

**RECORD OF DISCUSSIONS  
BETWEEN  
JAPAN INTERNATIONAL COOPERATION 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**

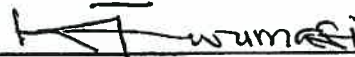
Japan International Cooperation Agency (hereinafter referred to as "JICA") had a series of discussions through the Resident Representative of JICA in the Republic of Ghana, with the Ghanaian authorities concerned with respect to desirable measures to be taken by JICA and the Government of Ghana represented 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 Governments the matters referred to in the document attached hereto.

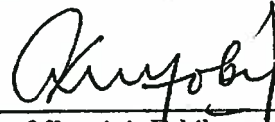
Accra, November 20<sup>th</sup>, 2007

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

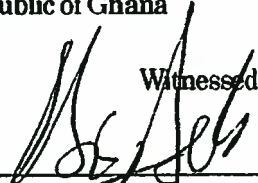


Hon. Mr. Kwame Amporfo Twumasi  
Deputy Minister  
Ministry of Energy  
Republic of Ghana



Hon. Prof. Dominic Hobbie  
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

## THE ATTACHED DOCUMENT

### I. COOPERATION BETWEEN JICA AND THE GOVERNMENT OF GHANA

1. The Government of the Republic 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 which 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 Technical Cooperation Scheme of Japan.

#### 1. DISPATCH OF JAPANESE EXPERTS

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

#### 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 Equipment will become the property of the Government of the Republic of Ghana upon being delivered C.I.F. (cost, insurance and freight) to the Ghanaian authorities concerned at the ports and/or airports of disembarkation.

#### 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 the Republic 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 the republic of Ghana will ensure that the technologies and knowledge acquired by the Ghanaian nationals as a result of Japanese technical



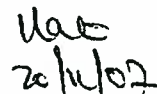
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cooperation will contribute to the economic and social development of the Republic of Ghana.

3. The Government of the Republic of Ghana will grant to the Japanese experts referred to in II-1 above and their families privileges, exemptions and benefits as listed in ANNEX IV and will grant privileges, exemptions and benefits no less favorable than those granted to experts of third countries or international organizations performing similar missions in the Republic of Ghana.
4. The Government of the Republic of Ghana will ensure that the Equipment referred to in II-2 above will be utilized effectively for the implementation of the Project in consultation with the Japanese experts referred to in ANNEX II.
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 the Republic of Ghana, the Government of the Republic of Ghana will take necessary measures to provide at its own expense:
  - (1) Services of the Ghanaian counterpart personnel and administrative personnel as listed in ANNEX V;
  - (2) Land, Buildings and facilities as listed in ANNEX VI; 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 the Republic of Ghana, the Government of the Republic of Ghana will take necessary measures to meet:
  - (1) Expenses necessary for transportation within the Republic of 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 the Republic of 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



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responsibility for the administration and implementation of the Project.

2. Director of Power/Head of Renewable Energy, Ministry of Energy (MOE), and Chief Director/Representative, 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/Chief Advisor 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 technical 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 technical cooperation for the Project, a Joint Coordinating Committee (JCC) will be established whose functions and composition are described in ANNEXVII.

#### 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 the Republic 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 the Republic of Ghana except for those arising from the willful misconduct or gross negligence of the Japanese experts.

#### VII. MUTUAL CONSULTATION

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



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

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



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ANNEXES

- ANNEX I      OUTLINE OF THE PROJECT  
ANNEX II      LIST OF JAPANESE EXPERTS  
ANNEX III     LIST OF MACHINERY AND EQUIPMENT  
ANNEX IV      PRIVILEGES, EXEMPTIONS AND BENEFITS FOR JAPANESE  
                 EXPERTS  
ANNEX V      LIST OF GHANAIAN COUNTERPART AND ADMINISTRATIVE  
                 PERSONNEL  
ANNEX VI      LIST OF LAND, BUIDINGS AND FACILITIES  
ANNEX VII     JOINT COORDINATION COMMITTEE

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## 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.



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(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.



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## ANNEX II

### LIST OF JAPANESE EXPERTS

#### 1. Photovoltaic (PV) dissemination Advisor /Chief Advisor

The advisor will work together with his or her counterpart and provide necessary advice for the following activities:

- Preparation of creation and implementation plan for PV system certification system and PV technician qualification system,
- Implementation of the planned certification and qualification systems,
- Preparation and Implementation of PV human resource development plan,
- Planning and implementation of public relation for PV systems together with PV industry,
- Preparation of PV rural electrification policy and plan in conjunction with the conventional rural electrification plan,
- Information exchange and coordination among relevant donors working for PV dissemination and government organizations utilizing PV systems.

In addition to these activities, the advisor will manage the Technical Cooperation Project as a Chief Advisor.

#### 2. PV system technology experts

The experts will work together with his or her counterpart and provide technical advice for the following activities:

- Preparation of creation and implementation plan for PV system certification system and PV technician qualification system,
- Preparation of PV human resource development plan,
- Planning and implementation of public relation for PV systems together with PV industry.

In addition to these activities, the experts will provide technical assistance and carry out technology transfer to their counterpart for the following activities:

- Establishment of testing facilities and testing methods for PV components and systems,
- Training of engineers and technicians for appropriate testing activities,
- Preparation of guidelines and manuals for testing activities,
- Preparation of training curriculum for PV technicians,
- Preparation of training materials and facilities,
- Planning and implementation of Trainer's training,
- Preparation of trainer's guidelines and manuals,
- Training of PV technicians together with trained trainers,
- Monitoring and evaluation of training activities by trained trainers for improving



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trainer's teaching skills and training curriculum.

**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.



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**ANNEX III**

**LIST OF MACHINERY 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
- b) Equipment for testing facilities
- c) Vehicles

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



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ANNEX IV

**PRIVILEGES, EXEMPTIONS AND BENEFITS  
FOR JAPANESE EXPERTS AND THEIR FAMILIES**

1. The Government of Ghana will use all their available means to provide medical and other necessary assistance to the Japanese experts and their families equivalent to that of Ghanaian civil servants.
2. The Government of Ghana will facilitate upon application entry and exit visas for the Japanese experts and their families.
3. The Government of Ghana will issue identification card to the Japanese experts and their families to secure the cooperation of all governmental organizations necessary for the performance of the duties of the experts.



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**ANNEX V**

**LIST OF GHANA COUNTERPART AND ADMINISTRATIVE PERSONNEL**

**1. Counterpart personnel**

- (1) Project Director : Chief Director, Ministry of Energy
- (2) Project Mangers : Director of Power/ Head of Renewable Energy, Ministry of Energy (MOE)  
: Chief Director/Representative, 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**

- (1) Drivers
- (2) 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.



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**ANNEX VI**

**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



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**ANNEX VII**

**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/ Head of Renewable energy, Ministry of Energy  
: Chief Director/Representative, 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.



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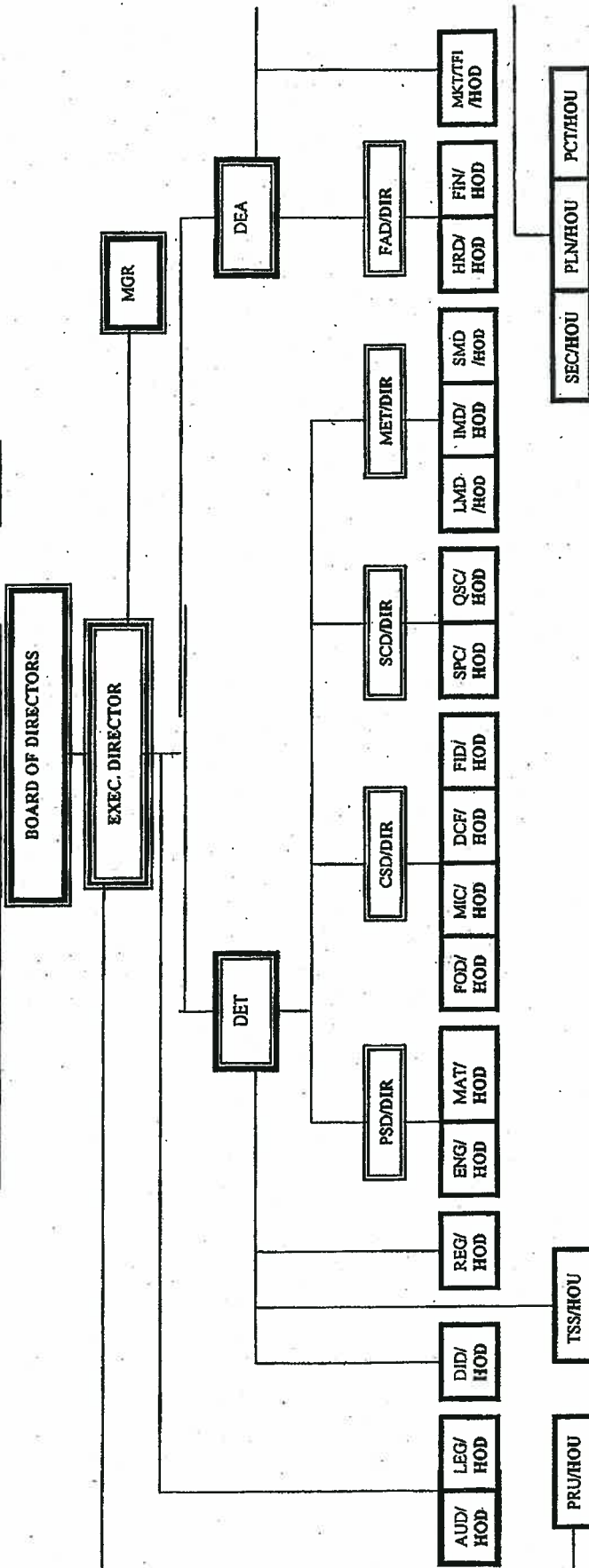




6. GSB (Ghana Standard Board) 組織図

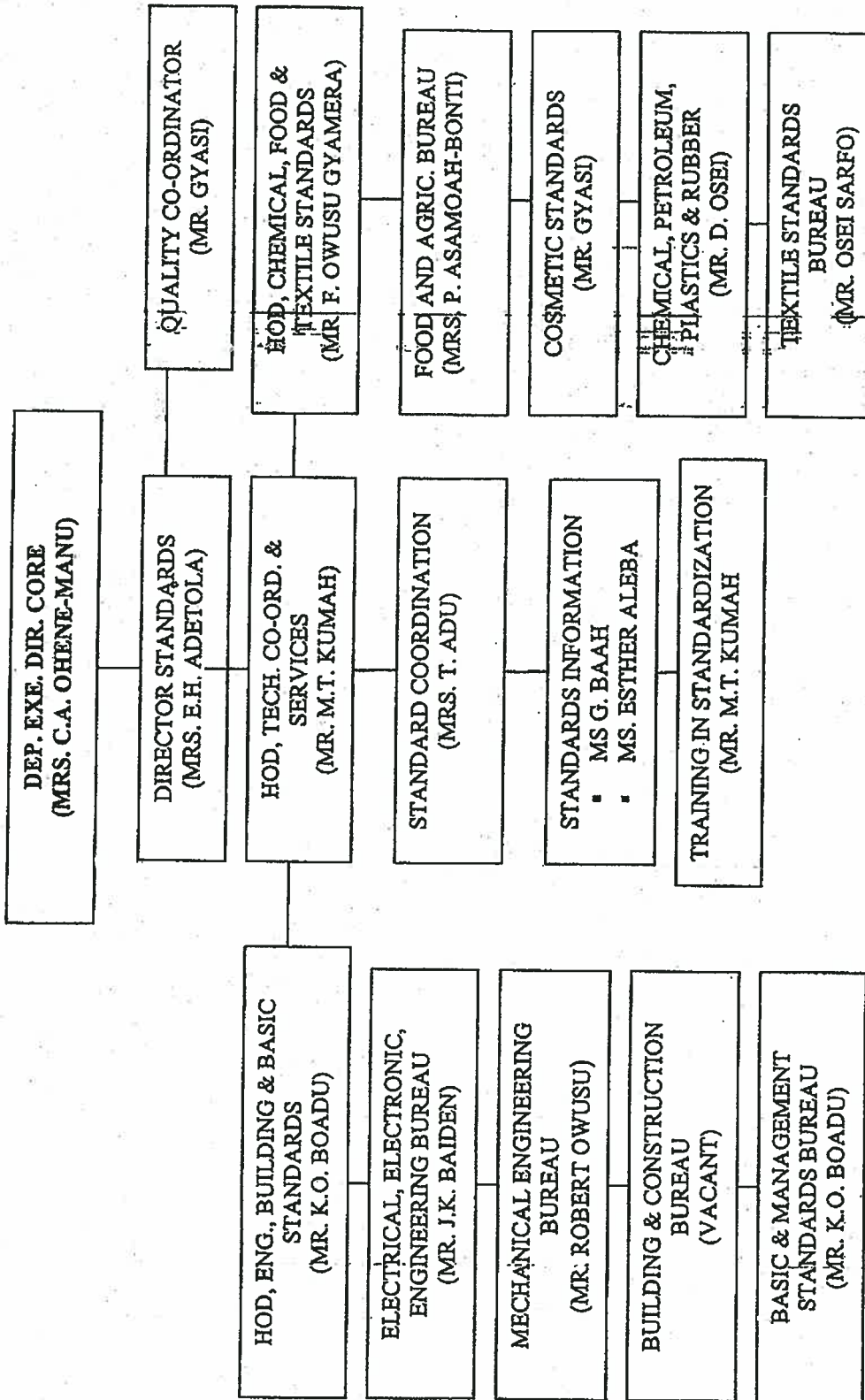
Appendix

GHANA STANDARDS BOARD ORGANIZATIONAL CHART

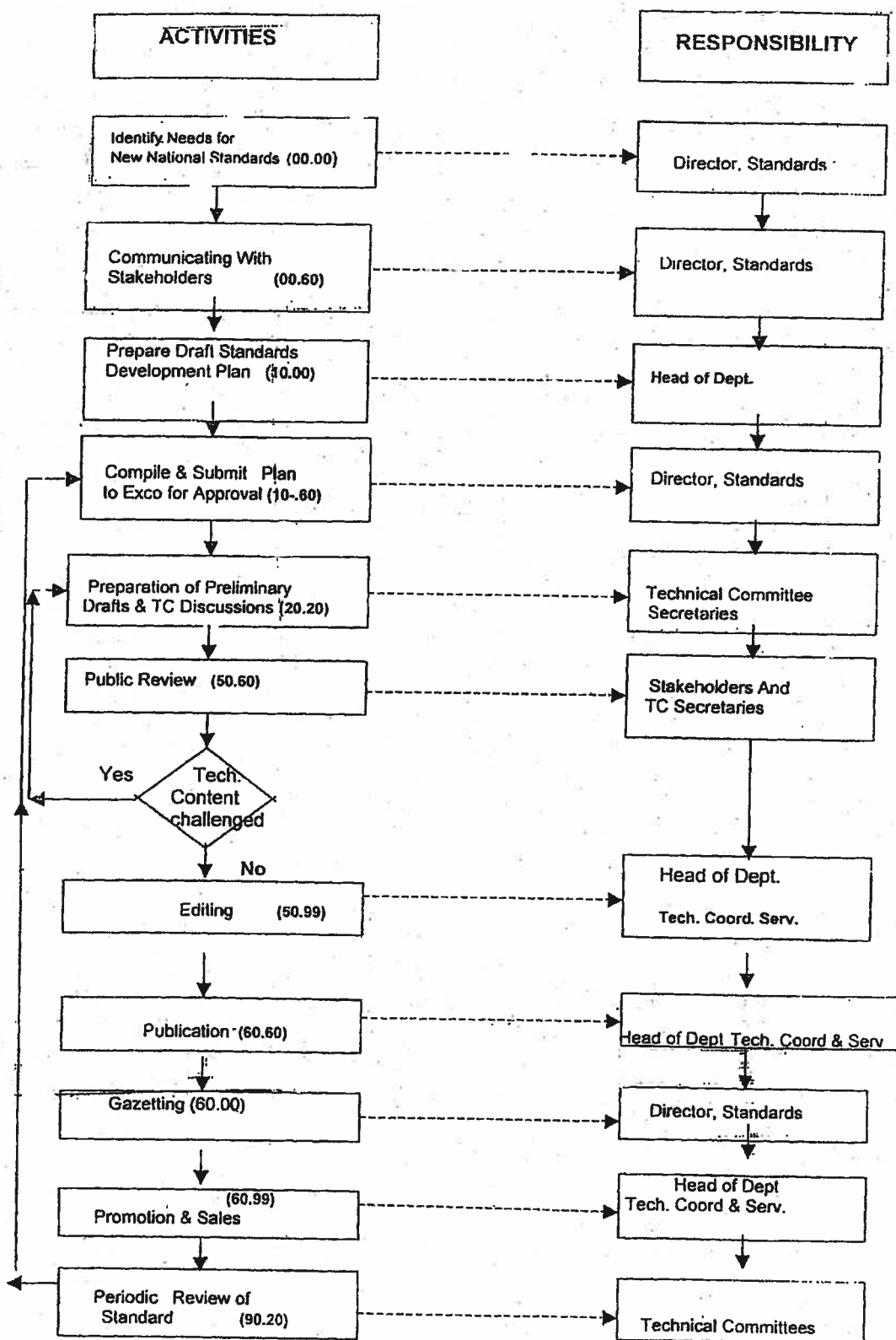


LEGEND	
AUD:	Internal Audit
CSD:	Chemical Sci. Div.
DCF:	Drugs/Cosmetics/Forensic Dept.
DEA:	Dep. Exe. Dir (Admin.)
DET:	Dep. Exe. Dir (Tech.)
DID:	Destination Inspection Dept.
ENG:	Engineering Dept.
FAD:	Finance & Admin. Div.
FID:	Fish Inspection Dept.
FIN:	Finance Dept.
FOD:	Food & Agric Dept.
HRD:	Human Resource Dept.
IMD:	Industrial Metrology Dept.
LEG:	Legal Services
LMD:	Legal Metrology Dept.
MAT:	Material Sci. Dept.
MET:	Metrology Div.
MGR:	Management Representative
MIC:	Microbiology Dept
MKT/TFI:	Marketing/Training for Industry
PCT:	Procurement Unit
PLN:	Planning Unit
PRU:	Public Relations Unit
PSD:	Physical Sci. Div
QSC:	Quality System Certification
REG:	Regional Offices
SEC:	Security Unit
SMD:	Scientific Metrology Dept.
SPC:	Standards Prod. Cert. Dept.
SCD:	Standards & Cert. Dev.
TSS:	Technical Support Services
DESIGNATION	
DIR:	Director
HOD:	Head of Department
HOU:	Head of Unit

# NEW ORGANOGRAM - STANDARDS DIVISION

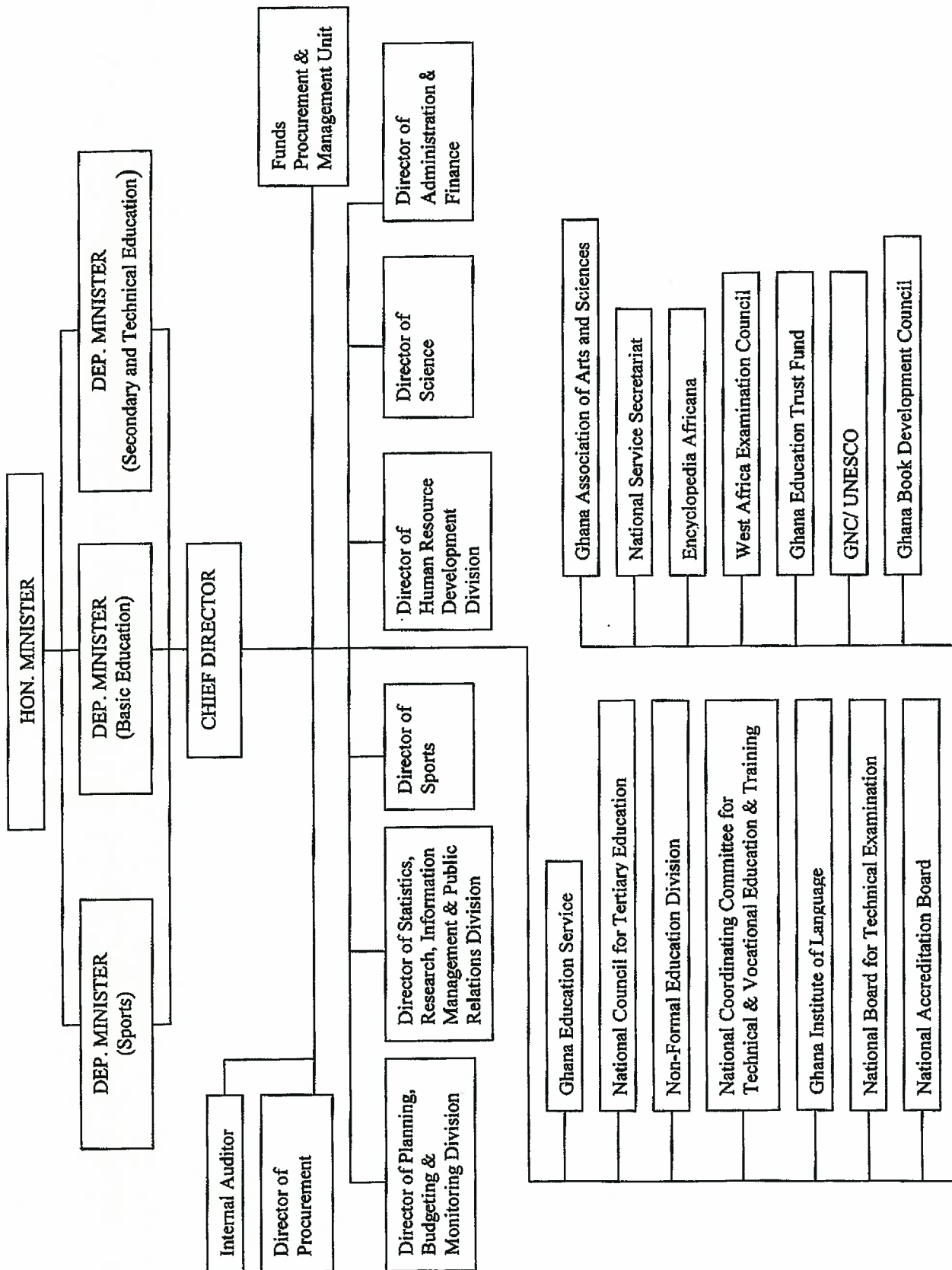


## STANDARDS DEVELOPMENT WORK FLOW DIAGRAM





Organogram of Ministry of Education, Science and Sports





## Background Information on Institute for Sustainable Power

### What is the Institute for Sustainable Power and why is it needed?

The Institute for Sustainable Power, Inc. (ISP) is a non-national, non-profit organisation incorporated to coordinate, develop, and maintain international standards for the evaluation and qualification of trainers, training programs, and training evaluators/auditors for renewable energy, energy efficiency, and distributed generation workforce development, and standards for job competency content.

The ISP was established in 1996 and until 2005 had a head office based in Highlands Ranch (Denver) Colorado. It was initially developed to provide investor confidence in the competency of RE designers and installers for renewable energy projects. A method was required to be developed that would provide evidence of this competence.

Historically RE has not been taught within established technical colleges, universities or similar educational institutions. This is changing in a few countries. The courses that are taught are not necessarily subject to the rigorous accreditation procedures required for courses conducted at established training institutions within most countries. When they have been developed at one training institution within a country they have generally been developed by enthusiasts at the University and gain not necessary by a committee ensure that the course material covers all the skills and competencies required by a person working in the field.

The ISP has therefore established ISP Quality (ISPQ) technical committees to prepare international standards. The development of these standards have followed ISO procedures and the standards developed are typical of those of National Quality Accreditation Bodies that accredit Universities and vocational colleges within countries.

Training programs (organisations) and continuing education programs are accredited, and instructors and master trainers are certified, to these standards. On receiving accreditation/certification the training organisations or trainers can certify technicians (designers and installers). An accreditation committee ensures that the standards are relevant and of sufficient quality.

The aim of the ISP is to ensure that all technicians working in the industry are trained to the same high standard. ISP accreditation is a framework that ensures that RE training is being conducted to the same quality as other industry training (e.g. electrical workers). It also has the added advantage, by being international standards, it is easier for a person trained at an ISP accredited institute in one country to have their training recognised in another country which has also adopted ISP standards for RE training.

In 2005 ISP was restructured due to the passing of the founder and Chief Executive Officer, Mr Mark Fitzgerald. ISP is still a central corporation administered by an

international board that comprises an executive committee and representatives from regional licensees. The current board comprises:

- President: Mr. Geoff Stapleton (Australia)
- Vice-President: Mr. Bernard McNelis (UK)
- Secretary : Ms. Jane Weissman (USA)
- Treasurer: Mr. Roger Taylor (USA)
- ISPQ-Europe Representative- Ms Zhu Li (UK)

The actual day to day administration and promotion is undertaken by ISP licensees. Currently there are three licensees:

- USA Licensee- Interstate Renewable Energy Council (IREC)- Executive Director – Ms Jane Weismann
- European Licensee-ISPQ-Europe- Ms Zhu Li
- Asia-Pacific Licensee- GSES- Managing Director Geoff Stapleton.

GSES role is to find licences in China, ASEAN ,India and possibly the South Pacificover the next few years

**The ISP mechanisms are used to confer accreditation on training providers in different countries.**

A copy of the “Accreditation Applicant Information Booklet 2005” is available from the website: [www.ispq-central.com](http://www.ispq-central.com)

Applicants can apply for the following accreditation/certification:

- Accredited Training Program;
- Accredited Continuing Education;
- Certified Instructor;
- Certified Affiliated Master Trainer;
- Certified Independent Master Trainer;

Accreditation is the official qualification of a program or organisation, and certification is the qualification of an individual.

The “General requirements for Trainers and Training Programs offering Renewable Energy, Energy Efficiency, and Distributed Generation Training” is contained in the International Standard ISPQ IS 01021, a copy is available from the website [www.ispq.org](http://www.ispq.org).. This overview summarises the key points of these two documents.

The Accreditation and Certification process involves a candidate’s submission of a detailed application showing how the candidate meets the Accreditation or Certification standard, followed by an audit and/or review process. ISPQ-Registered Auditors work with candidates through an ongoing exchange to ensure that they meet all the standards before recommending them to the Accreditation Awards Committee, which makes the final award.