




EIE-06-256 REEPRO

Intelligent Energy  Europe

Promotion of the Efficient Use of Renewable Energies in Developing Countries

**REEPRO Level 1, Course 1, Training Workshop
Hands-on training on small-scale Solar and Biomass installation**

Cambodia, April 25th and 26th 2008

Report

Location: COMPED Training Centre

May 2008

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1 Background and Objectives

REEPRO Practical Training Workshop was held on 25th-26th April, 2008 at COMPED environmental training centre.

The goal of the workshop is corresponding to the feedback of the 1st Level I “train the trainer” 7th – 18th January 2008 to have more practical work on Solar and PV. Moreover, the training also included rocket stove construction in its contents.

2 Workshop Methodology

REEPRO Level I participants were divided into three groups, who respectively practiced on Station 1 - Rocket stove; Station 2 – Solar Home System installation; and Station 3 – PV experiments (For more detail, see table below)

Table 1: Schedule and content of the workshop

Day 1: REEPRO Hands-on training on small-scale solar and biomass installation

	Group 1	Group 2	Group 3
Units			
9:00-9:30	Introduction <ul style="list-style-type: none"> • Workshop objective and content • Presentation of the 3 workshop stations and background information on Station 1- rocket stove construction, Station 2 - Solar Home System SHS installation and Station 3 – PV experiments • Formation of 3 groups for the hands-on training <i>Antje Klauß-Vorreiter, DGS and Chau Kim Heng, COMPED</i>		
9:30-12:30	Station 1- Rocket stove Introduction, joint construction and operation of a brick Rocket Stove for wood gasification <i>Uch Rithy, COMPED</i>	Station 2- SHS* Joint construction of a Solar home system, measurement and trouble shooting and experiments <i>Mr. Sok Sarin & Mr. Tom Van Diessen , Kamworks</i>	Station 3- PV experiments Performance of several experiments on PV to demonstrate the function of PV systems <i>Dr. Matthias Klauß, DGS</i>
13:30-16:30	Station 2- SHS	Station 1- rocket stove	Station 2- SHS

Day 2: REEPRO Hands-on training on small-scale Solar and Biomass installation

	Group 1	Group 2	Group 3
Units			
9:30-12:30	Station 3- PV experiments	Station 3- PV experiments	Station 1- rocket stove
13:30-14:30	Entrepreneurship Course Content Introduction <i>Mr. Pann Nora, Director of CIEDC and Teang Sak, Deputy Director</i>		
15:30-16:30	Training Evaluation		

*SHS training using a 40Wp SHS system delivered by KAMWORKS

3 Participants

Below is the list of participants.

Table 2: List of participants

1. Antje Klauß-Vorreiter	DGS
2. Dr. Matthias Klauß	DGS
3. Mr. Chau Kim Heng	Facilitator of the TOT Practical Training workshop, Director COMPED
4. Mr. Uch Rithy	Organiser and reporter. Project officer COMPED
5. Mr. Than Sokun	Participant, COMPED
6. Mr. Tang Sochettra	Participant, Ministry of Industry, Mine and
7. Mr. Puth Sokha	Participant, State Secretariat at Civil Aviation
8. Mr. Lay Meng Hort	Participant, ITC
9. Mr. Mao Seima	Participant, EDC
10. Mr. Thourk Mony	Participant, EDC
11. Mr. Heng Kim	Participant, CBO
12. Mr. Chrun Rithy	Participant, RUA
13. Mr. Heng Cham Ran	Participant, BBU
14. Mr. Bun Pheng	Participant, English Teacher
15. Mr. Ngor Bun Hok	Participant, Marketing Teacher
16. Mr. Kim Pisey	Participant, Build Bright University
17. Mr. Hun Bunroeun	Participant, National Technical Training Institute
18. Mr. Chhay Vichet	Participant, EDC, training Center
19. Mr. Bun Long	Participant, ITC
19. Mr. Mony Ratana	Participant, Mony Engineering Consultant
21. Mr. Mom Mony	Participant, MEC
22. Mr. Muth Makara	Participant, MEC
23. Mr. Sok Sarin	Trainer, Kamworks
24. Mr. Tom Van Diessen	Trainer, Kamworks

4 Outcome of Workshop

- All participants have learned knowledge in joint construction of a solar home system, measurement and trouble shooting and experiments.



Figure 1: Explanation of the functioning of an SHS at Station 2 SHS

- All participants have learned knowledge in performance of several experiments on PV to demonstrate the function of PV systems.



Figure 2: PV experiment on photovoltaic technology

- All participants have learned knowledge in Rocket Stove construction such as joint construction and operation of a brick Rocket Stove for wood gasification. The fundamental idea of rocket stove was given to participants that the bricks of the stove have to be isolative to save energy emission and efficiently burn fuel gas.

- After practicing Rocket Stove construction and application in boiling water, participants were very interested in this initiative technology, which saves fuel-wood in burning, reduce smoke, energy saving and contribute to climate change solution.
 - However, its price costs too high and heat saving is still not efficient due to the emission through the joins of bricks.
 - Steel cans should be replaced by material used by traditional cook stove.
 - Cement mixture should be substituted by clay of termite mount mixing with saw dust or rice husk to reduce stove weight.
 - Boiler supporter should be adjusted to be flexible to any size of pots.
- The arrangement to have Entrepreneurship Course provided by the professional institute was highly appreciated. However, participants need documents about to be good entrepreneurship.

02. May 2008

Reported by Mr. Uch Rithy

COMPED Project officer