

## Attachment 5

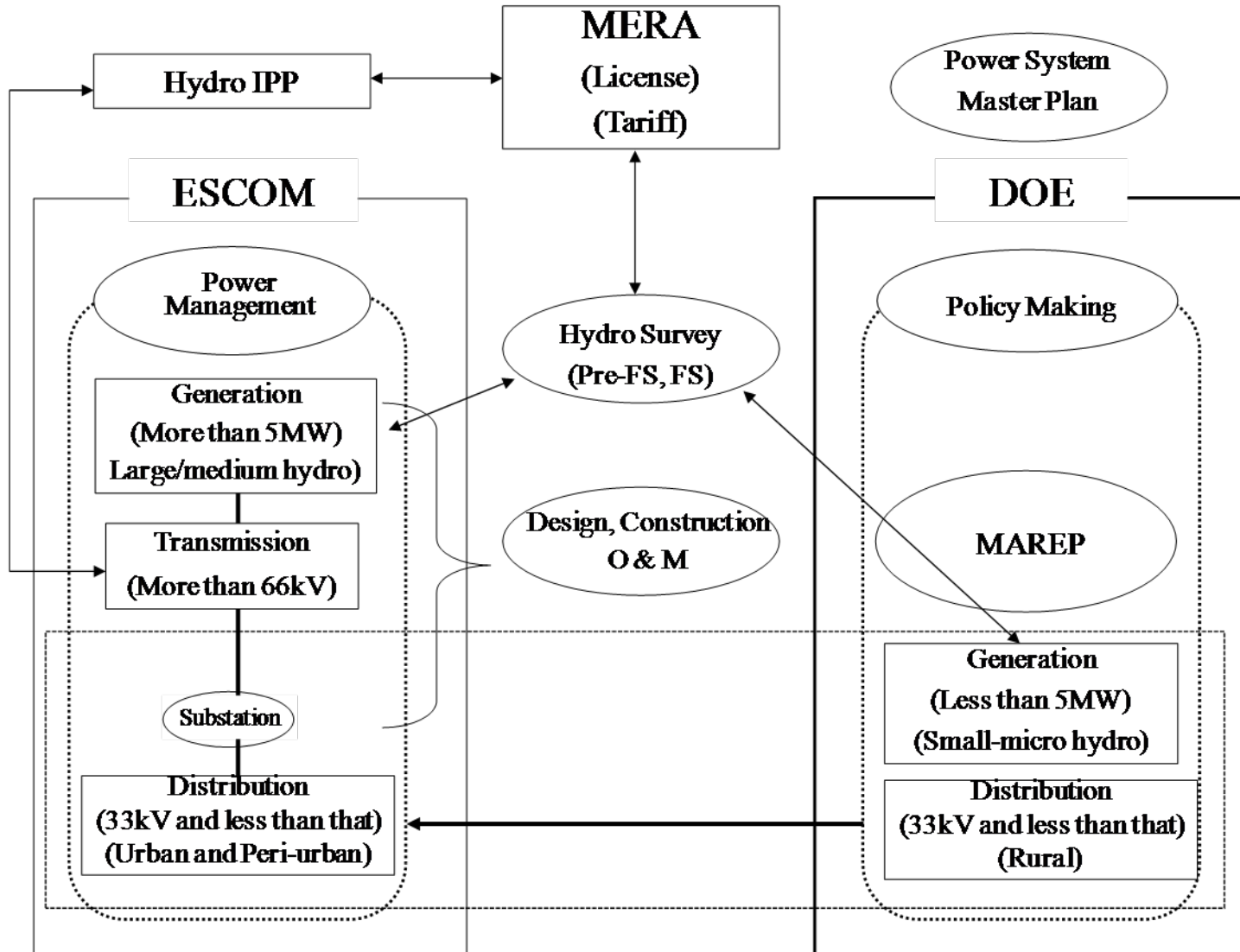
### Assistance from Japan to Rural Electrification in Malawi

		Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Note	
Malawi Government	Policy		—————●												Energy Policy Completed in 2003
	Laws and Acts		—————						●	-----		●	—————		Energy Regulation Act, New Electricity Act, Rural Electrification Act
	MAREP Phase 4				—————									2002.5 – 2007.5 (Took 5 years) (96 TCs)	
	MAREP Phase 5						—————		●					Construction started in 2007.11, completed in March 2009. (27TCs)	
	MAREP Phase 6												—————	(54TCs)	
	PV (Technical Standard, Training)					—————								PV Training by BARREM and at Mzuzu University (TCRET)	
Japanese Government	JICA	Rural Electrification Advisor	—————												Three Long-Term Experts
		Technical Cooperation (R/E Promotion)										—————		2006.12~2009.11	Leader, R/E Advisor/PV Technology, Micro Hydro, Distribution Technology, Financial Management
		Short-Term Expert													D/L Construction Draft Manual Prepared
		Rural Electrification M/P			—————				—————						Identification of Target T/C, Prioritization, F/S for Ph 5, Policy recommendation
	Embassy	Debt Relief Grant Aid					—————								Provision of Materials for Phase 4
		Counter Value Fund Aid													Provision of Materials for Phase 5
	JICA	Technical Cooperation for PV		■					—————						Technical Cooperation to Christian Health Association of Malawi (CHAM) for PV
	Embassy	Small Scale Grant Aid				—————									Installation of PV systems at CHAM Clinics
JICA	Training Programs	●	●	●		●	●	●	●●			●	●	●	Group Training, Third Country Training, C/P Training

Implemented
  Planned

## Attachment 6

# Framework of the Power Sector in Malawi



## Attachment 7

**Minutes of the First Joint Coordinating Committee (JCC) Meeting for the  
Technical Cooperation Project on Malawi Rural Electrification Promotion  
Program (MAREP) held on 24<sup>th</sup> January 2007 at the Ministry of Energy,  
Mines and Natural Resources Conference Room**

**1.0 Present**

<b>NO</b>	<b>NAME</b>	<b>POST</b>	<b>ADDRESS</b>
01	Mr. Charles Msosa	Principal Secretary (Chairman)	Ministry of Energy, Mines and Natural Resources
02	Dr. Charles Kafumba	Director of Energy Affairs	Department of Energy Affairs
03	Mr. Gideon Nyirongo	Chief Energy Officer	Department of Energy Affairs
04	Mr. Kyoji Mizutani	Resident Representative	JICA
05	Mr. Toshiyuki Hayashi	Senior JICA Advisor	JICA Headquarters
06	Dr. Akio Shiota	Project Expert	Department of Energy Affairs
07	Mr. Yasuhiro Kawakami	Project Expert	Chubu Electric Power
08	Mr. Shunsuke Takato	Assistant Resident Representative	JICA
09	Mr. Godfrey Kapalamula	Programme Officer	JICA
10	Mrs. Eunice Potani	Deputy Director, Economics	National Energy Council- Blantyre
11	Mr. H. Machewere	ESCOM-MAREP Manager	ESCOM, Blantyre
12	Mr. Kenji Sadamoto	Senior Volunteer (CHAM)	CHAM

**2.0 Welcome Remarks**

- 2.1 The Chairman, Mr. Charles Msosa, called the meeting to order and requested the Resident Representative of JICA, Mr. Kyoji Mizutani to make his opening remarks.
- 2.2 Mr. Mizutani stressed the importance the meeting, being the first one for the project, as it would lay a foundation for the whole project. He said the project had started at the right time since a number of events would happen within the next twelve months that would have an impact on Rural

Electrification in Malawi. He said these events would present some challenges, which he hoped the project would assist in addressing.

- 2.3 He also noted with pleasure that staffing levels in the Rural Electrification Unit of the Department of energy had improved and he hoped that the trend would continue, not only to ensure that crucial positions are filled but also to fill them in a sustainable manner.
- 2.4 In response to the Resident Representative's remarks, the Principal Secretary for Energy, Mines and Natural Resources said the Government of Malawi appreciates the assistance that it gets from the Government of Japan including this Technical Cooperation project.
- 2.5 He indicated that currently only 6% of households in Malawi are electrified and that the government has set 10% as a target to be achieved by 2010 translating into a 1% annual increase or 20,000 connections. He said for this to happen there is need for capacity strengthening in the Rural Electrification Unit of the Department of Energy and he said the project had indeed come at the right time. He pledged the Government of Malawi's commitment to ensuring that the project succeeds and is sustainable.

### **3.0 Brief on MAREP by Mr. Toshiyuki Hayashi**

- 3.1 Mr. Toshiyuki Hayashi gave a brief account of MAREP programme in Malawi. He noted that there had been some improvements in Rural Electrification of households from 4% in 1999 to about 6% in 2007. He however, noted that the improvement was at a slower rate and called for some acceleration.
- 3.2 He said in 1999 officers in the Department of Energy, who had just taken over the running of MAREP activities, had no practical experience in such areas as Grid Extension, Feasibility Studies, and Detailed Design Studies. Since there was no Master Plan to follow when implementing the programme, decisions were subjected to political manipulation.
- 3.3 He informed the meeting that during the design of the Master Plan for MAREP it was agreed that Rural Electrification should be broadened to include other forms of electricity like Photovoltaic as these would help in electrifying isolated households. Micro-hydro power was also included as a source of electricity and a number of potential sites were identified. He cautioned the government to be careful with the quality of installation work being done by private companies especially in the area of photovoltaic.
- 3.4 He stressed the need to assign counterpart personnel to the project in order for the project to succeed and to be sustainable.

- 3.5 In response to Mr. Hayashi's remarks, the Director of Energy Affairs concurred with him on a number of issues and gave an update on some of them:
- (a) Photovoltaic has now become an integral part of Rural Electrification with 20 Health Centres electrified by CHAM and local assemblies are electrifying at least two secondary schools per year.
  - (b) Mzuzu University has started a training programme for Photovoltaic installation and a Trade Test Centre. The programme is sustainable as it is part of the university activities.
  - (c) The government has set a screening process for Photovoltaic installation technicians with about 17 companies certified.
  - (d) Phase IV of MAREP was almost complete with only four sites remaining, three of which were more than 70% done. As a consequence of this, engineers were already out in the field conducting Detailed Design Studies for Phase V. It is expected that the Phase will start by the end of first quarter of 2007 with the Government of Malawi contribution of K84m and the Government of Japan's contribution of K196m from the Counter Value Funds. An additional unknown amount would come from the Electricity Fund.
- 3.6 On the concern that the Rural Electrification Unit of the Department of Energy was still under-staffed and that some of the people are on temporary basis, the Director of Energy informed the meeting that the deployment of ESCOM personnel to the unit was only a stop gap measure and that government has embarked on a recruitment exercise of permanent staff. It was resolved that the project cannot put in place incentives to attract members of the unit to stay longer as such a move would have some negative consequences on members of staff in other units within the department.
- 3.7 The meeting was informed that the Malawi Energy Regulatory Authority (MERA) would be launched as soon as the Public Appointments Committee of Parliament approves names of two remaining board members. This might take place during the first quarter of 2007.
- 3.8 On the potential for wind power, which the Government of Malawi would like to promote, the meeting learned that a study that was carried out by DANIDA on the issue revealed that the potential for such energy was very low hence it could not be incorporated in the project. The Department of Energy indicated that they would like to re-do the study as they noted that the methodology that was used by the study team had some weaknesses.



3.9 The meeting clarified the seemingly duplicating roles of the Rural Electrification Management Unit (REMU) and the Joint Coordinating Committee (JCC) for the project. It was agreed that the two would complement each other, as the recommendations of the JCC would feed into the REMU.

#### **4.0 Presentation of Project Objectives and Outputs.**

4.1 Mr. Kawakami presented an outline of Project Objectives and Outputs and the meeting adopted them as they were.

#### **5.0. Presentation of Annual Work Plan for 2007/2008**

5.1. Dr. Akio Shiota presented an Annual Work Plan for 2007 and 2008 and it was adopted with the following suggestions:

- (a) The arrival of Micro-Hydro Expert should be earlier than scheduled since his work will involve a lot of training for Malawians in this new field. *It was reported that the Expert may come earlier than scheduled but that he is still compiling documentation for the work.*
- (b) Malawian counterparts should be given a leading role in preparation of Training Manuals with assistance from the project experts.
- (c) Quality indicators need to be developed for Malawians to use when assessing the quality of work being done by people trained by the project.

#### **6.0 Way forward**

6.1 The Meeting agreed that the following should be the way forward:

- (a) Project members should have access to reports that will be compiled by the teams that are in the field doing Detailed Design Studies for Phase V to see how the project can contribute to their work.
- (b) The Department of Energy to continue reviewing the organizational structure.
- (c) The project Team should closely follow developments of the launch of Malawi Energy Regulatory Authority (MERA).

#### **7.0 Date for the next meeting**

7.0 The meeting agreed that the next meeting should be held on Friday, 26<sup>th</sup> October 2007 at the same venue.

## **8.0 Closing**

8.1 On behalf of the Chairman for the meeting, (Mr. Msosa, Principal Secretary, who had gone out to attend to other urgent matters), the Director of Energy Affairs, Dr. Charles Kafumba, closed the meeting and thanked all participants for attending and participating in the meeting

**Minutes of the Second Joint Coordinating Committee (JCC) Meeting for the Technical Cooperation Project on Malawi Rural Electrification Promotion Program (MAREP) held on 12<sup>th</sup> November 2007 at the Ministry of Energy and Mines Conference Room**

**1.0 Present**

<b>NO</b>	<b>NAME</b>	<b>POST</b>	<b>ORGANISATION</b>	<b>EMAIL</b>
01	Mr. Charles Msosa	Principal Secretary (Chairman)	Ministry of Energy & Mines	msosacp@malawi.gov.mw
02	Dr. Charles Kafumba	Director of Energy Affairs	Department of Energy Affairs	doenergy@malawi.net
03	Mr. Gideon Nyirongo	Chief Energy Officer	Department of Energy Affairs	gideonnyirongo@yahoo.com
04	Mr. Kyoji Mizutani	Resident Representative	JICA	Mizutani.Kyoji@jica.go.jp
05	Mr. Toshiyuki Hayashi	Senior JICA Advisor	JICA Headquarters	Hayashi.Toshiyuki@jica.go.jp
06	Dr. Akio Shiota	Project Expert	Department of Energy Affairs	sio@iea.att.ne.jp
07	Mr. Yasuhiro Kawakami	Project Expert	Department of Energy Affairs	Kawakami.Yasuhiro@chuden.co.jp
08	Ms. Yuki Kobayashi Sangala	Financial Management Advisor	Department of Energy Affairs	Yuki-kobayashi-sangala@yahoo.co.jp
09	Mr. Masanori Ajima	Program Officer	JICA Headquarters	Ajima.Masanori@jica.go.jp
10	Ms. Kuri Orui	Assistant Advisor	JICA Headquarters	Orui.Kuri@jica.go.jp
11	Mr. Shunsuke Takatoi	Assistant Resident Representative	JICA Malawi Office	Takatoi.Shunsuke@jica.go.jp
12	Mr. Godfrey Kapalamula	Programme Officer	JICA	jicamw-econ@jica.go.jp
13	Mrs. Eunice Potani	Deputy Director, Economics	National Electricity Council- Blantyre	epotani@necomw.com
14	Mr. H. Machewere	ESCOM-MAREP Manager	ESCOM, Blantyre	hmachewere@escommw.com
15	Mr. W. Silema	Principal Economist	Department of Energy	wwsilema@yahoo.co.uk
16	Mr. A. N. Songa	Accountant	Department of Energy	Ndissy2003@yahoo.com
17	Mr. Khumbo Lungu	Principal Energy Officer	Department of Energy	khumbolungu@yahoo.com

## 2.0 Welcome Remarks

2.1 The Director of Energy Affairs called the meeting to order on behalf of the Chairman, (PS) who was tied in a meeting, and welcomed all. He later requested them to make self introductions. He asked the Resident Representative of JICA to make opening remarks. The Resident Representative did not have any remarks and requested the meeting to proceed.

## 3.0 ADOPTION OF THE AGENDA AND MINUTES OF PREVIOUS MEETING

3.1 The meeting adopted the agenda after adding one item of **Matters Arising**.

3.2 Minutes of the previous meeting were adopted after making the following amendments:

- **NECO** on page 1 to read National **Electricity** Council and not **Energy**.
- Address for Mr. Yasuhiro Kawakami to read “Department of Energy” and not Chubbu Electric Company.
- **Minutes 2.5** : percentage of households connected to electricity should be 7.4 % and not 6%.

With the above amendments the Minutes were adopted.

## 4.0 MATTERS ARISING

4.1 On Minute 3.6 the Director of Energy Affairs reported that most gaps in the Department of Energy had been filled through the deployment of two electrical engineers from ESCOM, one principal Economist and an Accountant. Internal arrangements had also been made to deploy Mr. Nzima and Mr. Lungu to the Rural Electrification Unit.

4.2 On Minute 3.7 the Director of Energy reported that in September 2007 the Public Appointments Committee of Parliament (PAC) confirmed the remaining two Board Members of the Malawi Energy Regulatory Authority (MERA) and that final details are being worked out to roll out its activities.

4.3 On Minute 3.8 it was reported that the study has not been re-commissioned but that pilot schemes called Solar-Wind Hybrid have been initiated in three villages in Mzimba, Nkhotakota and Thyolo with three more to be added. These are being used to test the potential in these areas.

## 5.0 PROGRESS ON MAREP ACTIVITIES

5.1 The Chief Energy Officer presented a progress report for MAREP whose highlights were as follows:

- Phase IV was completed in May 2007 with more sites than the planned 54 being electrified. The additional sites were responsible for the delays that were encountered.
- Financial contributions for Phase IV was K
- Phase V, which is targeting 27 sites, (one in each district) is under way with the Detailed Design Study done and procurement of materials at an advanced stage. Some imported

materials were at Beira port and would be delivered within two weeks, while locally sourced materials were already being delivered to regional ESCOM offices.

- Nishizawa Ltd of Japan is providing transformers, Roussant Ltd of South Africa is providing line materials, Raiply and WICO Ltd are providing wooden materials while ESCOM are the main contractor.
- ESCOM were given June 2008 as deadline for completion of the phase but it may likely go up to December especially for the longest distances like Nthalire. Most of the sites are along the national distribution grid.

5.2 The Chairman commented that there is a lot of hard work being done by ESCOM in the project but that this was being hampered by lack modern equipment as most of the work is being done manually. He wanted to know whether the project could come up with assistance in this area to accelerate the pace of implementation. On a similar he reported that it is Government of Malawi's intention to see to it that in future private companies are involved in the contracts for MAREP but that this was not possible due to low levels of capacity. He wanted to know whether the project would try to build the capacity of such companies.

5.3 In response to these requests the project Team Leader informed the meeting that the Technical Cooperation project was meant to benefit the Government of Malawi departments and does not extend to construction works. It would therefore be difficult to directly extend the assistance to other departments outside the system or to go beyond its scope.

## **6.0 PROGRESS OF MAREPP**

6.1 The Team Leader for the Project, Mr. Yasuhiro Kawakami, presented major highlights of the Malawi Rural Electrification Promotion Project (MAREPP) which included the following:

- The DoE has already drafted an Annual Rural Electrification Plan and Budget. It is waiting for the Rural Electrification Management Committee (REMC)
- The DoE has already carried out a Detailed Design, procurement process and has drafted the construction agreement. Phase IV has been used as a learning process by DoE to implementing Phase V capacity development process.
- The Financial Advisor is already working with the Accountant who has been assigned to the Department. This is in preparation of the full operations of MERA and RE Fund which will bring the department to closer scrutiny and therefore requires rigorous accounting procedures.
- A Solar PV trainer's training was conducted in October with eleven participants, two of whom were from Rwanda and the rest from Malawi. Out of these three qualified as Trainers while four qualified as Assistant trainers.
- A Micro-hydro survey was carried out in July by a Japanese Advisor who showed Malawian counterparts how to measure and calculate in the southern region. DoE personnel did it by themselves in the northern region. Detailed survey will be conducted in 2008.

- As a way of assessing the impact of the capacity development efforts of the project a Challenge Sheet had been devised. This sheet indicates the counterpart's target of what he wants to achieve over a six months period and reviews the results by himself and the consultant.
- The report highlighted shortage of staff at the DoE as a challenge to the project and suggested two options of: either increasing the number of staff to adjust the volume of work or assigning major jobs (procurement, F/S, D/D and construction to ESCOM or other companies.
- Recommended that there is need to organize Personal Computer Skills in packages like Microsoft Word and Excel for some members of staff to increase their output.

- 6.3 Commenting on the apparent understaffing in the DoE the Director of Energy explained that personnel who have come to the department from other departments and ESCOM should not be looked at as temporary staff members as the GoM of Malawi has the right to keep them there for as long as their services are required. There was therefore no need to look at the positions that they are occupying as vacant.
- 6.4 The meeting emphasized the need for the Financial Advisor to incorporate in her work the issue of Asset Register Management to ensure that whatever equipment is being installed under MAREPP is properly accounted for. This would also help NECO in taxing ESCOM properly since such information helps in determine the Internal Rate of Return. It was recommended that the project consult ESCOM officials on how they would demarcate their work in this area.
- 6.5 On the future Solar PV Training sessions the meeting was informed that Mzuzu University would continue to host them as long as their staffing levels would return to normal, (currently most of their members of staff had gone out for training). The meeting learned that apart from Mzuzu University, technical colleges like Lilongwe Technical, which had shown interest in such courses would also be future possible venues.
- 6.6 It was reported by the JICA Headquarters Senior Advisor that Solar PV Training courses were becoming popular in the region and JICA was considering an idea of establishing a regional training centre. He said Malawi would benefit a lot if such a centre were to be established here.
- 6.7 ESCOM reported that if MAREP is to have an accelerated impact on the number of households that are electrified, it should consider following the model of the Infrastructure Services Project (ISP) where electricity is connected to at least fifty households per targeted trading centre. This helps to speed up the returns of investment unlike the MAREP system where power is only brought to a trading centre and everything is left to ESCOM which takes long to connect households due to backlog of work. The meeting felt that this was an idea worthy pursuing but that it should be taken on board at the planning stage of another phase as it was too late to take it on board now.

## **7.0 PRESENTATION OF THE CHALLENGE SHEET**

7.1 The Principal Energy Officer presented the format of the Challenge Sheet and

explained how it works. The meeting welcomed the sheet and hoped that it would serve its purpose.

## **8.0 SIGNING OF THE PROJECT DESIGN MATRIX**

8.1 The meeting was informed that the Project Design Matrix (PDM) had been thoroughly scrutinized and was ready to be signed by the two sides, (Malawian and Japanese). This should have been done at the start of the project. It was agreed that JICA Malawi Office should consult JICA headquarters on how to proceed with this activity in view of this delay.

## **9.0 DATE OF THE NEXT MEETING**

The meeting agreed that the next meeting should be held in October 2008 with a possibility of holding it earlier should the need arise.

## **10.0 CLOSING**

The chairman closed the meeting and thanked all for coming and participating.

**MINUTES OF THE THIRD JOINT COORDINATION COMMITTEE  
MEETING OF MALAWI RURAL ELECTRIFICATION PROMOTION  
PROJECT HELD ON 13<sup>TH</sup> NOVEMBER 2008 - MINISTRY OF ENERGY  
AND MINES HEADQUARTERS CONFERENCE ROOM.**

**1.0 MEMBERS PRESENT**

- |     |                       |  |
|-----|-----------------------|--|
| 1.  | Mr. C. Msosa          | PS - Ministry of Energy and Mines (Chairman) |
| 2.  | Mr. S. Obuchi         | Resident Representative JICA                 |
| 3.  | Mr. H. Chitenje       | Deputy Director DOE                          |
| 4.  | Mr. H. L. Machewere   | MAREP Manager ESCOM                          |
| 5.  | Dr. A. Shiota         | Rural Electrification Advisor (JICA /DOE )   |
| 6.  | Mr. K. Lungu          | Principal Energy Officer DOE                 |
| 7.  | Mr Y. Kawakami        | Project Manager ( JICA /DOE )                |
| 8.  | Mr. W. Silema         | Principal Economist (Secretary) DOE          |
| 9.  | Mrs Kobayashi Sangala | Financial Management Advisor (JICA /DOE )    |
| 10. | Mr. G. Kapalamula     | JICA Malawi Office                           |
| 11. | Mrs R Soko            | Accountant DOE                               |
| 12. | Mr. Y. Wada           | JICA HQ                                      |
| 13. | Mr. S. Takato         | JICA Malawi Office                           |
| 14. | Mr. M. Iwata          | Distribution Technology Advisor (JICA /DOE ) |
| 15. | Mr. W. Saiwa          | MERA   |

**Apologies:** Mr. G. G Nyirongo

**2.0 WELCOME REMARKS AND INTRODUCTIONS**

The Chairman welcomed all members to the meeting and emphasized the importance and urgency of this meeting and requested for members full participation. Self introductions were made by the members.

**3.0 ADOPTION OF THE AGENDA**

The agenda was adopted.

**4.0 CONFIRMATION OF PREVIOUS MEETING MINUTES**

The minutes were confirmed after going through them point by point.



## **5.0 DISCUSSION OF MATTERS ARISING FROM THE PREVIOUS MINUTES**

### **5.1 Progress Report of MAREP Phase Five**

The Secretariat gave a brief progress report of MAREP Phase Five. It was pointed out that construction work in the phase is progressing according to plan. Out of the 27 targeted centres in Phase Five, 24 centres have been completed and energized. The remaining trading centres (Nthalire in Chitipa district, Makanjira in Mangochi district and Golomoti in Dedza district) are still under construction and expected to be complete by the end of February, 2009. ESCOM MAREP manager (Mr. H. Machewele) confirmed the completion dates of MAREP Phase five.

### **5.2 Progress Report of Malawi Rural Electrification Promotion Project**

The Japan International Cooperation Agency (JICA), as part of its bilateral development assistance to the Malawi Government, is implementing the Malawi Rural Electrification Promotion Project. Capacity building is one of the key elements of the project. During the meeting the Project Manager gave a brief progress report of the project. He pointed out the following as some of the achievements of the project.

#### **➤ MICROHYDRO TRAINING**

During the months of July and October, Officers from the Rural Electrification Division of the Department attended a training on the techniques of site surveying and feasibility study analysis for micro hydro power planning. The on site training was provided by Mr Kimura (the Micro-hydropower expert)

#### **➤ COUNTERPART TRAINING**

Counterpart (C/P) training for engineers (Mr C. Kapito and Mr M. Nzima) from the Rural Electrification Division was held from 15<sup>th</sup>

September to 5<sup>th</sup> October 2008 in Japan. The following were key areas which formed part of the training: Lectures on Photovoltaic system design, operation and maintenance, lectures on grid extension, design and operation of a customer service centre. During the same period Mr. Lungu ( Principal Energy Officer ) and Mr. Kalila ( an Engineer from ESCOM ) attended a course entitled Small Hydro and Clean energy Power Engineering at Chubu Electric Power Company in the same place as the C/P training.

➤ **ASSET REGISTER AND MANAGEMENT**

With the guidance provided by the Financial Management Advisor ( Mrs Kobayashi Sangala ), the Assistant Accountant ( Mrs R. Soko ) started establishment of an asset register for MAREP Phase 4 as the first step of physical asset management.

### **5.3 The Challenge Sheet**

Mr. K. Lungu ( Principal Energy Officer ) briefed the meeting on how the challenge sheet works. He pointed out that the challenge sheet is a monitoring tool on the activities planned and being implemented by an individual officer.

## **6 WAY FORWARD**

At the end of the meeting, the team from JICA pointed out that a terminal evaluation for the project will be done in June 2009 before the next Joint Coordination Committee meeting. The team further said that JICA may consider to continue funding the Malawi Rural Electrification Promotion project taking into account the progress so far made and the outcome of the terminal evaluation.

## **7 ANY OTHER BUSINESS**

- During the meeting , the ESCOM MAREP Manager wanted to know the progress so far made on Electricity Tariff adjustment application ESCOM made to the Malawi Energy Regulatory Authority (MERA). In response, MERA pointed out that the upward Tarriff application change made by ESCOM will be considered after thorough consultations with relevant authorities and the public.
  
- The meeting wanted to know how fuel prices were being managed and if there were any prospects of having fuel reduction in view of declining prices on the world market. The Chairman informed the meeting that the Government had set a fuel stabilisation fund to cushion any shocks on the fuel prices and that the fund had been depleted. With the reduction of oil prices the government was in the process of rebuilding the fund and if prices remain the same or continue to drop, the government will consider lowering fuel prices once it is satisfied that there are enough funds to cushion future shocks.

## **8 CLOSING REMARKS**

Lastly the Chairman thanked every body for attending the meeting and called off the meeting at 12:56 PM .

## **9 DATE AND VENUE OF NEXT MEETING**

Date of the next meeting will be determined after the Project terminal evaluation in June 2009.

**Minutes of the Fourth Joint Coordination Committee (JCC) for the Malawi Rural Electrification Promotion Project held on 9<sup>th</sup> July 2009 at Ministry of Natural Resources, Energy and Environment Conference Room.**

**1.0 Members Present**

Mr. G. B. Chiwaula	PS – Ministry of NRE&E (Chairman)
Mr. M. Maehara	Terminal Evaluation Team Leader – JICA Headquarters (Co-Chairman)
Mr. P. E. Zembani	CEO – ESCOM Ltd
Mr. H. L. Machewere	ESCOM Ltd
Mr. V. Munthali	ESCOM Ltd
Mr. G. G. Nyirongo	DOE
Mr. W. Silema	DOE
Mr. K. Lungu	DOE
Mr. W. Saiwa	MERA
Mr. W. Kasakula	MERA
Mr. A. Hoshino	JICA Malawi
Mr. G. Kapalamula	JICA Malawi
Mr. Y. Wada	Terminal Evaluation Team
Mr. M Onozawa	Terminal Evaluation Team
Mr. M. Ishiguro	Terminal Evaluation Team
Mr. Y. Kawakami	DOE/JICA
Dr. A. Shiota	DOE/JICA

**2.0 Welcome Remarks by the Chairman**

2.1 The Chairman welcomed all members to the meeting specifically by acknowledging the JICA Team, members from ESCOM Ltd, MERA and DOE. The Chair stated that Malawi enjoys the cooperation which is there with Japan. He informed members that the meeting is about the terminal evaluation of the project that is being implemented as a

result of this cooperation. He then asked the Co-Chair to make a few remarks. The Co-Chair thanked members for coming to the meeting and for a successful implementation of the Malawi Rural Electrification Promotion Project (MAREPP) with Malawi Government support. The Chair then asked members to make self-introductions.

### **3.0 Adoption of the Agenda**

3.1 The agenda (attached) was adopted without any changes.

### **4.0 Adoption of Minutes of the previous Meeting**

4.1 Members went through the minutes of the previous meeting page by page. There being no changes the minutes were adopted.

### **5.0 Progress of MAREPP**

5.1 The Project Manager Mr. Y. Kawakami, made a presentation of the progress of MAREPP. It was indicated that MAREPP is a capacity development project prepared by JICA to assist DOE to implement Malawi Rural Electrification Programme (MAREP). The project started in December 2006 and is expected to end in November 2009.

5.2 He informed the meeting that among other things the project has introduced a self assessment system known as Challenge sheet where staff set their own targets and review achievement individually.

5.3 The manager indicated that up to this stage the project has managed to develop and reinforce skills for DOE staff in the following areas:

- Basic & Detailed Design using GPS mapping method;
- Contractual management of MAREP works with proper technical knowledge;
- PV installation and monitoring through trainings and field inspection; and
- Asset register, budgeting and accounting system.

5.4 The following activities were outlined as remaining activities to be implemented before the end of the project:

- Conducting social-economic survey in an electrified centre
- Conducting PV training for technicians using trained engineers

- Completion of draft manuals for inspection, monitoring and handing over of MAREP projects.
- 5.5 ESCOM commended the project for the skills and knowledge it has impacted on DOE staff and urged DOE to use these skills beyond the project for the benefit of the country.
- 5.6 MERA wanted to know to what extent can the skills gained in the area of micro hydro be used. The meeting was informed that DOE staff has the capacity to conduct pre-feasibility and detailed feasibility study for hydro power development.

## **6.0 Terminal Evaluation Report**

- 6.1 The meeting was informed that the project was evaluated according to JICA guidelines of Relevancy, Effectiveness, Efficiency, Impact and Sustainability. In summary the results of the evaluation were as follows:
- That DOE has successfully built a solid foundation for implementing MAREP;
  - That members of DOE have acquired and demonstrated skills, knowledge and attitude necessary for rural electrification; and
  - That the project will be implemented within the original project period and plan.
- 6.2 The evaluation report outlined two recommendations, one for DOE and one for JICA. For DOE it was recommended that the vacant positions of engineers and economists be filled. For JICA it was recommended for further Technical Cooperation on the supply side (generation and transmission).
- 6.3 It was mentioned that on Section 5, under 5.1, items (1) and (3) be deleted. With these changes it was proposed that the Evaluation Report be signed between the Ministry of Natural Resources, Energy and Environment and JICA.
- 6.4 The Chair thanked the Team for the report and their presentation. He then requested if the project could be extended to generation and transmission of electricity. The meeting was then referred to item number 5.3 of the evaluation report which was a recommendation for further Technical Cooperation. However, it was indicated that there is need to work out the details if need be.
- 6.5 The Chair reaffirmed this as the message the Team has to take back to JICA for further action.
- 6.6 The Co-Chair stated that the situation is understood but decision rests with JICA and Ministry of Foreign Affairs of the Japanese Government.

- 6.7 ESCOM wanted to know the status of hiring engineers at DOE. It was mentioned that the functional review for DOE has been completed and recommendations made. This will see some officers being elevated and some hired, only that the process is slow.
- 6.8 MERA reminded the meeting that regulations for Rural Electrification undertakings are in place now and that all Rural Electrification activities have to be licensed.

## **7.0 Way Forward**

- 7.1 DOE reported that the project is continuing up to November this year and that the remaining activities, as outlined in the presentations, will be implemented during this period.
- 7.2 ESCOM stated that it is expecting to see activities continuing even after November 2009 and that as an implementing agent, it would like to see MAREPP activities continuing. ESCOM then expressed its gratitude to the improvements made during the implementation of Phase 5 and is expecting more improvements in the implementation of Phase 6. Finally ESCOM expressed its support to the programme.
- 7.3 MERA informed the meeting that they will carry out site identification for hydro power potential sites and conduct feasibility studies in liaison with the Ministry and DOE. MERA is therefore looking forward to using the skills gained during the project.
- 7.4 The Co-Chair stated that he was very happy to finish this JCC meeting at such a positive note.
- 7.5 The Chairman mentioned that Japan is a good friend of Malawi witnessed by the wonderful coordination and cooperation in this project.
- 7.6 He stated that through this cooperation we can help ESCOM and the Government of Malawi not only to help the people but also to take development to the people.

## **8.0 Closing**

- 8.1 There being no any other business the Chairman closed the meeting.

**Minutes of the Fifth Joint Coordination Committee (JCC) for the Malawi Rural Electrification Promotion Project held on 28<sup>th</sup> October 2009 at PS's Office at Ministry of Natural Resources, Energy and Environment**

**1.0 Members Present**

Mr. G. B. Chiwaula	PS – Ministry of NRE&E (Chairman)
Mr. L. B. Mhango	CEO – Department of Energy Affairs
Mr. K. M. Lungu	PEO – Department of Energy Affairs
Mr. W. D. Saiwa	Ag. Chief Executive Officer – MERA
Mr. S. Mludi	Senior Engineer (Electricity) – MERA
Mr. C. Twalibu	MAREP Manager – ESCOM Ltd
Mr. Y. Kawakami	Project Manager – DOE/JICA
Dr. A. Shiota	Rural Electrification Advisor – DOE/JICA
Mrs. Y. K. Sangala	Financial Management Advisor – DOE/JICA
Mr. S. Obuchi	Resident Representative – JICA Malawi Office
Mr. G. Kapalamula	Senior Programme Officer – JICA Malawi Office
Mr. S. Ogawa	First Secretary – Embassy of Japan

**2.0 Welcome Remarks by the Chairman**

- 2.1 The Chairman called the meeting to order at 10.02 am. He welcomed all members to the meeting by acknowledging the JICA Resident Representative Mr. S. Obuchi and Japanese Embassy representative Mr. Shinichi Ogawa and members from ESCOM Ltd, MERA and DOE including Japanese Experts.
- 2.2 The Chairman apologized for the sudden change of venue due to another meeting which was being conducted in the conference room. He then stressed the importance of the meeting and MAREP programme considering the benefits that have been derived from the programme. He said this has helped to promote the relationship between Malawi and Japanese Governments more especially in the energy sector.



### **3.0 Adoption of the Agenda**

The agenda was adopted with one addition of item number seven; Closing Remarks by the Chairman.

### **4.0 Adoption of Minutes of the previous meeting**

Members went through minutes of the Fourth JCC meeting page by page. There were no changes made and the minutes were adopted.

### **5.0 Progress of MAREP Activities**

- 5.1 DOE presented the progress of MAREP activities and reported that MAREP Phase Five was completed in March 2009 after a three months delay from the completion date. In total twenty seven (27) trading centres were electrified under this phase with a total cost of MK899 million. Sources of funding included;
- Malawi Government through Treasury – MK84 million from the 2006/2007 Development Budget
  - The Japanese Government, through the Japanese Non-Project Counter Value Funds – MK196 million
  - MK303 million from MERA Establishment Fund
  - MK316 million from the Rural Electrification Fund.
- 5.2 It was also reported that planning for MAREP Phase Six has been completed. Phase Six will target 54 trading centres for electrification. The estimated cost for Phase Six is MK2.4 billion. The bills of quantities and tendering for supply of materials have been completed and bids are under evaluation now. The source of funding will be;
- Malawi Government through Treasury Development Budget
    - MK64 million from the 2008/2009 budget
    - MK105 million from the 2009/2010 budget
  - Rural Electrification Fund will provide the rest
- 5.3 It was reported that concurrent to implementation of MAREP Phase Six will be review of the Rural Electrification (RE) Master Plan and planning of MAREP Phase Seven. Questionnaires had already been sent to all assemblies requesting them to update data on trading centres within their assemblies.

- 5.4 The Chairman re-iterated that the review of the RE Master Plan is very important considering that there are many requests from members of parliament requesting for electrification of their areas.
- 5.5 MERA firstly enquired whether DOE has projection for the Rural Electrification Fund (REF) for implementing MAREP Phase Seven. Secondly MERA indicated that RE Regulations provide for three types of projects for REF. These projects are grid extension, installation of renewable energy technologies and mini hydropower projects. However it has been observed that only grid extension projects are being implemented and wanted to know why the other areas have been left behind.
- 5.6 DOE reported that lack of resources to finance mini hydropower projects is the main cause for dominance in grid extension. However, with the introduction of the 4.5% levy on all energy sales adequate funds can be generated for development of identified potential mini hydropower sites. In addition to this it was reported that the Rural Electrification Management Committee (REMAC) has already approved allocations of funds for completion of Kapichila Hydropower Station Phase 2.

## **6.0 Summary of Malawi Rural Electrification Promotion Project (MAREPP)**

- 6.1 The meeting was informed by the RE Advisor that the objectives of MAREPP are;
- To enhance capacity of RE Division and Accountant Office for smooth implementation of MAREP; and
  - To improve MAREP planning and execution, both technically and institutionally.
- 6.2 The expected outputs included;
- Reinforcement and improvement of technical skills for planning and executing RE projects.
  - Improvement of managing contract skills in the MAREP phase V.
  - Improvement of technical skills of PV system inspectors and trainers.
  - Development and maintenance of capabilities for proper financial management.

- Development and maintenance of capabilities for activity operation and management.

6.3 It was reported that major achievements for the project included;

- DOE developed/reinforced the skills individually and organizationally;
- Basic Design (B/D) and Detailed Design (D/D) using GPS mapping method;
- Contractual management of MAREP Phase 5 works with proper technical knowledge;
- PV installation and monitoring through trainings and field inspection, and
- Asset register, budgeting and accounting system.

6.4 As a way forward the following things were highlighted;

- Hiring of new staff at DOE need to be done soon especially for Accountant Officer;
- Concession and O&M agreement between the Government and ESCOM need to be enforced; and
- Subsidization for O&M for non viable MAREP Project.

6.5 MERA indicated that the developed manuals need to be used in corporation with cable and wiring regulations used by ESCOM Ltd.

6.6 On Concession Agreement and subsidized O&M, MERA said there is more work that ESCOM Ltd need to do.

6.7 ESCOM Ltd reported that such kind of work has started with Likoma.

6.8 The meeting resolved to form a Task Force comprising of DOE, MERA and ESCOM Ltd among others, to critically look at this issue.

## **7.0 JICA Long Term Technical Assistance for MAREP**

7.1 It was reported that JICA's Technical Assistance for MAREP started in 1999 with the dispatch of the first RE Advisor from April 1999 – April 2002. At that time DOE had no adequate experience for implementation of MAREP. The second RE Advisor was dispatched between August 2002 – August 2004. The third RE Advisor came in January 2007 – November 2009;

- 7.2 Between September 2001 and January 2003 JICA supported the study and development of the RE Master Plan with a follow up study in 2004;
- 7.3 The third assistance was the provision of funds through various windows such as Debt Relief Grant, Counter value Fund and Small Scale (Grass – Root) Grant Aid; and
- 7.4 The fourth assistance was implementation of MAREPP starting from December 2006 to November 2009.
- 7.5 As this Technical Assistance is coming to an end for the first 10 year chapter, there is need for discussions for further cooperation amongst ESCOM Ltd, MERA and DOE.
- 7.6 The Chairman thanked the Japanese Government and JICA for the Technical Assistance provided. He stated that this is good for the Government of Malawi and wished for more cooperation especially in the energy sector to sustain the momentum set up by MAREP and MAREPP.
- 7.7 On recruitment of staff, the Chairman indicated that efforts are being made.
- 7.8 The Japanese Embassy concurred with the Chairman that MAREP has been a successful project for the past 10 years. Now that this first chapter of support is coming to an end it was proposed that the public be informed about these successes through a Press Conference.
- 7.9 DOE indicated that the issue of Concession Agreement is between DOE and ESCOM Ltd. On the success of the project DOE attributed this to the approach – capacity building for people and not just monetary support.

## **8.0 Closing Remarks from Members**

- 8.1 ESCOM Ltd thanked the Team for their support and acknowledged that the project has assisted to build capacity with ESCOM MAREP. Further and continued cooperation was therefore requested.
- 8.2 DOE stated that when government took over implementation of MAREP, it did not know where to start from. With JICA assistance the RE Master Plan was developed and it cleared a number of things. The subsequent work became easier and the DOE has come this far because of the Japanese support. DOE then appealed for another chapter of Technical Assistance for the Energy Sector.

- 8.3 MERA indicated that they support the project and that there is more capacity building to be done. It then advised that development of RE projects needs to be looked upon by MERA so that the developed regulations are followed. Sometimes there might be need for simplified but safe regulations that can speed up implementation of MAREP.
- 8.4 Japanese Embassy indicated that the project will be over by November 2009, but DOE has to continue.

#### **9.0 Closing Remarks by JICA Resident Representative**

- 9.1 JICA thanked everybody for the successfully completed project. He advised DOE that the next responsibilities are with them and that the good cooperation should continue. The meeting was then informed that JICA is waiting for the results from the Japanese Government on the request for a Power Sector Advisor by the Malawi Government. It was also indicated the Japanese Government is keen to support a grid connected solar system installation whose identification mission was in the country recently.

#### **10.0 Closing Remarks by the Chairman**

- 10.1 The Chairman thanked all the institutions and individuals for the wonderful cooperation during the implementation of the project. He stated that MAREP is impacting positively on the rural communities. He indicated that the cooperation has been successful and there is need to continue not only the momentum that has been set by this project, but also with the cooperation in whatever form. He emphasized that this cooperation is working for the government, the people and for ESCOM Ltd as well. He then thanked everybody and closed the meeting.

# Attachment 8

# **REVIEW OF MALAWI RURAL ELECTRIFICATION PROMOTION PROJECT COUNTERPART TRAINING 6<sup>TH</sup> TO 21<sup>ST</sup> DECEMBER 2007, JAPAN**

Capacity building is one of the key elements of Malawi Rural Electrification Promotion Project in the Department of Energy affairs of the Ministry of Energy and Mines in Malawi. Counterpart Training for the Malawi participants was held in Japan from 6<sup>th</sup> to 21<sup>st</sup> December 2007. Below is a review of the training.

## **(a) TOPICS COVERED**

The following are the topics which were covered during the training :

- Economic Evaluation of projects.
- Micro-hydro power generation Planning
- Rural Electrification Planning
- GIS Database
- Photovoltaic Systems

All the topics were tackled in depth. Lectures were presented in a two way system. i.e Lectures presented the required materials and in return participants were given a chance to present their views on the subject matter. Participant's ideas were considered and incorporated in the final lecture materials.

## **(b) LEARNING MATERIALS AND TRAINING VENUE**

Learning materials for all outlined topics above were given out. The handouts provided detailed information on each topic concerned.

The venues for the training both in Tokyo and Nagoya were suitable for this type of course. However, the training sites were located far away from where participants were accommodated even though transport allowance was provided. This inconveniences the participants as they had to wake up early and get prepared to go to the training venue in order to catch up with time.

## **( c ) FIELD VISITS**

Field visits were well coordinated . Participants visited appropriate electric power companies. For example, a visit to both Tokyo Electric Power Company and Chubu Electric Power Company was an eye opener to the participants. They had an opportunity to see modern technologies being used in generation, transmission and distribution of electricity. The participants also had an insight in the manufacturing of transformers and application of Photovoltaics at Aichi manufacturing company. History of the electricity industry in the world and in particular Japan was provided and included visits to Electric museums.

## **(d) ACCOMODATION**

JICA provided accommodation to the participants at their centres both in Tokyo and Nagoya. However, the accommodation which was provided was below the participant's expected standards. For example in Nagoya participants had to use communal bathrooms and toilets and basic amenities such as soap and bath towels were not provided.

## **(e) GENERAL ISSUES**

The training coordinator, Mrs Mari Hirai provided all the necessary support to us participants since our arrival in Japan. She has done a very good job which has contributed greatly to our smooth stay in Japan. Hence, we had no problems in sourcing our basic requirements, traveling to and from the training centres and field visits.

All in all the training went on well. The new skills acquired during the training will be effectively used in order to enhance the provision of electricity in the rural areas of Malawi.

## **ACTION PLAN**

The following activities will be carried out by the participants in Malawi taking into account what was discussed during the training:

- **Counterpart Training report writing** : As a requirement by the Ministry, participants will produce a detailed training report to be submitted to the relevant authorities.



- **Socio-economic survey** : DOE will carry out social-economic survey to assess the power demand and social impact of electrification under Phase IV for future R/E planning and public awareness.
- **Supervision /Monitoring of MAREP Phase Five Implementation** :As the intermediate monitoring and supervision, DOE will send the officers to TCs to check ESCOM's works if they are doing in line with the schedule or not on random basis. As the final (hand-over) monitoring and supervision, DOE will check ESCOM's results based on the drawings and BOQs at the TCs
- **Minihydro field study** : With the help from Mr Kimura , DOE will continue with the minihydro field studies.
- **Basic Design and Detailed Design for Phase Six sites:** DOE will carry out Basic Design and Detailed Design for Phase six Trading Centres to ensure smooth implementation of the said phase.
- **Strengthening of the supply side of Electricity Supply Industry** : The need to strengthen the supply side of the Electricity supply industry i.e ESCOM in Malawi will be taken up with management of ESCOM and Ministry. This is with the view of making sure that future electrification programmes are implemented smoothly.

# **THE OVERVIEW OF THE MALAWI RURAL ELECTRIFICATION PROMOTION PROJECT COUNTERPART TRAINING HELD FROM 17<sup>TH</sup> SEPTEMBER TO 3<sup>RD</sup> OCTOBER, 2008 IN JAPAN.**

## **1.0 INTRODUCTION**

The Department of Energy Affairs which implements Malawi Rural Electrification Promotion Project (MAREPP) needs well qualified personnel for its success. Capacity building is a key element of the Malawi Rural Electrification Promotion Project. In view of this, JICA held the counterpart training for MAREPP which was held in Japan Tokyo and Nagoya from 17<sup>th</sup> September to 3<sup>rd</sup> October, 2008. Messers M Nzima and C Kapito attended the training. The focus of the training was Power Distribution Management. Below is the review of the training.

## **2.0 TOPICS COVERED**

The following topics were covered during the training:

- Solar Photovoltaic power and Grid network
- Centralized Solar Photovoltaic Applications
- Wind power generation and Grid network
- Load dispatch control for Regional grid network
- Transformer and Meter production
- Power Distribution facilities and Load dispatch control for Area grid network.
- Education systems for distribution engineers
- Hydropower and water pumped storage
- Distribution Technology Promotion in Malawi

All the topics were covered in depth. The materials were presented in two ways:

- The lectures presented the materials using visual aids and the participants given chance to present their views and experiences from their countries. Participants' views were being discussed and incorporated in the material covered.
- Participants taken to the practical aspect where they could appreciate the activities on the ground. This used to complement theory.

### **3.0 LEARNING, PRACTICAL MATERIALS AND TRAINING VENUE**

Learning materials including handouts gave detailed information on each presentation. Each topic was given enough time for presentation, questions and discussions. Participants were taken to various places to appreciate the technical aspect of the topic.

The training venues for both Tokyo and Nagoya were very suitable for the course. The course conducted at various institutions with different expertise. This gave the participants various experiences and a very broad knowledge of power distribution and management in the energy sector. Every institution was more prepared to host the participants

### **4.0 FIELD VISITS**

Field visits for the participants were well planned and coordinated. Participants visited a number of institutions such as: Research center for photovoltaic, Sakura Solar centre, Hisai and Aoyama-kogen Wind Farms. These gave an eye opener to the participants on their scale of power generation and the connection to the grid network.

The participants also appreciated the power distribution load dispatch control facilities and system planning, management, hydro power generation control facilities and training for distribution engineers. The participants had the chance to visit CEPCO training

centre for engineers, Aichi transformer manufacturing company, Jemic meter company. This was an eye opener on power distribution planning, transformer and meter manufacturing; and hydropower generation.

## **5.0 ACCOMODATION**

Both in Tokyo and Nagoya, JICA provided accommodation at their Centers. All in all the accommodation was good.

## **6.0 GENERAL ISSUES**

The training coordinator Mr Miyata provided all the necessary support to the participants since arrival in Japan. He has done a good job which has contributed greatly to the participants smooth stay in Japan. There were no problems in traveling to and from the training centers and field visits and panctuality was maintained through out.

In summary, the training went on very well. The new techniques acquired during training will be effectively used in order to promote rural electrification program in Malawi.

## **7.0 ACTION PLAN**

The following activities will be carried out by the participants in Malawi considering the knowledge obtained during the training:

### **7.1 COUNTER-PART TRAINING REPORT WRITING**

The ministry of Energy and Mines requires all participants who have attended a course to submit a training report to relevant authorities. In view of this the participant will write a report basing on the materials covered during the training and submit recommendations.

## **7.2 BASIC AND DETAILED DESIGNS FOR MAREP PHASE SIX TRADING CENTRES**

DOE together with ESCOM will carry out basic and detailed designs for MAREP Phase six trading centers. This will assist DOE to come up with BOQ and proposed routes for smooth implementation of the phase.

## **7.3 SOLAR /WIND ELECTRIFICATION PROJECT**

DOE will continue designing, planning and implementation of solar/wind energy projects with the help of Rural Electrification Advisor as a means of off grid option of rural electrification.

## **7.4 MONITORING AND SUPERVISION OF MAREP PHASE SIX IMPLEMENTATION.**

DOE will carry out both intermediate supervision and final monitoring of MAREP sites. This will help to check progress against time schedule. In readiness for hand over DOE and ESCOM MAREP will conduct a system audit.

## **7.5 DISTRIBUTION MANUALS**

DOE with the assistance of Japan counterparts will prepare a Distribution manual to be used in future implementation of MAREP jobs.

# **MALAWI RURAL ELECTRIFICATION PROMOTION PROJECT COUNTERPART TRAINING REPORT (26 AUGUST – 10 SEPTEMBER 2009)**

## **BACKGROUND OF THE COURSE**

The Malawi government is implementing The Malawi Rural Electrification Program which is aimed at increasing electricity access for the whole country which is around 7%.

This project is getting technical assistance from the Japanese government. In the past three years Japanese experts have been dispatched to Malawi to impart knowledge to Department of Energy's, Malawi rural electrification program division in many aspects such as detailed design, preparation of distribution line technical standards construction standards, preparation of inspection and hand over manuals etc.

Since the commencement of this technical cooperation between the Malawi and Japanese government two Malawi Rural electrification officers have been attending the counterpart training as part of the technological transfer which will in the end strengthen the capacity of DOE.

This year two officers namely Mr Henry Perera and Ms Temwani Kumwenda attended a training titled Malawi Rural Electrification Promotion Project held from 26<sup>th</sup> August to 10<sup>th</sup> September 2009 in Tokyo and Nagoya.

## **JOB DESCRIPTION**

Mr Perera's job in Malawi involves planning for MAREP, this includes:

- (a) selection of sites to be electrified
- (b) Conducting of basic design for these sites so as to establish the tapping point, route length, number of public facilities in these centers, number of maize mills, position and size of transformers etc.
- (c) Conducting of detailed design which assists in the preparation of Bill of Quantities, scope of works and preparation of tender document for the supply of construction materials.

- (e) Procurement of MAREP construction materials
- (f) Preparation of contract document for the supply of power line materials and construction contract for MAREP.
- (g) Monitoring and inspection of MAREP sites.
- (h) Answering to parliamentary questions relating to MAREP

### **COURSE CONTENT**

Counterparts were conducted on fulltime class sessions combined with some field trips to appreciate the theories learnt. All lectures were held at CEPCO Headquarters. Below is the topics covered and site visits made.

- Electric power business in Japan and that of CEPCO - at CEPCO
- Outline of Rural Electrification Planning – at CEPCO
- Outline of Japan distribution system – at CEPCO
- Hydropower generation development program – at CEPCO

Some site visits were also organized as follows:

- Visit to Yokohama Thermal plant
- Visit to Yokohama Electric history Museum
- Visit to CEPCO customer service
- Visit to CEPCO Human Resources Development Centre
- visit to Koshido dam control centre
- Visit to Okuyahagi pumped storage Hydropower station
- visit to Aichi Electric company which manufactures transformers
- Visit to Kyocera Solar company

The pumped storage system of power generation, Thermal power generation were an eye opener. In Malawi these two are not available and yet we have abundant resources of coal and Water from Lake Malawi which could be used.

Before the course I expected to see a lot of smoke in the thermal power plant but was puzzled one wouldn't notice between a thermal plant and a tall building unless they are told.

## **ACTION PLAN**

Mr Perera after returning to Malawi will fulfill the following tasks:

### Submission of Training Report

Members of staff who undergo any type of training are required to produce a report within 3 days of their arrival for submission to the principal Secretary through The Director of Energy Affairs.

### Preparation of Manuals

The draft manuals are already in place for inspection and hand over. The final manuals are yet to be finalized with the help of technical cooperation.

### Evaluation of tender documents for procurement of MAREP phase 6

MAREP phase 6 is about to commence. Meanwhile the department is waiting for responses from supplying companies to submit their bids.

### Audit of MAREP phase 5 centres

MAREP phase 5 was completed but there is need to do material audit as soon as possible so that past mistakes should not be repeated in MAREP phase 6. The contractor believes that construction materials were no sufficient for phase 5 while DOE(Department of Energy Affairs) believes that there should have been extra materials.

### Basic design and detailed design for MAREP phase 7

MAREP phase 6 and phase 7 will run overlappingly i.e. while construction for phase 6 is going on, some of phase 7 activities will be done such as basic design, detailed design etc.

### Procurement of MAREP phase 6 Materials

The procurement of line materials is done by DOE. And there is a



special stores for these. In the past the contractor used to keep these materials which led to misuse.

#### Monitoring of MAREP phase 6

The construction contractor needs to be monitored in order to assess progress and enforce the construction contract. In the past this activity was overlooked and this made construction to take long or shortage of construction materials.

#### Solar and wind Hybrid System

Malawi government is undertaking solar and wind hybrid system on pilot basis in 3 sites. Inspection of these facilities is also under MAREP section of DOE. The Technical Expert in PV Solar home systems is responsible for the technological transfer in this field.

# **ACTION PLAN FOR THE COUNTERPART (C/P) TRAINING ON THE MALAWI RURAL ELECTRIFICATION PROMOTION PROJECT HELD IN JAPAN 26<sup>TH</sup> AUGUST - 11<sup>TH</sup> SEPTEMBER, 2009.**

## **BACKGROUND**

Department of Energy affairs which is under the Ministry of Natural Resource, Energy and Environment is carrying out a number of programmes and projects in order to achieve its vision, mission and policies and registration.

Malawi Rural Electrification Project (MAREP) responds to the vision, mission and policies of the Ministry through the department of Energy Affairs.

Since 1998, JICA has provided assistance to Malawi's rural electrification project including debt relief grant support, the dispatch of experts to serve as long term advisors, the formulation of rural electrification master plans and training of two MAREP officers in Japan every year as part of technological transfer.

This year, JICA organized another training course which was attended by two MAREP officers including Mr. Henry Pelera and MS. Temwani Kumwenda.

The counterpart training was mainly conducted in order for participants to understand the framework for planning, acquire the technologies, management and educational system for distribution, to acquire a procedure for management and education grid extension in Japan and to acquire basic knowledge on small and micro hydro power and solar PV system technology.

## **JOB DESCRIPTION**

Mainly am involved at:

- Monitoring and evaluating different projects at the Ministry including MAREP
- Supervise the implementation of projects at the Ministry
- Identify challenges, document strengths and list opportunities for the existing projects.
- Plan and budget for the Ministry
- Review policy documents in view of new developments
- Preparation of annual workplans and reports

## **EXPECTATION OF THE COURSE**

- Develop a deep understanding of planning, designing monitoring and management of MAREP and its related activities
- Skills obtained from site visits and lectures to be fully integrated into local systems
- Share knowledge gained to other stakeholders and implementers of MAREP
- Being among the very few women actively engaged in this industry, I feel my job will ever be challenging
- Envision studying Environmental economics in due course

## **TRAINING TOPICS**

CEPCO headquarters hosted all the lectures conducted during the training and below is a list of topics covered and site visits during the counterpart training.

### **Outline of Rural Electrification Planning – at CEPCO**

- Outline of Japan distribution system – at CEPCO
- Electric power business in Japan and that of CEPCO - at CEPCO
- Hydropower generation development programme – at CEPCO
- Visit to Yokohama Thermal plant
- Visit to Kyocera Solar company
- Visit to Osaka Electric history Museum
- Visit to CEPCO customer service
- Visit to CEPCO Human Resources Development Centre
- visit to Koshido dam control centre
- Visit to Okuyahagi pumped storage Hydropower station
- visit to Aichi Electric company which manufactures transformers

## **ACTION PLAN**

Through the knowledge obtained during the counterpart training, the following activities will be carried out by the participant

### **Two years plan**

#### **counterpart training report writing**

As a requirement by the Ministry, all participants who have attended any training course are required to write and submit a detailed report to the relevant authorities both from the Ministry of Natural Resource, Energy and Environment and Department of Energy Affairs.

#### **Reviewing of the Malawi Energy Policy**

There are plans of reviewing the Malawi Energy policy which was established in 2003. Hence upon reviewing there is need for proper clarification of the Roles of each player like the Ministry of Natural Resources, Energy and Environment, Department of Energy, MERA and ESCOM.

#### **Rural Electrification (R/E) Act**

In order for Ministry to grasp progress of MAREP activities, there is need for participation of planning section from the Ministry of Natural Resources in the meetings of Rural Electrification Management Committee

#### **Technical Procedure on Grid Extension**

Since MAREP phase 6 is about to commence, There is need for planning officer from the Ministry of Natural Resources, Energy and Environment to be attending activities of MAREP occasionaly starting from Basic Design (B/D), Detailed Design (D/D), Procurement and Supervision and Handover (Construction Works) in order to have a clear picture of what is happening on the ground unlike just reading and reporting to the Ministry on what the Engineers have written from the department of Energy Affairs.

Through the knowledge gained from different lectures and site visits I plan

1. To train my fellow staff at different levels of planning, Monitoring and Evaluation and management
2. To train staff on management and education on grid extension.
3. Envision studying Environmental or Energy economics in due course

### **Ten years plan**

97% of electricity in Malawi is hydro based and only 4 % of the population had access to electricity according to Energy policy established in 2003. Amongst the Energy natural resources in Coal is one of the Mineral which can be used to produce thermal power Electricity. Malawi has 13 coalfields with reserves of 800 million tones. for instance, we have Ngana Coalfield: 15 million tones and 50 million tones probable resources, Nthalire Coalfield with 15 million tones possible resources, just to mention a few.

I plan to work with the Ministry of Natural Resources, Energy and Environment in the next 5 or 10 years to come, in order to have best knowledge and Experience and attend other training courses like the Malawi Rural Electrification Project in Japan and other developed countries so that I can train my fellow staff especially at different levels of planning, Monitoring and Evaluation and management and education on grid extension.

