



## Introduction

The renewable energy committee's technical and management training was started by a welcoming address made by the energy project officer and introduction among the participants were followed. Important training rules and regulations were produced and posted by the participants, while different training materials like manuals were distributed.

The training facilitator presented a synopsis on community managed renewable energy project (CMRE) and core objectives of the training. The training content as presented by the training leader includes;

- Ethiopia's Energy Resources & Solar Physics
- Renewable Energy sources
- Photovoltaic system
- Energy for rural schools and clinics
- Solar pumping Systems
- Biomass Energy Resources and FSS
- Safety, Installation and Maintenance

Energy and development are entwined, that is the per capita energy consumption of a nation is also used as a human development index measure on its level of development. The energy resource of the world is classified into two groups, Renewable (from un-exhaustible sources) and Non renewable (from exhaustible sources). The sun is the major renewable energy source and wind, hydro and biomass energy are all derived from solar energy.



Technologies for conversion of solar energy are broadly divided into two main parts: solar photovoltaic systems (electricity generation) and solar thermal systems. It should also be noted that solar thermal can also be used for electricity generation.

Detail briefing was given on the Photovoltaic (PV) system's components for stand alone applications as follows:

- PV Array/Module/Cell
- Charge controller
- Inverter, and
- Battery bank

System sizing and arrangement for the entire PV component were explicitly discussed and understood by the participants. Nomogram was used robustly for PV array rating for a given hydraulic energy and system sizing.





## Training Overview

The training consists of two sessions as theoretical and demonstration/practical. The theoretical session was molded to create basic understanding about solar power technology applications, components, installation and maintenance among the participants. On the demonstration part, a site visit was made to Genetemariam Kebele's existing solar powered water supply scheme. At the site, it has been tried to show the different parts of solar system components explicitly. All the participants would have got chance to see and practically observe the different parts of the solar components along with how the system works. The practical site visit incorporated the positioning the Array, multiple use of water supply schemes under solar system and all the necessary safety precautions to be applied for solar schemes. This practical demonstration session was witnessed by the participants as it has raised their overall perspective and solar energy management. On this regard, one FSS production site was visited as part of the Biomass energy training session.

## Theoretical Session

The theoretical session principally covered the different applications of Photovoltaic systems, technical and management of solar systems. In addition wind and hydro energy sources' were explained well.

In technical and management aspect the following concepts were thoroughly discussed:

- Renewable Energy Resources
- Solar System applications
- Biomass energy resources and FSS
- Solar system installations, safety and maintenance

Few model examples and exercises were carried out in addition to the different discussions raised by the participants.

## Demonstration session



A practical site visit was conducted at Genetemariam kebele's existing solar powered water supply scheme, 23km away from Lalibela Town, to reinforce the theoretical sessions exhausted for three days. This visit helped all the participants to acquire clear understanding on the different parts of solar appliances. They have also enabled to practically see how the solar system functions and multiple water applications. Along with the solar, they have also visited the Genetemariam Kebele FSS production center as part of the Biomass/household energy training. At the end the participants expressed their positive and learning reflection.



### **Group Discussions**

Following the theoretical session, different group discussion issues was delivered to the participants to come up with their reflections and results. Five groups were formed to make discussion on the following four issues;

- On how to make the project ‘community managed and sustainable’
- Solar schemes management and maintenance
- Energy networking and future propagation
- Discussion on the priorities and up coming actions expected from the Renewable Energy Committee, starting from providing support to Duty free process and participating in commissioning and acceptance activities.

An immense and intense discussion were made among the groups and reflected by the group representatives. Very organic and smart ideas were generated in all the topics that can really be mild stone to the future energy management. Most of the results from the group discussion address the how part of solar energy technologies management and sustainability at the community level. It has been suggested that awareness creation is vital for the community to develop ownership and manage the schemes per their capacity. Close supervision and capacity building to the community and government sector officers has to given by the project implementer. To make solar power technology affable by any of the seekers, the government and the beneficiary community as a whole should give an attention all the way through making a sustainable budget allocating and perpetual terrifying respectively.



**Participants’ on Group Discussion**

**Group Discussion Result Presentation**





## Site Visit

Practical Explanation on Genetemariam  
Solar Powered Water Scheme



Participants visiting the Genetemariam  
Kebele Fuel Saving Stove Production Center



## **Renewable Energy Committee Formation Scenario**

At the beginning of this activity thorough discussion was made with the Woreda's concerned sector offices including Health, Education, Water and Energy, on how part of the RE committee's selection.

Referring to the Grant Agreement Document (**GAD**) and best practices of different energy stake holders, including GTZ, a check list was developed prior to committee selection.

The check list ensures gender segregation, children participation, community and administration involvement.

After setting these pillars, a formal letter was sent to the sector offices to get cooperate and facilitate the implementation of the activity in association with our community Development Facilitators (CDF).

Then after, these sector offices sent respective letters to six intervention Kebeles of the district (**Shumsha, Getermeda, Telfetit, Tadios Amba, Shallo & Genetemariam**) for they to gather the community and conduct the open selection with Plan's energy officer.

On this regard, transparency and accountability were entirely exercised so as to assure the sustainability of the project.

Among the participants in each kebele, women's and children views were sought to be valuable and key to meet the objective.

The target beneficiaries were heard while they express their willingness to get involved and participate in every stages of the project.

As Plan is a child centered community development organization children's were clearly articulated and recognized to get participated in this selection event.

**Lalibela PU**



## Training Schedule

### **Day -1**

#### **Morning**

1. Introduction & Registration (Attendance Sheet & Photo)
2. Objective of the training
3. CMRE Project Synopsis

#### **Tea Break**

4. General overview on Renewable energy

#### **Lunch**

#### **After noon**

1. Renewable energy sources - General
  2. Biomass and FSS Technology (MIRT stove)
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### **Day -2**

#### **Morning**

1. Recap of day 1
2. Wind energy

#### **Tea Break**

3. Hydropower energy

#### **Lunch**

#### **After noon**

1. Solar Energy Applications
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### **Day -3**

#### **Morning**

1. Solar Energy Management, Safety Instructions & Maintenance

#### **Tea Break**

2. Group Discussion and Reflection

#### **Lunch**

#### **After noon**

1. Group Discussion Results
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### **Day -4**

1. Group Discussion continued
2. Solar and FSS Site Visit at Genetemariam Kebele