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.

Appendix I

19th Feb 2007

Novotel Hotel

AGENDA of

Preliminary Study Workshop on

Human Resource Development for Disseminating PV Systems Project

in the Republic of Ghana

9:00-9:20	**Opening Session**	・**Opening Address** 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 Session**	・**Closing Remarks:** Mr. C.Abavana Technical Advisor to Minister of MOE

Appendix I

Participants List of Preliminary Survey Workshop on The Development for Disseminating PV Systems project

	Name	Organization	Position	E-mail	Tel Number
4	DAVID ANIPA	KNUST, KUMASI	LECTURER IN ENGINEERING	davidanipa@yahoo.com	020-8165502
5	Chris Munteanu	DENG	CEO	info@dengltd.com	(021) 257-100
6	Frede Poosteen	IAGSI	President	Fbosteen@dengltd.com	
7	Baah Joseph Okyere	TAMALE POLYTECHNIC	LECTURER	joebaah2003@yahoo.co.uk	020-9420229
8	RICHARD COLLINS ARKU	WISE ENERGY LTD	GENERAL MANAGER	richcollinsark@yahoo.com	020-8147775
9	Doris [illegible]	Min of Energy	Ass. [illegible] Officer	[illegible]	021-667152
0	ANTWI-[illegible]		[illegible]	[illegible]	021-[illegible]
1	Clement G. ABAVANA	Min of Energy	Tech. Advisor	[illegible]	021-667154
2	Ebenezer [illegible]		Asst Engineer	[illegible]@yahoo.com	021-668867-4
3	Samuel Adu-Asare	[illegible]-Ghana	Manager	[illegible]	0276792[illegible]
4	K.A. OTU-DANQUAH	ENERGY COMMISSION	CHIEF PROGRAMME OFFICER	otu_danquah@yahoo.co.uk	027-7850756
5	Christine Asser	Energy Commission	PPO	Christineasser@yahoo.com	020937795[illegible]
	JOSEPH ADDAE	NES PRO [illegible]	TECH-ENG.	[illegible]@yahoo.com	024-885576

Jap.

Appendix I

Participants List of Preliminary Survey Workshop on
The Development for Disseminating PV Systems project

19 Feb 2007

	Name	Organization	Position	E-mail	Tel Number
1	Yukinori TANAKA	JICA	staff	Tanaka.Yukinori@jica.go.jp	+81-3-5352-5052
2	Toshiyuki Hayashi	JICA	Senior Advisor	Hayashi.Toshiyuki@jica.go.jp	
3	Akira KAMO	CEPCO	Staff	Kamo.Akira@chuden.co.jp	
4	Masayasu Ishiguro	IAL	Representative	mishiguro@iartglobal.net	+81-45-894-0281
5	SAITO KATSUHIKO	JICA	PT	saitok.neo@nifty.com	
6	HIRAHARA TETSUNORI	JICA	Staff	Hirahara.Tetsunori@jica.go.jp	
7	KATSUYA KUGE	JICA	Staff	Kuge.Katsuya@jica.go.jp	
8	HIROSHI MURAKAMI	〃	Res. Rep	Murakami.Hiroshi@jica.go.jp	
9	Masakatsu Okumoto	〃	staff	Okumoto.Masakatsu@jica.go.jp	
10	Satomi SHINTEU	〃	〃	Shinozakatomi-qn@jica.go.jp	
11	Naoki YANASE	〃	〃	YanaseNaoki@jica.go.jp	
12	JUNKO KIKUCHI	〃	〃	KikuchiJunko.GN@jica.go.jp	
13	[illegible]	VRI		[illegible]	0249-33-[illegible]

Project Design Matrix

Project name: **The Project on Human Resource Development for Disseminating PV Systems in the Republic of Ghana**

Appendix II

Duration: 3 years (From ..... 2007 to ..... 2010)

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

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
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	
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 - The AGSI reports	- 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 batteries & more than 3 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. 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.	(1) - Development of training materials - Contents of the training curriculum - The number of trained trainers (2) - The number of times of the training courses (more than 10 times) - The percentage of certificated technicians among all the trainees (3) - The number of certified PV system components (more than 10 models of panels, more than 5 models of controllers, more than 5 models of batteries & more than 3 models of inverters) - The number of certified technicians (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	- The Project reports	- Trained counterparts will continue to work for rural electrification. - MOE/EC provides institutional and financial assistance to the stakeholders concerned.

Activities: 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.	**Input (Japanese side)** 1.Dispatch of experts (Long term and/or short term) - PV system dissemination advisor (1) - PV system technology experts (2) - Institutional arrangement expert (1) 2. Provision of machinery and equipment 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 3. Operational expenses	**Input (Ghanaian side)** 1. Assignment of counterparts and administrative personnel 2. Arrangement of land, building and facilities 3. Sharing of expenses for project implementation	-The trainers trained in the Project continuously take parts in the Project.

Plan of Operation (PO)

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

Appendix III

Japanese fisical year	2007	2008				2009				2010				Responsible Person	Input	
Calender	2007	2008				2009				2010						
Activities	3	4	1	2	3	4	1	2	3	4	1	2	3		Japanese side	Ghanaian side
0.Inauguration																
0-1. Inauguration														PD	JE	CP
1.Trainers are trained through the in-service trainers' training system																
1-1. The technical standards and the code of practice for the PV systems are prepared														PD	JE	CP
1-2. The traning facilities are arranged														PD	JE	CP
1-3. The curriculum of trainers' traning is drawn up														PD	JE	CP
1-4. The technical service guidelines are drawn up														PD	JE	CP
1-5. The technicians' training materials are developed														PD	JE	CP
1-6. The examinations for certifying technicians are drawn														PD	JE	CP
1-7. The training schedule is made														PD	JE	CP
2.Technicians are trained and certificated																
2-1. Candidates for the technicians' training courses are raised														PD	JE	CP
2-2. Technicians to be trained are selected														PD	JE	CP
2-3. Trainig courses are held														PD	JE	CP
2-4. The certification examinations are conducted														PD	JE	CP
2-5. Certificates are issued to those who passed the certification examinations														PD	JE	CP
3.The certification systems for the technicians' training are prepared																
3-1. Third party that accredits certifying organisations is identified and organized														PD	JE	CP
3-2. Testing facilities for the PV components are selected														PD	JE	CP
3-3. The testing facilities for the PV components are accredited														PD	JE	CP
3-4. The certificates of PV components are issued														PD	JE	CP
3-5. Necessary training provisions and conditions for technical certificate are incorporated into training curriculum														PD	JE	CP
3-6. The coordination among stakeholders is formed for arranging the technical certification system														PD	JE	CP
4.The roles of the respective stakeholders are clarified and the collaboration among stakeholders is strengthened																
4-1. The dissemination and use of PV systems are monitored and recorded														PD	JE	CP
4-2. The public relations for disseminating PV systems are conducted														PD	JE	CP
4-3. The stakeholders share information and exchange ideas more intensively														PD	JE	CP

Ghanaian side: PD-Project Director, PM-Project Managers, PS-Project Supervisor, CP-Counterpart Personnel

Japanese side: JE-Japanese Experts

(DRAFT) Appendix IV

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.
2. 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

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

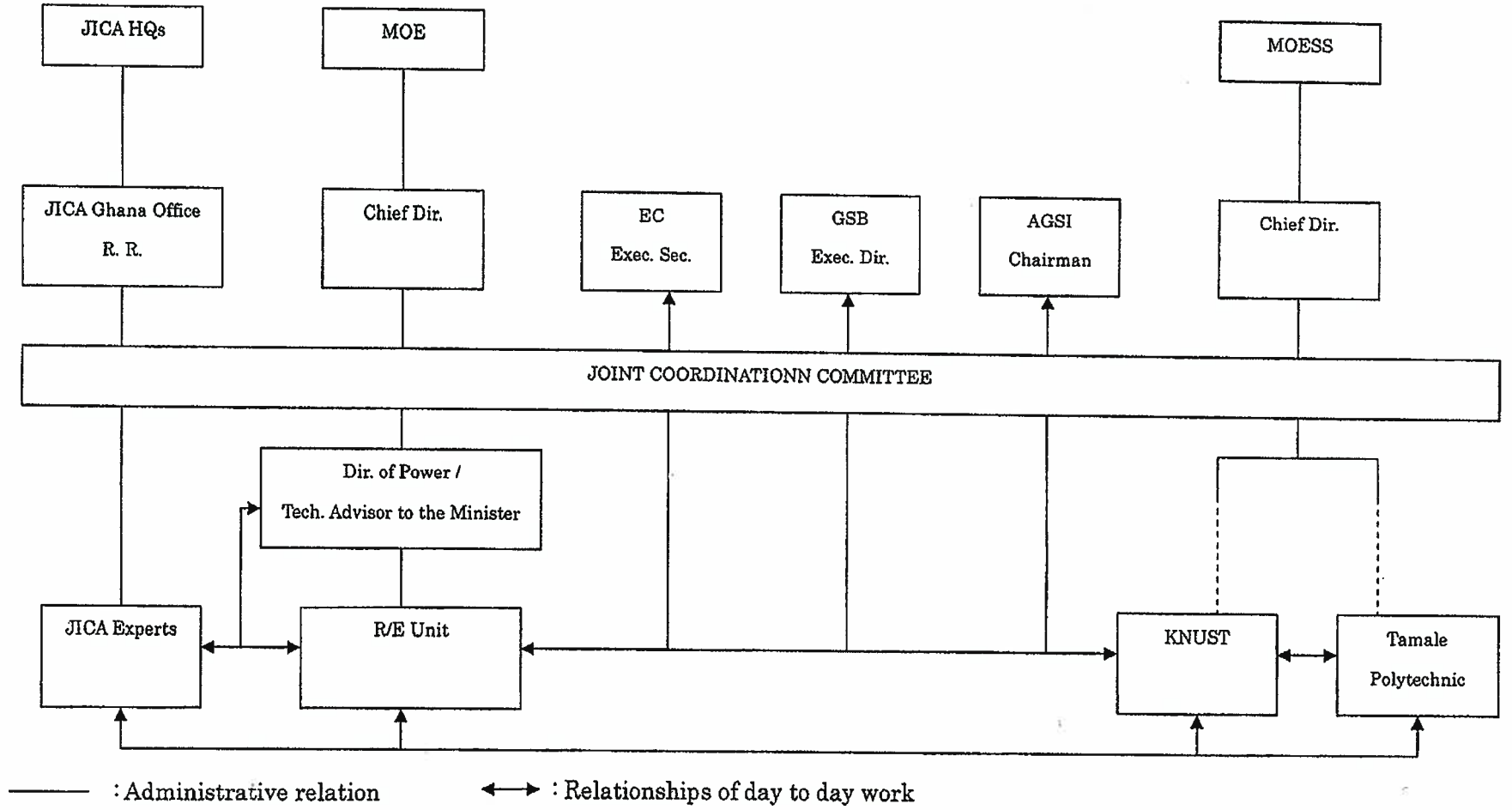
a. Project managers: Director of Power/ Technical Advisor to the Minister, Ministry of Energy
: Appropriate position, Ministry of Education, Science and Sports
b. Project advisors : Executive Secretary, Energy Commission
: Executive Director, Ghana Standards Board
: Chairman, Association of Ghana Solar 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.

ANNEX VII

ORGANIZATION CHART OF THE PROJECT ADMINISTRATION
(TENTATIVE)



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

Twumasi

Hon. Mr. Kwame Amporfo Twumasi
Deputy Minister
Ministry of Energy
Republic of Ghana

Hon. Prof. Dominic Fobih
Minister
Ministry of Education, Science and Sports
Republic of Ghana

Witnessed by:

Mr. Ernest Osei Prempeh
Acting Director, External Resource 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 (hereinafter 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.

Project Design Matrix

Appendix I

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
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	
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 - The AGSI reports	- 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 batteries & more than 3 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. 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.	(1) - Development of training materials - Contents of the training curriculum - The number of trained trainers (2) - The number of times of the training courses (more than 10 times) - The percentage of certificated technicians among all the trainees (3) - The number of certified PV system components (more than 10 models of panels, more than 5 models of controllers, more than 5 models of batteries & more than 3 models of inverters) - The number of certified technicians (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	- The Project reports	- Trained counterparts will continue to work for rural electrification. - MOE/EC provides institutional and financial assistance to the stakeholders concerned.

Activities: 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.	**Input (Japanese side)** 1.Dispatch of experts (Long term and/or short term) - PV dissemination advisor - PV system technology experts 2. Provision of machinery and equipment The expected machinery and equipment are as follows: a) Equipment for training facilities b) Equipment for testing facilities c) Vehicles	**Input (Ghanaian side)** 1. Assignment of counterparts and administrative personnel 2. Arrangement of land, building and facilities 3. Sharing of expenses for project implementation	-The trainers trained in the Project continuously take parts in the Project.

Appendix III

Arrangement of Ghanaian side and Japanese side

Ghanaian side	Japanese side
· Allowance for personnel in Ghanaian side · Fuel and maintenance costs of vehicles assigned to Ghanaian side · Operational cost for training and testing facilities · Operational cost for training courses and tests of PV equipment	· Allowance for personnel in Japanese side · 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 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

Plan of Operation (PO)

Appendix II

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

Japanese fisical year	2007	2008				2009				2010				Responsible Person	Input	
Calender	2007	2008				2009				2010						
Activities	3	4	1	2	3	4	1	2	3	4	1	2	3		Japanese side	Ghanaian side
0. Inauguration																
0-1. Inauguration														PD	JE	CP
1. Trainers are trained through the in-service trainers' training system																
1-1. The technical standards and the code of practice for the PV systems are prepared																
1-2. The traning facilities are arranged														PD	JE	CP
1-3. The curriculum of trainers' traning is drawn up														PD	JE	CP
1-4. The technical service guidelines are drawn up														PD	JE	CP
1-5. The technicians' training materials are developed														PD	JE	CP
1-6. The examinations for certifying technicians are drawn														PD	JE	CP
1-7. The training schedule is made														PD	JE	CP
2. Technicians are trained and certificated																
2-1. Candidates for the technicians' training courses are raised														PD	JE	CP
2-2. Technicians to be trained are selected														PD	JE	CP
2-3. Trainig courses are held														PD	JE	CP
2-4. The certification examinations are conducted														PD	JE	CP
2-5. Certificates are issued to those who passed the certification examinations														PD	JE	CP
3. The certification systems for the technicians' training are prepared																
3-1. Third party that accredits certifying organisations is identified and organized														PD	JE	CP
3-2. Testing facilities for the PV components are selected														PD	JE	CP
3-3. The testing facilities for the PV components are accredited														PD	JE	CP
3-4. The certificates of PV components are issued														PD	JE	CP
3-5. Necessary training provisions and conditions for technical certificate are incorporated into training curriculum														PD	JE	CP
3-6. The coordination among stakeholders is formed for arranging the technical certification system														PD	JE	CP
4. The roles of the respective stakeholders are clarified and the collaboration among stakeholders is strengthened																
4-1. The dissemination and use of PV systems are monitored and recorded														PD	JE	CP
4-2. The public relations for disseminating PV systems are conducted														PD	JE	CP
4-3. The stakeholders share information and exchange ideas more intensively														PD	JE	CP

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