training courses	- PV system technology experts (2) - Institutional arrangement expert (1)	2. Arrangement of land, building and facilities	
	2. Provision of machinery and equipmentThe expected machinery and equipment are as follows:a) Equipment for training facilities for two (2) sitesb) Equipment for testing facilities for one (1) site	Sharing of expenses for project implementation	
_	3. Operational expenses		
2-2. Technicians to be trained are selected. 2-3. Training courses are held. 2-4. The certification examinations are conducted. 2-5. Certificates are issued to those who passed the certification examinations.			
3-1. Third party that accredits certifying organisations is identified and organized. 3-2. Testing facilities for the PV components are			
3-3. The testing facilities for the PV components are accredited.			
3-4. The certificates of PV components are issued, 3-5. Necessary training provisions and conditions for technical certificate are incorporated into training curriculum. 3-6. The coordination among stakeholders is formed			
for arranging the technical certification. 4-1. The dissemination and use of PV systems are			
monitored and recorded. 4-2. The public relations for disseminating PV systems are conducted. 4-3. The stakeholders share information and		D.	



Plan of Operation (PO)

The Project on human resource development for disseminating PV systems in the Republic of Ghana

Appendix III

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Ghanaian side: PD-Project Director, PM-Project Managers, PS-Project Supervisor, CP-Counterpart Personnel	S-Project	Super	visor,	OP-GO	unterp	art Pe	rsonne	_					
' Japanese side; JE−Japanese Experts													

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RECORD OF DISCUSSIONS BETWEEN JAPAN INTERNATIONAL COOPERATIN AGENCY

AND AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE REPUBLIC OF GHANA

ON

JAPANESE TECHNICAL COOPERATION

FOR

THE PROJECT ON HUMAN RESOURCE DEVELOPMENT FOR DISSEMINATING PV SYSTEMS

Japan International Cooperation Agency (hereinafter referred to as "JICA") had a series of discussions through the Resident Representative of JICA in the Republic of Ghana, with the Ghanaian authorities concerned with respect to desirable measures to be taken by JICA and the Government of Ghana represented by the Ministry of Energy (hereinafter referred to "MOE") and the Ministry of Education, Science and Sports (hereinafter referred to "MOESS") for the successful implementation of the Project on "Human Resource Development for Disseminating PV Systems" in the Republic of Ghana.

As a result of the discussions, JICA and the Ghanaian authorities concerned of the Project agreed to recommend to their respective Government the matters referred to in the document attached hereto.

Accra, ****, 2007

Mr. Hiroshi Murakami Resident Representative Japan International Cooperation Agency Ghana Office Japan

Mrs. Dina Hammond Chief Director Ministry of Energy Republic of Ghana

Mr.

Ministry of Education, Science and Sports Republic of Ghana

Witnessed by:

Mr.

Director, External Resource Mobilization (Bilateral) Division Ministry of Finance and Economic Planning Republic of Ghana



THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERNMENT OF GHANA

- 1. The Government of Ghana will implement the Project on "Human Resource Development for Disseminating PV Systems" (hereinafter referred to as "the Project") in cooperation with JICA.
- 2. The project will be implemented in accordance with the Outline of the Project that is given in ANNEX I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan, JICA will take, at its own expense, the following measures according to the normal procedures under the Colombo Plan Technical Cooperation Scheme.

1. DISPATCH OF JAPANESE EXPERTS

JICA will provide the services of the Japanese experts as listed in ANNEX II.

The provision of Article III of this agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in ANNEX III.

The provision of Article III of this agreement will be applied to the Equipment.

3. TRAINING OF GHANAIAN PERSONNEL IN JAPAN

JICA will receive the Ghanaian personnel connected with the Project for technical training in Japan.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF GHANA

- 1. The Government of Ghana will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.
- 2. The Government of Ghana will ensure that the technologies and knowledge acquired



by the Ghanaian nationals as a result of Japanese technical cooperation will contribute to the economic and social development of Ghana.

- 3. The Government of Ghana will grant in Ghana privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.
- 4. The Government of Ghana will take the necessary measures to receive and use the Equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.
- 5. The Government of Ghana will take necessary measures to ensure that the knowledge and experience acquired by the Ghanaian personnel from technical training in Japan will be utilized effectively in the implementation of the Project.
- 6. In accordance with the laws and regulations in force in Ghana, the Government of Ghana will take necessary measures to provide at its own expense as followings:
- (1) Services of the Ghanaian counterpart personnel and administrative personnel as listed in ANNEX IV;
- (2) Land, Buildings and facilities as listed in ANNEX V; and
- (3) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.
- 7. In accordance with the laws and regulations in force in Ghana, the Government of Ghana will take necessary measures to meet the followings:
- (1) Expenses necessary for transportation within Ghana of the Equipment referred to in II-2 above as well as for the installation, operation and maintenance thereof;
- (2) Customs duties, internal taxes and any other charges, imposed in Ghana on the Equipment referred to in II-2 above; and
- (3) Running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

- 1. Chief Director, Ministry of Energy, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
- Director of Power/ Technical Advisor to the Minister, Ministry of Energy (MOE), and Appropriate position, Ministry of Education, Science and Sports (MOESS), as the Project Managers, will be responsible for the managerial and technical matters of the Project.

- 3. Executive Secretary of Energy Commission (EC), Executive Director of Ghana Standards Board (GSB) and Chairman of Association of Ghana Solar Industry (AGSI), as the Project Advisors, will provide advice on institutional issues of the Project.
- 4. Photovoltaic (PV) dissemination Advisor/Project Leader will provide necessary recommendations and advice to the Project Director and the Project Managers on any matters pertaining to the implementation of the Project.
- 5. The Japanese experts will give necessary guidance and advice to the Ghanaian counterpart personnel on technical matters pertaining to the implementation of the Project.
- 6. For the effective and successful implementation of the Project, a Joint Coordinating Committee (JCC) will be established. The functions and members of the JCC are stipulated in ANNEX VI. Organization chart of the Project administration is shown in ANNEX VII.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Ghanaian authorities concerned, at the middle and during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

The Government of Ghana undertakes to bear claims, if any arises, against Japanese experts engaged in technical cooperation for the project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Ghana except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTAION

There will be mutual consultation between JICA and the Government of Ghana on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of Ghana, the Government of Ghana will take appropriate measures to make the Project widely



known to the people of Ghana.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this attached document will be for three (3) years from the date of the dispatch of the first expert from Japan.





ANNEXES

ANNEX I	OUTLINE OF THE PROJECT
ANNEX II	LIST OF JAPANESE EXPERTS
ANNEX III	LIST OF MACHINERY AND EQUIPMENT
ANNEX IV	LIST OF GHANA COUNTERPART AND ADMINISTRATIVE PERSONNEL
ANNEX V	LIST OF LAND, BUIDINGS AND FACILITIES
ANNEX VI	JOINT COORDINATION COMMITTEE
ANNEX VII	ORGANIZATION CHART OF THE PROJECT ADMINISTRATION



ANNEX I

OUTLINE OF THE PROJECT

1. Title of the project

The Project on the human resource development for disseminating PV systems

2. Super goal

The PV (Photovoltaic) industry develops.

3. Overall goal

PV systems are in sustainable use.

4. Project purpose

The bases for the human resource development for PV rural electrification are prepared.

5. Outputs of the Project

- (1) Trainers are trained through the in service trainers' training system
- (2) Technicians are trained and certificated.
- (3) The certification systems for the technicians' training are prepared.
- (4) The roles of the respective stakeholders are clarified and the collaboration among the stakeholders is strengthened.

6. Activities of the Project

- (1-1) The technical standards and the code of practice for the PV systems are prepared.
- (1-2) Training facilities are arranged.
- (1.3) The curriculum of trainers' training is drawn up.
- (1-4) The technical service guidelines are drawn up.
- (1.5) The technicians' training materials are developed.
- (1-6) The examinations for certifying technicians are drawn up.
- (1.7) The training schedule is made.
- (2-1) Candidates for the technicians' training courses are raised.
- (2-2) Technicians to be trained are selected.
- (2-3) Training courses are held.
- (2-4) The certification examinations are conducted.
- (2-5) Certificates are issued to those who passed the certification examinations.
- (3-1) Third party that accredits certifying organisations is identified and organized.
- (3-2) Testing facilities for the PV components are selected.
- (3-3) The testing facilities for the PV components are accredited.
- (3-4) The certificates of PV components are issued.



- (3-5) Necessary training provisions and conditions for technical certificate are incorporated into training curriculum.
- (3-6) The coordination among stakeholders is formed for arranging the technical certification.
- (4-1) The dissemination and use of PV systems are monitored and recorded.
- (4.2) The public relations for disseminating PV systems are conducted.
- (4-3) The stakeholders share information and exchange ideas more intensively.



ANNEX II

LIST OF JAPANESE EXPERTS

- 1. Photovoltaic (PV) dissemination Advisor /Project Leader (1)
- 2. PV system technology experts (2)
- 3. Institutional arrangement expert (1)

NOTE:

Assignment schedule of experts depends on the progress of the Project and availability of the suitable experts. It will be decided through mutual consultations for each Japanese fiscal year.



ANNEX III

LIST OF MACHINARY AND EQUIPMENT

Equipment will be given as necessary for the effective implementation of the Project. Details shall be discussed during the Project.

The expected machinery and equipment are as follows:

- a) Equipment for training facilities for two (2) sites
- b) Equipment for testing facilities for one (1) site



ANNEX IV

LIST OF GHANA COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Counterpart personnel

(1) Project Director

: Chief Director, Ministry of Energy

(2) Project Mangers

: Director of Power/ Technical Advisor to the Minister,

Ministry of Energy (MOE)

: Appropriate position, Ministry of Education, Science and

Sports (MOESS)

(3) Project Advisors

: Executive Secretary, Energy Commission (EC)

: Executive Director, Ghana Standards Board (GSB)

: Chairman, Association of Ghana Solar Industry (AGSI)

(4) Technical Trainers

: Lecturers, Solar Energy Application Laboratory in

Department of Mechanical Engineering, Kwame Nkrumah

University of Science and Technology (KNUST)

: Lecturers, Tamale Polytechnic

2. Administrative personnel

Support and administrative personnel will be selected, if necessary.

3. Other issues

MOE and MOESS shall recruit the necessary staff for smooth implementation of the Project, if necessary.



ANNEX V

LIST OF LAND, BUILDING AND FACILITIES

- 1. Office space and necessary facilities for Japanese experts and Ghanaian counterparts
- 2. Buildings, facilities and spaces necessary for the installation and operation of the machinery, equipment and materials to be provided by JICA
- 3. Training rooms and meeting rooms necessary for the transfer of technology
- 4. Other facilities mutually agreed upon for the implementation of the Project





ANNEX VI

JOINT COORDINATION COMMITTEE

1. Function

The Joint Coordination Committee will meet at least once a year or whenever the necessity arises in order to fulfill the following functions;

- (1) To evaluate the annual work plan of the Project;
- (2) To review the progress of the annual work plan;
- (3) To review and discuss major issues that may arise during the implementation of the Project; and
- (4) To discuss any other issue(s) pertinent to the smooth implementation of the Project.

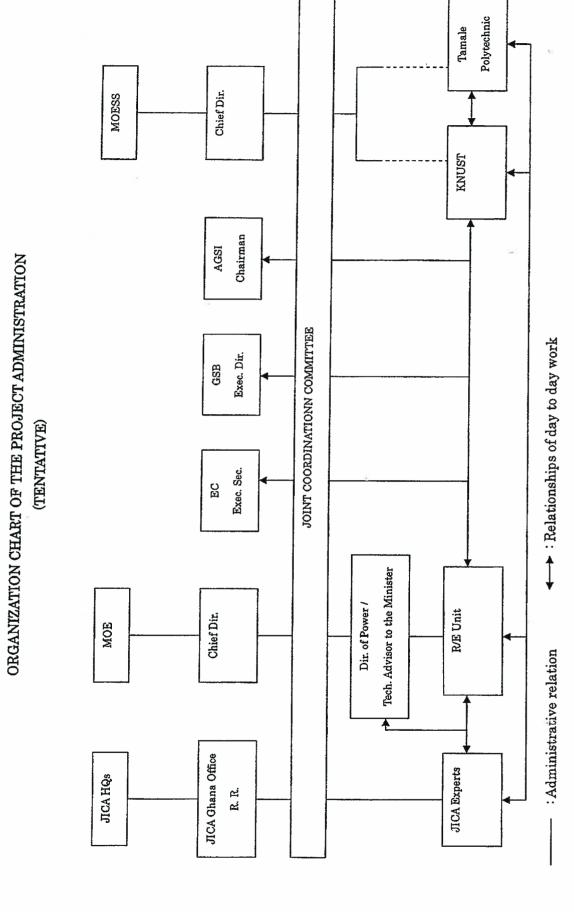
2. Provisional Composition

- (1) Chairperson
- : Project Director
- (2) Members of the Ghanaian side
 - a. Project managers: Director of Power/ Technical Advisor to the Minister, Ministry of Energy
 - : Appropriate position, Ministry of Education, Science and Sports
 - b. Project advisors: Executive Secretary, Energy Commission
 - : Executive Director, Ghana Standards Board
 - : Chairman, Association of Ghana Solar Industry
 - c. Other personnel concerned to be assigned by the request of JICA, MOE or MOESS, if necessary.

(3) Members of the Japanese side

- a. Experts
- b. Representative of JICA Ghana office
- c. Other personnel concerned to be assigned by the request of JICA, MOE or MOESS, if necessary.







MINUTES OF MEETING BETWEEN

THE JAPAN INTERNATIONAL COOPERATION AGENCY

AND

AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE REPUBLIC OF GHANA ON

JAPANESE TECHNICAL COOPERATION

FOR

THE PROJECT FOR HUMAN RESOURCE DEVELOPMENT FOR DISSEMINATING PV SYSTEMS

In accordance with the Record of Discussion on Japanese Technical Cooperation for the Project on Human Resource Development for Disseminating PV Systems (hereinafter referred to as "the Project") in the Republic of Ghana signed in Accra on November 20th, 2007, Japan International Cooperation Agency and Ghanaian Authorities concerned had discussions on the implementation of the Project..

As result of the discussions, JICA and the Ghanaian authorities concerned of the Project agreed to confirm the matters described in the document attached hereto.

Accra, November 20th, 2007

村上博

Mr. Hiroshi Murakami Resident Representative Japan International Cooperation Agency Ghana Office Japan

Churchel

Hon. Prof. Dominic Fobih

Minister

Ministry of Education, Science and Sports

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Hon. Mr. Kwame Amporfo Twumasi

Republic of Ghana

Deputy Minister

Ministry of Energy

Republic of Ghana

Mr. Ernest Osei Prempeh

Acting Director, External Resource

Witnessed by:

Mobilization (Bilateral)

Ministry of Finance and Economic Planning

Republic of Ghana

ATTACHMENT

1. Project Design Matrix (PDM) and Plan of Operation (PO)

Ghanaian side and Japanese side (hereinaster referred to as "Both sides") agreed with PDM and PO. PDM and PO are shown in Appendix I and Appendix II.

2. The number of testing facilities

Ghanaian side requested Japanese side to add one more testing facility, totaling two testing facilities in the Project. Ghanaian side proposed Ghana Standard Board (GSB) as the site for additional testing facility.

After Japanese experts visiting candidate sites, JCC will discuss the number of testing facility and finally decide it.

3. Installation of PV systems

Ghanaian side requested Japanese side to install twenty five (25) sets of PV systems into each 6 communities in order to establish the sustainable models.

The establishment of the sustainable models will be discussed with Ghanaian side after launching the Project.

4. Arrangement of Ghanaian side and Japanese side

Both sides agreed with the arrangement of Ghanaian side and Japanese side. This is shown in Appendix III.

The necessary arrangement will be decided through mutual consultations, and be able to change in JCC in line with the progress of the Project.

5. Organization chart of the Project administration

Both sides agreed with organization chart of the Project administration as shown in Appendix IV.



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Project Design Matrix
Project name: The Project on Human Resource Development for Disseminating PV Systems in the Republic of Ghana
Project name: The Project on Human Resource Development for Disseminating PV Systems in the Republic of Ghana
Duration: 3 years (From January... 2008 to ... December... 2010)
Target Group: ... officials of concerned Ministries and Agencies, PV engineers, technicians...

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
S uper Goal: The PV (Photovoltaic) industry develops.	- The sales of the PV industry - The number of companies and enterprisers belonging to AGSI (Association of Ghana Solar Industries)	- The AGSI reports	
Overall Goal: PV systems are in sustainable use.	 The number of PV systems in use The number of PV systems in use at public facilities more than five years after installation. 	- The reports of concerned Ministries and Agencies	- AGSI continuously exists. - Appropriate regulation is enforced.
Project Purpose: The bases for the human resource development for PV rural electrification are prepared.	- The number of times of the training courses (more than 10 times) - The number of certified PV system components (more than 10 models of panels, more than 5 models of controllers, more than 5 models of inverter) - The number of certified technicians	- The Project reports	- Necessary budget will be allocated.
Outputs: 1. Trainers are trained through the in-service trainers' training system 2. Technicians are trained and certificated.	(1) - Development of training materials - Contents of the training curriculum - The number of trained trainers	• The Project reports	- Trained counterparts will continue to work for rural electrification MOE/EC provides institutional and financial assistance to the
3. The certification systems for the technicians'	The number of times of the training courses (more than 10 times) The percentage of certificated technicians among all the trainees (3)		stakeholders concerned.
training are prepared.	- The number of certified PV system components (more than 10 models of panels, more than 5 models of controllers, more than 5 models of inverters) - The number of certified technicians		
4. The roles of the respective stakeholders are clarified and the collaboration among the stakeholders is strengthened.	 (4) The number of times of stakeholders' meetings The minutes of stakeholders' meetings The Project reports on the states of PV systems in use The number of public relations and their contents 	Tig.	

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Arrangement of Ghanaian side and Japanese side

Ghanaian side	Japanese side
- Allowance for personnel in Ghanaian side	· Allowance for personnel in Japanese side
 Fuel and maintenance costs of vehicles assigned to Ghanaian side Operational cost for training and testing facilities 	• Fuel and maintenance costs of vehicles assigned to Japanese experts JICA will prepare for two cars for the Project. Japanese experts will carry out project activities by using these cars and have prior use to Ghanaian side during
- Operational cost for training courses and tests of PV equipment	Japanese experts staying in Ghana. At the end of the Project, these cars will be provided to Ghanaian side.
*	- Operational cost for activities on the training course and the test of PV equipment 1) advertisement 2) texts, manuals, guidebooks 3) workshops (space, advertisement, NOT sitting fee) 4) travel allowance for resource persons



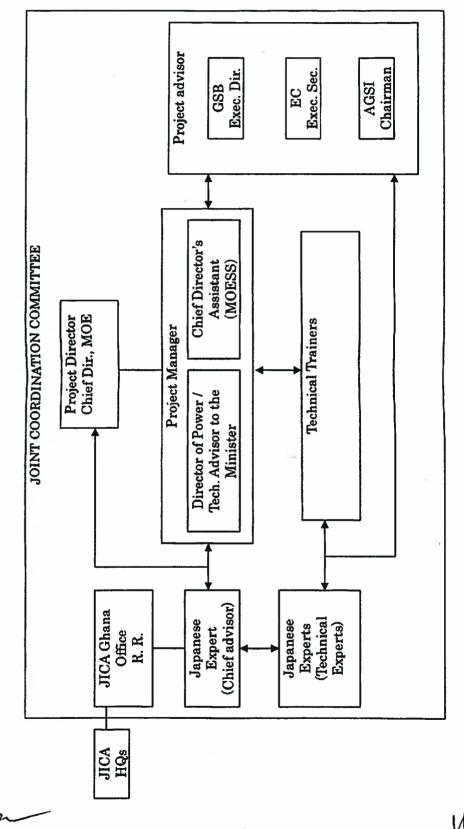


The Project on human resource development for disseminating PV systems in the Republic of Ghana Plan of Operation (PO)

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7	Ghansian side: PD-Project Director, PM-Project Managers, PS-Project Supervisor, CP-Counterpart Personnel	S-Pro	ject S	upervis	g, CP	Count	orpart	Personr	<u></u>						
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Ghanaian side: PD-Project Director, PM-Project Managers, PS-Project Supervisor, CP-Counterpart Personnel Japanese side: JE-Japanese Experts

ORGANIZATION CHART OF THE PROJECT ADMINISTRATION



: Administrative relation

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