MINUTES OF MEETINGS
BETWEEN
THE JAPAN INTERNATIONAL COOPERATION AGENCY
AND
RURAL ELECTRIFICATION AUTHORITY AND MINISTRY OF ENERGY AND PETROLEUM
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR ESTABLISHMENT OF RURAL ELECTRIFICATION MODEL USING RENEWABLE ENERGY

The Japanese Mid-Term Review Team (hereinafter referred to as "the Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Mr. Tadayuki Ogawa, the Senior Advisor in the field of Energy and Mining, JICA, conducted survey from 18th September 2013 to 4th October 2013 for the Project for ESTABLISHMENT OF RURAL ELECTRIFICATION MODEL USING RENEWABLE ENERGY (hereinafter referred to as "the Project").

During the survey, the Team had a series of discussions with the concerned parties of the Government of the Republic of Kenya (hereinafter referred to as "the Kenyan side"), jointly evaluated the achievements of the Project, and exchanged views for further improvement of the Project.

As a result of the discussions, both the Kenyan side and the Team agreed upon the matters referred to in the Joint Mid-term Review Report attached hereto.

Nairobi, October 4th, 2013

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JOINT MID-TERM REVIEW REPORT

ON

THE PROJECT FOR ESTABLISHMENT OF RURAL ELECTRIFICATION MODEL USING RENEWABLE ENERGY

Ministry of Energy and Petroleum,

Rural Electrification Authority

and

Japan International Cooperation Agency (JICA)

Nairobi

Republic of Kenya

October 4th, 2013

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List of acronyms and abbreviations

CEO	Chief Executive Officer
C/P	Counterpart (MOE&P, REA)
C/Ps	Counterpart members / Members of Counterpart
DAC	Development Assistance Committee
EAC	East African Community
JCC	Joint Coordination Committee
JEs	Japanese Experts
JET	Japanese Expert Team
JICA	Japan International Cooperation Agency
JKUAT	Jomo Kenyatta University of Agriculture and Technology
JPY	Japanese Yen
KSh	Kenyan Shilling
LED	Light Emitting Diode
LPG	Liquefied Petroleum Gas
MHP	Micro Hydro Power
MOE&P	Ministry of Energy and Petroleum
MOEST	Ministry of Education, Science and Technology
MOH	Ministry of Health
O&M	Operation and Maintenance
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OJT	On the Job Training
PDM	Project Design Matrix
PO	Plan of Operation
PV	Photovoltaic
REA	Rural Electrification Authority
REM	Rural Electrification Master Plan
USD	United States Dollar

1. Introduction

1-1. Background of the Mid-term Review

JICA has collaborated with the Government of the Republic of Kenya in implementing "the Project for Establishment of Rural Electrification Model Using Renewable Energy" (hereinafter referred as "the Project"). The Project started in March 2011 with the cooperation period of three years.

In accordance with the JICA Guideline for Project Evaluation, mid-term review must be carried out in the middle of the project period. As a part of this review, the joint mid-term review team has been organized to carry out tasks for reviewing the achievement of the Project

1-2. Project Outline

The project outline extracted from Project Design Matrix (See Appendix I:PDM Version 2.1 as of Dec.1, 2012) which is a key management tool for the Project Operation, is as table below.

Table 1-1 Project Outline

Overall Goal	Rural electrification models using renewable energy are disseminated in the country to improve the quality of Kenyan's life.
Project Purpose	Rural electrification models using renewable energy are established
Outputs	(1) A practical model for PV electrification of health service institutions in non-electrified areas is developed through pilot projects. (2) A practical model for PV electrification of schools in non-electrified areas is developed through pilot projects. (3) The Capacity of REA / MOE&P to undertake project using MHP, Biogas and Wind technologies is enhanced. (4) Necessary policy and institutional frameworks for spreading the models for rural electrification using renewable energy are recommended.

1-3. Members of the Mid-term Review Study Mission

The Joint Mid-term Review Team is composed of the members as below.

(Kenyan Side)

Name	Occupation
Ms. Colleta Koech	REA, Renewable Energy, Assistant Engineer

(Japanese Side)

Role	Name	Occupation
Team Leader	Mr. Tadayuki Ogawa	Senior Advisor, JICA
Cooperation Planning	Ms. Chiyoko MIYATA	Programme Officer, Energy and Mining Division 2, Industrial Development and Public Policy Department, JICA
Evaluation and Analysis	Ms. Ayako NAKAGAWA	Section Manager, Human Environment Department, Ingerosec Corporation

2. Methodology of the Mid-term Review

2-1. Objectives of Mid-term Review

The fundamental objectives of JICA's project evaluation are (1) Improvement of projects and (2) Enhancement of accountability. They're in accordance with policy of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee (DAC). In particular, the objectives of the mid-term review study are as follows:

- To determine whether or not the expected achievements have been made as they planned originally. If not, identify the obstacles for the achievements and develop the countermeasures.
- To confirm the feasibility for the implementation of the project purpose during the rest of the project period.
- To identify the action items for the achievement of the project purpose during the rest of the project

2-2. Progress and Framework of Mid-term Review

JICA's project-level evaluation consists of 3 steps shown in Figure 2-1. For accurate and successful evaluation, data and information collection is essential. In order to collect sufficient data, monitoring on regular basis is very important.

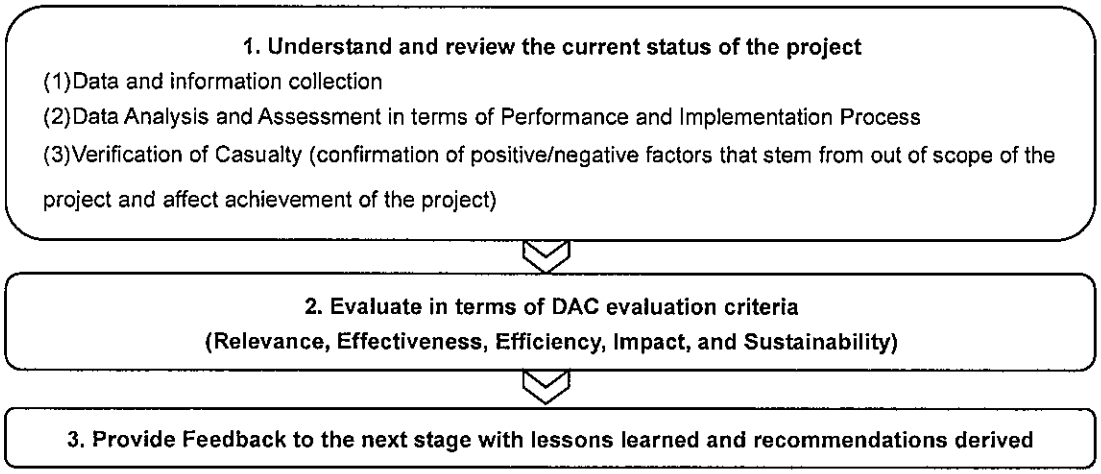

Figure 2-1 Steps of JICA's Project-level evaluation

2-3. Data Collection Methods

Both quantitative and qualitative data were gathered and utilized for analysis. Data collection methods by the Team are as follows:

- Questionnaires (Counterparts and Japanese experts);
- Key informant/Group Interviews (Counterparts, stakeholders such as concerned parties in pilot project sites and counties, Japanese experts); and
- Direct Observation

The detailed list of the stakeholders consulted with the Team is included in Appendix III.

3. Project Performance /Achievement and Implementation Process

3-1. Inputs

3-1-1. Japanese Side

Durations of Japanese expert's engagement for the project are listed in Table 3-1. These durations include planned schedule until the end of February, 2015. A total of approximately 90 person-month of expert will be provided during the project period (approximately 30 person-month per year).

Table 3-1 List of Japanese Experts provided

	Name	Position / Speciality	Total person-months	
			Kenya	Japan
1	Tsutomu DEI	Team Leader / Wind Power Generation	14.40	0
2	Yuichi UEDA	Sub Leader / Rural Electrification / Micro-Hydropower	8.50	0
	Yoshiaki SAMEJIMA	Sub Leader / Rural Electrification / Micro-Hydropower	5.20	0
3	Kunio ASAI	Photovoltaic Power Generation	12.20	0
4	Yuka NAKAGAWA	Biomass Power Generation	11.30	0
5	Hidehiko WAKABAYASHI	Financial Management	5.00	0
6	Yoko KITAUCHI	Community Development and Monitoring	8.40	0
7	Ken SHIMOMUKAI	Development of Local Industry and Business Skill Training / Project Coordinator / Support of Procurement and Supervision of Pilot Projects	11.70	0
8	Katsuhiko OTAKI	Procurement and Supervision of Pilot Projects	9.60	0
9	Kenji IGARASHI	Environmental and Social Consideration	4.40	0
Total person-months			90.70	0

The equipment provided by the Japanese side as of Sep. 2013 is listed in Table 3-2. Total cost is approximately 8,640,000 KSh (equivalent to approximately 9,830,000 JPY) including Lot 1 installation.

Table 3-2 List of Equipment provided by Japanese side

	Item	Specification	Units	Cost
1	Desktops	HP	3	342,000
2	Photocopy Machine	S/NFAJ11641 (2020L)	1	380,000
3	Auto Cad	LT 2013	1	95,000
4	Antivirus	Norton Antivirus (3yrs)	3	10,800
5	Projector	Epson ES01 2600 Lumens	1	56,000
6	UPS	1500KVA Mercury Smart	3	42,000
7	Printer	HP P 33015DN	1	55,000
8	Cabinet	Wooden	1	28500
9	Conference Table and Chairs		1	70,000
10	Office Fan		2	15,000
11	G.P.S	Garmin eTrex30	1	28,000
12	Lot 1 Installation	Contract with Go Solar Systems Limited	1	7,514,320
			Total	**8,636,620 (KSh)**

1Ksh=1.138JPY (JICA exchange rate for expense report, as of Sep. 2013)

Expense for local project activities is listed in Table 3-3. Total expense for local activities is

approximately 44,100,000 in KSh (equivalent to approximately 50,190,000 JPY).

Table 3-3 Expense for local project activities

	Local Expense Item	FY 2012	FY 2013 (up to 31st August)	FY 2013 (the rest)	FY 2014	Total
				(Planned)		
1	Salary and Allowances	5,575,868	3,057,993	3,000,000	7,000,000	KSh 18,633,861
2	Vehicle related expenses (fuel, Maintenance, etc.)	2,388,239	4,029,099	3,000,000	7,000,000	KSh 16,417,338
3	Rent-a-car and Taxi	910,871	1,189,250	800,000	2,000,000	KSh 4,900,121
4	Office Airtime , Internet	304,954	211,550	200,000	500,000	KSh 1,216,504
5	Meeting (Workshop and Seminars)	6,150		100,000	1,100,000	KSh 1,206,150
6	Consumables for Office Supply	645,757	124,994	150,000	400,000	KSh 1,320,751
7	Consumables for reading/reference materials	62,822	3,650	10,000	20,000	KSh 96,472
8	Consumables for Communication	44,197	12,500	10,000	30,000	KSh 96,697
9	Printing for book Binding Report Making (Outside Office)		115,307	50,000	50,000	KSh 215,307
	Total	9,938,858	8,744,343	7,320,000	18,100,000	**KSh 44,103,201**

1Ksh=1.138JPY (JICA exchange rate for expense report, as of Sep. 2013)

Overseas training (training in Japan) for Counterpart members (C/Ps) conducted under the budget of Japanese side is listed in Table 3-4 and local trainings for C/Ps are listed in Table 3-5.

Table 3-4 Overseas training for C/Ps conducted under Japanese budget

Duration: 8/27/2012 – 9/19/2012
Content of Training: Renewable energy technology
Operation and Maintenance of existing system
Appropriate technology for rural electrification using renewable energy

	Name of Trainee	Position	Organization
1	Mr. Antony Wanjara Oredo	Renewable Energy and Generation, Technician	REA
2	Mr. Edwin Owiti	Renewable Energy Department, Engineer (I)	MOE&P
3	Mr. Jacob Chepkwony	Renewable Energy Department, Engineer (I)	MOE&P

Table 3-5 List of local trainings for C/Ps conducted under Japanese budget

	Name of Trainee	Position	Organization
Micro Hydro Power (MHP) Duration: Total 9 days (6days for lectures, 3days for site visit)			
1	Mr.Semekiah Ongong'a	Assistant Engineer	REA, Renewable Energy Department
2	Ms. Judith Kimeu	Assistant Engineer	REA, Renewable Energy Department
Biogas Duration: Total 7 days (4 days for planning , 3days for site survey)			
1	Ms.Caroline Kelly	Assistant Renewable Energy Officer	REA, Renewable Energy Department
Wind Duration: Total 9 days (9days for lectures)			
1	Mr.Hannington Gochi	Senior Technician	REA, Renewable Energy Department
2	Mr. Kihara Mungai	Mechanical Engineer	MOE&P, Renewable Energy

3	Mr. Eswin Owitti	Assistant Engineer	MOE&P, Renewable Energy
Solar PV Duration: Total 1 days (1 day lecture)			
1	Mr. Antony Wanjara Oredo	Renewable Energy and Generation, Technician	REA, Renewable Energy Department
2	Mr.Hannington Gochi	Senior Technician	REA, Renewable Energy Department
3	Ms. Judith Kimeu	Assistant Engineer	REA, Renewable Energy Department
4	Ms. Caroline Kelly	Assistant Renewable Energy Officer	REA, Renewable Energy Department
5	Eng. Semekia Ongong'a	Assistant Engineer	REA, Renewable Energy Department
6	Mr. Dickson Kisoa	Principal Renewable Energy Assistant	MOE&P, Renewable Energy
7	Mr. Edwin Owiti	Engineer (I)	MOE&P, Renewable Energy
8	Mr. Dennis Owino	Inspector	MOE&P, Electrical
9	Mr. Valentino Ayisi	Engineer (II)	MOE&P, Electrical

Trainings for the target group other than C/Ps are listed in Table 3-6.

Table 3-6 List of local trainings for the target group other than C/Ps conducted under Japanese budget

	Name of Trainee	Position	Organization
Solar PV for Private Companies Duration: Total 1 days (1 day lecture)			
1	Enos Orongo	Sales Manager	Telesales Solar
2	George Irungu	Senior Technician	Telesales Solar
3	Patrick Nyagah	Sales	Solargen Power
4	Joseph Muthokah	Technical Manager	Chloride Exide
5	Douglas Isiai	Solar Coordinator	Chloride Exide
6	Johnson Waweru	Projects Manager	Power Options
7	Mwangi Joseph	Technical	Go-Solar System
8	Stephen Mwangi	Technical	Go-Solar System
9	David Kangethe	Technician	Sunpower Technologies
10	Norman Chege	Solar Manager	Davis&Shirtliff
Bookkeeping 1 Duration: Total 5 days			
1	Wilson Nkoyo	Head teacher	Olemoncho Primary School (Narok South)
2	Stephen Sankok	Head teacher	Iltumtum Primary School (Narok North)
3	Nereah Omusula	Head nurse	Olkinyei Dispensary (Narok South)
4	Angwinson Mbabu Daniel and	Head nurse	Ilkinyeti Dispensary (Kajiado County)
5	Patrick Achuka	Head nurse	Meto Dispensary (Kajiado County)
Bookkeeping 2 Duration: Total 4 days			
1	Wilson Nkoyo	Head teacher	Olemoncho Primary School (Narok South)
2	Stephen Sankok	Head teacher	Iltumtum Primary School (Narok North)
3	Tajeu Minis	Chairman of PV system	Olkinyei Dispensary (Narok South)
4	Phillip Rukaine	Chairman of dispensary	Ilkinyeti Dispensary (Kajiado Country)
Operation and Maintenance 1 Duration: Total 4 days			
1	Wilson Nkoyo	Head teacher	Olemoncho Primary School (Narok South)
2	Stephen Sankok	Head teacher	Iltumtum Primary School (Narok North)
3	Nereah Omusula	Head nurse	Olkinyei Dispensary (Narok South)
4	Angwinson Mbabu	Head nurse	Ilkinyeti Dispensary (Kajiado County)

Operation and Maintenance 2 Duration: Total 4 days			
1	Wilson Nkoyo	Head teacher	Olemoncho Primary School (Narok South)
2	Stephen Sankok	Head teacher	Iltumtum Primary School (Narok North)
3	Nereah Omusula	Head nurse	Olkinyei Dispensary (Narok South)
4	Josephine Selian Patrick	Operator	Ilkinyeti Dispensary (Kajiado County)
Operation and Maintenance 3 Duration: Total 4 days			
1	Angwinson Mbabu	Head nurse	Ilkinyeti Dispensary (Kajiado County)

3-1-2. Kenyan Side

Kenyan counterparts and personnel involved in the project are listed in Table 3-7. Due to staff changes in MOE&P and REA, C/Ps have been changed. Also, in response to the request from JICA in July 2013, numbers of assigned C/Ps has been increased and 3 more members will be joined under the authorization by JCC in Oct. 2013.

Table 3-7 List of Kenyan Counterparts

	As of April 2012	**As of September 2013**
Chairman of JCC (PS, MOE&P)	Mr.Patrick M. Nyoike	Eng. Joseph K. Njoroge
Project Director (CEO, REA)	Mr. Zachary O. Ayieko	Mr.Ng'ang'a Munyu
Project Manager (REA)	Eng. James Muriithi (Senior Engineer, Renewable Energy and Generation)	Eng. James Muriithi (Acting Manager, Renewable Energy Department)
Project Manager (MOE&P)	Eng. Raphael Khazenzi (Acting Manager, Renewable Energy Department)	Eng. Isaac N. Kiva (Director, Renewable Energy)
Working Group	Mr. Hannington Gochi (Senior Technician, REA)	Mr. Hannington Gochi (Senior Technician, REA)
	Mr. Anthony Wanjara (Technician, REA)	Mr. Anthony Wanjara (Technician, REA)
	Eng. Samson Kasanga (Assistant Director, MOE&P)	Eng. Samson Kasanga (Assistant Director, MOE&P)
	Mr. Edwin Owiti (Assistant Engineer, MOE&P)	Mr. Edwin Owiti (Assistant Engineer, MOE&P)
	Mr. Jacob Chepkwony (Assistant Engineer, MOE&P)	Mr. Jacob Chepkwony (Assistant Engineer, MOE&P)
		Mr. Gilbert Gichonge (Trainee Engineer, REA)
		Eng. Semekiah Ongong'a (Assistant Engineer, REA)
		Ms. Judith Kimeu (Assistant Engineer, REA)
		Ms. Peninah Wambui (Environmental Scientist, REA)
		Ms. Caroline Kelly (Assistant Renewable Energy
		Ms. Colleta Koech (Assistant Engineer, REA; to be
		Mr. Mungai Kihara (REA; to be joined)
		Mr. Dickson V.Kisoa (MOE&P; to be joined)

The working group consists of sub-groups established for the achievement of each output. The member of each subgroup and roles are listed in Table 3-8.

Table 3-8 List of Sub-group members and roles

As of April 2012	As of September 2013	Role
Sub-group for Output 1 and 2		
Mr. James Muriithi	Mr. James Muriithi	Supervisor
Mr. Anthony Wanjara	Mr. Anthony Wanjara	Solar PV: Plan, Procurement (Lot 1)
	Mr. Hannington Gochi	Solar PV: Lot 2
	Ms. Colleta Koech	Solar PV: Lot 2
	Ms. Caroline Kelly	Solar PV: Stake Holder Meeting
	Ms. Peninah Wambui	Solar PV: Environment
Mr. Edwin Owiti	Mr. Edwin Owiti	Solar PV: Plan
Sub-group for Output 3		
Eng. James Muriithi	Eng. James Muriithi	Supervisor (MHP, Biogas, Wind)
	Mr. Semekiah Ongong'a	MHP: Plan, Design
	Ms. Judith Kimeu	MHP: Plan, Design
	Mr. Anthony Wanjara	MHP: Plan, Design
	Ms. Caroline Kelly	Biogas: Plan, Design
	Ms. Peninah Wambui	Biogas: Environment
Mr. Hannington Gochi	Mr. Hannington Gochi	Wind: Plan, Design
	Ms. Colleta Koech	Wind: Plan, Design
	Mr. Mungai Kihara	Wind: Plan, Design
	Mr. Edwin Owiti	Wind: Plan, Design

The financial contribution provided by Kenyan side to the project is indicated in Table 3-9. Total provision up to fiscal year 2013 is approximately 1,350,000 KSh (equivalent to approximately 1,540,000 JPY). In-kind contribution by Kenyan side includes provision of office space with desks, chairs, electricity, water (including drinking water) and tea.

Table 3-9 Financial Contribution by Kenyan side (as of Aug. 2013)

	Local Expense Item	FY 2012	FY 2013	Total
1	International Per Diem (Counterpart Training)	6,845 USD (574,980 KSh)	8,720 USD (736,690 KSh)	15,565 USD (1,311,670 KSh)
2	Domestic Per Diem	2,250 KSh	39,250 KSh	41,500 KSh
	Total	577,230 KSh	775,940 KSh	1,353,170 KSh

Exchange rate; USD to KSh; Average exchange rate for JICA expense report
1Ksh=1.138JPY (JICA exchange rate for expense report, as of Sep. 2013)

3-2. Performance of Outputs

3-2-1. Output 1

The description of Output 1 is "A practical model for PV electrification of health service institutions in non-electrified areas is developed through pilot project." In order to verify the achievements of the output, following indicators are listed in PDM. Current achievements for each indicator are summarized in Table 3-10.

Table 3-10 Achievements of Output 1

Objectively Verifiable Indicators	Current Achievements
The quality of night health service is improved by judgment of nurses and community people.	Nurses mentioned the better quality of light compared to the previous lighting source such as flash lights and it follows to contribute better medical treatment. Users commented on the safety improvement of the travel to the dispensary at night due to the electrification.

The expenditure for kerosene and LPG gas of the health institutions decrease by X %.(X will be fixed after cost calculation)	Even though reduction of expenditure for LPG is expected by electrification of refrigerator, the latest model of solar powered refrigerator for vaccine has been introduced in Olkiyei dispensary and the refrigerator for vaccine at Ilkirinetti needs to be powered by LPG during the night due to the insufficient power generation by solar. Therefore, reduction of expenditure for LPG is minor and not measurable. The expenditure for kerosene has been decreased (Olkinyeti; -600ksh/month, Ilkirinyetti; -500ksh/month).
The target health institutions receive revenue from power provision service.	The charging system has started to generate revenue for the dispensaries in Lot 1. Total monthly sale of Aug. 2013 Olkinyei Dispensary (Narok South): 200 Ksh/month
The target health institutions feel satisfaction with the electrification.	The satisfaction has been expressed and the results of monitoring will be compiled shortly.
The number of households who charge up their LED lantern using the power provision service of the dispensary is up to Y. (Y will be fixed after detailed interview).	Since LED lights with solar PV panel become commercially popular in Kenya, needs for charging LED lights have been decreased. Therefore, LED lights were not distributed in Lot 1. The distribution plan for Lot 2 has not been determined yet. (Since the neighbor households usually do not own LED lanterns, the project team has to distribute the LED lanterns to expect this indicator.)
The inhabitants in surrounding community feel satisfaction with the electrification of the dispensary in general.	The satisfaction has been expressed and the results of monitoring will be compiled shortly.
Number of awareness raising activities on installed solar PV system at target health institutions and community, at least 3 times for each Lot 1 sites and 2 times for Lot 2 sites.	Awareness rising activities have been conducted more than 3times for Lot 1 including stakeholder meeting, baseline survey etc. After completion of installation, awareness rising activities will continue through the monitoring and evaluation at least 3 times in both lot 1 and 2.
Number of trained staff in target health institution. At least 3 staff have accurate understanding and able to conduct proper O&M of PV facilities.	One trained staff at the dispensary and one trained community health worker are assigned for the small scale dispensary. The target group for training of O&M of PV facilities is not only the staff at dispensary but also the members of the dispensary management committee in order to minimize the impact on the operation of the dispensary. Therefore, for the dispensary with 3 trained staff, they're the mixture of staff at the dispensary and the members of the dispensary management committee.
Number of periodical monitoring carried out by the monitoring team which formulated by counterpart agencies.	Monitoring will be conducted 3 times in Lot 1 and twice in Lot 2. These frequencies were approved at the JCC as the appropriate number of monitoring.
Maintenance condition of pilot facilities and quality of O&M report	Since the installation was completed in July and monitoring has just started, it is too early to evaluate the maintenance condition and quality of O&M report.
Condition of balance sheet of pilot institutions and quality of account book	Preparation methods of 1. Account book, 2. Profit and loss statement, 3. Balance sheet, 4. Cash flow statement, were introduced through the training. Due to the limited capacity of the trainees, currently only account book has been recorded. Since the monitoring has just started, it is too early to evaluate the quality of account book.
Number of financial reports which submitted to District Medical Officer(s) of the project sites.	The financial report will be prepared and submitted twice for Lot 1 and once for Lot 2. These numbers were approved at JCC as the appropriate preparation and submission of the report.

There are several indicators such as decrease of LPG and the number of households who charge up their LED lantern need to be revised as they do not directly correlate with the achievements of Output 1. Cost saving by introduction of solar PV system need to be verified based on all

expenditure and income rather than expenditure of specific fuel sources and income by specific battery charging item. The most important aspect needs to be verified is the ability of the model to secure the money for maintenance including future purchase of batteries. In order to do so, other financial resources need to be identified to supplement the maintenance cost based on the performance of battery charging business. Also, capacity development for the monitoring team consists of C/Ps in charge of both environment/community development and planning/design is not clarified according to the current indicators. Even though such capacity development has not been started yet, its progress and achievement need to be verified for the rest of the project period as it will build essential foundation to make the model sustainable. Introduction of a documentation to clarify C/Ps' objectives and their achievements for their capacity development through monitoring is recommended for efficient and effective training as well as for quantitative evaluation.

9 activities are listed to achieve the Output 1. Due to the unexpected grid extension plan in the potential sites, site selection for Lot 2 (Activity 1-2) has been significantly delayed. Even though according to PO, site selection for Lot 2 was supposed to be completed by Nov. 2012, all sites for Lot 2 were confirmed in Sep. 2013. Owing to this delay, all activities associated with Lot 2 (Activity 1-3 – 1-9) will be delayed. Commencement of monitoring for Lot 1 has been also delayed for 4-5 month from the schedule in PO.

3-2-2. Output 2

The description of Output 2 is "A practical model for PV electrification of schools in non-electrified areas is developed through pilot project." In order to verify the achievements of the output, following indicators are listed in PDM. Current achievements for each indicator are summarized in Table 3-11.

Table 3-11 Achievements of Output 2

Objectively Verifiable Indicators	Current Achievements
The quality of education is improved by judgment of teacher and students.	Both teachers and students commented on the improvements. Since currently the government has been implementing the policy of distribution of laptop computer for every primary school students, electrification of the school supports the policy as well. (However, current system cannot supply sufficient power for charging of laptop computers.)
The expenditure for kerosene and LPG gas of the schools decrease by X %. (X will be fixed after cost calculation)	Since LPG gas is not limited at school, reduction of expenditure for LPG is not measurable. The expenditure for kerosene has been decreased (Iltumtum; -400ksh/month, Olemoncho; -2,400ksh/month). The cost for diesel was decreased at Iltumtum primary school as well (-4,250ksh/month) and such reduction for fuel in general needs to be saved for future maintenance cost.
The target schools receive revenue from power provision service.	The charging system has started to generate revenue for the schools in Lot 1. Total monthly sale of Aug. 2013 Illutumtum Primary School (Narok North): 6,880 Ksh/month Olemoncho Primary School (Narok South): 2,740 Ksh/month
The target schools feel satisfaction with the electrification.	The satisfaction has been expressed and the results of monitoring will be compiled shortly.
The number of households who charge up their LED lantern using the power provision service of the dispensary is up to Y. (Y will be fixed after detailed interview).	Since LED lights with solar panel become commercially popular in Kenya, needs for charging LED lights have been decreased. Therefore, LED lights were not distributed in Lot 1. The distribution plan for Lot 2 has not been determined yet. (Since the neighbour households usually do not own LED lanterns, the project team has to distribute the LED lanterns to expect this indicator. Only for the neighbour households of Olemoncho primary school, the LED lights without solar PV panel were distributed by other donor and some demands for battery

	charging can be expected.)
The inhabitants in surrounding community feel satisfaction with the electrification of the school in general.	The satisfaction has been expressed and the results of monitoring will be compiled shortly. The monitoring has been conducted for the boarding students as well.
Number of awareness raising activities on installed solar PV system at target school and community, at least 3 times for each Lot 1 sites and 2 times for Lot 2 sites.	Awareness rising activities have been conducted more than 3times for Lot 1 including stakeholder meeting, baseline survey etc. After completion of installation, awareness rising activities will continue through the monitoring and evaluation at least 3 times in both lot 1 and 2.
Number of trained staff in target school. At least 3 staff have accurate understanding and able to conduct proper O&M of PV facilities.	The target group for the training of O&M of PV facilities is not only the staff at school but also the members of the school management committee in order to minimize the impact on the operation of the school. Therefore, they're the mixture of staff at the school and the members of the school management committee. Currently 2 people are able to conduct proper O&M of PV facilities with accurate understanding at each school.
Number of periodical monitoring carried out by the monitoring team which formulated by counterpart agencies.	Monitoring will be conducted 3 times in Lot 1 and twice in Lot 2. These frequencies were approved at the JCC as the appropriate number of monitoring.
Maintenance condition of pilot facilities and quality of O&M report	Since the installation was completed in June and monitoring has just started, it is too early to evaluate the maintenance condition and quality of O&M report. Currently one PV system has trouble in operation and will be fixed shortly.
Condition of balance sheet of pilot facilities and quality of account book	Preparation methods of 1. Account book, 2. Profit and loss statement, 3. Balance sheet, 4. Cash flow statement, were introduced through the training. Due to the limited capacity of the trainees, currently only account book has been recorded. Since the monitoring has just started, it is too early to evaluate the quality of account book.
Number of financial reports which submitted to District Education Officer(s) of the project sites.	The financial report will be prepared and submitted twice for Lot 1 and once for Lot 2. These numbers were approved at JCC as the appropriate preparation and submission of the report.

In terms of the current indicators and activities to achieve Output 2, same issues are applied as Output 1. Therefore, activity 2-2－2-9 have been delayed.

3-2-3. Output 3

The description of Output 3 is "The Capacity of REA/MOE&P to undertake project using MHP, Biogas and Wind technologies is enhanced." In order to verify the achievements of the output, following indicators are listed in PDM. Current achievements for each indicator are summarized in Table 3-12.

Table 3-12 Achievements of Output 3

Objectively Verifiable Indicators	Current Achievements
Number of trained REA / MOE&P staff on renewable energy through manual development.	It is too early to evaluate the results of the training through manual development as they just started. Numbers of assigned staff are as follows; MHP 2 REA staff has been assigned for the training since May 2013. Biogas 1 REA staff has been assigned for the training. Wind 1 REA staff and 2 MOE&P staff have been assigned for the training.
Manuals are adopted and utilized by related ministries, agencies and local	It is too early to evaluate as all manuals are currently under preparation. Since all manuals are designed to include practical aspects in Kenya, they have

governments.	significant potential to be adopted as long as sufficient information provision and consultation with relevant ministries, agencies and local governments are implemented.
Number of conducted seminar and training for technical transfer.	MHP Seminar is planned in Oct. 2013. Technical transfer is designed according to the 4 stages. (Planning, Design, Construction Supervision, Operation and Maintenance) Since the technical transfer in terms of Planning was completed in May-June, the contents of seminar in Oct. will focus on Planning and Design training. Biogas Seminars are planned 2 times for 3 to 5 people. Lectures and site survey have been conducted through the training. OJT has been conducted through the preparation of REA's master plan for Biogas Electrification. Wind Seminars are planned 2 times. Lectures have been conducted as the training.

Similar to Output 1 and 2, introduction of a documentation to clarify C/Ps' objectives and their achievements for their capacity enhancement is recommended for efficient and effective training as well as for quantitative evaluation. Additional quantitative indicator such as results of assessment test can be considered. Also, the content of manuals can be verified by additional indicators. Since the current indicators are not specific enough to verify the achievements of capacity enhancement and development of manuals, they need to be revised.

4 activities are listed to achieve Output 3. Activity 3-1 (Inventory survey and review of existing RE projects) is completed on schedule for Biogas but not for MHP and Wind. For MHP, sufficient information provision is needed to complete Activity 3-1 as well as to make the results of other activities usable for C/P. Activity 3-2 (Preparation of manual) and 3-3 (Technical training for C/P) have been conducted on schedule.

3-2-4. Output 4

The description of Output 4 is "Necessary policy and institutional frameworks for spreading the models for rural electrification using renewable energy are recommended." In order to verify the achievements of the output, following indicators are listed in PDM. Current achievements for each indicator are summarized in Table 3-13.

Table 3-13 Achievements of Output 4

Objectively Verifiable Indicators	Current Achievements
Number of international workshop to share the model is held more than one (EAC conference).	No workshop has been held yet since all activities are on-going and all outputs are not fully achieved yet. Therefore, it is too early to evaluate the appropriate number of workshops to be held. Contents of the workshop need to be considered as they originally planned according to the results of the original scope of work; i.e. results of pilot projects by PV, MHP, Biogas, and Wind.
Number of technical transfer workshop given for engineers of MOE&P and REA is held more than one.	Technical transfer workshops are planned 3 times in total but are not held yet.
Number of recommendations that MOE&P and REA make for the effective dissemination of RE is more than XX during the pilot project period.	Pilot projects have been implemented by solar energy only. Not only during the pilot project period for PV, but also during the entire project period including MHP, biogas, and wind, at least 4 recommendation will be expected since at least one recommendation will be compiled for each energy source.
The number of the policies and regulations has increased to support the dissemination of the model.	It is too early to evaluate at this point. Since it will take certain amount of time to be reflected on the policies and regulations, such increase may not be identified during the project period.

Since the last indicator only describes the dissemination of the model (Output 1 and 2), it should include the dissemination of the results of Output 3 as well.

5 activities are listed to achieve Output4. Since majority of activities for Output 4 will be implemented based on the results of Output 1-3, they will start and completed in 2014. Current on-going activities for Output 4 are 4-4 (Enforcement of "Academic-Private Sector Platform" through the collaboration of Bright project) and 4-5 (Monitoring and reporting of the progress based on the indicators for the achievement of Output 4) and they're on schedule. However, both activities are just started and no major outcomes have produced yet.

3-3. Achievement of Project Purpose; "Rural electrification models using renewable energy are established."

In order to evaluate the achievement of the project purpose, following indicators are listed in PDM. Current achievements for each indicator are summarized in Table 3-14.

Table 3-14 Achievements of Project Purpose

Objectively Verifiable Indicators	Current Achievements
The developed guidelines and manuals are adopted for the projects implemented by the REA and MOE&P.	Even though both REA and MOE&P recognize the importance of maintenance for PV system, no manual has been prepared by them. Therefore, the maintenance manual is likely to be adopted. (Currently User Manual was completed and other manuals for REA and MOE&P have been prepared.) The manual for wind, biomass, mini-hydro and accounting are currently under preparation. Since they also incorporate with the needs of REA and MOE&P, they're likely to be adopted as well. However, additional information provision will be needed for some manuals such as Micro Hydro Power (MHP) to make the manual more Kenya specific and usable.
The Outputs of the Project are incorporated into the Rural Electrification Master Plan (REM)	Since the outputs of the project have not been completed, it would be too early to evaluate at this point. While output 3 and 4 can be directly incorporated into REM through policy recommendation and implementation of feasibility study through On-the Job Training (OJT), output 1 and 2 may provide in-direct impact due to the difference of the scale. (REM; Nation-wide plan, Pilot project; Site scale plan) Also, REM has been updated solely by adding new potential sites, the area for incorporation may be limited.
Renewable energy facilities installed by the Project are operated and maintained properly with sustainable manners.	Renewable energy facilities installed by the project are limited to the PV facilities. Technical aspects will be implemented once all technical transfer is completed for sustainable operation and maintenance. Financial aspects may not be able to be fulfilled for self-sustained operation due to the unexpected grid extension plan and insufficient revenue from charging business. Therefore, alternative financial sources need to be identified.

As the table indicates, incorporation into REM can be limited due to its scale and manner to be updated. Since REA strategic plan has been updated every 5 years and it indicates more concrete strategies for rural electrification as their rolling plan, incorporation into REA strategic plan needs to be included in the indicator. In terms of the sustainable operation and maintenance of the installed facilities described in the last indicator, involvement of C/Ps and staff of local government (County and Sub-County) is required to disseminate the model from the pilot site to county-wide and from county level to national level.

3-4. Implementation Process

Due to the cancellation of pilot projects for MHP/Biogas/Wind, government transformation by

presidential election and rapid grid extension projects due to the new government policy such as laptop program aiming for distribution of laptop for all 1st-grade primary school children, implementation process has certain difficulties. In order to overcome these conditions, close communication and collaboration with C/Ps are necessary. However, according to the results of questionnaire survey, Japanese Experts (JEs) evaluated poor or close to poor (2 or close to 2 in score) for current communication with C/Ps, their involvement as well as other target group's involvement, and numbers of assigned C/Ps. On the contrary, C/Ps evaluated between well and very well (4 and 5 in score) or close to well (4 in score) for all these aspects. The results were confirmed through the interviews as well. Such significant gap stems from the lack of ownership of C/Ps due to the perception that the model will be established solely by JEs. Therefore, C/Ps are not involved enough to realize the difficulties currently the project is facing. However, the model cannot be established without C/Ps active involvement since they are familiar with the current conditions of the sites as well as the customs of the community. Since every model needs to be tailored to meet the requirements of the individual character of the site and without such modification, the model cannot be completed and installed in sustainable manner. C/Ps are the key actors to modify the model for each condition and disseminate the model after the project period to make it as successful, sustainable model. Such important roles need to be recognized among C/Ps and JEs also need to put more effort to clarify their roles not only during the project period but also after the project period.

For the current roles to conduct project activities, both C/Ps and JEs evaluated between well and very well (4 and 5 in score). However, regarding the variety of specialty of C/Ps, JEs evaluated between poor and fair (2 and 3 in score) while C/Ps evaluated between well and very well (4 and 5 in score). The increase of C/Ps is expected to contribute to improve the condition. Also, JEs have to be strategic to expand their specialties through trainings. The objective and achievement sheet previously described should be utilized for this purpose as well.

In terms of the project planning and management, while JEs evaluated between poor and fair (2 and 3 in score) C/Ps evaluated between well and very well (4 and 5 in score). Such gap is also indicated for the functionality of management meeting. While JEs evaluated between poor and fair (2 and 3 in score) C/Ps evaluated between fair and well (3 and 4 in score). Once active involvement of C/Ps is implemented, these gaps are expected to be filled accordingly.

Regarding the record of progress and achievements as well as utilization of PDM and PO, both JEs and C/Ps evaluated between fair and well (3 and 4 in score) or close to well (4 in score). Even though progress reports have been issued on regular basis by Japanese Expert Team (JET), they are not structured according to PDM. Since JET has issued work plan with a summary table according to PDM, such summary table should be included in the progress report for the rest of the project period. Also, records by C/Ps such as monitoring records and objective and achievement sheet need to be encouraged by JET.

4. Results of Evaluation by Five Criteria

4-1. Relevance

The relevance of the project is high. Since policy framework explicitly states the target of rural

electrification such as Vision 2030 (electrification of all households in Kenya by 2030) and Rural Electrification Master Plan (REM; 40% rural electrification rate by 2020), demands of rural electrification is significant to attain these goals. Current household electrification in Kenya is 22.7% according to the National Census in 2007. Therefore, off-grid electrification is required especially in rural areas where the electrification by grid extension cannot be implemented for the time being. Even though the public facilities are prioritized to be electrified (average electrification rate: 72% as of 2013[1]), electrification rate of primary schools is relatively low (55%[1]) in spite of the government policy to electrify all primary schools by the end of 2013 due to the laptop program. Whereas electrification rate of health centers is high (94%[1]), electrification rate of dispensaries is only 5% as of 2006.[2] Therefore, the solar PV model for primary schools and dispensaries to be developed through the project highly matches the current electrification needs in Kenya. Also, REM states the importance of renewable energy (15.2.5 VP5) and a draft of REA strategic plan 2013/2014-2017/2018 listed the importance of community participation and ownership as well as utilization of renewable energy as lessons learnt from the previous strategic plan. It also indicates the new energy policy being formulated by MOE&P that promotes renewable energy. Such policy framework proves the high consistency with the project purpose, outputs, and activities.

Since REA and MOE&P are in charge of rural electrification in Kenya to meet the national demands, it is appropriate to focus on them as C/P. The target group includes Ministry of Health (MoH), Ministry of Education, Science and Technology (MOEST), District Education/Medical Officers in pilot project sites, staff and users of public facilities of pilot projects, local PV suppliers and power users in rural area in addition to C/Ps. Due to the government transformation and devolution in 2013, District is currently called Sub-County which is under County. Therefore, local government officers in target group should be changed to County and Sub-County Educational/Medical Officers. Their roles become important due to the devolution to disseminate the model in County-wide. Staff and users of public facilities of pilot projects can be specified more as JET has focused on a part of management committee members involved in monitoring and maintenance through several trainings. Even though current PDM categorizes the target group into direct beneficiaries and in-direct beneficiaries, such categorization is not necessary as there is no such difference between the two. For example, JET have put emphasis on training of local PV suppliers as they're one of the key actors for establishment of sustainable model, but they're categorized as in-direct beneficiaries. In terms of the variety of target group, it is sufficient as it covers wide range of stakeholders.

The project purpose and overall goal are also consistent with the aid policy of Japan for Kenya. The ODA rolling plan for Kenya included in the policy explicitly states Japan's plan to assist the improvement electricity access in Kenya. According to such policy, JICA conducted preparatory survey on renewable energy promotion program in Africa in 2009 and found out the needs for establishment of the model as well as potential sites in Kenya. In terms of capacity development, JICA conducted several trainings in Japan for Kenyan officers in energy sector such as "Strengthening Capacity of Electric Power Pool in Eastern and Southern Africa ". Also, capacity development and enhancement programs for REA have been conducted in Africa such as Zambia and Malawi. Such knowledge and experiences are fully reflected on this project.

In terms of political, economic and social changes occurred since the commencement of the

[1] MOE&P (2013), "5000+Mw by 2016 Power to Transform Kenya Investment Prospectus 2013-2016 "
[2] World Bank (2006), "Rural Electrification Access Expansion Study Draft Report", Prepared by Christophe de Gouvello, AFTEG (TTL)

project, governmental transformation by presidential election in 2013 and it affects various aspects of the project such as local government devolution and its structural change. The most influential one is the laptop program as it promotes electrification of primary schools in rigorous manner and accelerates the grid extension much faster than previous assumption by REA and JET.

4-2. Effectiveness

Effectiveness is moderate according to the current achievement of the outputs. Since the achievements of all outputs are halfway, evaluation includes certain forecasts. In order to enhance the effectiveness, the correlation and causality between the project purpose and Output 3 need to be clarified. Even though activities and contents of Output 3 were changed according to the cancellation, the project purpose was remained and it causes difficulty to find out the direct correlation and causality between the two. Therefore, it will be needed to revise the project purpose and/or at least to include some indicators correlating to Output 3. If the "model" stated in the project purpose stands for "solar PV model", the project purpose is clear and appropriate for Output 1, 2, and 4. Also, these outputs are sufficient to attain the project purpose.

The project has been collaborating with "the Project for Capacity Development for Promoting Rural Electrification Using Renewable Energy in Kenya" with Jomo Kenyatta University of Agriculture and Technology (JICA/JKUAT Bright Project) to stimulate synergy and maximize the effects of both projects. Such collaboration has not been implemented with the project by other donors.

For the achievement of the project purpose, regular update of REM is listed as an important assumptions and it will likely to be fulfilled. Since REA strategic plan has been developed as the rolling plan of REM, regular updates of REA strategic plan should be also included under important assumptions and it is likely to be fulfilled as well. Other important assumption needs to be considered and included is the involvement of relevant central and local government.

4-3. Efficiency

The efficiency of the project is low to moderate. As previously described, significant delay (11 months) for the site selection for Lot 2 risks the implementation of activities to achieve Output 1 and 2. Even though unexpected governmental structure and policy changes happened after the commencement of the project such as rapid execution of grid extension project due to the laptop program, fundamental information collection from the relevant governmental agencies should have been conducted more to cope with such changes. Also information provision in a timely manner from REA, MOE&P and other target group members is essential to carry on the project on schedule for the rest of the project period. Through the interviews with the relevant governmental agencies during the mid-term review mission, several opportunities to increase efficiency were identified such as the followings;

- MOEST implemented a pilot project in Mombasa to explore the sustainable management with school management committee including the financial aspects. Such experiences can be shared.
- County medical office has medical engineers who maintain all medical equipment at the medical institutions. These engineers can be trained as the trainers for solar PV system maintenance. Since JICA/JKUAT Bright project offers such Training of Trainers (ToT), the collaboration will enhance the efficiency and effectiveness of the project. MOEST also has

such technicians to maintain the equipment of schools who can be trained in a same manner.

Information collection is necessary not only for coping with the changes but also for the appropriate design. Power supply by solar PV system is not sufficient for the refrigerator at Ilkinyeti dispensary in spite of that the experts establish the independent system package for refrigerator to secure the preservation of vaccines. If the detailed specifications of the existing refrigerator had been obtained, appropriate design could have been implemented.

In terms of procurement for Lot 1 installation, local PV supplier was supposed to conduct the user training according to their contract. Since the contract did not have sufficient contingency time to cope with the delay of procurement of equipment, such delay shortened the time for the training. In order to secure enough time for user training, the contract with local PV supplier needs to be revised for Lot 2.

Certain efforts have been made to increase efficiency such as integration with laptop program. 3 primary school sites are selected for Lot 2 from the list of the program. Since laptop program requires certain power supply for battery charging of computers, sufficient information collection will be needed from REA, MOE&P and MOEST for appropriate system design.

As the risk to impede the achievement of outputs, human resources are listed in spite of the fact that cooperation with related ministries, agencies and local government is stated in important assumptions which are to be fulfilled in the current PDM. As previously mentioned, numbers of C/Ps have been increased. However, currently their availability is not sufficient enough to achieve the outputs. Since most of the C/Ps are not in the position to be able to control their workload, considerations of the executives at REA and MOE&P for their staff especially during the dispatch period of Japanese experts will contribute to increase the progress of the activities and outputs in an efficient manner. Therefore, strategic planning and coordination are needed to secure sufficient human resources to sustain high level of efficiency. In order to implement such strategic project planning and coordination, detailed C/P's capacity and needs assessment and consultation should have been held prior to the commencement of the project.

4-4. Impact

It is too early to evaluate the impact as the project purpose is underway to be achieved. Due to the close correlation between the project purpose and the overall goal, the overall goal is likely to be achieved once the project goal is attained. The risk to impede the achievement of the overall goal is that the value of off grid electrification may decrease in near future due to the rapid grid extension project. However, currently off grid electrification by renewable energy sustains high demands for rural area not only in Kenya but also other countries in Africa. Therefore, implementation of the project purpose has strong potential to provide the positive impacts similar to the overall goal on other countries in Africa as well. Output 4 can promote such multiplier effects through the policy recommendations and presentations of the results of the project.

4-5. Sustainability

The key actors to secure the sustainability of the model are C/P (REA and MOE&P). Since technology transfer and capacity enhancement for them are just started, it is too early to evaluate their competency to sustain the model. Since JET has focused on the implement Lot 1 installation and capacity development for the stakeholders of the facilities, JET needs to put more effort to involve C/Ps in both monitoring of Lot 1 and installation of Lot 2. For Lot 2 installation, it is

important to have C/Ps' involvement from the early stage such as the capacity and needs assessment and introduce the strategic process to establish the structure to operate the model. Since the model cannot be standardized and needs to be tailored to meet the specific conditions of each facility, C/Ps have to obtain sufficient skill, knowledge and experience to plan, design and apply the model through the rest of the project period to make the model sustainable. C/Ps are also in charge of dissemination of the model, they need to acquire coordination and negotiation skill to establish and operate the structure to disseminate the model from the Sub-County/County level to the ministerial level. For the technical transfer of other renewable technologies (MHP, Biogas and Wind), C/Ps' involvement in the process of manual development is essential to make the manuals practical for their sustainable utilization.

In terms of the support by policy framework and budget allocation, it is likely to be maintained as rural electrification by renewable energy is one of the prioritized policies. Regarding the risk to impede the sustainability, if the grid extension project is implemented in the project area, it will affect the income by charging business and impede the competence of the model to secure the maintenance cost.

4-6. Conclusion

The relevance of the project is high due to the significant demands for rural electrification and the policy trend to focus on renewable energy such as new energy policy. Effectiveness is moderate according to the current progress of outputs. In terms of impact and sustainability, it is too early to evaluate at this point. However, the necessity for C/Ps' active involvement and ownership of the project is confirmed to implement the project in an effective, efficient and sustainable manner.

The efficiency needs to be improved to achieve all outputs as well as the project purpose by the end of the project period. Since the activities for both Output 1 and 2 have been significantly delayed, close communication and information sharing among C/Ps, JEs and other target group members are necessary not only to catch up the schedule but also to implement appropriate planning, design, procurement, and monitoring.

Since fruitful discussion and information sharing have been conducted in the course of this mid-term review, such active interaction should be maintained among C/Ps, JEs and other target group members for the achievement of the outputs and the project purpose.

5. Recommendations and Lessons Learned

5-1. Recommendations for the Project

Based on the results of mid-term Review of the Project, the Review Team would like to propose several recommendations to be considered and carried out in the remaining period of the Project as follows:

(1) To establish institutional system to promote information sharing

1) Weekly Project Status Report (E-mail basis) issued by Counterpart members (C/Ps) at REA and MOE&P , Japanese Experts (JEs)

It is important for project members to know what activities were done and what to be done in timely manner. Periodical reports should be issued to describe the followings at least;

- Items completed
- Items to be completed
- Issues that need call for attention
- Items prevent from being on schedule

Actual procedures and way to establish the system will be discussed between CPs and JETs.

2) Monthly Project Meeting chaired by acting CEO of REA

Participants: C/Ps, JEs

Setting-up of an opportunity to discuss on project progress according to Weekly Project Status Report will be recommended. Minutes on this monthly meeting should be shared among the Project members as soon as possible. It is expected through this meeting that insufficient information sharing situation can be solved and smooth project implementation can be secured based on mutual understandings.

3) Information and Progress Sharing with relevant organizations

Information collection and sharing for establishment of the electrification model as well as future dissemination in a sustainable manner are important for electrification by renewable energy. At the county level, involvement of county and sub-county officers is critical to implement successful renewable energy-based electrification. Since they have enough information for the target sites and also are responsible for supporting rural public facilities and local communities, establishment of monitoring system including involvement of them will be effective for future sustainable operation and maintenance. In addition, at the national level, timely information and progress sharing should be considered with relevant policies of MOH and MOEST regarding planning and implementation of renewable energy-based electrification of health institutions and schools. Insufficient communication with relevant organizations may affect the project success.

(2)Countermeasures for future grid extension to the sites installed PV system through the proposed model.

According to the latest grid –electrification plan provided by Corporate Planning Department of REA, some of Lot 1 sites will have grid extension soon. Similar situation may be happened in several years at the public facilities where MOE&P or REA installed PV system. The electrification models proposed under the Project should incorporate necessary countermeasures when grid is extended. In such a case, mobile phone charging will not be able to generate enough income to cover the cost of battery replacement. For example, modifying the existing system into grid-connected PV system without storage battery might be considered with appropriate arrangements of the metering.

(3)Consideration for the management of the project schedule

As described in Chapter 4, the efficiency of the project is low because the project schedule is significantly delayed due to mainly insufficient information sharing at the different levels previously described. Lack of information sharing has affected implementation of pilot projects in Lot 1 and preparation of pilot projects in Lot 2. As the project purpose is the establishment of electrification models using renewable energy but not the achievement of the number of pilot projects, delivery of established models within the project period is the most important target for the Project. In other words, the Project period should not be extended under the current situation, and Kenyan side will shift to the dissemination phase of the established models as soon as possible. Considering this, the management of the project schedule, especially the implementation schedule of the pilot projects in Lot 2 is very important. Otherwise, it is impossible to secure enough monitoring period for Lot 2 to obtain and utilize lessons for the establishment process of the models. For proper management of the pilot projects schedule in Lot 2, appropriate pilot sites should be carefully selected by CPs and JEs based on the reliable information of grid extension plan and the analysis through the multiple perspectives such as distance from the existing grid and the existence of competitors for battery charging business.

(4)Revision of the PDM , PO

Through the mid-term review activities, the Review Team recognized that the current PDM contains the different institutional level and the indicators and activities need to be categorized accordingly for the efficient achievement of the outputs; especially for Output 1 and 2. Such categorization also highlights the importance of the establishment of implementation and dissemination structure of the model from institutional/local level to County/Sub-county level as well as from County/Sub-county level to national level. Also, several points need to be clarified and/or to be added. For example, as mentioned in Chapter 4, it is necessary to include some indicators for the project purpose which correlates to Output 3. By doing so, the relationship

between the project purpose and Output 3 is clarified and it enables to evaluate the effectiveness more accurately. Additionally, as some indicators in the current PDM do not specify the target values, those should be specified and clarified so as that C/P and JET can clearly recognize. Therefore, the Review Team would like to propose the revision of PDM as shown in the draft of PDM version 3 (See Appendix II). However, the Review Team would like to recommend CPs and JEs to have adequate discussions on the draft and finalize it by themselves. Consequently, PO also needs to be revised in the same manner.

5-2. Recommendations for JICA

Collaboration with other JICA projects such as JICA/JKUAT Bright Project is highly recommended to enhance efficiency and effectiveness, especially in terms of solar PV technical trainings.

5-3. Recommendation for MOE&P and REA

More active involvement and enhancement of the project ownership by MOE&P and REA are essential for successful project implementation. The model cannot be established and maintained in sustainable manner without their proactive participation in the project activities.

5-4. Lessons Learned

Capacity and needs assessment and consultation for counterparts can be conducted in more detailed manner with sufficient time period prior to the commencement of the project. By doing so, appropriate and feasible contents of the project will be designed for CP's active involvement. Similar assessment and consultation can be held at the milestone such as major organizational transformation of CP's to meet needs and expectations of CPs in an appropriate and timely manner.

(END)

Appendix I
PDM Version 2.1
Date:2012/12/01

Project Title: The Project for Establishment of Rural Electrification Model Using Renewable Energy
Implementing Agency: Rural Electrification Authority (REA) and Ministry of Energy (MoEn)
Target Group: [Direct beneficiaries] Staff of REA and MoEn, Staff of MoEd, MoPHS, District Education/Medical Officers in pilot project sites, Staff and users of public facilities of pilot projects in pilot project sites, other stakeholders to be confirmed
[In-direct beneficiaries] Local PV suppliers and technicians, power users in rural areas
Project Site: Kenya (Pilot project sites to be identified and confirmed)
Project Period: 2012– 2015 (3 years)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Overall Goal: Rural electrification models using renewable energy are disseminated in the country to improve the quality of Kenyan's life.	• Number of public facilities who apply and follow the model has increased all over the non-electrified areas in Kenya.	• Official reports of MoEn/REA • Financial management reports of the target facilities. • O&M records of the target facilities • User survey • Household survey	There will be no drastic policy change in rural electrification in Kenya. Recommendations are adopted by relevant organizations.
Project Purpose: Rural electrification models using renewable energy are established	1. The developed guidelines and manuals are adopted for the projects implemented by the REA and MoEn. 2. The Outputs of the Project are incorporated into the Rural Electrification Master Plan (REMP) 3. Renewable energy facilities installed by the Project are operated and maintained properly with sustainable manners.		REMP is regularly updated.
Outputs: 1. A practical model for PV electrification of health service institutions in non-electrified areas is developed through pilot projects.	1-1. Target benefits of consumer/users are achieved at health service institutions of the pilot projects. - The quality of night health service is improved by judgment of nurses and community people. - The expenditure for kerosene and LPG gas of the health institutions decrease by X %.(X will be fixed after cost calculation) - The target health institutions receive revenue from power provision service. - The target health institutions feel satisfaction with the electrification. - The number of households who charge up their LED lantern using the power provision service of the dispensary is up to Y. (Y will be fixed after detailed interview). - The inhabitants in surrounding community feel satisfaction with the electrification of the dispensary in general. 1-2. Number of awareness raising activities on installed solar PV system at target health institutions and community, at least 3 times for each Lot 1 sites and 2 times for Lot 2 sites. 1-3. Number of trained staff in target health institution. At least 3 staff have accurate understanding and able to conduct proper O&M of PV facilities. 1-4. Number of periodical monitoring carried out by the monitoring team which formulated by counterpart agencies. 1-5. Condition of management by health service institutions. - Maintenance condition of pilot facilities and quality of O&M report - Condition of balance sheet of pilot institutions and quality of account book 1-6. Number of financial reports which submitted to District Medical Officer(s) of the project sites.	• Project reports; • Records of institutions • Periodical monitoring report prepared by the monitoring team • Reports to District Medical Officer(s); • Questionnaire survey	Cooperation with related ministries, agencies and local governments is maintained.
2. A practical model for PV electrification of schools in non-electrified areas is developed through pilot projects.	2-1. Target benefits of consumer/users are achieved at schools of the pilot projects. - The quality of education is improved by judgment of teacher and students. - The expenditure for kerosene and LPG gas of the schools decrease by X %. (X will be fixed after cost calculation) - The target schools receive revenue from power provision service. - The target schools feel satisfaction with the electrification. - The number of households who charge up their LED lantern using the power provision service of the dispensary is up to Y. (Y will be fixed after detailed interview). - The inhabitants in surrounding community feel satisfaction with the electrification of the school in general. 2-2. Number of awareness raising activities on installed solar PV system at target school and community, at least 3 times for each Lot 1 sites and 2 times for Lot 2 sites. 2-3. Number of trained staff in target school. At least 3 staff have accurate understanding and able to conduct proper O&M of PV facilities. 2-4. Number of periodical monitoring carried out by the monitoring team which formulated by counterpart agencies. 2-5. Condition of management by schools. - Maintenance condition of pilot facilities and quality of O&M report - Condition of balance sheet of pilot facilities and quality of account book 2-6. Number of financial reports which submitted to District Education Officer(s) of the project sites.	• Project reports; • Records of institutions • Periodical monitoring report prepared by the monitoring team • Reports to District Education Officer(s); • Questionnaire survey	
3. The Capacity of REA / MoEn to undertake project using MHP, Biogas and Wind technologies is	3-1. Number of trained REA / MoEn staff on renewable energy through manual development. 3-2. Manuals are adopted and utilized by related ministries, agencies and local governments. 3-3. Number of conducted seminar and training for technical transfer.	• Periodical monitoring report prepared by the monitoring team	

enhanced.			
4. Necessary policy and institutional frameworks for spreading the models for rural electrification using renewable energy are recommended.	4-1. Number of international workshop to share the model is held more than one (EAC conference). 4-2. Number of technical transfer workshop given for engineers of MoEn and REA is held more than one. 4-3. Number of recommendation that MoEn and REA make for the effective dissemination of RE is more than XX during the pilot project period. 4-4. The number of the policies and regulations has increased to support the dissemination of the model.	• Project reports, • Periodical monitoring reports prepared by the monitoring team;	

Activities: For Preparation 0-1. Set up a Working Group (WG) consisting of 3 sub-groups for Outputs 1, 2 and 3, with clarified roles and functions of the counterpart personnel. For Output 1 (The health service institution model) 1-1. Review policies, studies, surveys and projects related to electrification of health service institutions using Solar PV. 1-2. Select 5 health institutions for pilot projects. 1-3. Conduct capacity & needs assessment of target communities, institutions and the private sectors in dealing with the operation and maintenance of renewable energy facilities and the management of energy supply services. 1-4. Conduct capacity & needs assessment of officers in relevant ministries, agencies and local governments in dealing with sensitization and education of communities, users, and service providers on renewable energy matters. 1-5. Prepare detailed plans of the pilot projects consisting of "System design," "Sustainable O&M" and "Sustainable financial plan." 1-6. Organize stakeholders meetings to verify the detailed plans. 1-7. Formulate the implementation plans of the pilot projects, including procurement, information & knowledge dissemination, and stakeholders' training. 1-8. Implement and monitor the projects' activities, and prepare policy recommendations with institutional framework to promote the health institution model(s). 1-9. Monitor and report the progress of indicators to achieve Output 1. For Output 2 (School model) 2-1. Review policies, studies, surveys and projects related to electrification of schools using Solar PV. 2-2. Select 5 school sites for pilot projects. 2-3. Conduct capacity & needs assessment of target communities, institutions and the private sectors in dealing with the operation and maintenance of renewable energy facilities and the management of energy supply services. 2-4. Conduct capacity & needs assessment of officers in relevant ministries, agencies and local governments in dealing with sensitization and education of communities, users, and service providers on renewable energy matters. 2-5. Prepare detailed plans of the pilot projects consisting of "System design," "Sustainable O&M" and "Sustainable financial plan." 2-6. Organize stakeholders meetings to verify the detailed plans. 2-7. Formulate the implementation plans of the pilot projects, including procurement, information & knowledge dissemination, and stakeholders' training. 2-8. Implement and monitor the projects' activities, and prepare policy recommendations with institutional framework to promote the school model(s). 2-9. Monitor and report the progress of indicators to achieve Output 2. For Output 3 (MHP, Biogas and Wind) 3-1. Conduct inventory survey and review of existing renewable energy project (MHP, Biogas, Wind). 3-2. Prepare manuals for rural electrification using renewable energy (MHP, Biogas, Wind) 3-3. Conduct technical training for REA / MoEn staff on MHP, Biogas and Wind. 3-4. Prepare technical recommendation for rural electrification using MHP, Biogas and Wind. For Output 4 (Policy recommendations) 4-1. Implement and monitor the preparation activities of policy recommendations of Output 1,2 and 3. 4-2. Organize workshop(s) on rural electrification models using renewable energy for information sharing with other stakeholders and donors in the energy sector of Kenya and East Africa. 4-3. Formulate guidelines and manuals for the components of the health facilities and schools. 4-4. Initiate and strengthen the concept of Academic-Private Sector Platform in collaboration with JICA Experts of "the Project for Capacity Development for Promoting Rural Electrification Using Renewable Energy." 4-5. Monitor and report the progress of indicators to achieve Output 4.	**Inputs (Means and Cost)** **Japanese Side** A. Dispatch of Experts < Short-term Experts> • Team leader / Wind power generation • Sub leader / Rural electrification / Micro-hydro power • Photovoltaic power generation • Biomass/gas power generation • Financial management • Socio-economic survey and community mobilization • Procurement and supervision of pilot projects • Environmental and Social Considerations B. Training of Kenyan personnel (in Japan, in the third country) • Counterpart Training, and/or • Group Training Course for Rural Electrification by Renewable Energy C. Provision of Equipment. • Equipment for pilot projects of health service institutions • Equipment for pilot projects of schools • Equipment for pilot projects of industrial development Other equipment will be specified depending on the requirement for effective implementation of the Project. D. Local Cost (Seminars, meetings, trainings, local and international consultants, etc.) **Kenyan Side:** A. Assignment of counterpart personnel B. Provision of office space and facilities at REA (office for JICA experts and Working group members.) C. Allocation of counterpart budget	MOE and REA continue to be responsible for rural electrification in Kenya. Related ministries (MOPHS, MOE, MOI),agencies and local governments take part in the Project actively. Target communities, institutions, and private sectors agree the Project Purpose and take part in the Project actively. EIA procedures do not take longer than planned. Security is maintained **Pre-conditions** Related ministries (MOPHS, MOE, MOI), agencies and local governments agree the Project Purpose and accept their roles in the Project implementation. Counterpart, budget, office space and facilities necessary for the Project are allocated

Appendix II
Draft PDM Version 3.1
Date:2013/10/03

Project Title: The Project for Establishment of Rural Electrification Model Using Renewable Energy

Implementing Agency: Rural Electrification Authority (REA) and Ministry of Energy and Petroleum (MoE&P)

Target Group: Staff of REA and MoE&P, MoEST, MoH, County/Sub-County Education/Medical Officers in pilot project sites, Members of pilot project school and dispensary management committee, Operators of charging business at pilot project facilities, Local PV suppliers and technicians, Staff and users of public facilities of pilot projects in pilot project sites, power users in rural areas

Project Site: Kijiado Central (1), Narok North (1), Narok South (2), Sambru Central (1), Sambru North (5)

Project Period: 2012– 2015 (3 years)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Overall Goal: Rural electrification models using renewable energy are disseminated in the country to improve the quality of Kenyan's life.	1. Number of public facilities who apply and follow the model has increased all over the non-electrified areas in Kenya. 2. Dissemination structure of national and county governmental agencies is established.	• Official reports of MoE&P/REA	Promotion measures and policies for rural electrification by renewable energy will be maintained, There will be no major changes in national and county government structures. Recommendations are adopted by relevant organizations.
Project Purpose: Rural electrification models using renewable energy are established	1. The developed guidelines and manuals are adopted for the projects implemented by the REA and MoE&P (C/P). 2. The Outputs of the Project are incorporated into the Rural Electrification Master Plan (REM)and REA strategic plan. 3. Renewable energy facilities installed by the Project are operated and maintained properly with sustainable manners. 4. Implementation structures of national/county governmental agencies and local stakeholders are established. 5. Variety of expertise in renewable energy is increased among members of C/P (C/Ps).	• Financial reports of the target facilities. • O&M records of the target facilities • User survey • Household survey • Numbers of expertise of C/Ps	REM and REA strategic plan are regularly updated. Involvement of relevant national and county government is maintained.
Outputs: 1. A practical model for PV electrification of health service institutions in non-electrified areas is developed through pilot projects.	0. All level 0-0 All sub-group working members for Output 1 participate monitoring at least twice as a monitoring team member. 0-1 Monitoring trainings for the monitoring team members including both technical and environmental/community development staff at REA and MoE&P are provided based on their Objective & Achievement Sheet through OJT; On the Job Training. 0-2 At least 3 monitoring team members achieve their objectives through trainings. Achievements are confirmed by trainee's self-assessment and evaluation by Japanese Experts (JEs). 0-3 PV electrification, operation and maintenance manual for health service institutions with battery charging business is prepared for C/Ps including user manual and accounting manual. 0-4 At least 2 people from health institution and management committee as well as the operator of charging center are trained to have accurate understanding and to be able to conduct proper O&M of PV facilities including disposal of solar panels, batteries and toxic materials. 1. National Level 1.-1 Collaboration among relevant governmental agencies is started and maintained at national level to support the establishment and dissemination of the model. 1.-2 Key criteria of the site selection are analyzed and established and sites for Lot 1 and Lot 2 are selected accordingly. 2. County/Sub-county Level 2.-1 Collaboration among C/Ps, County and Sub-county medical officers is started and maintained level to support the establishment, operation and maintenance of the model. 3. Local/Institutional Level 3-1. The target health institutions secure the money from battery charging business and other financial source(s) for sufficient maintenance cost such as future purchase of batteries. 3-2. Periodical monitoring is carried out by the monitoring team at least 3 times for Lot 1 and twice for Lot 2. Satisfaction for the system is	• Project reports • Account book • Cash flow statement • Financial reports • O&M reports • Periodical monitoring report prepared by the monitoring team • Questionnaire survey • Objective & Achievement sheets of monitoring team members • PV electrification, operation and maintenance manual for health service institutions • Minutes of the meetings with relevant governmental agencies and County/Sub-county Medical officers.	There will be no major changes in national and county government structures.

	conformed through monitoring. 3-3. Awareness raising activities on installed solar PV system at target health institutions and community are held at least 3 times for each Lot 1 sites and 2 times for Lot 2 sites.		
2. A practical model for PV electrification of schools in non-electrified areas is developed through pilot projects.	0. All level 0-0 All sub-group working members for Output 1 participate monitoring at least twice as a monitoring team member. 0-1 Monitoring trainings for the monitoring team members including both technical and environmental/community development staff at REA and MoE&P are provided based on their Objective & Achievement Sheet through OJT. 0-2 At least 3 monitoring team members achieve their objectives through trainings. Achievements are confirmed by trainee's self-assessment and evaluation by JEs. 0-3 PV electrification, operation and maintenance manual for schools with battery charging business is prepared for C/Ps including user manual and accounting manual. 0-4 At least 3 people from school and management committee as well as the operator of charging center are trained to have accurate understanding and to be able to conduct proper O&M of PV facilities including disposal of solar panels, batteries and toxic materials. 1. National Level 1.-1 Collaboration among relevant governmental agencies is started and maintained at national level to support the establishment and dissemination of the model. 1.-2 Key criteria of the site selection are analyzed and established and sites for Lot 1 and Lot 2 are selected accordingly. 2. County/Sub-county Level 2.-1 Collaboration among C/Ps, County and Sub-county education officers is started and maintained level to support the establishment, operation and maintenance of the model. 3. Local/Institutional Level 3-1. The target schools secure the money from battery charging business and other financial source(s) for sufficient maintenance cost such as future purchase of batteries. 3-2. Periodical monitoring is carried out by the monitoring team at least 3 times for Lot 1 and twice for Lot 2. Satisfaction for the system is conformed through monitoring. 3-3. Awareness raising activities on installed solar PV system at target schools and community are held at least 3 times for each Lot 1 sites and 2 times for Lot 2 sites.	• Project reports • Account book • Cash flow statement • Financial reports • O&M reports • Periodical monitoring report prepared by the monitoring team • Questionnaire survey • Objective & Achievement sheets of monitoring team members • PV electrification, operation and maintenance manual for schools • Minutes of the meetings with relevant governmental agencies and County/Sub-county Education officers.	
3. The Capacity of REA / MoE&P to undertake project using MHP, Biogas and Wind technologies is enhanced.	3-1. OJT is conducted for at least 2 C/Ps for each renewable energy technology through manual development. 3-2. Manual Development Committee is established and holds meetings at least twice for each renewable technology (MHP, Biogas and Wind). 3-3. Manuals are adopted and utilized by relevant ministries, governmental agencies and County/Sub-county offices. 3-4. Seminar and training for technical transfer are conducted for C/Ps based on their Objective & Achievement sheets. 3-5. At least 6 C/Ps achieve their objective through training. Achievements are confirmed by trainee's self-assessment and evaluation by JEs.	• Prepared Manuals • Project reports • Objective & Achievement sheets of trainees at REA and MoE&P	
4. Necessary policy and institutional frameworks for rural electrification using renewable energy are recommended.	4-1. International workshop is held to share the results of the project (e.g. EAC conference). 4-2. Technical transfer workshops for C/Ps are held 3 times. 4-3. Recommendations for C/P to implement the effective electrification by renewable energy are provided to be reflected on their rural electrification policy.	• Project reports • Presentation materials for International workshop. • Rural electrification policy of REA and MoE&P	

2

Activities: For Preparation 1. Set up a Working Group (WG) consisting of 3 sub-groups for Outputs 1, 2 and 3, with clarified roles and functions of the counterpart personnel. For all Outputs 1. A weekly project status report is prepared and shared by both C/Ps and JEs. 2. Monthly project meeting is held by REA. 3. Progress report is prepared by JEs including the progress summary table according to PDM to monitor and report the progress of indicators to achieve outputs. For Output 1 (The health service institution model) 1-1 National Level 1.-1-1 Review policies, studies, surveys and projects related to electrification of health service institutions using Solar PV. 1.-1-2 Organize a progress and information sharing meetings with REA, MoE&P, and MoH at least twice to discuss on model establishment and dissemination at national level. 1.-1-3 Prepare policy recommendations with institutional framework to promote the health institution model(s). 1.-1-4 Prepare a proposal for the disposal of solar panels, batteries and toxic materials according to the current conditions and regulations. 1-2 County/Sub-county Level 1.-2-1 Account book and cash flow statement are submitted to County Medical Officer(s) of the project sites at least twice for Lot 1 and once for Lot 2. 1.-2-2 O&M reports are submitted to County Medical Officer(s) twice for Lot1 and once for Lot 2. 1.-2-3 Organize a progress and information sharing meetings with REA, MoE&P (monitoring team members), and County and Sub-county medical officers at least twice to discuss on model establishment and dissemination at County/Sub-county level. 1.-2-4 Conduct the baseline survey at the target facilities and surrounding communities 1.-2-5 Conduct capacity & needs assessment of County/Sub-county medical officers in terms of renewable energy utilization and dissemination. 1-3 Local/Institutional Level 1.-3-1 Conduct capacity & needs assessment of target communities and other stakeholders. 1.-3-2 Sustainable financial plan is prepared. 1.-3-3 Sufficient financial trainings for the operator of charging center, staff of health institution, and members of management committee are provided through lectures and OJT. 1.-3-4 The operator of the charging center accurately records daily sale. 1.-3-5 Assigned nurse, a treasurer and a chairperson of the management committee accurately records an account book and cash flow statement. 1.-3-6 Assigned nurse and a chairperson of the management committee prepare O&M reports. 1.-3-7 Identify and manage to obtain agreement with the agencies and/or organization to provide financial support to sustain the model according to the income by battery charging system. 1.-3-8 Prepare detailed plans of the pilot projects including "System design" and "Sustainable O&M" with staff of REA and MoE&P through OJT. 1.-3-9 Organize a stakeholder meeting with the members of management committee and owners of facility to discuss on operation and maintenance at least once for each pilot facility. 1.-3-10 Organize an information sharing meeting with users of pilot facility and County/Sub-county medical officer(s) at least once for each pilot facility. 1.-3-11 Organize an evaluation meeting with the members of management committee and owners and users of facility, County and Sub-county medical officers at the end of the project period at least once for each pilot facility. For Output 2 (School model) 2.-1 National Level 2.-1-1 Review policies, studies, surveys and projects related to electrification of schools using Solar PV. 2.-1-2 Organize a progress and information sharing meetings with REA, MoE&P, and MoEST at least twice to discuss on model establishment and dissemination at national level. 2.-1-3 Prepare policy recommendations with institutional framework to promote the school model(s). 2.-1-4 Prepare a proposal for the disposal of solar panels, batteries and toxic materials according to the current conditions and regulations. 2.-2 County/Sub-county Level 2.-2-1 Account book and cash flow statement are submitted to County Education Officer(s) of the project sites at least twice for Lot 1 and once for Lot 2. 2.-2-2 O&M reports are submitted to County Education Officer(s) twice for Lot1 and once for Lot 2. 2.-2-3 Organize a progress and information sharing meetings with REA, MoE&P (monitoring team members), and County and Sub-county education officers at least twice to discuss on model establishment and dissemination at County/Sub-county level. 2.-2-4 Conduct the baseline survey at the target facilities and surrounding communities 2.-2-5 Conduct capacity & needs assessment of County/Sub-county medical officers in terms of renewable energy utilization. 2.-3 Local/Institutional Level 2.-3-1 Conduct capacity & needs assessment of target communities and stakeholders. 2.-3-2 Sustainable financial plan is prepared. 2.-3-3 Sufficient financial trainings for the operator of charging center, staff of health institution, and members of management committee are provided. 2.-3-4 The operator of the charging center accurately records daily sale. 2.-3-5 Head teacher, a treasurer and a chairperson of the management committee accurately record an	**Inputs (Means and Cost)** **Japanese Side** A. Dispatch of Experts < Short-term Experts> • Team leader / Wind power generation • Sub leader / Rural electrification / Micro-hydro power • Photovoltaic power generation • Biomass/gas power generation • Financial management • Community Development and Monitoring • Procurement and supervision of pilot projects • Environmental and Social Considerations B. Training of Kenyan personnel (in Japan, in the third country) • Counterpart Training, and/or • Group Training Course for Rural Electrification by Renewable Energy C. Provision of Equipment. • Equipment for pilot projects of health service institutions • Equipment for pilot projects of schools Other equipment will be specified depending on the requirement for effective implementation of the Project. D. Local Cost (Seminars, meetings, trainings, local and international consultants, etc.) **Kenyan Side:** A. Assignment of counterpart personnel B. Provision of office space and facilities at REA (office for JICA experts and Working group members.) C. Allocation of counterpart budget	MoE&P and REA continue to be responsible for rural electrification in Kenya. Related ministries (MoH, MoEST,),agencies and county governments take part in the Project actively. Target communities, institutions, and private sectors agree the Project Purpose and take part in the Project actively. Security is maintained **Pre-conditions** Related ministries (MoH, MoEST,), agencies and county governments agree the Project Purpose and accept their roles in the Project implementation. Counterpart, budget, office space and facilities necessary for the Project are allocated

account book and cash flow statement. 2.-3-6 Head teacher and a chairperson of the management committee prepare O&M reports. 2.-3-7 Identify and manage to obtain agreement with the agencies and/or organization to provide financial support to sustain the model according to the income by battery charging system. 2.-3-8 Prepare detailed plans of the pilot projects including "System design" and "Sustainable O&M" with staff of REA and MoE&P through OJT. 2.-3-9 Organize a stakeholder meeting with the members of management committee and owners of facility to discuss on operation and maintenance at least once for each pilot facility. 2.-3-10 Organize an information sharing meeting for the users of the pilot facility and County and Sub-county education officer(s) at least once for each pilot facility. 2.-3-11 Organize an evaluation meeting with the members of management committee and owners and users of facility, County and Sub-county education officers at the end of the project period at least once for each pilot facility. <u>For Output 3 (MHP, Biogas and Wind)</u> 3-1. Conduct inventory survey and review of existing renewable energy project (MHP, Biogas, Wind). 3-2. Prepare manuals for rural electrification using renewable energy (MHP, Biogas, Wind) according to the contents of the technical trainings in terms of planning, design, procurement, monitoring and maintenance. 3-3. Conduct technical training for REA / MoE&P staff on MHP, Biogas and Wind. 3-4. Prepare technical recommendation for rural electrification using MHP, Biogas and Wind. 3-5. Collect necessary data and equipment for technical trainings and development of the manuals <u>For Output 4 (Policy recommendations)</u> 4.-1 Implement and monitor the preparation activities of policy recommendations of Output 1,2 and 3. 4.-2 Organize workshop(s) on rural electrification models using renewable energy and/or present the results of the project by C/Ps at the domestic or international conference for information sharing with other stakeholders and donors in the energy sector of Kenya and East Africa. 4.-3 Compile policy recommendations. 4.-4 Initiate and strengthen the concept of Academic-Private Sector Platform in collaboration with JICA Experts of "the Project for Capacity Development for Promoting Rural Electrification Using Renewable Energy."		

Project for Establishment of Rural Electrification Model Using Renewable Energy

Title : 2nd JCC Meeting **Venue: 23F, Nyayo house**	
Meeting Called By	JICA Expert Team
Type Of Meeting	Project Management Meeting
Date & Time	3rd October 2013 / 14:00-16:00
List Of Attendees	1. Mr. John M. Omenge - MoE&P 2. Eng. Isaac Kiva - MoE&P 3. Edwin Owiti - MoE&P 4. Dickson V. Kisoa - MoE&P 5. Mr. Ng'anga Munyu - REA 6. Eng. James Muriithi - REA 7. Judith Kimeu-REA 8. Colleta Koech-REA 9. Semekiah Ongong'a-REA 10. Peninah Karomoh –REA 11. Gilbert Gichunge-REA 12. Hannington Gochi-REA 13. Caroline Kelly –REA 14. Minori Chitani – JICA Kenya 15. Koji NODA- JICA Kenya 16. Evans Njenga- JICA Kenya 17. Tadayuki Ogawa-JICA HQ 18. Chiyoko Miyata-JICA HQ 19. Ayako Nakagawa-JICA evaluation team 20. Yuji Otake-BRIGHT Project 21. Tsutomu Dei – JET 22. Kunio Asai- JET 23. Yuka Nakagawa- JET 24. Ken Shimomukai- JET 25. Francis Mworia- JET 26. Hanningtone Mudegu- JET
Agenda	1. Welcome address from principle secretary (MoE&P) 2. Confirmation of 1st JCC Minutes 3. Overall Progress in Project implementation 4. Midterm project evaluation 5. Revised Project Planning Documents(PDM) 6. Update Of Management issues of JICA/REA project 7. Concluding remarks

SUMMARY OF DISCUSSION

1. Welcoming address by Mr. John M. Omenge on behalf of the PS MOE&P (JCC chairperson)

After a round of introduction the chair welcomed members to the 2nd JCC meeting and apologized for the absence of the PS whom he said was engaged in another meeting.

2. Confirmation of 1st JCC minutes

Eng. Kiva confirmed the minutes of the previous meeting to be true.

The confirmation was seconded by Dr Dei.

3. Overall Progress in Project implementation

Eng. Muriithi presented to the meeting a summary of the overall project progress.

The meeting was informed that tender for installation of LOT 1 was awarded in June and installation done in July though the installation failed behind schedule.

Eng. Muriithi also informed the members that Grid had been extended to two of Lot 1 sites (Iltumtum and Olkinyei) and that REA and JICA Expert Team had an agreement to run the two systems together.

LOT 2 sites have already been identified by REA and JICA Expert Team and the site survey conducted by JICA Expert Team.

Consultation meeting with Ministry of Health and Ministry of Education for LOT 2 sites is in progress.

Technical transfer meeting for JICA Expert Team and REA counterparts are also ongoing.

4. Midterm project evaluation

The JICA Evaluation Team gave a presentation on the evaluation results and emphasized on the need to speed up the Lot 2 implementation since the project was running behind schedule.

5. Revised Project Design Matrix (PDM)

The draft PDM Version 3.1 was confirmed and agreed by the meeting. For the detailed activities in the PDM, it was agreed that MoE&P, REA and the JICA Expert Team would discuss and modify later, as Plan of Operations (PO) would also be finalized. The stakeholders agreed to gather again on 10th October to discuss the activities.

6. Update of Management issues of JICA/REA project

Dr. Dei raised concern on the time shared between the JICA Expert Team and the counterparts for the purpose of technical transfer. Eng. Muriithi explained that this was due to the fact that REA staff had been assigned duties in the counties but they have now been recalled back hence looking

forward to improvement on technical transfer. It was agreed that technical transfer meetings are to be held at least twice in a week.

Dr. Dei proposed new members of Working Group, and this was accepted by the members present.

In order to improve information sharing between the JICA Expert Team and the counterparts, the two teams will be sharing weekly progress report via email. The reports will be sent every Friday. The JICA Expert Team and counterparts will also be holding monthly project meetings to discuss the project progress and share new ideas.

Dr. Dei went ahead to share the progress of Lot 1 sites. It was noted that there was an oversight in the system design in light of system voltage and refrigerator system. The JICA Expert Team is to do necessary modification and this was accepted by the meeting. He also presented the proposed Lot 2 sites, and this was seconded by Eng. Muriithi, confirmed by the meeting. The Lot 2 sites are South Horr Dispensary, Masikita Dispensary, Angata Nanyukie Dispensary, Tuum primary school, Illaut Primary School and Marti Primary School.

Eng. Kiva requested that the midterm report to be given to all counterparts so as to enable easy implementation of the recommendations.

7. Concluding remarks

Mr. Ng'anga Munyu (Ag. CEO, REA) said he was in agreement with the evaluation report and emphasized on the need to follow and implement the recommendations given in the report to make the project a success.

The chairman concluded the meeting by thanking all the members for the cooperation and also coming to the meeting.

Attendant List

Project for Establishment of Rural Electrification Model using Renewable Energy in Kenya

Meeting Title: 2nd JCC Meeting

Venue: Conference Room, Ministry of Energy and Petroleum   Date: 2 October 2013   Time: 14:00-16:00

SN	Name	Organization	Title	Mobile or E-mail	Signature
1	John M. Omenge	MOE&P	CG	[redacted]	[redacted]
2	Eng Isaac Kiva	〃	DRE	[redacted]	[redacted]
3	Eng James Muriithi	REA	Ag-Manager, RE	[redacted]	[redacted]
4	TSUTOMU DEI	JET	Team Leader	[redacted]	[redacted]
5	Kunio Asai	JET	PV Technology	[redacted]	[redacted]
6	Evansa Njenga	JICA	Consultant	[redacted]	[redacted]
7	Yuka Nakagawa	JET	Biomass/Biogas	[redacted]	[redacted]
8	FRANCIS MWORIA	JET	PV Technology Assistant	[redacted]	[redacted]
9	Yuji OTAKE	Bright Project	Chief Advisor	[redacted]	[redacted]
10	Koji NODA	JICA Kenya	Sr. Representat	[redacted]	[redacted]
11	Ayako Nakagawa	JICA Evaluation Team	Evaluator.	[redacted]	[redacted]
12	Takayuki Ogawa	JICA HQ	Team Leader	[redacted]	[redacted]
13	Chiyoko Miyata	〃	Cooperation Planning	[redacted]	[redacted]
14	Minori Chitani	JICA Kenya	Representati	[redacted]	[redacted]
15	DICKSON V. KISOA	MOE & P	REA Renewable Energy	[redacted]	[redacted]
16	Judith Kirrui	REA	Renewable Ene	[redacted]	[redacted]
17	EDWIN ODIYI	MEP	Renewable ENGI	[redacted]	[redacted]
18	Ken Shimamukai	JET	coordinator	[redacted]	[redacted]
19	Colleta Koech.	REA.	R. E.	[redacted]	[redacted]
20	Semekiah Ongonda	REA.	R - E	[redacted]	[redacted]
21	PENINAH KARANJA	REA	ENVIRONMENT SCIENTIST	[redacted]	[redacted]
22	GILBERT GICHUNGE	R.E.A	R E	[redacted]	[redacted]
23	Hannington Gochi	REA	R. E	[redacted]	[redacted]
24	Hanningtone Mudegu	JICA	R. E	[redacted]	[redacted]
25	Caroline Kelly	REA	R. E	[redacted]	[redacted]