Green Empowerment

Knightsbridge International

BORDER GREEN ENERGY TEAM

Palang Thai

Kawthoolei Department of Health and Welfare

Burma Solar Clinic Project - 2007

Electrification Equipment and Training for KDHW Mobile Medical Clinics

Training locations
Mae Tao Clinic, Mae Sot, Thailand

Project dates
April 2 -April 8, 2007

Trainees
32 Medics from 27 Clinics
1 Radio mechanic

30 Participants received a 4-5 Day Solar Training
3 Participants received a 2 Day Solar Training

Instructors
Chris Greacen, Palang Thai
Walt Ratterman, Knightsbridge
Yoten, BGET Staff Technician
Salinee Tavaranan, BGET Director
Adrian Armorer, BGET Volunteer
Ian Petrich, BGET Volunteer
Andrew Pascale, BGET Volunteer

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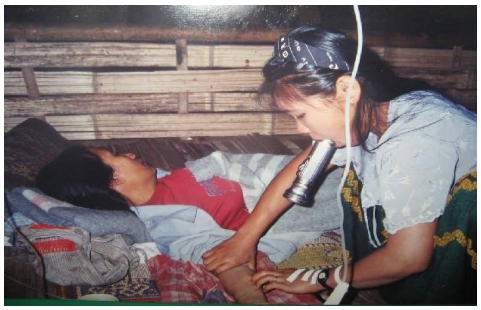
Private Donors

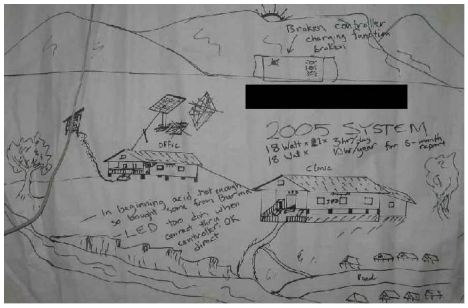
Implemented by
KDHW
BGET
Palang Thai
Knightsbridge International

Written by
BGET Team

From April 2nd to April 8th, the Border Green Energy Team (BGET) along with project partners and volunteers, provided seven days of intense hands-on solar power electrification and management training at Mae Tao Clinic, Mae Sot, Thailand. The 2007 training focused on new equipment provision and usage training for seven KDHW (Kawthoolei Department of Health and Welfare) mobile medical clinics, as well as retraining and re-provisioning for 28 KDHW mobile medical clinics. Mobile clinic electrification systems power clinic area lighting, directed operation lighting, medical training lighting, microscope lighting, small medical equipment, AA/AAA battery charging, and community information systems. Solar electrification trainings have occurred annually since 2003. As of the end of the 2007 training, 35 systems have been provided. The needs of the KDHW for electricity in their mobile clinics, IDP clinics, and referral clinics continues to grow.



Need for area and directed lighting at clinics



A KDHW mobile clinic layout from the poster session

Medics and operators from KDHW mobile clinics often walk days if not weeks through contested, dangerous, and hostile terrain in order to attend trainings in Mae Sot. Due to recent heightened tensions and increased risk factors on the border, not all of the 35 clinics provided with solar systems to date were able to send representatives to the 2007 training. In all, 32 medics and one radio mechanic from 27 sites attended the training. Attendees ranged in age from 18 to 56. Two of the participants were women.

The 2007 training started on April 2nd. Introductions from Eh Kalu Shwe Oo, KDHW and Walt Ratterman, Knightsbridge International, opened the training. The ensuing five day training combined mornings of theory and question and answer sessions with afternoons of hands on work with system components.

Morning classroom sessions provide medics with basic solar power and electricity theory while focusing on practical system knowledge needed for day-to-day system operation. Medics in charge of solar electrification systems must be able to choose and continually evaluate appropriate sites for a PV (solar) panel, understand how to align and orient the panel to achieve maximum power production over the course of a year, install all system components in a safe location for both clinic staff and system components, connect all system components in a safe manner, maintain the system over the life of its components and throughout the seasons, and pass on system maintenance, safety, and construction knowledge to others at the clinic. Morning sessions also included a poster session for every clinic present during which instructors were able to discuss the setup and concerns of each clinic in a teaching environment.

Yo Ten teaching system diagramming

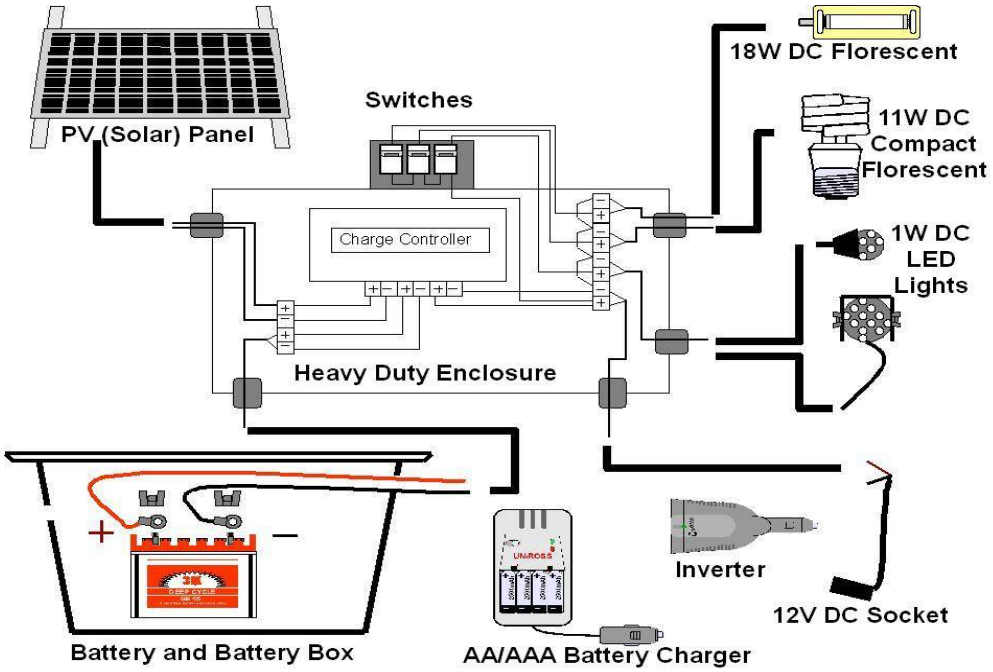
Salinee demonstrating solar panel orientation and shading

Afternoon sessions are designed to be hands-on for everyone. Medics receiving new clinic systems are provided raw system parts and are then guided through the step by step process of building clean, organized, fully functional solar electrification systems. Both workshop instructors and more experienced medics served as instructors during this process. The medics' goal is the completion and testing of their system by the fourth or fifth day of the training. After testing, these medics then break the system down and pack system components for the arduous trek back to their clinics.

Medics working on the main system enclosure

Completed system testing

Medical Clinic Solar Systems consist of the following main components: a 120-130 Watt PV (Solar) Panel, an 85Ah-125Ah deep cycle lead acid battery, a controller to provide intelligent and safe charging and discharging of the battery, an inverter to supply small AC loads, various DC lighting equipment (2 - 11W DC CFLs, 1 - 18W DC Florescent Tube light, 2 - 1W LED lights) to provide a range of lighting possibilities, and durable enclosures to protect system components from rugged clinic environments. An assortment of tools and multimeter are provided with every system.



2007 Mobile Clinic System

Medics who have attended trainings in the past work side by side with new trainees to help impart their practical knowledge in constructing the system and using the tools. These medics are the real experts on clinic electrification systems as used in the field. Medics live with and use the systems every day in a mobile clinic environment. Following the initial days of training, experienced medics are then given options to work on advanced system or equipment troubleshooting as well as the study of further topics such as water distillation or cooking using the sun. Trainers are available during afternoon sessions to answer specific questions from experienced medics or discuss concerns specific to individual clinics.

Small solar distiller

The bulk of the 2007 KDHW training wrapped up on April 6th. Medics from seven mobile clinics had finished the construction of and tested their clinic's solar electrification system. All attendees had covered the theory and practical knowledge needed to locate, build, understand, operate, and maintain a solar electrification system.

Thanks to an extremely generous private donor, BGET and KDHW were also able to provide for the equipment resupply of 23 mobile KDHW medical clinics. Resupply figures were based on 2006-2007 reports returned by clinics as well as individual conferences with each clinic during the training. KDHW staff member, Way Htoo, was instrumental in taking charge of the research required to determine the re-supply requirements of the various clinics.

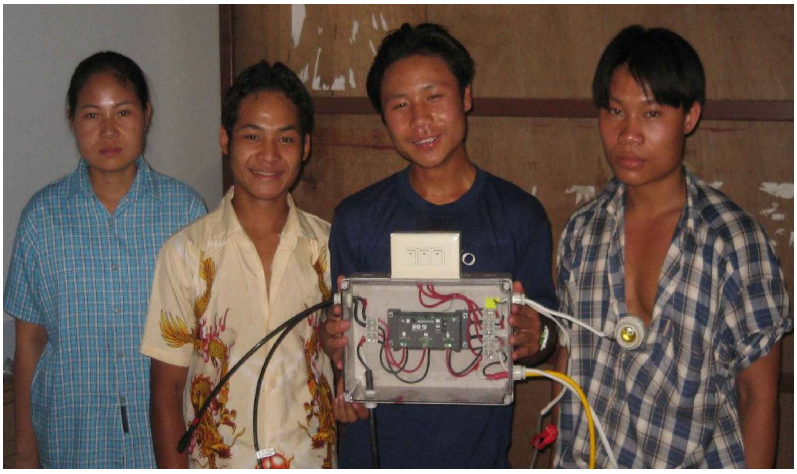
The training finished with the presentation of equipment resupply for existing clinics by BGET Director, Salinee Tavaranan which was immediately followed by the official presentation of instructions and reporting procedures for 2007-2008 by Eh Kalu Shwe Oo.

April 6th also saw the arrival of three medics from two more clinics. Due to the situation at their northern clinics and on the border, these medics were only able to reach Mae Sot on the final day of training. The three medics were given an intense two day training on the 7th and 8th of April.

While some clinic training goals are attainable during a one week training, others take more time, additional resources, and further training. Now that we have been able to furnish systems and training to 35 clinics in the area, we need to expand our efforts to concentrate on how to help assure system sustainability. Our work to visit clinics on site last year to determine how the systems were being used, and to provide additional on-site training to medics was a first step. This effort was followed up in this year's training by providing re-supply equipment to the clinics whose systems needed to be upgraded.

Additional items we will be concentrating on as we move forward include: more attention to providing instructions and trainings in the native language; and identifying and supporting area technicians within the KDHW framework to provide the first line of maintenance and repair services. In this training we were able to expand the translations of materials into Karen, and to use more Karen speaking instructors. This training session also saw the start of an internal KDHW framework for reporting and maintenance.

We will continue to expand on these sustainability needs as we move into further trainings later this year.



Medics having completed the wiring for a new system

The Border Green Energy Team (BGET) will continue to work with the KDHW and project partners to support existing systems (currently 35), supply new systems,and build capacity. As the situation continues to change and evolve, BGET will also work to change and evolve, identifying and meeting needs as they arise in the medical and Karen civilian community.