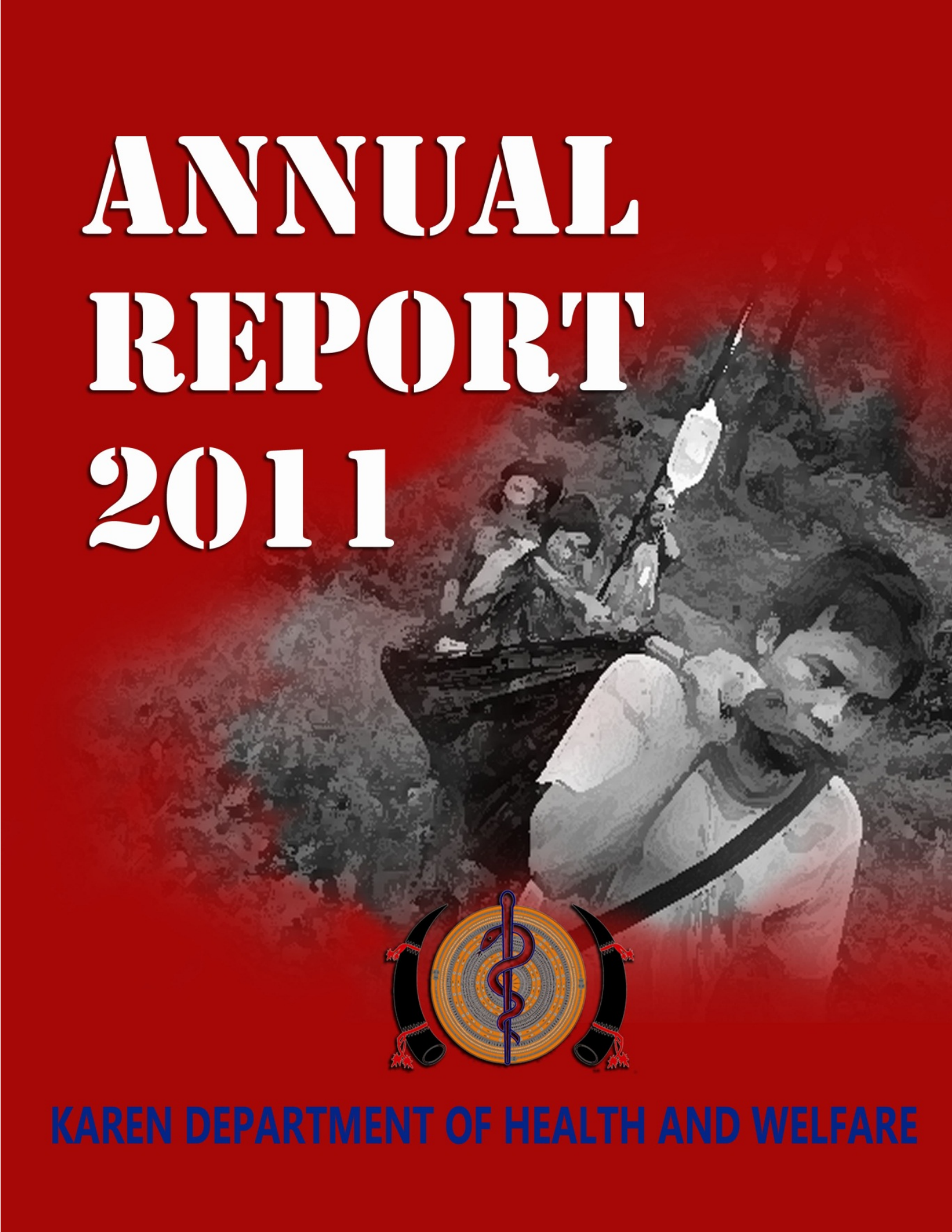
ANNUAL REPORT 2011



KAREN DEPARTMENT OF HEALTH AND WELFARE

Acronyms Used by KDHW

ACL	Anterior Chamber Lens
ACT	Artemisinin-based Combination Therapy
AMI	Aide Médicale Internationale
ANC	Antenatal care
BBP	Burma Border Projects
BGET	Border Green Energy Team
BMA	Burma Medical Association
BPHWT	Back Pack Health Worker Team
CBO	Community based organization
CHW	Community Health Worker
CIDKP	Committee for Internally Displaced Karen People
DOT	Directly Observed Therapy (Malaria)
DOTS	Directly Observed Therapy, Short Course (TB)
EDT	Early Diagnosis and Treatment
FFA	Freunde für Asien
GBVC	Gender Based Violence Counseling
GHAP	Global Health Access Program
GMO	General Medical Officer (training)
H4W	Hope 4 the World
HISWG	Health Information System Working Group
HR	Two-drug treatment for tuberculosis
HRZE	Four-drug treatment for tuberculosis
ICRC	International Committee of the Red Cross
IDP	Internally Displaced Persons
IOM	International Office of Migration
IRC	International Rescue Committee
ITN	Insecticide Treated Nets
KADWP	Karen Vitamin A and Deworming Program
KAP	Knowledge, Attitude and Practice
KDHW	Karen Department of Health and Welfare
KED	Karen Education Department
KGBVC	Karen Gender Based Violence Counseling
KHMP	Karen Herbal Medicine Program
KIP	Karen Immunization Program
KLFP	Karen Lymphatic Filariasis Program
KMCP	Karen Malaria Control Program
KMHCP	Karen Mobile Health Clinic Program
KMREP	Karen Mine Risk Education Program
KNU	Karen National Union
KPECP	Karen Primary Eye Care Program
KRHFP	Karen Reproductive Health and Family Planning
KSEAG	Karen State Education Assistance Group
KTBP	Karen Tuberculosis Program
KTFP	Karen Targeted Feeding Program
KTMP	Karen Trauma Management Program
KTWG	Karen Teacher Working Group
KVHWP	Karen Village Health Worker Program
LF	Lymphatic Filariasis
MDA	Mass Drug Administration
MHC	Mobile Health Clinic
MIMU	Myanmar Information Management Unit
MOM	Mobile Obstetric Maternal Health Worker Project
MRE	Mine Risk Education
MSF	Médecins Sans Frontières
MTC	Mae Tao Clinic
MUAC	Mid-upper Arm Circumference
NGO	Non-governmental Organization
NHEC	National Health and Education Committee
ORS	Oral Rehydration Solution
PCL	Posterior Chamber Lens
QC	Quality Control
QI	Quality Improvement
RCHW	Reproductive and Child Health Worker
RDT	Rapid Diagnostic Test
RRII	Refugee Relief International, Inc.
SMRU	Shoklo Malaria Research Unit
SPDC	State Peace and Development Council
TBA	Traditional Birth Attendant
TOT	Training of Trainer
UNHCR	United Nations High Commissioner for Refugees
VFH	Village First Helper
VHW	Village Health Worker
WHO	World Health Organization

Contents

Dear Friends,

As 2011 draws to an end, the political landscape inside Burma is changing, and is likely to affect the border-based health organizations that provide most of the health care for hundreds of thousands of people in rural Burma. Possibly in the near future we can move our operations inside the country and be integrated within a national health system or, in the worst case, continue to be outlawed by the government in Naypyidaw while most outside funding is transferred to Naypyidaw despite the government's neglect of the health sector.

We must, in this period of uncertainty, continue to follow our mission of providing for the health of everyone through community-based health care. Regardless of the political process, the people whom we serve will continue to have little access to government provided clinics or hospitals, and will depend on us for preventive and primary health care. Malaria, tuberculosis, diarrhea, and other killer diseases cannot be eliminated, but we must continue to try to prevent their spread and to provide appropriate treatment. If we can obtain adequate funding and are not obstructed politically more than we are now, we shall continue to make progress in reducing the incidence and prevalence of these diseases, and in providing the conditions for our children to grow up to be healthy and strong.

Sincerely,
The KDHW team

Introduction

In Karen populated areas of eastern Burma (Myanmar), decades of armed conflict and human rights violations have led to displacement of more than 400,000 villagers and have forced hundreds of thousands to seek refuge in neighboring Thailand. The government of Burma, now called the Republic of the Union of Myanmar, did not in the past and still does not provide health care to the population affected for decades by its operations.

The Karen Department of Health and Welfare (KDHW) provides free primary health care and disease-specific health care programs to this conflict-affected population. It trains indigenous staff as community health workers to deliver health services through mobile health clinics located in all seven districts of Karen state. The Karen state recognized by Karen people differs from Kayin State as defined by the government of Burma. The map of Karen state shown in Figures 2a and 2b serves only for administrative purposes.

In 2011, KDHW added the word "Karen" to every program to emphasize that all services under KHDW are provided by people living in Karen State to those living in Karen State. Our programs are a response to the needs of the communities in Karen State.

New sections in this year's annual report describe the Karen Primary Eye Care Program, the Karen Mental Health Pilot Project, and Training and Capacity Building. We also proudly announce our newly updated website, kdhw.org, which gives information about our organization and health programs.

Mission Statement

The main aim of KDHW is to provide for the health of everyone through community-based health care.

Objectives

- To provide essential drugs and medical supplies
- To treat local common diseases and minor injuries
- To decrease morbidity and mortality due to common diseases
- To deliver health information and education to the people
- To promote community responsibility and participation in health care work
- To promote community participation in management of emergency health situations
- To develop community awareness regarding health

Recent publications and presentations

- Karen Department of Health and Welfare: Annual Report. Mae Sot, Thailand. 2010. 01/05/11. <Kdhw.org>.
- Thart Kler Kwee (2011). Expansion of a malaria control program in Eastern Burma's active-conflict area and the need for a community-based approach. Paper presented at the American Public Health Association Conference 2011. (Washington, D.C.)
- C.I. Lee et al. (2009) Internally displaced human resources for health: villager health worker partnerships to scale up a malaria control programme in active conflict areas of eastern Burma. *Global Public Health* 00(0):1-13.
- A.J. Richard et al. (2009**)** Essential trauma management training: addressing service delivery needs in active conflict zones in eastern Myanmar. *Human Resources for Health*. 7(19).
- Eh Kalu Shwe Oo (2008). Community-based Malaria control among IDPs in eastern Burma. Paper presented at the annual Global Health Council Conference. (Washington, D.C.).
- L.C. Mullany et al (2008). The MOM Project: delivering maternal health services among internally displaced populations in eastern Burma. *Reproductive Health Matters*. 16(31):44-56.

KDHW Policy Statements

1. Rights to Health

Health is a right. We need to ensure that everybody, regardless of their race, ethnicity, nationality, age, sex and social status has this right.

2. Empowerment

KDHW will provide health education to empower people to take responsibility for their own health and the health of the entire nation.

3. Welfare and Relief

KDHW will establish programs to address social welfare problems. KDHW will address the IDP situation by raising international awareness and seeking emergency relief.

4. Development of the Health Services System

Primary health care will be given top priority in the development of the health services system.

5. Health Promotion Among the Elderly

Systematic health promotion activities for the elderly will be established at all health centers.

6. Health Promotion Among Women and Children

Systematic health promotion activities for women and children will be established at all health centers.

7. Health Promotion

We will ensure that all citizens of Karen state (Karen State) will develop an understanding of health, thereby promoting the health of the nation.

8. Herbal Medicine

KDHW will encourage, maintain, setup, and promote indigenous herbal remedies.

9. Family Planning

Family planning will be provided or prescribed by doctors and health workers and other trained local providers skilled in the health and socio-economic background of the family.

10. Potency of Medicine

All medicine used in Karen state must be safe, effective, and used properly as prescribed.

11. Narcotic Drugs

The use of Diazepam, Phensidyn, Morphine, Ketamine, Pentazosine and amphetamines must be only by the prescription of a doctor or other trained health provider in a hospital or clinic for legitimate health needs.

12. Immunization

All children under five years old must receive the six important immunizations.

13. Birth Certificates

Anyone born in Karen state has the right to citizenship. KDHW aims to issue birth certificates so that they do not lose this right.

14. Disease Control

There will be control programs for Malaria, Tuberculosis, Leprosy, HIV/AIDS, and other infectious diseases that might pose a threat to Karen State, such as Avian Flu.

15. Health Information

Collection and distribution of health information must be ethical and according to the policy and regulation of KDHW.

16. Coordination and Cooperation with Other Organizations

Coordination and cooperation with international organizations, non-governmental organizations, religious organizations and community based organizations, will be according to the policy and procedure of KDHW.

History of KDHW

In 1956, the Karen National Union (KNU) established the Karen Department of Health and Education. Under the closed door economic system of the Burma Socialist Progress Party, the KNU collected sufficient revenue from its control of border trade and taxation, as well as logging and mining, to provide free health care for the approximately 2.5 million Karen people who lived in Karen state, of a total 7 million Karen people in Burma.

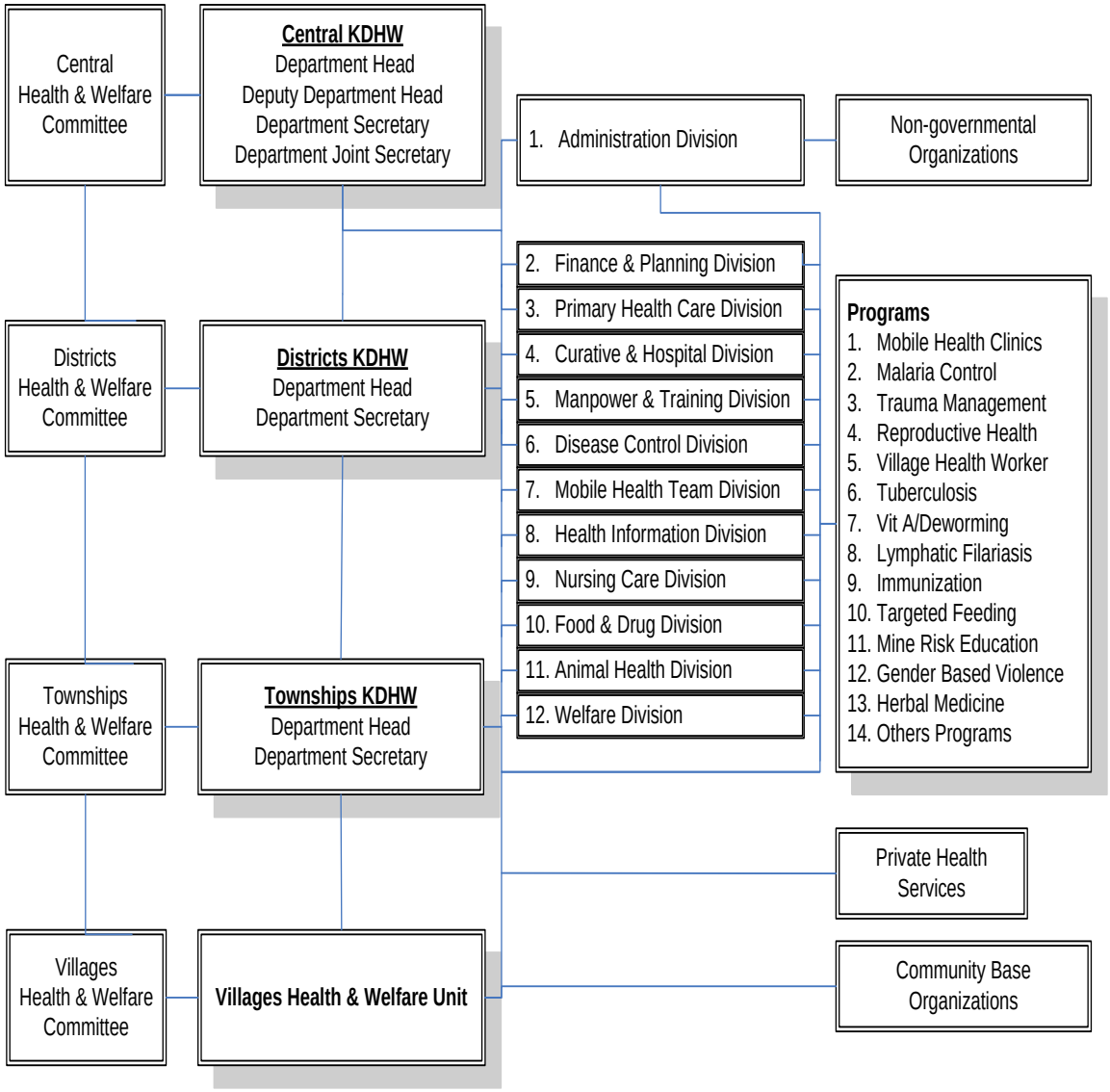
The health care system of the Karen Department of Health and Education was disrupted in 1974 by the Burmese regime's "four cuts" policy that entailed destruction of villages and food crops, forced relocations to militarily controlled camps, and other oppressive measures. In 1991 the KNU established the Karen Department of Health and Welfare (KDHW) to provide primary health care to all people living in Karen state. From 1991 to 1997, the KDHW administered hospitals and clinics in all seven districts of Karen state, but the SPDC offensive of 1997 decimated most of that health care infrastructure.

In response, the KDHW organized the first mobile health clinic in 1998. Partners Relief and Development collaborated with KDHW in developing a standard clinic supply list for mobile health clinics. Together with the Committee for Internally Displaced Karen People (CIDKP) and the Backpack Health Worker Team (BPHWT), KDHW established additional mobile health clinics each year. By 2011, 45 mobile health clinics were providing health services and health education for a target population of 131,810 internally displaced persons (IDPs) in Karen state.

Leaders of the Karen Department of Health and Education and the KDHW

Organizational Structure of KDHW

The organizational structure of KDHW is shown below. As of 2011, the four executive officers are: Roger Khin (Department Head); Eh Kalu Shwe Oo (Deputy Department Head); Diamond Khin (Department Secretary), and Hser Nay Moo (Department Joint Secretary).



KDHW Programs

KDHW operates 14 major health programs; the major programs and their reach are listed in Table 1. The Karen Mobile Health Clinic and Primary Health Care Program (KMHCP) provides primary health care and dental care, as well as community education for hygiene for prevention of diseases such as diarrhea and worms. KDHW directly manages 45 of the 50 mobile health clinics (MHCs) in the KMHCP. Five clinics that are managed by MTC also have staff and participation from KDHW. Five of the 45 clinics managed by KDHW were closed during 2011 for security reasons.

Most of the other major programs are integrated into the MHCs. Each MHC implements two to seven programs that provide prevention or treatment of specific diseases and health conditions. Malaria Control, Trauma Management, and Vitamin A/Deworming have some program areas outside of MHC areas, while Mine Risk Education, Primary Eye Care and Herbal Medicine are implemented independently of the mobile health clinics.

All ethnic groups in Karen state – Karen, Mon, Burman, Karenni, or other - have equal access to services of the mobile health clinics.

Table 1. KDHW Programs in 2011

	Program	Program Areas	Population of target area	Field program workers
1	**Mobile Health Clinics/Primary Health Care**	**50**	**121,934**	**1370**†
2	**Malaria Control**	**34**	**32,401**	**102**
3	**Trauma Management**	**17**	**54,548**	**550**
4	**Reproductive Health and Family Planning,** **Gender Based Violence Counseling Pilot Project**	**13** **2**	**38,169** **8,025**	**229** **43***
5	**Village Health Worker**	**16**	**37,190**	**246**
6	**Tuberculosis**	**3**	**11,921**	**32**
7	**Vit A/Deworming - Clinics** **Vit A/Deworming - Schools**	**21** **245**	**71,972** **21,405**	**21** **31**
8	**Lymphatic Filariasis**	**1**	**3,548**	**3**
9	**Immunization**	**7**	**19,872**	**25**
10	**Targeted Feeding**	**5**	**15,008**	**19***
11	**Mine Risk Education**	**--**	**2,100**	**4**
12	**Primary Eye Care**	**Bleet Daweh**	**--**	**--**
13	**Herbal Medicine**	**3**	**--**	**31**
14	**Mental Health**	**--**	**--**	**90****

† This number includes staff from all programs based in the MHC and in the MHC surrounding communities.

* Some field workers are a part of 2 or more programs. All GBV workers are included in the RHFP. All KTFP health workers are among 25 KIP health workers.

** All mental health trained workers are KRHFP health workers or KTMP medics.

Karen Mobile Health Clinic and Primary Health Care Program

Operations and Logistics

Mobile health clinics (MHCs) are situated in all seven districts of Karen state. During 2011 they served a population of 121,934 people. MHC locations are shown in Figures 1a and 1b. The names and boundaries on the maps, used for decades by KDHW for administrative purposes, differ from names and boundaries in published maps of Burma or Myanmar. The map has no political significance. Traditional Karen names for the areas are used, and the boundaries reflect areas with large Karen populations. Other groups in Karen state - Mon, Burman, or other, have equal access to services of the mobile health clinics.

Townships, into which districts are divided, are shown in Figure 1b, because Bleet Daweh is a single district with large townships. The smaller townships are not shown in Figure 1a so that the six districts can be clearly distinguished.

Medicine and medical equipment are purchased from suppliers used by internationally-recognized NGOs. Supplies are delivered to each mobile health clinic every six months, depending on the clinic's geography and security situation. They are transported mainly by foot and by boat from the border. This is a difficult process, and health workers often must travel at night to avoid SPDC troops. The way is protected by local security networks.

Village volunteers carry medical supplies across a river to Saw Ka Daw Ta MHC

Figure 1a. The KDHW Mobile Health Clinic and Primary Health Care Program in Six Northern Districts of Karen State

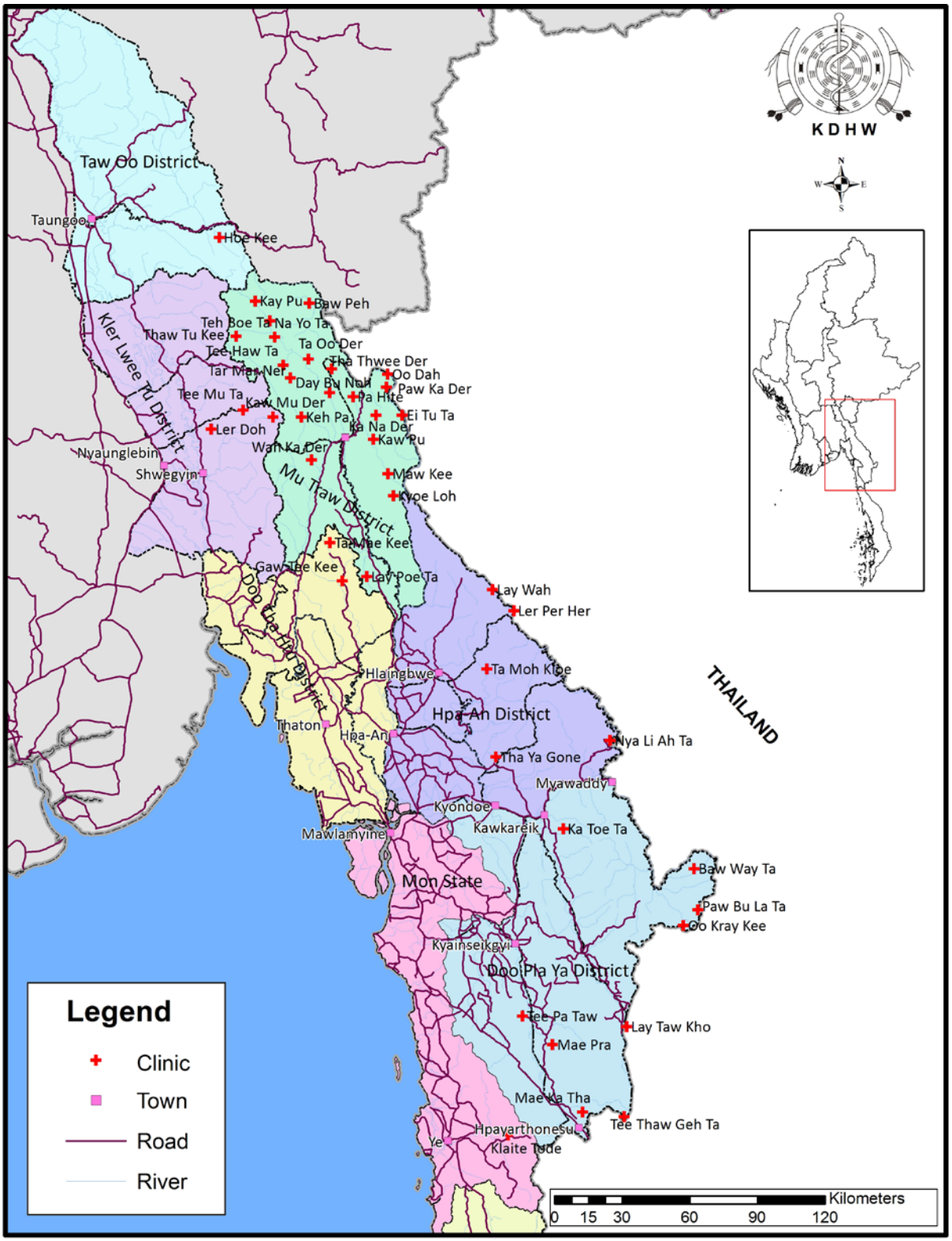
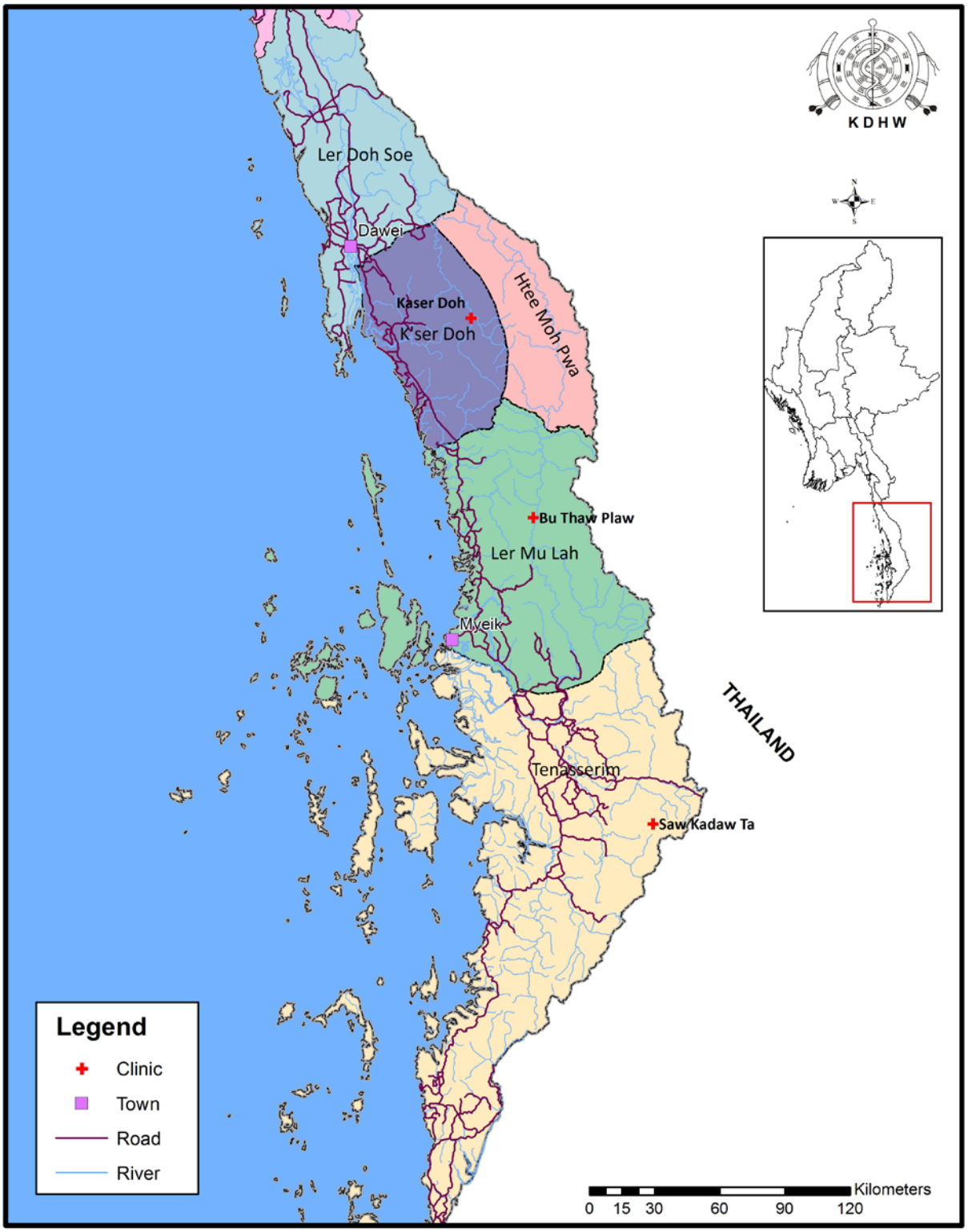


Figure 1b. The KDHW Mobile Health Clinic and Primary Health Care Program in Bleet Daweh District of Karen State



MHC staff members receive six months' initial training in their local areas in Karen state to become community health workers (CHWs). CHW training is explained in more detail in the

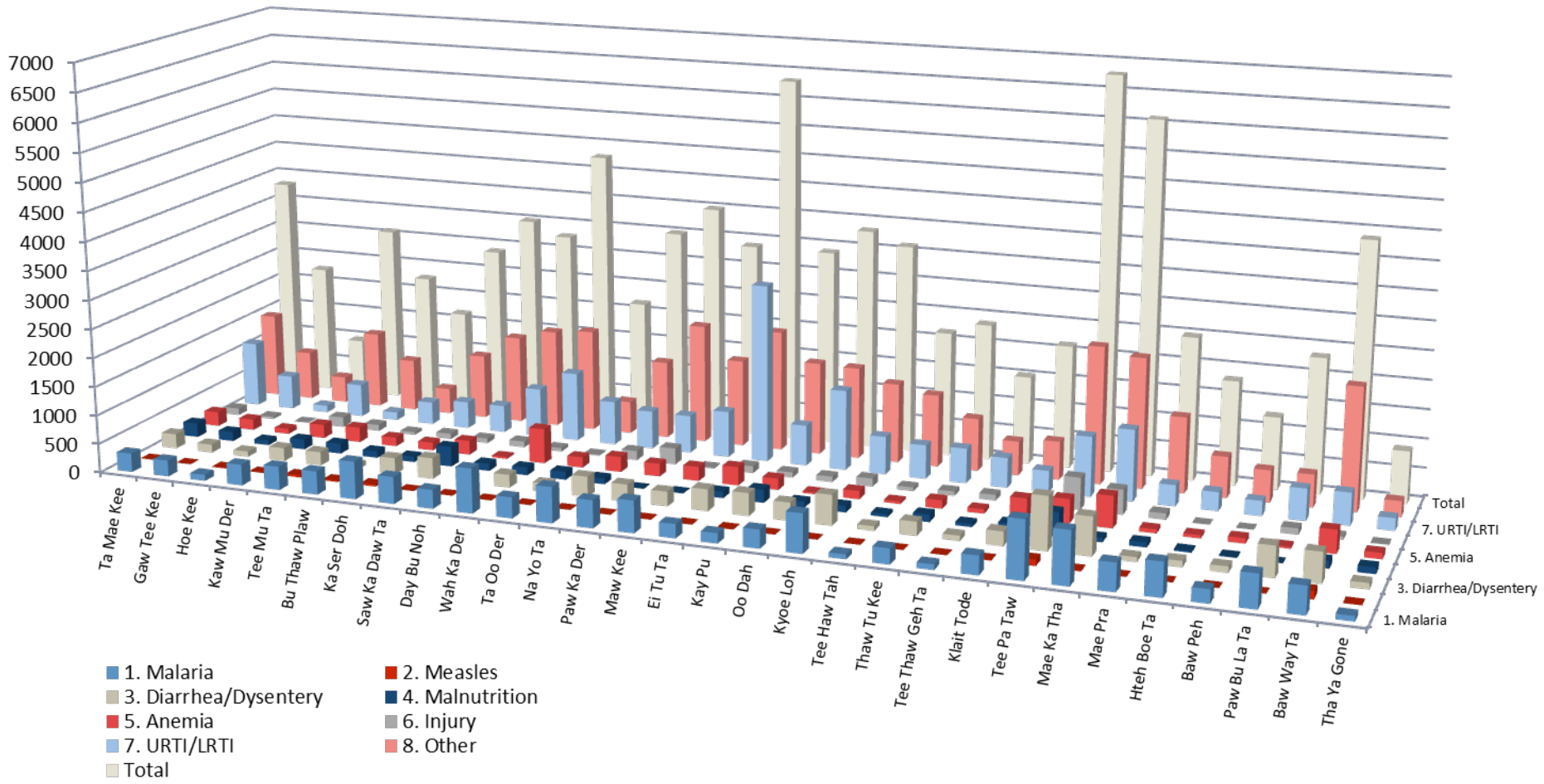
"Training and Capacity Building" section, on page 65. In the clinics, the CHWs use as a reference the *Burmese Border Guidelines*[1], adapted by a coalition of NGOs from treatment guidelines of the World Health Organization and from medical literature to address the pathologies and operational constraints that prevail on the Thai-Burmese Border.

Medic seeing patient at Hoe Kee MHC

Each MHC serves a population of 3,500–5,000 people. Every MHC has at least five CHWs providing primary health care along with CHWs who have received additional training for particular programs, for an average of 13 CHWs per clinic. The average case load for a clinic is about 3000 per year. Day Bu Noh clinic is an example of a large MHC implementing seven additional programs, with 44 clinic staff and with 32 auxiliary health workers based in the communities. About 3,272 cases were seen by Day Bu Noh clinic health workers in 2011. Tee Thaw Geh Ta clinic is a smaller MHC implementing three additional programs, with seven clinic staff and eleven auxiliary health workers based in the community. The Tee Thaw Geh Ta clinic saw 1,518 cases in 2011. The most common type of case seen by MHC health workers was upper or lower respiratory tract infection, followed by malaria and diarrhea/dysentery.

Figure 2 shows the caseloads for thirty MHCs. Some clinics are omitted because of incomplete data.

Figure 2. 30 MHC Caseloads by Clinic and Condition in 2011



Disease Prevention Activities

The mobile health clinics provide health care as the second line of defense in combating disease. The first line of defense is teaching people how to avoid disease through healthy day-to-day habits. Since its founding, KDHW has integrated disease prevention activities into its health care work. The clinics are called “mobile” not only because they are ready to move away from safety threats, but also because on any given day roughly half of each clinic's staff is visiting homes in the villages, educating the population about disease prevention, holding activities in schools to raise awareness, screening for disease, or checking to make sure villagers are doing their best to stay healthy.

A large number of diseases encountered at the clinics, such as diarrhea, worms, and various infections, result from poor hygiene or a contaminated water supply. The clinics’ preventive efforts focus largely on teaching villagers how to purify their drinking water (by boiling, filtration, or sun exposure) and how to build latrines to concentrate waste and reduce the chance of groundwater contamination.

Father and Injured Son in Mu Traw District of Karen State

Census Method

The MHCs also help villages in the clinic areas to count the population in each village in order to determine the target population for the MHC program and for the other programs that are integrated into MHCs. Each village leader organizes villagers to go from house to house to count the number of people in each household, categorized by age group and gender. The

Karen Village Health Worker Program conducts its own census to determine its target population because its target areas usually cannot be defined by MHC areas. A census for each clinic area is taken once or twice a year.

Monitoring and Evaluation

At the beginning of 2011, KDHW initiated a pilot project for monitoring and evaluation of the quality of health care during 2010 in the mobile health clinics. Review of logbooks from three clinics of different sizes was performed for six diseases: malaria, diarrhea, acute respiratory infection, dysentery, anemia, and worms. Each case was scored for being correct or incorrect for diagnosis and for treatment, based on the *Burmese Border Guidelines*.[1] Because the sampling was neither random nor systematic, the results cannot be generalized to more clinics. Another logbook review will be undertaken in early 2012 for the year 2011 under the direction of the International Rescue Committee (IRC), using random sampling. Those results will provide estimates of the quality of care in the KDHW system.

To follow up the monitoring program, a pilot quality improvement (QI) program is being planned for one MHC, to be initiated in 2012. QI is based on the continuous improvement cycle of plan-do-study-act famously associated with W. Edwards Deming and the Japanese automotive industry.[2] The first cycle will entail a visit to the MHC by a QI team formed in the central office. The team will administer a survey to the health workers to determine whether they usually perform diagnosis and treatment according to the *Burmese Border Guidelines*, and, if not, why not. Posters or other materials to encourage correct diagnosis and treatment for malaria, respiratory infections, and diarrhea will be given to the clinic. A QI coordinator will be appointed from the clinic staff who will send regular reports to the QI team based on logbook review in the clinic for the three diseases. The QI team will produce graphs and reports of the results and send them back to the clinic so that the clinic staff can see to what extent, if any, their care is improving. If the plan does not result in significant improvement in care, the QI team will study the results to develop a new plan.

We thank our partners in the KMHCP:
Freunde für Asien *(funding)*
Burma Relief Centre *(funding)*
Chrestos Mission Foundation *(funding)*
Community Solidarity POPOLI *(funding)*
Burma Humanitarian Mission *(funding)*
Mae Tao Clinic *(clinic management, training)*
Global Health Access Program *(funding, technical support)*
Burma Medical Association *(clinic management, training)*
Partners Relief and Development *(funding, clinic management)*

Karen Malaria Control Program

Program Background

Malaria is the leading cause of death in eastern Burma. The malaria burden is exacerbated by human rights abuses that have been committed by the military regime and continue under the current government. Forced displacement and destruction of food supplies compel villagers to live or to forage for food in the jungle, where exposure to malaria is highest. Other contributing factors include widespread availability of fake anti-malarials and the prevalence of a multi-drug resistant strain of the most severe form of malaria (Plasmodium falciparum).

A 2002 survey by the Back Pack Health Worker Team (BPHWT) and KDHW in their service areas found that 44% of all deaths were caused by malaria. Only 23% of malaria patients received any treatment and only about 50% of these patients completed their malaria therapy. Patients would stop when they began feeling better or if they did not like the side effects, but 76% of patients did not know the proper treatment duration for the medicines they had been issued.[3]

In 2003, with funding and technical support from the Global Health Access Program (GHAP), KDHW initiated an integrated Malaria Control Program. It began in four pilot villages with a population of about 2,000. New areas were added each year so that the Karen Malaria Control Program (KMHCP) now reaches 5,354 households in 34 target areas with a population of 32,401. Most of the covered population is within mobile health clinic (MHC) areas, but some villages in the KMCP are outside MHC coverage. Ten KMCP areas that were in BPHWT, not KDHW, coverage areas were transferred to management of BPHWT in 2011.

KMCP worker tests for Pf malaria in Ler Per Her using Paracheck RDT

Program Services

The KMCP applies international standards set by the World Health Organization (WHO) for reducing malaria burden, including early diagnosis and treatment (EDT), widespread use of long-lasting insecticide treated nets, and malaria education.[4] Patients are screened with a rapid diagnostic test (RDT) that is low in cost and highly accurate (Paracheck®Pf), or with microscopy where available.

Artemisinin-based combination therapy (ACT) is administered following the Directly Observed Therapy protocol (DOT), by which a clinic worker watches the patient while they are taking the dose and for 30 minutes afterward to make sure it is ingested, since patients with severe malaria are prone to vomiting. (ACT is recommended by the *Burmese Border Guidelines*[1] and other regional authorities.)

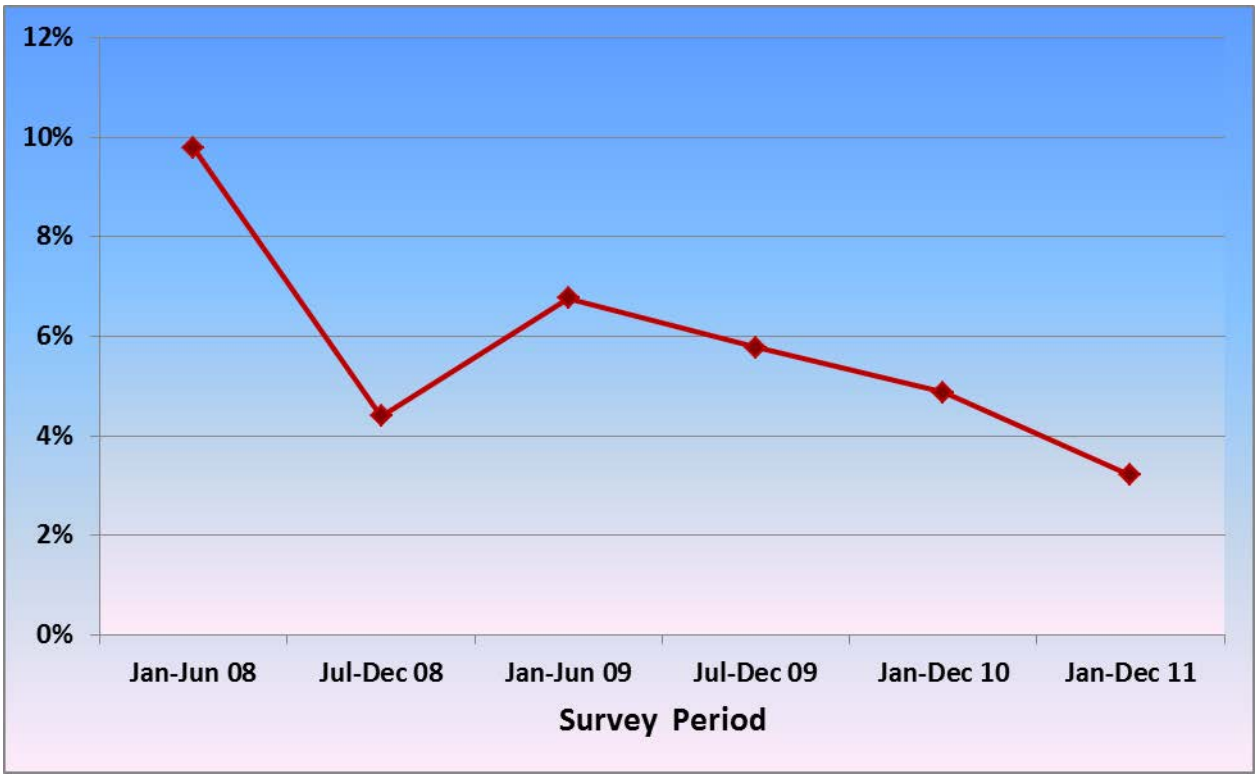
The program has a strong focus on prevention. Insecticide-treated nets are distributed to every household, and workers make house visits to monitor net use. In an August, 2005 survey of the original target population, two years after initiation of the program, more than 90% of people reported sleeping under a net every night. Clinic health workers educate villagers about malaria, explaining how to identify the symptoms, and the importance of seeking immediate treatment and of adhering to the full course of therapy. Villagers learn how to care for their nets and to reduce the number of mosquitoes by cutting bushes around the houses and eliminating nearby standing water.

An essential aspect of KDHW's KMCP has been its method of expansion. The program has relied increasingly on locally trained Village Health Workers (VHWs) to carry out the important less technical day-to-day aspects of the program. Recruitment of VHWs evolved organically. KMCP medics often were unable to reach the more remote villages in their target areas while continuing to provide normal services in the clinics. Therefore, they began training local villagers to conduct house visits, to refer symptomatic villagers to the clinic, and to provide patient follow-up. As it became clear that these villagers were an asset to the program and would facilitate coverage expansion, KDHW decided to incorporate them officially into the program. Currently VHWs are working with KMCP medics in 15 of the 34 KMCP areas.

Seroprevalence surveys, beginning with the baseline screening at inception of each program, were conducted biannually through 2009 to monitor *P. falciparum* malaria burden in the target populations of five groups of areas brought successively into the KMCP. Surveys were conducted once each year in 2010 and 2011. VHWs work alongside KMCP health workers to conduct seroprevalence screening. In order to sample randomly 10% of the target population, the workers tested all the residents of every tenth house in each village, beginning with a house that was randomly chosen. Results are shown in Figure 3 for 2008-2011. The early years are not shown because the population changed each year with additions of new target areas, but by 2008 all areas were included that were in the program through 2011.

Aggregate prevalence of Pf malaria has declined in the five areas by two thirds since June 2008, and by half since June 2009. The decline cannot be evaluated statistically, however, because of lack of comparison data from areas not in the KMCP.

Figure 3. Pf Malaria Seroprevalence in Five KMCP Coverage Areas



Program Training

KMCP medics are trained every six months in data collection, in malaria education, and in diagnosis and treatment protocols. During the workshops, they report screening information, net distribution and usage, and treatment data. They also share anecdotes about the challenges and successes of program implementation, and collectively they decide on ways to improve the program. After the training and reporting, the medics replenish all the necessary supplies and return to their target areas to continue another round of program delivery. Trainers also provide an opportunity for medics to practice their own training skills, so that they can effectively train VHWs upon returning to their target areas. This Training of Trainer (TOT) model also is used effectively in other programs, such as the Karen Reproductive Health and Family Planning Program (KRHFP).

Future plans

The Karen Village Health Worker Program (KVHWP) and KMCP are planning on combining aspects of training and program evaluation in 2012. The programs will conduct collaboratively a Knowledge, Attitude and Practice (KAP) survey in 2012 to measure impact of KDHW malaria services. The two programs also will combine trainings of VHWs. In 2011, VHWs from the KMCP and KVHWP attended separate trainings.

The KMCP also will be extended to more target areas in 2012.

MCP Health Workers Taking Inventory of Shipment of Antimalarial Drugs and RDTs

In collaboration with the International Rescue Committee and Shoklo Malaria Research Unit, KMCP plans to develop quality control (QC) for RDTs and microscopy in the diagnosis of malaria during 2012. KMCP seeks also to begin measuring parasite clearance times for Pf malaria in at least one clinic. The data is needed by the Worldwide Antimalarial Resistance Network (WWARN) in support of the monitoring of resistance particularly to artemisinin. A partner to provide technical assistance for this purpose has not yet been found, but, given the urgency of combating resistance to artemisinin, we are hopeful that a pilot project can begin during the coming year.

We thank our partners in the KMCP:
Child's Dream *(Funding)*
Global Health Access Program *(technical support)*
Australian Relief and Mercy Services *(ITNs, medicines, RDTs)*

Karen Trauma Management Program

Program Background

Eastern Burma is one of the most heavily mined areas in the world. Burma remains one of the few countries in the world whose government actively is laying landmines to terrorize and to control the movement of its people. In 2001 KDHW asked the Global Health Access Program (GHAP) for assistance in developing a "Flying Surgical Team Program" to send trained medic teams on foot quickly to the sites of injured victims of landmines and gunshots. The resulting Karen Trauma Management Program (KTMP) has as its goal to improve the survival rates of trauma victims in Karen state by (1) providing emergency trauma supplies and health services by trained trauma medics and (2) training village health workers in first aid to provide rapid first response to trauma victims.

The KTMP was initiated in January, 2003, with a trauma workshop conducted by Dr. Larry Stock and Dr. Richard Hahn of GHAP. In 2004 GHAP designed the first GHAP back pack for KTMP team supplies. The back pack supply project developed a complete trauma and blood transfusion supply list and budget. Five KTMP teams with standardized supplies were deployed in 2004 in MHC areas. A blood transfusion program was added in 2005 in four of the KTMP areas.

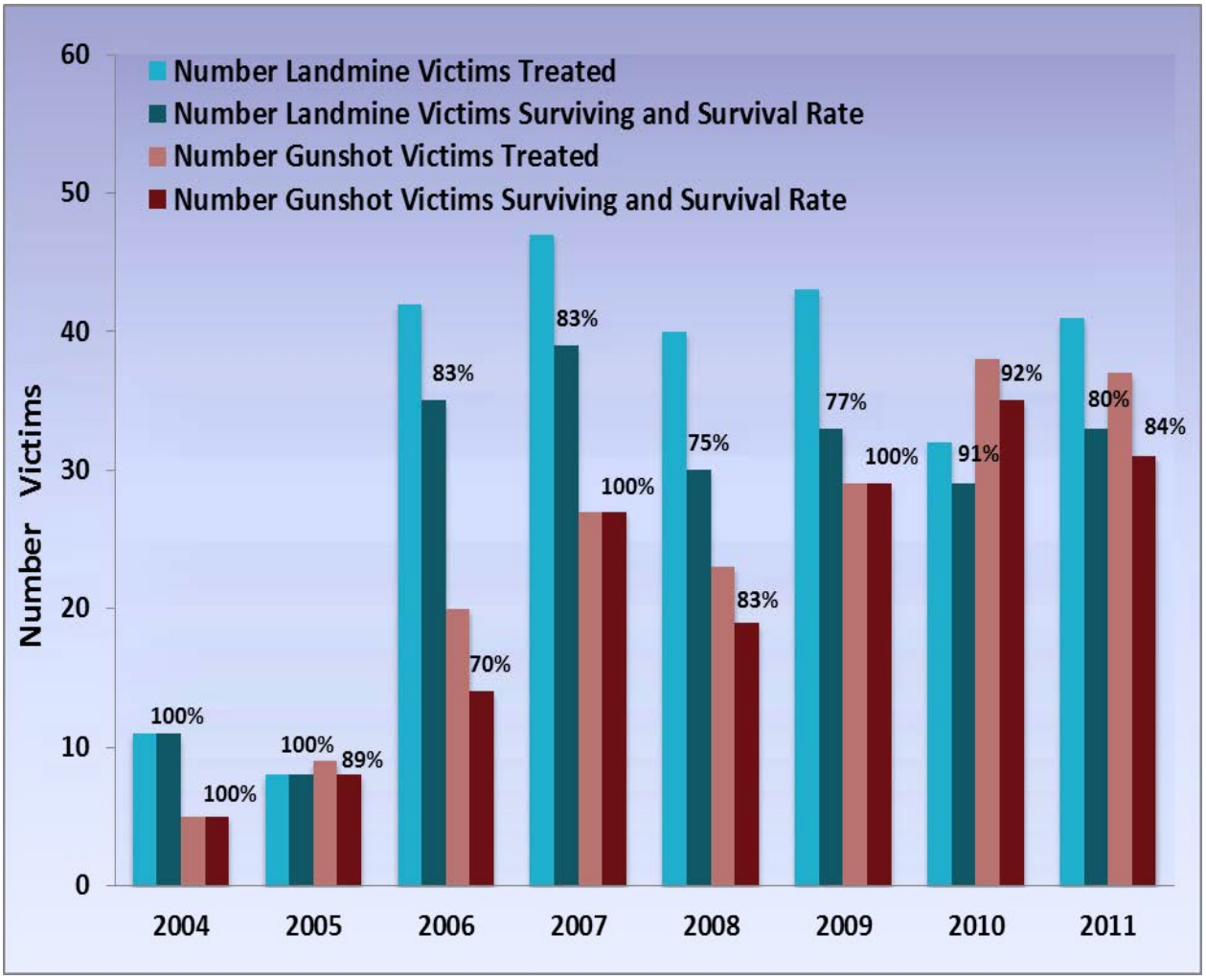
KTMP workers tending to a landmine victim in Pa-An District

Program Services

In 2011 17 KTMP teams of two persons each were deployed in Karen state. Six of the teams had blood transfusion capability, and three more teams were slated to receive training for blood transfusion. The program includes blood screening and compilation of donor lists. Three teams were in Bleet Daweh district, while 14 teams operated in the other districts in Karen State.

There were 250 major trauma cases in 2011 with an 87% survival rate for patients treated by KTMP medics. Landmine and gunshot wounds constitute about 22% of the total cases of major trauma seen. Numbers of landmine and gunshot victims and their survival rates are shown in Figure 4. The survival rates, shown above the bars indicating numbers of survivors, represent cases for which the survival status is known. In 2011, the survival status was not known for four landmine victims and three gunshot victims. The data presented is only for victims reached by the trauma teams. The total numbers of landmine and gunshot injuries occurring annually in Karen state are not known. Other injuries seen by KTMP medics include cut wounds, stab wounds, and broken bones.

Figure 4. Landmine and gunshot wound caseload and survival rates under KTMP



KTMP medics and VFHs transport landmine victim in Pa-An District

Table 2. KTMP Cases and Outcomes in 2011

Description	Number of injuries	Survival Rate
Total major trauma cases	350	
Survivors of major trauma	304	87%
Cases of landmine injury	41	
Survivors of landmine injury	33*	80%
Cases of gunshot injury	37	
Survivors of gunshot injury	31**	84%
Cases of cut wounds	71	
Survivors of cut wounds	63	89%
Cases of stab wounds	5	
Survivors of stab wounds	4	80%
Cases of other major injuries	196	
Survivors of other major injuries	173	87%

* There were four dead and four missing victims of landmines.

** There were three dead and three missing victims of gunshot.

Program Training

In 2007 the KTMP developed curricula to train three tiers of KTMP health workers. There are first aid, basic, and advanced courses. In the field, medics teach other medics and also villagers. The Village First Helper (VFH) program trains local villagers to approach and manage trauma victims until the arrival of the trauma teams. A first aid training course developed by GHAP for students and VFHs comprises 25 hours of training over five days. Basic trauma training for village health workers (VHWs) and new medics comprises 75 hours of training over 15 days. Advanced training courses, for medics with three or more years' experience, vary from four to ten days in length.

This year marks the 9th year of KDHW's collaboration with GHAP for trauma training, and the 3rd year in Bleet Daweh. Since 2003, GHAP has conducted 19 trauma workshops and advanced training courses for follow-up training for KDHW medics.

KTMP medics learn to perform the following procedures:

- A.B.C. (air, breathing, and circulation)
- Sterilization and Disinfection
- Splinting of Fractures
- Surgical Airway
- Chest Tube
- Fasciotomy
- Amputation
- Transfusion
- Wound care
- Patient referral

Additionally, mental health training has been introduced as a complement to the surgical/clinical advanced course, focusing on self-care to improve the well-being of the health workers in addition to teaching health workers how to counsel victims of trauma and their families.

Future plans

Funding is being sought for KDHW plans to train more trauma teams in order to extend the program to more areas, and for capacity building.

We thank our partners in the KTMP:
Not on Our Watch *(funding)*
Direct Relief International *(funding)*
Australian Aid International *(training)*
International Rescue Committee *(funding)*
Global Health Access Program *(technical support)*
International Committee of the Red Cross *(training)*

Karen Reproductive Health and Family Planning Program

Program Background

For Karen communities in Eastern Burma, access to reproductive health care services is extremely limited. Community based organizations have documented the devastating effects that the Burmese military regime's policies and practices, such as forced displacement and forced labor, have had on reproductive health. In 2008, the maternal mortality ratio was 721 per 100,000 live births.[5]

The Karen Reproductive Health and Family Planning Program (KRHFP) grew out of KDHW participation in the Mobile Obstetric Maternal Health Worker (MOM) pilot project, which was conducted between 2005 and 2009. MOM was a cross-border, multi-ethnic reproductive health project funded by the Gates Institute for Population and Reproductive Health, with technical support from the Global Health Access Program. The MOM project provided extensive training for Maternal and Child Health Workers from several KDHW clinics and from other ethnic health clinics, so that they could offer comprehensive reproductive health services.

The KRHFP was begun in 2007 when 24 Reproductive and Child Health Workers (RCHPs) from 14 areas in Karen received training at Mae Tao Clinic that included one month of theory training and two months' practical experience. Afterward the RCHWs conducted seven-day training courses for TBAs in their target areas. RCHWs receive one-month follow-up training at Mae Tao Clinic every six months and give the TBAs three-day follow-up training every six months. KDHW provides standard maternity and TBA kits.

Partly because of funding constraints the program has not expanded coverage since its inception. While the program has been suspended in some areas due to security concerns, new areas have been added. In 2011, the KRHFP was extended to one new MHC area for a total of 13 program areas. The program serves a population of 38,169 people, which includes an estimated 1,187 pregnant women. Services are provided by 29 RCHWs and 200 traditional birth attendants (TBAs).

Program Services

The goals of the KRHFP are to reduce maternal and neonatal mortality, and to provide access to family planning services. In 2008, 78.2% of women did not use modern contraception.[5] RCHWs provide basic emergency obstetric care, antenatal care (ANC) including malaria control for pregnant women, safe delivery, postnatal care, and post-abortion care services. Family planning counseling is offered to both men and women. RCHWs provide contraceptive services that are appropriate and widely accepted in this setting (Depo-Provera, oral contraception, condoms and emergency contraception).

The RCHWs train TBAs in the villages surrounding the clinic to provide a subset of services directly in the communities. TBAs can distribute condoms, and can refer patients who need other contraceptive services to the RCHW. They also refer women who require post abortion care. The program has developed standard maternity kits for patients and standard TBA kits used during delivery.

The KRHFP conducted a baseline survey in 2007 and a follow-up survey in 2010 of reproductive health needs in the program areas, interviewing samples of 900 women in a randomized cluster design. Results shown in Table 3 show improvements in the program areas for nutrition and for antenatal care and contraceptive services.

Table 3. KRHFP Services 2007-2011

Issues for Women of Reproductive Age	2007 Baseline	2010 Follow-Up
Malnutrition	29%	6%
Anemia	33 %	32 %
Malaria (Pf)	8 %	5 %
Unmet need for modern contraceptives	50 %	28%
Received antenatal care	13%	59 %

Table 4 quantifies the services provided by RCHWs and TBAs working in the program areas. The numbers and percentages of deliveries attended by RCHWs declined year by year as skill levels of TBAs rose to the extent that they could cope with more complications of delivery without assistance.

Education of women about the importance of ANC has helped to reduce the disparity between the use of delivery services and ANC services. In the past, women tended to seek KRHFP services when they were about to give birth, but few women sought ANC services.

In June 2011, program coordinators embarked on a five day monitoring trip to Ei Tu Ta (Mu Traw district) and Oo Kray Kee (Doo Pla Ya) KRHFP areas. The program coordinator met with RCHWs, TBAs, clinic in-charges, and village leaders to discuss program challenges and accomplishments, and ways to improve the program for the future. RCHWs expressed the need for certain supplies and for increased support for health workers.

Program Training

The KRHFP uses the training strategy developed during the MOM project, which uses trainers at two levels. Trainers from Burma Medical Association (BMA), Mae Tao Clinic (MTC), and KDHW who are experienced in reproductive health and malaria control provide RCHWs training for service provision and Training of Trainer instruction at MTC. These RCHWs in turn return to their clinic areas inside Karen State and train TBAs at their respective clinics. Both the trained TBAs and RCHWs provide services and give health education to the target community.

Table 4. KRHFP Services 2007-2011

	2007-2008		2009		2010		2011	
	Number	% of Pregnant Women	Number	% of Pregnant Women	Number	% of Pregnant Women	Number	% of Pregnant Women
Clinics with Program	14	--	11	--	12	--	13	--
Target Population	44,265	--	29,910	--	32,976	--	33,181	--
Pregnant Women	1771	--	1196	--	1319	--	1387	--
Women Receiving ANC	735	**42%**	654	**55%**	756	**57%**	908	**65%**
Deliveries Attended by TBA*	759	**43%**	685	**57%**	802	**61%**	859	**62%**
Deliveries Attended by RCHW*	722	**41%**	346	**29%**	129	**10%**	108	**8%**
Treated for Pf Malaria	41	**2%**	49	**4%**	57	**4%**	17	**1%**
Given ITN	775	**44%**	618	**52%**	572	**43%**	477	**34%**
Family Planning Method Provided	319	**18%**	497	**42%**	704	**53%**	598	**43%**
Maternal Death **	1	**0.1%**	5	**0.4%**	3	**0.2%**	4	**0.2%**

* No information about total number of deliveries in the area is available, so number of deliveries as a percentage of pregnant women is the best estimate that can be given.

** Maternal death is calculated by counting deaths in the time period from the start of pregnancy to one month after birth. This number does not include deaths of referred patients.

RCHW performs neonatal resuscitation at Ei Tu Ta Clinic

In 2011, the KRHFP gave initial KRHFP training for new RCHWs, including one month of theory training and two months' practical experience at MTC. In this training, there were 13 trainees and 11 trainers. Below are the subjects for the three-month RCHW Initial Training:

1. Antenatal Care
1 Normal delivery
2 Postnatal Care
3 Family planning
4 STI/HIV/AIDS
5 Mental Health
6 Training of Trainer
7 Data form

On returning to their clinic areas, all RCHWs conducted a seven-day training course for the new TBAs in their respective KRHFP areas. Follow-up training was conducted for RCHWs on the Thai/Burma border four months after the initial training, lasting one month. The purpose of follow-up training was to review data forms, present cases from the field, and review reproductive health subjects and treatment protocols. The RCHWs subsequently conducted a three-day TBA follow-up training in their respective KRHFP areas.

RCHW gives TBA training at Mae Ka Tha Clinic

Future Plans

In 2013, a second follow-up survey will be done to evaluate the impact of KRHFP services and to re-evaluate program strategies.

We thank our partners in the KRHFP:
Mae Tao Clinic *(training)*
Burma Medical Association *(training)*
International Rescue Committee *(funding)*
Global Health Access Program *(technical support, funding)*

Gender Based Violence Counseling Pilot Project

KDHW participated in a pilot project with partner organizations called "Community-based Care for Survivors of Sexual Assault" in 2010. In the pilot areas, Ta Oo Der and Tee Mu Ta MHCs, focus is on women between the ages of 14 and 45. The project has been paired with the KRHFP and trains RCHWs and TBAs to identify and treat victims of sexual assault and educate the community on these issues. This pilot project ended at the end of 2011.

A refresher training was held for RCHWs from all clinic areas in early July 2011 for 18 health workers, including those from Tee Mu Ta and Ta Oo Der. Integrated into the training was a section on gender based violence, including lectures on clinical care for survivors of sexual assault. At the end of the training, trainees from the KDHW and BMA pilot sites participated in focus group discussions and in in-depth interviews conducted by the Women's Refugee Commission. Trainees also were trained on how to conduct focus group discussions with various groups in the community.

At the completion of the RCHW training, RCHWs from the pilot sites returned to their clinic areas and provided training to TBAs working in the field on gender based violence counseling. Over 160 TBAs were trained, including 21 TBAs from the pilot areas. The training included care for survivors of sexual assault, and discussions of the definition of gender based violence, its causes, contributing factors, and available services.

A focus group discussion with TBAs on gender based violence counseling

RCHWs from each of the pilot areas also conducted two focus group discussions with health workers, TBAs, and male and female community members. Each discussion had six to eleven participants. Recordings and notes from these sessions are currently being translated and transcribed. Initial findings from the recordings include descriptions of violent acts committed on villagers by soldiers of the State Peace and Development Council (SPDC) government.

There was a high level of community interest in this topic, but no individuals came for care following sexual assault during the project period. RCHWs also reported that they had not heard of any current cases. They knew of incidents of physical violence against women, but were unaware of cases of sexual violence.

Health workers are very interested in continuing the pilot project on sexual assault and think that expanding it to other clinics would be useful. Thus, KDHW hopes to continue this project when funding sources are found.

We thank our partners in the GBV Counseling Pilot Project:
Global Health Access Program *(technical support, coordination)*
Women's Refugee Commission *(funding, training, and technical support)*

Karen Village Health Worker Program

Program Background

The training of village health workers (VHWs) by MHC medics initially occurred in the malaria control program when medics sought to establish a presence in more distant villages. Since 2009 the program has been administered independently and has been expanded to reach 16 clinic areas with a population of 37,190. The goals of the program are:

- To improve village health
- To teach members of the community to protect themselves from disease
- To change the care seeking patterns within the village
- To provide basic health care to villagers where there is no clinic access
- To encourage community ownership and demand for KDHW services.

Focusing first on diarrhea, KDHW conducted a baseline survey of a population of 3,540 people (including 665 under five years old) with assistance from the Global Health Access Program (GHAP) in 2009. The results in Table 5 showed that there was a high prevalence of diarrhea and a clear need for education on giving oral rehydration therapy. In the population of children under five years, 16% had had diarrhea during the previous two weeks. Oral rehydration solution (ORS) use among those with diarrhea at any age was only about 45%.

Table 5. Data from the KVHWP baseline survey in 2009

Diarrhea in people 5+ years	**3%**
ORS use in people 5+ that had diarrhea	**33%**
Diarrhea in children < 5 years old	**16%**
ORS use in children <5 that had diarrhea	**54%**
Diarrhea (all ages)	**5%**
ORS use among those with diarrhea (all ages)	**45%**

Program Services

The Karen Village Health Worker Program (KVHWP) focuses on education and prevention of malaria and diarrhea using health workers based in the communities. KVHWP aims to have one VHW for a population of 200 people. Thus, one or two VHWs live in each village of a program area. VHWs visit every house in their village twice a month. During these house visits, they give health education, do testing for malaria and give treatments.

There are two levels of VHW, the first level being trained to teach about and treat diarrhea. Level 1 VHWs teach hand washing with soap or ashes for prevention of diarrhea, and how to make ORS to treat dehydration.

Level 2 VHWs treat and educate villagers about malaria, in addition to diarrhea, following the strategy of the Karen Malaria Control Program (KMCP). The strategy includes distributing insecticide treated nets (ITNs) and K-O Tab insecticide treatment, doing early diagnosis and treatment, and referring severely ill patients to the clinic. More information on the KMCP malaria control strategy can be found in the KMCP section on page 18.

KVHWP Coordinator tests families for understanding of pictures on a monitoring trip

Output data for the KVHWP are received in six-month periods, May to October and November to April. Table 6 gives a summary for Level 1 and 2 activities for three reporting periods from May 2010 to October 2011. Level 2 service coverage during house visits increased from one period to the next, reflecting the promotion of Level 1 VHWs to Level 2. By May 2011, all VHWs had completed Level 2 training.

During 2010, Level 2 VHWs worked only in ten of the sixteen VHW program areas. The large increases in numbers of malaria cases treated during May-October 2011 reflect extension of VHWP Level 2 services to the remaining six program areas, as well as the usual higher prevalence of malaria during the rainy season. In 10% of households, at least one person was treated for malaria during the period.

Program Training

VHWs are managed by VHW supervisors trained by program coordinators with the assistance of GHAP. GHAP provides technical support for curriculum development and training, and for program monitoring and evaluation based on internationally tested best practices. The supervisors then return to their communities and are responsible for conducting VHW trainings, distributing supplies, keeping records, conducting assessments, preparing reports and communicating with the central office. Fifteen supervisors and 15 assistant supervisors manage

216 VHWs living in 135 villages. One follow-up training was conducted by VHW supervisors n 2011.

Table 6. Level 1 and Level 2 KVHWP Activities

	May-Oct 2010	Nov 2010 - Apr 2011	May-Oct 2011
Target population	37,189	36,646	37,190
Community education events	487	633	866
Number of Level 1 competent VHWs	199	196	246
Number of Level 2 competent VHWs	138	127	246
Number of home visits	31,390	23,116	39,596
Level 1 Service Coverage			
% of home visits where at least one person had diarrhea	6%	8%	5.3%
% of home visits where hand washing was taught	92%	96%	95%
% of home visits where instruction was given on ORS	92%	95%	96%
% of diarrhea cases given zinc	90%	92%	96%
% of home visits resulting in referrals	0.4%	0.2%	1%
Level 2 Service Coverage			
% of home visits where malaria symptoms were taught	41%*	73%*	91%
% of visits that VHWs taught households about the importance of finishing malaria treatment	41%*	71%*	90%
Pf malaria cases treated	419	163	1747
Pv malaria cases treated	774	254	2354

* Only some home visits were made by Level 2 VHWs; therefore, the percentage does not reflect the competency of Level 2 VHWs.

Future Plans

The KVHWP and KMCP are planning on combining aspects of training and program evaluation in 2012. The programs will collaborative in conducting a Knowledge, Attitude and Practice (KAP) survey in 2012 to measure the impact of KDHW malaria services in all 16 KVHWP areas. The two programs also will conduct a single training for VHWs from both programs in 2012. The KVHWP also plans to add upper and lower respiratory tract infections as an added focus for a future Level-3 VHW training in 2013. The focus of 2012 will be improving the quality of VHW services to their communities.

A VHWP supervisor teaches hand washing

We thank our partners in the KVHWP:
Child's Dream *(funding)*
Global Health Access Program *(technical support, training, and monitoring)*

Karen Tuberculosis Program

Program Background

Burma has an estimated 300,000 cases of tuberculosis, giving it one of the highest rates worldwide 0.6% of the population.[6] The Burmese government reports 95% DOTS coverage. DOTS is "Directly Observed Therapy, Short Course", recommended by WHO.[7] In reality, for hundreds of thousands of internally displaced persons (IDPs) in the border regions there is little or no TB surveillance or treatment.

The Karen Tuberculosis Control Program (KTBP) has the goal of identifying all persons with active tuberculosis and giving them six or more months of supervised medical treatment to be sure they are cured. Successful treatment of all contagious patients will rid a community of TB.

In September, 2006, KDHW launched a case-finding and treatment program for the IDP population in Karen State. Médecins Sans Frontières-France (MSF) in Mae Sot trained lab technicians in acid-fast bacilli sputum smear microscopy for tuberculosis diagnosis and trained community health workers as TB medics to administer tuberculosis treatment following the DOTS protocol. MSF trained one TB medic and one laboratory technician from each of seven different KDHW clinic areas in 2006 and 2007.

During 2007 the medics and lab technicians in five areas conducted health education and screening activities. Problems with security and cross-border logistics prevented teams from returning to two clinic areas in 2008. A new area conducted screening in 2008, but did not perform sputum testing until 2009. A third area became inactive because of poor security in 2009. The teams remained active during 2009-2011 in three areas: Day Bu Noh, Wah Ka Der, and the new area, Ei Tu Ta. See Figure 2a for MHC locations.

Program Services

In the three active areas, two teams of a medic and a laboratory technician are deployed. The teams are assisted by twenty village health workers who have been trained by the medics to assist with canvassing.

KTBP case finding usually is accomplished by house-by-house checks to identify anyone who has coughed for more than three weeks. Sputum smears are run on the possible cases found. In addition, villagers in every household receive TB education using MSF flip charts and Karen-language educational pamphlets.

In 2011, the medics decided that a house to house search was not needed every year, and so asked villagers to assemble for mass screenings. The disappointing turnout for mass screenings and reduced number of cases found led to a decision to continue house to house searches every year afterward.

Persons found to have active tuberculosis receive counseling and education. They are persuaded to live at the clinic during the period of therapy. Housing is provided for patients at the KTBP clinics to ensure that they complete the course of therapy in order to lower the risk that TB drug resistance will emerge. The patients receive a two-month course of treatment, taking the four HRZE drugs, Isoniazid (H), Rifampin (R), Ethambutol (E), and Pyrazinamide (Z), along with a vitamin B6 supplement. For each patient, dosages of each medicine based on the

weight of the patient are prepared in advance, two months' dosages of HRZE combinations, then four months of HR dosages.

Education of TB patient by KTBP medic in Eh Tu Ta

Patients who are smear negative at two months must continue on HR therapy for another four months. They are tested again at five months and six months, and are considered cured only after they test negative three times. A patient who tests positive at two months is tested again at three months. A patient who tests negative at three months then continues HR therapy for four months and must test negative at six months and seven months to be considered cured.

A patient who still tests positive at three months may be carrying a multiple drug resistant strain of the bacillus and so is referred to a tuberculosis clinic at Mae La Oo refugee camp for treatment with additional drugs. Any patient who first tests negative and later positive also is transferred to Mae La Oo as a relapse case. The program follows up on these patients. Two of the three relapse cases have been cured. Follow-up also is attempted with patients who leave the clinic and then are treated at a Burmese hospital. One of the three cases is known to have completed treatment.

Numbers and percentages of persons screened each year, numbers of detected cases and the health status of all cases are given in Table 7. Final negative smears were not obtained for four patients who completed treatment and were reported healthy. These patients were treated early in the program, in 2007-2008 when patients did not stay at the clinic during their treatment and follow up sputums were more difficult to obtain.

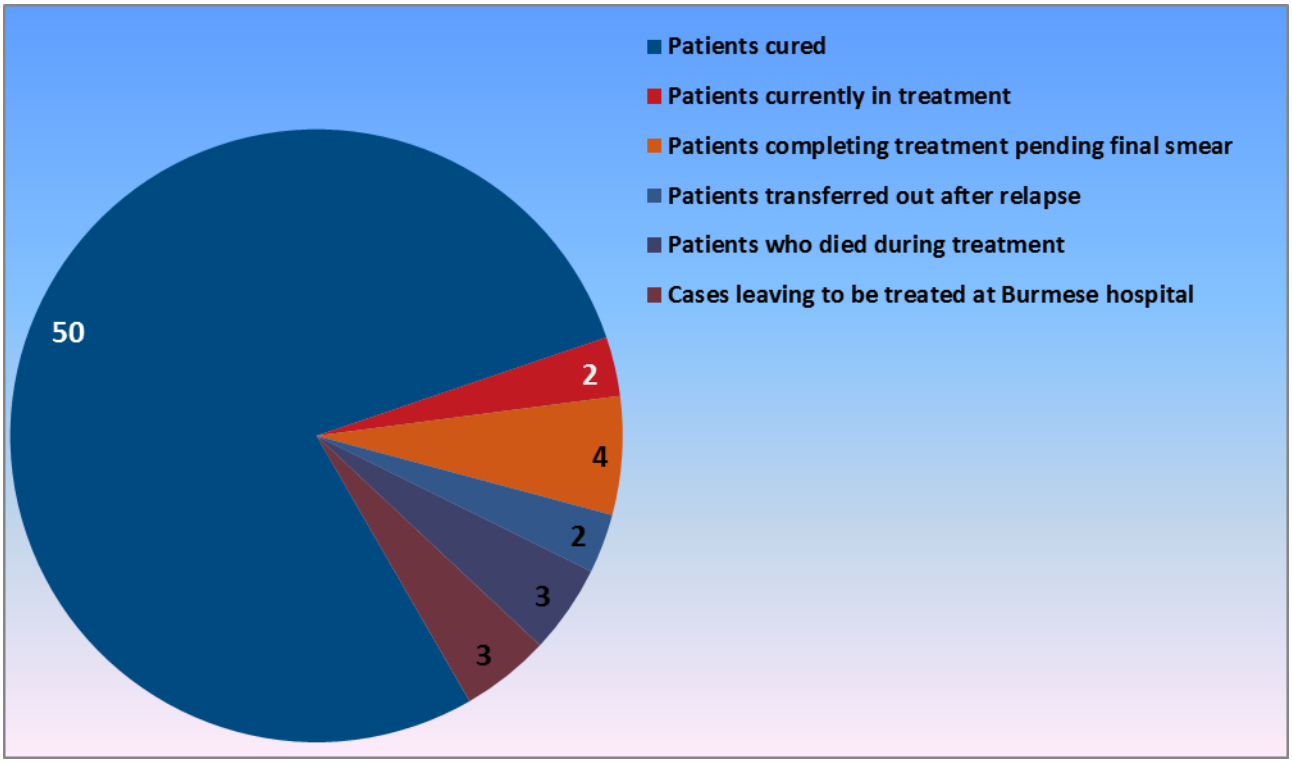
Over six years of screening, a total of 64 persons have been identified as active TB cases based on positive sputum smears, of whom 61 have received treatment in the KTBP and 50 have completed treatment and have been cured. Three cases left the clinics and later sought treatment in Burmese hospitals.

Table 7. TB Patient Identification and Treatment 2007-2011

	2007	2008	2009	2010	2011	2007-2011
Target population	17,704	11,206	11,518	11,567	12,201	-
Number persons screened	5762	9068	9588	9105	1195	34,718
Percent target population screened	33%	81%	83%	79%	10%	-
Persons completing sputum testing	49	45	122	97	80	393
Number sputum positive smears	4	15	16	18	11	64
Number patients cured	3	10	13	9	8	50
Patients currently in treatment	0	0	0	0	2	2
Patients completing treatment, but no record of final negative smear	1	3	0	0	0	4
Patients transferred after relapse	0	1	1	0	0	2
Patients transferred out after positive smear at 3 months	0	0	0	0	0	0
Patients who died during treatment	0	1	1	1	0	3
Patients who left to be treated at a Burmese hospital	0	0	1	1	1	3

Figure 5 shows the numbers of identified TB cases in each status at the end of 2010. The status of being transferred following a positive smear after three months is omitted, because the number of such patients is zero.

Figure 5. Current Status of All TB Cases identified by KTBP 2007-2011



Quality Control and Program Training

Since 2007, the Global Health Access Program (GHAP) has provided training and technical support for the program. The Shoklo Malaria Research Unit (SMRU) in Mae Sot began to provide technical assistance in August, 2010, when, following a refresher training course, it gave quality control (QC) training to three laboratory technicians from the three active programs. The other two technicians remained in the field to continue periodic testing of returning patients. SMRU also performed QC for a sample of 100 archived slides, including all positive slides, received from the three active clinic areas from 2008 to 2010. Overall agreement between readings of the slides was 76%. A follow-up QC of 89 recent slides to determine whether apparent false positive readings could have been caused by deterioration of the older slides found 97.8% agreement.

In 2011, there were four TB trainings. The KTBP held workshops in February and July lasting one week each for six TB medics. The International Office of Migration (IOM) trained two new laboratory technicians. Aide Médicale Internationale (AMI) conducted a two-week refresher training for two laboratory technicians and also provided laboratory quality control.

TB Patients' House at Day Bu Noh MHC

Future Plans

Extension of the TB program to new areas will depend on securing additional funding.

We thank our partners in the KTBP:
International Office of Migration *(training)*
Aide Médicale Internationale *(quality control and training)*
Global Health Access Program *(technical support and funding)*
Shoklo Malaria Research Unit *(technical support, quality control, and training)*
Malteser International *(care of patients referred because of relapse or drug resistance)*

Karen Vitamin A Supplementation and Deworming Program

Program Background

Worm infestation is a major risk factor for anemia and malnutrition and can be treated with a single administration of deworming medicine. Vitamin A supplementation may be the single most effective intervention for preventing childhood illness. Deficiency in Vitamin A is a major risk factor for blindness, diarrhea, measles, and pneumonia in children. Combining deworming with vitamin A supplementation contributes significantly to reduction of childhood morbidity and mortality.[8]

Vitamin A deficiency is known to be prevalent among children in Southeast Asia. KDHW has long provided preventive deworming medication and vitamin A supplements to children age 0-12, but coverage has been limited because of lack of funding and human resources. Toward the end of 2007, a generous donation from Child's Dream allowed KDHW to move toward a long-planned formalization of the distribution of these medicines.

In 2008, KDHW began working with the Karen Teacher Working Group (KTWG) and the Karen State Education Assistance Group (KSEAG) to increase coverage of Vitamin A and deworming medicines. KTWG teachers have a widespread community network that reaches large numbers of children at schools outside mobile health clinic areas. We hope that this initial collaboration will lead to future distribution of KDHW health education materials and to other programs that target children.

Program Services

Currently the Karen Vitamin A Supplementation and Deworming program (KADWP) is administered by twenty MHCs with a target population of 71,972 that includes about 38,673 children age 0 to 12. In addition, the program works with 245 schools in the clinic areas to reach children age 5-12.

At most clinics and schools, the KADWP distributes Vitamin A and deworming medicine every six months to children, the most vulnerable part of the population. Four hundred milligrams of albendazole is given to all children 1-12 years old. Vitamin A dosages for children of different age groups are shown in Table 8. KDHW distributes Vitamin A in 25,000 IU and 200,000 IU pills. During house visits, ADWP clinic workers also treat anemic mothers and children with Vitamin A according to the *Burmese Border Guidelines.*[1]

Table 8. Vitamin A dosage by age group

Age	Dose
0-6 months	50,000 IU
6 months – 1 year	100,000 IU
1-12 years	200,000 IU

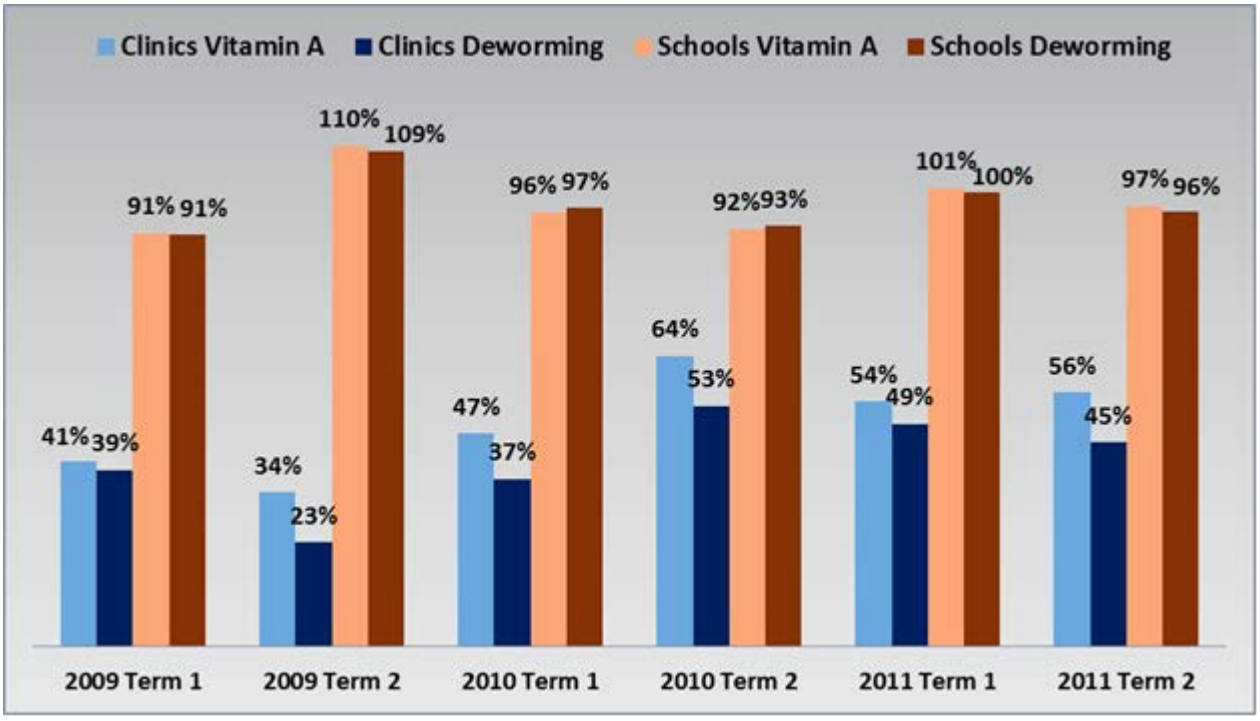
Numbers of children receiving Vitamin A or deworming medication in 2011 are shown in Table 9. Around 27,000 children received Vitamin A and nearly 26,000 children received albendazole for deworming in 2011.

Table 9. Numbers of Children Receiving Vitamin A and Deworming Medication

	Jan-Jun 2011	Jul-Dec 2011
Number children receiving Vitamin A in clinics	12,443	12,792
Number children receiving deworming tablets in clinics	11,167	10,238
Number children receiving Vitamin A in schools	14,568	12,946
Number children receiving deworming tablets in schools	14,403	12,957

Percentages of the target population covered are shown in Figure 6. Because of population movements it was difficult for the schools to keep track of their exact enrollment numbers; hence the coverage rates over 100% in the second term of 2009. Distribution in schools remains stable at nearly 100% in 2011 for both vitamin A and deworming. Clinic coverage of distributions remains at around 50%, because the remoteness of villages and insufficient manpower restrict the number of villages in the target areas that health workers can reach.

Figure 6. Vitamin A and Deworming Caseload 2009–2011



Education on child nutrition and personal hygiene are given by both school teachers and KADWP workers in the program areas. School teachers trained by the KADWP hold a health education event once a year to teach children in their schools about good nutrition, personal hygiene, hand washing technique and the importance of wearing shoes. KADWP workers, while distributing Vitamin A and deworming medicine in their target villages, also hold community health education events in villages, especially targeting mothers and children. Health education topics covered by KADWP workers are the same as in schools.

Program Training

KADWP coordinators gave one follow-up training in distribution of vitamin A and deworming medication to 20 KADWP workers and 31 school teachers from the KTWG in 2011. Training topics included general information on worms and Vitamin A, how worms are transmitted, side effects of the medicines, personal hygiene, clean drinking water, nutrition, and methods to educate children and parents. Trained teachers in turn train other school personnel to implement distribution in their schools and to use an improved system of record keeping that enables KDHW to monitor and evaluate the program.

An enjoyable KADWP training activity

Future Plans

KADWP may change the target population of vitamin A recipients from children from 0-12 years to children under 5 years old, according to WHO recommendations for vitamin A.[9] KADWP will discuss the change issue with partner organizations before reaching a final decision.

We thank our partners in the KADWP:
Child's Dream *(funding, medicine)*
Global Health Access Program *(technical support, funding)*
Karen Education Department, Karen Teachers Working Group,
Karen State Education Assistance Group *(program implementation, transportation, data collection)*

Karen Lymphatic Filariasis Program

Program Background

An estimated 120 million individuals are infected worldwide with lymphatic filariasis (LF). This parasite is the second leading global cause of disability.[10] The disease may be latent for decades, but eventually leads to the symptoms characterized as "elephantiasis," grossly swollen legs, testicles (hydrocele), or other body parts. Successful eradication programs have been conducted in neighboring China and Thailand.[11] Elimination of LF is possible with annual mass drug administration (MDA) for at least five consecutive years to the entire endemic population, leaving out pregnant and breast-feeding women and children under two. A single administration of two drugs, albendazole and diethylcarbamazine, suffices to kill all microfilariae, and so make persons noninfectious to mosquitoes. With almost no infected humans in an area, the mosquitoes cease to become infected and no longer carry the parasite. Persons who already have LF symptoms, however, cannot be cured of the symptoms even after the filariae have been killed. For these persons, palliative care is needed.

Swollen leg of a victim of advanced LF

The Burmese Ministry of Health has designated Karen State as endemic for LF, but recent prevalence data are unavailable. In February, 2008, KDHW and the Back Pack Health Worker Team (BPHWT) began antigen testing for LF on randomly selected samples of 100 adults in three areas of Karen state where lymphedema and hydrocele, the most obvious symptoms of LF, were common. The KDHW and BPHWT LF medics coordinate their efforts and are trained together. At the time, the health workers also received training for treatment of LF. LF infection was prevalent in all areas, with a highest prevalence of 46% in one area, Wah Ka Der, confirmed in a second screening of 600 residents in July with 42% prevalence. See Fig. 2a for the location of Wah Ka Der in Mu Traw district. To our knowledge, this is the first ever cross-border LF control program.

Program Services

The Karen LF program (KLFP) provides preventive and palliative services for people in the Wah Ka Der clinic area. At the same time, BPHWT conducts MDAs in three other areas, Pa Pun in Mu Traw, and small areas in Kler Lwee Tu and Doo Tha Tu districts. LF workers are trained to provide education, palliative treatments for the afflicted, and screening of the population for program evaluation. Education is conducted through community meetings, focus groups, and distribution of posters and pamphlets.

Annual MDAs have been conducted by the KLFP in the Wah Ka Der area, comprising 20 villages, since 2008. Percentages of the eligible population (leaving out pregnant and breast-feeding women, and children under two) who received the drugs are shown in Table 10. With 53-63% MDA coverage in an endemic population with 46% prevalence KLFP estimates that it will take 12-20 years to interrupt LF transmission.

One household participating in Mass Drug Administration

The KLFP medics strive to increase annual MDA coverage to 80% in order to interrupt LF transmission in fewer years. LF transmission is interrupted when the prevalence in the endemic population reaches about 0.5%[8]. At the start of the program, many villagers declined medication due to uncomfortable side effects such as rash, headache, or nausea (occurring mainly among persons already infected), and because they had no symptoms of disease. To

combat these attitudes, the medics focus on education of all villagers to increase understanding and raise awareness of the natural course of the illness, of the strategy for eradication, and of the limits of side effects.

Table 10. 2008-11 Mass Drug Administration Coverage of Target Population

	2008	2009	2010	2011
Target Population	3029	3301	3320	3063
MDA Coverage	53%	59%	63%	57%

LF worker testing household for LF parasite in the Wah Ka Der area

LF workers have conducted three surveys of the population for LF prevalence. The surveys involve systematic randomized selection of persons in the population for LF antigen testing. Table 11 shows the results of the pilot screening and of surveys conducted in 2008 and 2011. From July, 2008 to July, 2011, the prevalence of LF in Wah Ka Der decreased by nearly 50%. The next prevalence screening will be conducted in 2013.

Table 11. LF Prevalence Survey Results

	Screened population	LF prevalence
March 2008	100	46%
July 2008	600	42%
July 2011	591	22%

Program Training

Workshops for follow-up training for LF medics were held in February and August, 2011. Both trainings were conducted in collaboration with BPHWT and GHAP, with trainers from KDHW, BPHWT and GHAP. Training topics included reviews of the natural history of the parasite, *Wuchereria bancrofti,* and of the disease, methods for transporting and storing medication, practice with the immunochromatagraphic rapid screening test, survey sampling methodology,

and discussion and evaluation of education techniques and materials to be used in persuading villagers to accept the medications. The February workshop emphasized methodology for random sampling of households in preparation for the July 2011 seroprevalence survey. In August more attention was given to education techniques and materials.

LF follow-up training for random selection of houses for prevalence survey

Future Plans

Efforts will continue to cover a higher percentage of the target population in Wah Ka Der with mass drug administration. When it is determined that methods and resources are adequate for administering more MDAs successfully, funding will be sought to extend the program to additional areas.

We thank our partners in the KLFP:
Hussman Foundation *(Funding)*
Global Health Access Program *(training and monitoring)*

Karen Immunization Program

Program Background

Children in the internally displaced person (IDP) population of Karen state receive none of the childhood immunizations that are a primary defense against child mortality throughout the world. Absence of immunizations is one of several reasons why 138 of every 1,000 children born alive in Eastern Burma die by the age of five, compared with 14 deaths in children under five per 1,000 live births in Thailand.[5] There also exists in this unvaccinated population the potential for a disastrous wide-scale measles epidemic.

The long-awaited commencement of an immunization program in eastern Burma became possible in 2008, when the Border Green Energy Team (BGET) installed solar-powered refrigerators for storing vaccines at KDHW clinics near the Thai border. KDHW has developed protocols to minimize the risk of vaccine spoilage when transporting vaccines from the refrigerator at a clinic to more remote locations. The program cannot reach more distant MHC areas, because the cold chain cannot yet be maintained for longer than a three days' walk from the border. In April, 2009, the first round of systematic immunizations was given by KDHW in three mobile health clinic areas, Day Bu Noh, Ei Tu Tah, and Ler Per Her (Figure 2a).

At the end of 2011, the Karen Immunization Program (KIP) was operating in seven areas in Karen State, one new program area having been added in 2011. In the past, insecure conditions have been a major deterrent to the KIP in some areas. Two clinics have been closed because of military presence in their areas beginning in 2009. Ler Per Her clinic was closed because it is near a military base. Despite many attempts to restart the program in this area, program workers remain fearful of the Burmese army, and local leaders advise against restarting the program. Paw Bu La Ta restarted its program in mid-2011.

Program Services

Children from birth to 14 years of age are immunized in sequences shown in Table 12. Clinics keep a card for each immunized child in order to track their individual sequence of immunizations.

Table 12. Ages and Sequences for Immunizations

Immunization	Age at First Inoculation	Sequence
BCG (tuberculosis)	birth - 5 years	single inoculation
OPV (polio)	birth - 14 years	4 consecutive doses
DPT (diphtheria, pertussis, tetanus)	6 weeks - 6 years	3 consecutive inoculations
MMR (measles, mumps, rubella)	9 months - 14 years	single inoculation

Vaccination campaigns are implemented every three months. Thus, doses are separated by three months for those vaccines with multiple doses. After an area completes four rounds of immunizations, the program focuses on immunizing newborn and newly arrived children. Community leaders notified in advance arrange for villagers to assemble at particular sites for mass vaccinations, shortening the length of time that the vaccines must be kept in unrefrigerated coolers. Some clinic IP workers also carry refrigerators with small batteries.

Community education is an essential component of the KIP. Parents are taught about the importance of childhood immunizations and of receiving all doses of the vaccines, and also about common side-effects.

IP worker administering the OPV vaccine during a mass vaccination

Combined target populations in the seven clinic areas and numbers of children receiving immunizations by the end of 2009, 2010, and 2011 are shown in Table 13. The target populations and numbers immunized for 2011 include most children who were immunized in 2010, but children who left the area or who aged out of the programs are not included.

Table 13. Percentages of Children Immunized from 2009-2011

	2009		2010		2011	
	Target Population	**Percent Immunized**	**Target Population**	**Percent Immunized**	**Target Population**	**Percent Immunized**
BCG	6,700	23%	4,152	44%	3,877	53%
Polio, 1 dose	10,710	41%	8,359	73%	8,095	89%
Polio, 4 doses	10,710	0%	8,359	10%	8,095	16%
DPT, 1 dose	5,330	48%	5,490	58%	5,206	71%
DPT, 3 doses	5,330	4%	5,490	15%	5,206	21%
MMR*	8,666	17%	8,927	22%	8,465	37%

* Target population estimate = population of target area x 0.426

In 2011, the KIP could not procure vaccines for two successive quarters of the year due to major flooding in Bangkok, Thailand, where the vaccines are manufactured. Thus, the vaccine coverage did not increase as much as desired.

On the 2nd of January 2011, KIP coordinators were informed of a measles outbreak in Ser Poe Kee, a new IDP camp in Doo Pla Ya District. They went to Ser Poe Kee village and met with village leaders, clinic in-charges and parents and administered the measles vaccine to the children. The coordinator explained how measles is spread, discussed the KIP immunization goals, and gave education about side effects of the vaccine. The KIP coordinators visited again in January 2012 to administer more measles vaccines to children.

Program Training

The KIP workers are trained initially in vaccine theory, storage, and administration, in disease pathology and transmission, and in good record keeping practices. The trainers review the following topics:

- Vaccine administration for MMR, Polio, BCG, DPT
- Solar refrigerators and cold boxes maintenance
- Health education activities development
- Coordination for vaccine delivery
- Proper completion of data and report forms
- Review of common side effects

KIP training is normally conducted jointly with the Karen Targeted Feeding Program (KTFP) training. The KIP workers in KTFP areas are working in both programs. In 2011, there was a KIP/KTFP training in Ei Tu Ta clinic for 18 health workers from six northern clinic areas. Five Paw Bu La Ta clinic workers received training and supplies also in 2011 for restarting the KIP in their area.

Future Plans

The plan for 2012 is to increase the number of KIP areas. Kaw Mu Der will begin the program early in 2012, and both Kaw Pu and Na Yo Ta clinics have asked for the KIP in their areas.

We thank our partners in the KIP:
Child's Dream *(funding)*
Border Green Energy Team *(solar training)*
Global Health Access Program *(technical support, advocacy, and fund raising)*

Karen Targeted Feeding Program

Program Background

Worldwide, undernutrition contributes to about one third of the 24,000 deaths of children under five that occur daily.[12] In eastern Burma, food insecurity and aggravating health factors such as intestinal worms, respiratory infections and malaria are catalysts for malnourishment, contributing to the under-five death rate of 138 per thousand.

A randomized cluster survey of 5754 households in eastern Burma in 2008 found a global acute malnutrition rate of 12.6% (combined severe and moderate malnutrition rates for children under 5).[5] According to the World Health Organization Standing Committee on Nutrition, a global acute malnutrition rate over 10% qualifies as a serious humanitarian emergency requiring action.[13]

In 2008, with technical assistance from the GHAP, KDHW initiated a malnutrition intervention for children under five years old. The Karen Targeted Feeding Program (KTFP) was implemented in five clinic areas in 2011. All five KTFP program areas also are in the immunization program.

Program Services

Following a baseline survey at each clinic, program health workers have conducted a bi-annual under-five screening using mid-upper arm circumference (MUAC). Screening for malnutrition in small children is based on MUAC. A circumference of 110 mm or less indicates severe malnourishment. A circumference of 111 to 125 mm indicates moderate malnourishment. KTFP workers gather parents at one site to conduct screenings. These gatherings also provide KTFP workers the opportunity to educate the community on breastfeeding and nutrition for children.

After each biannual screening, the clinic workers distribute weekly food supplements to the families of moderately malnourished children, providing an extra 1,000 calories/day in accordance with dry-ration guidelines. The supplements include fortified rice flour, powdered milk, sugar, and vegetable oil. The workers also provide education to the families on food preparation and storage, and on the importance of encouraging their malnourished children to finish their meals.

Severely malnourished children are treated with high-energy milk in the clinics, in accordance with the *Burmese Border Guidelines*.[1] The children must stay at the clinic until they improve to being only moderately malnourished. Some children default from the program, because the parents refuse to leave them at the clinic. On average, severely malnourished children transition to being moderately malnourished after about two weeks and then can return home, where they continue to receive supplements for moderate malnourishment. After one month they are re-examined to ensure that they still are not severely malnourished.

Moderately malnourished children are discharged from the program when their MUAC exceeds 125 mm. On average it takes about eight weeks of targeted feeding for a moderately malnourished child to be discharged. The longest period of targeted feeding until being discharged, for two children, was six months. In 2011, all children who were treated in the

program, whether severely or moderately malnourished, were discharged and remained adequately nourished when evaluated a month afterward.

KTFP worker measuring MUAC during screening

Results of screening for the first three years of the program are given in Table 14. The proportion of children screened declined in 2011. After two years in the program, many parents did not feel the need to go get their children screened if their children appeared healthy. KTFP coordinators learned this from a village head during a monitoring trip to Pa Hite clinic. While severe malnutrition was nearly eliminated, moderate malnourishment did not decline further in 2011, indicating a need to encourage parents to continue to bring their children for screening every year.

Table 14. Results of Screening for Malnutrition

	Jan-Dec 2009	Jan-Dec 2010	Jan-Jun 2011
Target population: children age 6 months-5 years	3787	4563	5722
Children screened	1330	1931	1026
Screening coverage	35%	42%	18%
Severe malnutrition cases identified	5	6	1
% of total screened found severely malnourished	0.4%	0.3%	0.1%
Moderate malnutrition cases identified	90	62	56
% of total screened found moderately malnourished	6.8%	3.2%	5.5%

KTFP worker teaching mothers of moderately malnourished children to mix vegetable oil, milk powder, sugar, and fortified rice flour as a high-calorie food supplement

Program Training

A follow-up training for 18 KTFP/KIP health workers from six northern clinics was given in 2011 to review KTFP topics, including nutrition theory, malnutrition screening of children under five, targeted feeding practices, how to measure MUAC, and how to fill out the data form.

We thank our partners in the KTFP:
Not on Our Watch *(funding)*
Global Health Access Program *(funding, technical assistance)*

Karen Mine Risk Education Program

Program Background

The country of Burma is littered with tens of thousands of land mines because of the war that has been going on more than sixty years. The mines were placed to kill and maim people, but people in Burma are struggling with other serious problems, like malaria, water born disease, malnutrition, and war itself, which take many more lives than do the land mines. For this reason, the problem of land mines is not given much attention in local communities, where the priority goes to other problems. Hundreds of people along the Thai/Burmese border area, however, have stepped on mines, and a large part of the population lives with the risk of exploding land mines.

The Karen Mine Risk Education program (KMREP) was launched by the Nonviolence International South East Asia Office in October 2002. The KMREP collected information on the impact of land mines and provided mine risk education (MRE) directly to the people in Burma, Karen state in particular. When the program ended in 2004, the knowledge, experience and manpower of the program passed on to KDHW.

In August 2005, the MRE Office was established as a sub-office of KDHW.

Mine risk education is an issue separate from mine clearance. Imparting knowledge about how to deal with mines is the only way to protect people from land mines until the mines can be cleared from their area. People in mine-affected areas need to know signs of the presence of mines, what mines look like, what they should do if they see a mine, how to get out from a mined area, and how to rescue someone injured by a mine.

Education Programs

MRE Office has three ways to provide MRE for the people in Karen State.

- Community level direct teaching: MRE staff visit local communities and conduct mine risk education for local people. Each teaching takes approximately two hours.
- MRE Training of Trainer (TOT) sessions: The MRE Office conducts TOT for forty to sixty community health workers four times each year. A TOT session takes six days with six hours of teaching each day. From the end of 2002 to the end of 2011, about one thousand youths in Karen state, mostly Karen, but also including Burmese, Karenni, Shan, Mon, and Kachin, received this training.
- Dissemination of posters and booklets: Posters and teaching materials have been created by the MRE Office for every TOT session. Professional printing is planned for wider distribution of materials that have been modified and selected based on feedback from the trainees.

In September and October 2011, heavy fighting occurred south of Mae Sot. (We had three mine victims from the Paw Bu La Ta area within this period.) To deal with this emergency situation, Burma Medical Association (BMA) organized the emergency assistance training. Eleven clinic in-charges were gathered from inside Burma. MRE Office central provided five days of MRE TOT

to them. Each participant received fifteen each of six kinds of MRE posters in Karen and the same number in Burmese. In all, two thousand posters were distributed. Twelve MRE teaching kits were also handed over for each of six BMA clinics. Twenty warning signs were given to each participant.

MRE training poster

Trainees learn to mark landmines

Victim Assistance – Emergency Support

After a person steps on a mine, their whole life is changed. Mine victims face massive difficulties in life from the moment of the accident. They need assistance. Medical care and prostheses are provided by organizations like ICRC, Handicap International, and Mae Tao Clinic, but other kinds of assistance also are needed, like emergency transport, and job assistance for income generation.

In 2011 emergency support was given to five mine victims, one from Oo Kre Tha and four from Paw Bu La Ta. Two of the victims were provided transportation and four were given food, as victims in hospital and people accompanying them often do not have with them enough money for food.

The MRE Office is building a network of individuals along the Thai/Burma border who already provide at their own expense transportation to Thai hospitals for landmine victims. These individuals could do much more with funding support. The MRE Office is seeking grants to reinforce and expand the emergency transport network.

Victim Assistance – Long term Support

Landmine victims who have lost limbs receive no government support and usually are unable to continue to earn a living or support their families. The MRE Office teaches victims manufacturing skills that they can acquire despite their handicaps. Six mine victims participated in vocational training for two weeks in July, 2011.

The topics taught in the trainings are:

- how to make cement blocks by hand
- how to prepare foundations with rocks and mortar
- how to make a flat floor with stones and mortar
- how to make a small wall with stones and mortar
- how to make a fish pool with cement blocks and mortar

Training to make concrete blocks

Making cement blocks is easy work if the workers have proper materials and skill. Since no one yet is producing cement blocks in Karen state, the Karen people purchase cement blocks in Thailand. The blocks are very expensive after being transported by tractor, boat, ox cart, and human. Making cement blocks inside Karen state is a good way to generate income.

It is very easy to get good stone for construction in Karen state, but it seems that almost no one uses it or has the skills to use it for construction. The MRE coordinator lived for 15 years in Sri Lanka, where stone is widely used for construction. The coordinator teaches the Sri Lankan way of construction, which is well suited to the reality in Karen state.

Many people have come to the Thai/Burmese border area to seek jobs. Mostly they work on farms owned by Thai businessmen for about 80 baht per day. The work is seasonal, available only six months of the year, June to August and October to December. The migrant workers have almost no way to generate income the other six months. The situation is very hard for mine victims, in particular. Participants at two-week vocational trainings are paid 80 baht per day, a good help for the trainees in the most difficult time in the year.

Landmine victims build hut for mushrooms near the pig house on the MRE training farm

The MRE Office breeds cat fish in fish pools that have been built during vocational trainings. Fish farming does not require hard physical work like working in a corn field. The owner of the land allows the MRE Office to work a farm at the site, as well. During 2011 ten pigs were brought to the farm, two thousand catfish and one thousand mushroom strains. Harvested fish and mushrooms were given to sixty children who live next to the farm. One mine victim has been employed for 1500 baht per month to stay at the farm to feed the fish and pigs.

We thank our partners in the KMREP:
Clear Path International *(funding)*
Gemeinsam Gegen Landminen *(funding)*

Karen Primary Eye Care Program

Program Background

Freunde für Asien (FFA) began training medics in primary eye care in Pa An district in 2001. A mobile optical workshop also was set up that year and was continued for several years; FFA provided eye glass frames and lenses and a machine to shape lenses in three areas (Mu Traw, Doo Pla Ya, and Pa An districts). In 2002, doctors from the International Rescue Committee (IRC) started providing training to Karen medics in primary eye care and Training of Trainer instruction.

A KDHW surgical eye care team was trained by doctors from FFA and began seeing patients in 2003 under trainer supervision. Starting in 2004, this team began giving basic primary eye care training to community health workers (CHWs) in two townships in Bleet Daweh District. The team has conducted four primary eye care trainings for 106 students, so far. In 2007, after four years of surgical training, the team began circulating in the three townships of Bleet Daweh District as a mobile surgical team, performing eye surgeries independently. KDHW began working with the IRC to build capacity of program workers and services in 2011.

Program Services

Currently the Karen Primary Eye Care Program (KPECP) provides services on two levels. CHWs provide primary eye care as part of the primary health care services at the MHCs; this includes screening and treatment for Vitamin A deficiency, trachoma, and minor eye trauma following protocols provided by the *Burmese Border Guidelines*.[1] Eye exams are regularly done, but health workers are not trained to provide refractive prescription glasses, because refraction tools and glasses for patients currently are not available. CHWs also screen for pterygium, cataracts and glaucoma, and collect patient information for the mobile surgical team.

The mobile surgical team provides surgical services for pterygium, glaucoma, and cataract patients. Table 15 shows the number of operations done from 2007 to 2010. There have been totals of 97 cataract, 15 glaucoma and 9 pterygium operations since 2007.

Table 15. Eye Surgery Caseloads 2007-2010

	2007		2008		2009		2010		
Case Description	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Total**
Pterygium Operation	0	0	0	0	0	0	4	5	9
Glaucoma Operation	0	0	0	0	0	0	10	5	15
Cataract Operation	19	14	2	5	9	18	12	18	97

The strategy for service provision involves coordination between CHWs in MHCs and the KDHW mobile eye surgical team of four people. CHWs do initial screenings in the clinic and record patient information in the clinic logbook. When the surgical team arrives in an area, the team builds a surgical room, rescreens patients, and performs the appropriate surgeries. Afterward the team remains in the area for about one week to do post-operation examinations.

KPECP surgical team performing cataract surgery in Ler Mu Kee

There are two kinds of lens that the surgical team uses to replace the cataract removed—the Anterior Chamber Lens (ACL) and the Posterior Chamber Lens (PCL). The ACL is used under normal circumstances, while the PCL is used if the back wall of the posterior chamber of the eye ruptures. In the case that there is no supply of lenses available to replace the cataract, the patient is left aphakic until the team can procure more lenses. PCL was used for all 30 cataract operations performed by the surgical team in 2010.

Program Training

Training of CHWs providing basic primary eye care services is based on the Burma border primary eye care training manual developed by the IRC. More information on the CHW training is provided in the "Training and Capacity Building" section.

Future Plans

The KPECP currently covers a small population and services are limited. In the future, after the KDHW surgical team has received more training, the KPECP would like to expand the program to more areas in other districts in Karen State. The KPECP would also like to recruit more health workers to specialize in eye care.

IRC and partner groups, including KDHW, through the Project for Local Empowerment will build capacity for a formal primary eye care program. In 2012, IRC's Border Eye Program will

organize a series of trainings to train health workers and trainers specializing in primary eye care. A select number of trainees will receive complex refraction and low vision training. One KDHW and one BPHWT medic have been chosen to receive training to become managers for their respective primary eye care programs. IRC also will provide a primary eye care starter package for those who finish the training, which includes a one year supply of disposable surgical items.

We thank our partners in the KPECP:
Karen Aid *(training)*
Mae Tao Clinic *(training)*
Freunde für Asien *(funding, medical supplies)*
Back Pack Health Worker Team *(coordination)*
International Rescue Committee *(funding, training)*

Karen Herbal Medicine Program

The Karen Herbal Medicine Program (KHMP) empowers community members skilled in traditional herbal medicine to pass on their knowledge to the younger generation. The program also promotes awareness and protection of the forests where many medicinal herbs grow, and cultivation techniques that protect the forest. KHMP workers also have started their own herbal gardens in the villages.

Herbal Medicine healer in the Ei Tu Ta area with herbs he has gathered

During the Herbal Medicine trainings held twice a year, KHMP workers train the local community on how to prepare and use medicinal herbs. KHMP workers teach traditional skills in diagnosing and treating disease. These skills are practiced in three herbal medicine producing centers. The KHMP also publishes herbal medicine pamphlets and an herbal medicine handbook for distribution to health workers and the community.

The other main focus of the KHMP is protecting the many herbal forests in Karen State. The KHMP protects five herbal forests in Mu Traw, Pa An and Doo Pla Ya Districts If more funding can be procured, the KHMP will expand protection to many more herbal forests in Karen State.

Forest protection entails establishment of committees, including head men of local villages, that draw up a list of rules for use of the forests by people in the area. Meetings are held in the villages to explain the benefits of herbal medicines and of preserving the forests. The rules cover prohibitions of killing animals and of cutting down trees, managing fish stocks, and preventing fires, and list types of vegetation, such as bamboo, that may be harvested.

Table 16. Wildlife and Herbal Forests in Karen State

Wildlife Forest's Name	Areas wide (estimate)	District	Township
Ba Oo Gyi Wildlife Forest	10 Square miles	Pa An	Ta Nay Cha
Thay Doh Kwee Kee Wildlife Forest	10 Square miles	Pa An	Ta Nay Cha
Pu Lu Hta Wildlife Forest	8 Square miles	Pa An	Tah Kreh
Hta Say Klo Wildlife Forest*	8 Square miles	Mu Traw	Bu Tho
Bu Tho Ta Ploh Wildlife Forest	8 Square miles	Mu Traw	Bu Tho
Mall Lah Ei Wildlife Forest	10 Square miles	Doo Pla Ya	Kya Inn
Kyeh Ya Khee Wildlife Forest*	8 Square miles	Doo Pla Ya	Kawkereik

**Unstable forests, not protected by KHMP*

Mushrooms gathered near Day Bu Noh that are used to cure worms

The Lu Thaw Paw Dayd KHMP center is located with a settlement of widows and their children. The KHMP educates many local people to grow, prepare, and sell herbal medicines, but it has especially recruited widows in order to provide them an alternative livelihood.

Workshop on forest management at Ei Tu Ta

We thank our partner in the KHMP:
Karen Environmental and Social Action Network *(funding, management)*

Karen Mental Health Pilot Project

Project Background

KDHW has seen so many people in the Karen community with mental health problems due to the hardships they face from war, inadequate health services, poor nutrition, poor education and unstable living conditions. Many people have lost family members due to the civil war, infectious diseases, poor birthing conditions, and human rights abuses.

KDHW has found that it is not just the community that is affected by mental health problems, but also the health workers themselves, who do not have the proper training to care for themselves. We learned that training in mental health is really necessary for these communities.

Starting from December 2004, there have been seven mental health trainings with help from partners and volunteer mental health professionals. The first collaborative training between KDHW and mental health professionals, held in 2004, was on drug and alcohol issues. In 2009, mental health sections were incorporated into the Karen Reproductive Health and Family Planning Program (KRHFP) and the Karen Trauma Management Program (KTMP). Independent mental health professionals and trainers from the Global Health Access Program and Mae Tao Clinic provide training for the mental health component of the KRHFP and KTMP trainings. A mental health section was officially incorporated into the CHW trainings along the border in 2010.

After many years of organizing trainings and finding trainers, a need for a more sustainable approach to mental health training was recognized. Thus, KDHW, in collaboration with mental health professionals, several of whom come from Burma Border Projects (BBP), have begun to plan a mental health pilot project, called, "Building Capacity for Mental Health Care Services in Karen State." The project's aim is to reduce the problems of the community related to mental health, and to promote healthy families by building the capacity of KDHW to implement and further develop a mental health services program.

Future Activities

KDHW would like to use this project to build the capacity of program workers and establish a structure for services delivery. The mental health team has the following activities planned for the next 3-4 years:

1. Develop a curriculum for mental health training that is relevant to customs of the local people
2. Conduct a Training of Trainers for the CHW and health programs trainings
3. Train workers in health programs (KRHFP, KMCP, KVHWP, KTBP, KIP, KTFP, and KADWP) and central office staff to provide mental health awareness in their villages

Currently KDHW is looking for donors to fund this pilot project. There has been much work already invested in mental health training. We hope that we shall be able to apply the knowledge gained to the community.

Training and Capacity Building

For building an effective health care system in Karen State, KDHW and partner groups organize and conduct frequent trainings for KDHW staff. The aim of these activities is to improve the skills of KDHW central staff members to provide health care in Karen State and to empower the Karen community to provide health care services to its own people. Trainings are conducted for central office staff and for persons in the Karen community who wish to become health workers.

Central Office Training

In 2011, there were nine different trainings for the central office staff at KDHW conducted by the International Rescue Committee (IRC), Global Health Access Program (GHAP), the National Health and Education Committee (NHEC), and independent volunteers. The IRC conducted trainings for office management, general management, Training of Trainers (TOT) for health workers, team building, leadership, and facilitation. Each training session lasted 3 to 5 days. A few trainees were selected for specialized trainings in office management and TOT. An average of 15 central staff members attended the more general trainings.

The Global Health Access Program was founded and directed by Dr. Tom Lee of the University of California, Berkeley. GHAP trains KDHW staff in data collection and management, and provides continuous technical assistance for all KDHW programs. The public health TOT held by GHAP focused on improving health program coordinators' training skills for training medics for their own programs. GHAP staff members also invest many hours in one-on-one capacity building with health program coordinators at the KDHW central office and provide public health technical assistance for everyday programmatic activities. The KDHW health information system team receives training from GHAP every three months on managing data and building databases.

NHEC provided community management training in 2011. The KDHW staff were trained in proper ways to work with the community as part of an organization. NHEC also funded TOT for village health workers.

Other trainings conducted in 2011 were mapping training from the Health Information System Working Group (HISWG) and public speaking training and English language instruction conducted by independent volunteers.

We thank our partners in the central office trainings:
Global Health Access Program
International Rescue Committee
0National Health and Education Committee
Health Information System Working Group

Community Health Worker Training

Community Health Worker (CHW) training is an example of the extensive collaboration and coordination efforts of health community based organizations (CBOs) and NGOs along the southeastern border of Burma. Ten participating organizations are involved in curriculum development and in trainings, as trainees or as trainers. The goal of the Community Health Worker training is to build knowledge and skills for providing primary health care services and health education to the community. After completing training, Community Health Workers become entry-level staff for KDHW and other CBOs.

The training is divided into 21 modules taught by different trainers with expertise in each module. The modules in 2011 included the following topics:

- First Aid
- Basic Anatomy and Physiology
- Basic Nursing Care
- Common Diseases and Communicable Diseases
- Universal Precaution, including HIV Prevention
- Health Education and Prevention for Communicable Diseases
- Essential Drugs and Medication
- Minor Injuries
- Basic Mother and Child Health Care
- Family Planning
- Nutrition & Immunization
- Water and Sanitation, School Health
- Training of Trainer (TOT)
- Concept and Principles of Primary Health Care
- Mine Risk Education
- Data Collection and Management
- Community Management
- Communication and Coordination
- Primary Eye Care
- Basic Dental Care
- Mental Health

CHW training lasts six months, with 30 to 60 trainees per training. Trainees remain at the training venue for the complete six months and KDHW provides food and shelter to those who need it. KDHW organized five CHW trainings in 2011 in Doo Pla Ya, Mu Traw, Kler Lwee Tu, and Bleet Daweh districts. and at the KDHW central office. The total number of trainees was 230, of whom 55 were from KDHW. Other trainees were from KDHW, BMA, BPHWT, and MTC.

CHW trainees have to meet personal criteria established by KDHW and partner organizations. Trainees have to be representatives of the poor. They must be residents of the communities where they will practice, and have roots in them, and they must have a desire to learn. KDHW accepts trainees age 16-40 who have passed at least seventh standard or pass an entrance examination. In the selection process, trainees also are interviewed by local leaders.

Trained CHWs will return to their communities to provide community health care services in MHCs under the management of senior medics, to the clinics in the refugee camps and to Mae Tao Clinic. A select few come to work at the KDHW central office, taking on program management. CHWs can choose to go into a KDHW health program such as the KMCP or KIP, for which they will received further specialized training.

A trainer from Mae Tao Clinic teaching CHW trainees

We thank our partners in the CHW trainings:
Burma Relief Centre *(funding)*
World Education *(curriculum, trainer)*
American Refugee Committee *(trainees)*
Hope 4 the World *(trainers, funding)* ***in 2010***
Shan Health Committee *(curriculum, trainees)*
Karenni Health Department *(curriculum, trainees)*
Mae Tao Clinic *(curriculum, trainers, trainee, funding)*
Mon National Health Committee *(curriculum, trainees)*
International Rescue Committee *(curriculum, trainers, funding)*
Burma Medical Association *(curriculum, trainers, trainees, funding)*
Back Pack Health Worker Team *(curriculum, trainers, trainees, funding)*

Medic Levels 1 and 2

The medic trainings were established for trained community health workers who wished to acquire more advanced medical skills. In 2011, students from the central office and from five districts in Karen State attended medic trainings. Twenty seven students (26% male, 74% female) attended Medic Level 1 training, and twenty students (70% male, 30% female) attended Medic Level 2 training.

The Medic Level 1 training lasted three months, with two months of theory and one month of hospital rounds. Aide Médicale Internationale (AMI) provided the practical training venues at hospitals in Mae La and Noh Poe refugee camps. The trainers were medical doctors from Hope 4 the World and AMI, senior medics from KDHW, and mental health trainers from World Education and Mae Tao Clinic. Classes for each topic lasted five days. The topics were:

- Medical terminology, anatomy, physiology, cellular physiology, history taking and examination, basic life support
- Cardiovascular system, CV signs and symptoms, shock, cardiac diseases
- Eye and nervous system
- Ears and musculoskeletal system
- Respiratory system
- Microbiology
- Endocrinology, haematology, immune systems
- Pregnancy and childbirth
- Urinary system
- Gastrointestinal system
- Medicines and pharmacology
- Psychiatry

The Medic Level 2 training consisted of seven weeks of theory and a two-week clinical attachment organized by Aide Médicale Internationale.

Topics taught in Medic Level 2 training were:

- Cardiovascular system
- Respiratory system examination
- Eye, skin and endocrine system and pharmacology
- Gynecology
- Dental
- Basic surgical procedures
- Gastroenterology

Most medics who completed training for levels 1 or 2 returned to their communities to work in the mobile health clinics. A few medics were recruited to work on program management in the central office. At the completion of Medic Level 1 training, medics are required to do nine-month internships in their areas before they can be nominated to attend Medic Level 2 training. In 2012, KDHW will offer a Medic Level 3 course for medics who have passed Level 2.

Trainer examining a patient during Medic Level 1 training with a medical interpreter

We thank our partners in the Medic Trainings:
Hope 4 the World *(trainers, funding)*
American Refugee Committee *(training facility)*
Aide Médicale Internationale *(facility for training)*

General Medical Officer Training

The General Medical Officer (GMO) training program is funded by Burma Relief Centre and conducted by KDHW and Refugee Relief International, Inc. (RRII). In the initial part of program, trainers were organized by KDHW and Hope 4 the World. In a 2007 meeting with KDHW and CIDKP representatives, RRII was tasked with developing a training program for Karen medics that would produce a mid-level health provider, similar to the physician assistant concept as practiced in the US, Canada, Great Britain, and elsewhere. The Karen mid-level provider would be taught incorporating the low-tech and limited formulary realities facing the Karen.

Candidates for the program include senior medics and new community health workers who are selected by their trainers and leaders. They must have good ties to their local communities and respect traditional beliefs. They must make a commitment to work for KDHW more than seven years and not to be resettled. An effort is made to admit about the same numbers of men and women to the program.

Candidates in training during the second module of the GMO course

A competency-based modular concept was devised, allowing the GMO trainees to practice the skills learned in one module for a few months, and then return for more training, building on

the previous module. The first module includes advanced instruction in physical examination, medical dosages, and anatomy and physiology. In three succeeding modules specialized areas of health care are taught by RRII trainers, including gastroenterology, pulmonology, ophthalmology, cardiology, nephrology, dermatology, endocrinology, gynecology, urology, and otolaryngology.

In consideration of the facts that the GMOs must be the best practitioners available and that KDHW has a serious manpower shortage, the following process was adopted for examinations at entrance and following each module: After written and performance testing, candidates who maintain the GMO passing standard of 70% or above continue on the GMO track. Those who fall in the 50-70% performance range are eligible for retention as General Medical Assistants (GMAs). These students can complete the course and become assistants to the GMOs, acting in their steads during absences. Candidates not achieving a minimum of 50% are excused from further participation.

RRII began training the first GMO class in 2008. Thirteen of the ablest and most experienced KDHW medics were recruited for the program. Five of the candidates graduated as GMOs in 2009. None completed the course as GMAs. The graduates were integrated into the Karen health structure in positions of responsibility and supervision. They received GMO refresher training in October, 2010.

The second GMO class was begun with 21 candidates in April, 2011. Thirteen of the original 21 candidates are expected to graduate September 13, 2012. The graduates will receive refresher training in 2013.

We thank our partners in the GMO trainings:
Hope 4 the World *(trainers)*
Burma Relief Centre *(funding)*
Refugee Relief International, Inc. *(curriculum, trainers, trainees, funding)*

Medical Interpreter Training

The aim of medical interpreter training is to produce qualified medical interpreters to assist foreign trainers during medical trainings and bed-side demonstrations. This training grew out of a need for reliable interpreters during medic trainings run by foreign doctors from Hope 4 the World (H4W). A two-week training was held in September, 2011.

The trainees were chosen on the basis of ability to speak two or more languages and knowledge of medical terminology. In 2011, 12 trainees were trained in medical interpreting for the Medic trainings. The trainer was a Karen American doctor who works as a professional interpreter.

Trainer and Trainees during the theory portion of medical interpreter training

The 60 hour long training was divided into two parts. The first part consisted of lectures on the theory of interpreting. This section includes the following topics:

- modes of interpreting
- interpreter as a conduit and a clarifier
- memory development
- sight translation
- intervening
- medical terminology

The second part consisted of an on-site practical. The trainees interpreted under supervision during the medic trainings. Medical interpreter training will continue to be conducted annually.

We thank our partners in the Medical Interpreter Training:
Dr. Em Marta *(trainer)*
Hope 4 the World *(funding)*

Program Training

KDHW's health programs all have a training component. Training is provided for new recruits in new program areas, and also every six months to one year for experienced program health workers. In 2011 KDHW programs conducted ten trainings.

Trainers for these programs are drawn from KDHW program coordinators, the Global Health Access Program, the Burma Medical Association, Mae Tao Clinic and Back Pack Health Worker Team.

KTMP advanced training for experienced trauma medics

Many of the programs, especially those with more than one skill level among health workers (i.e. KTMP, KRHFP, KVHWP, KMCP) utilize the Training of Trainer method. Highly skilled trainers conduct TOT trainings for advanced and supervising health workers. These health workers return to their communities in areas difficult to access and hold trainings for the larger group of less skilled or less experienced health workers.

We thank our trainers for the Program Trainings:
Mae Tao Clinic
Burma Medical Association
Global Health Access Program
Back Pack Health Worker Team
Karen Department of Health and Welfare

Finance Report

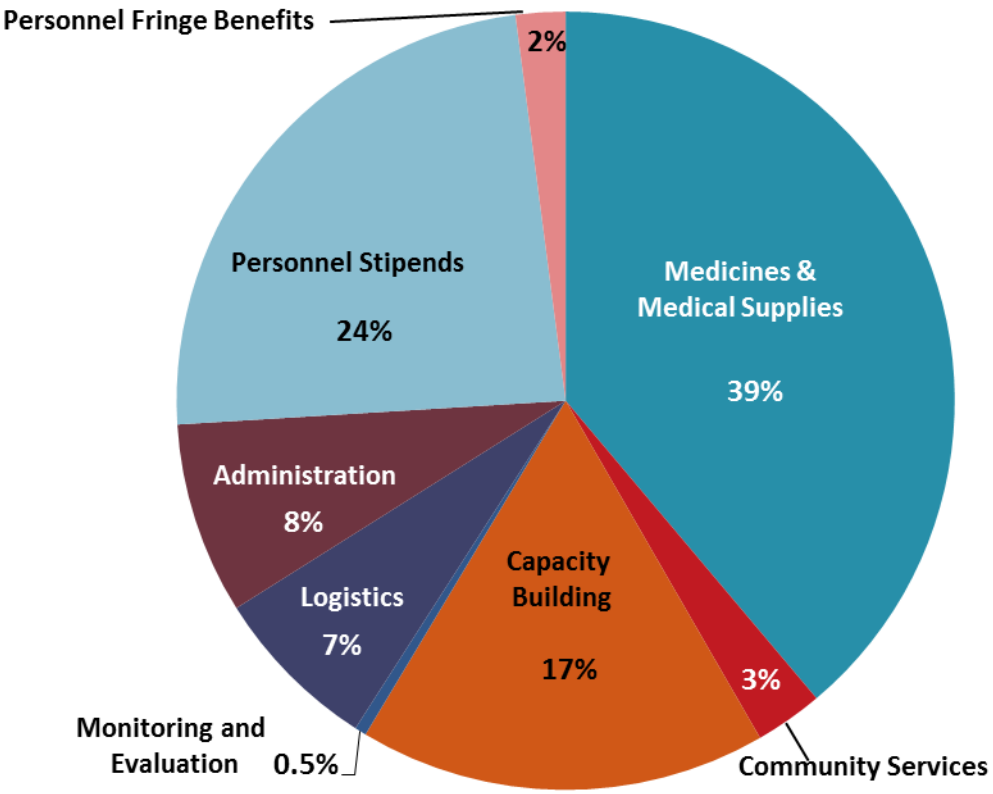
Funding

KDHW is funded entirely by outside donors, both individuals and organizations. Nine major donors support the mobile health clinics and several other organizations and institutions support specific programs like malaria control and emergency obstetric care. Adequate funding has been and will continue to be a major issue for KDHW, as the unpredictable situation inside Burma often demands emergency spending to serve newly-displaced populations or to address other health challenges arising from Burmese government operations. New sources of funding are needed for the Gender Based Violence Counseling and Mental Health pilot projects, which currently are unfunded. Additional funding is needed, as well, to enable us to expand existing programs to reach more areas and to build capacity to provide higher quality preventive and clinical health care.

2011 Expenses

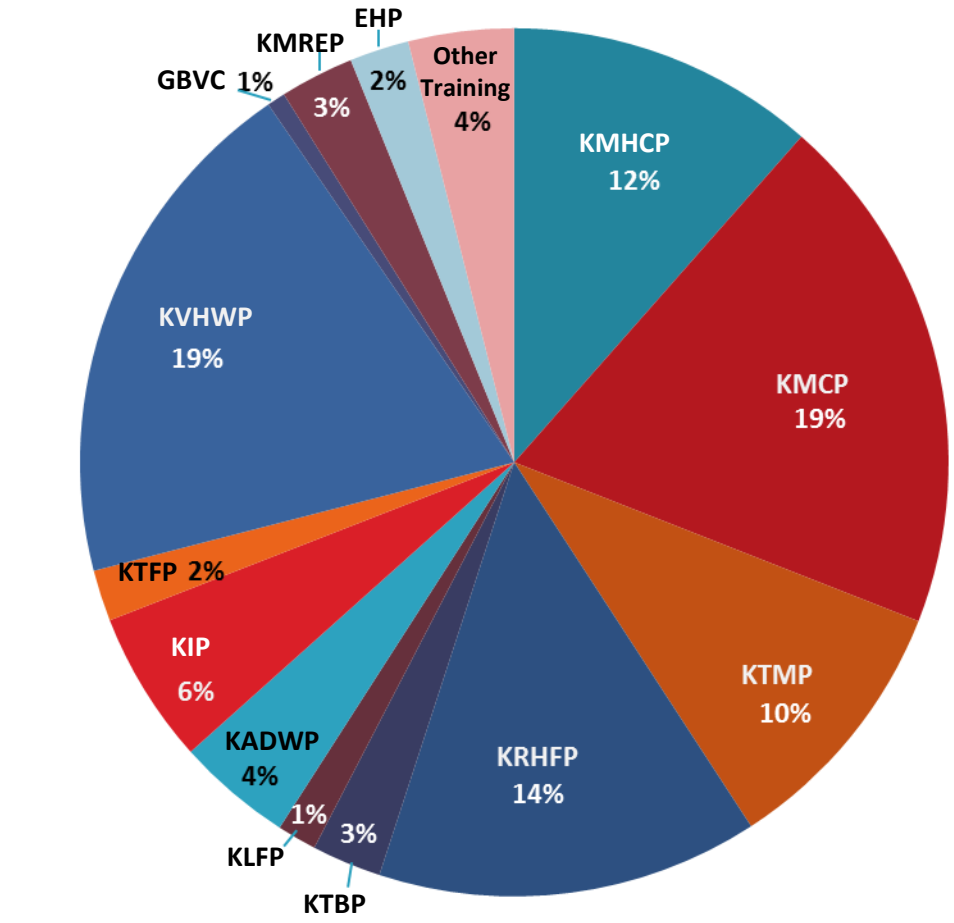
KDHW annual expenditures for 2011 were 18,025,163 Thai baht, or US $565,176 at the average 2011 exchange rate of 31.893 to 1.[15] Figure 7 shows the proportions of expenses for different categories. The administration category includes office expenses and running costs. The community services category includes expenses for community education and support for patients. Administrative costs remained at 8% of total expenses (1,381,347 THB) as in 2010.

Figure 7. KDHW Expenditures in 2011



Proportions of expenditures on different programs are shown in Figure 8. Programs with the most funding are dedicated to alleviating the most urgent health problems faced by people in Karen State. The largest programs are Karen Mobile Health Clinics, Karen Malaria Control, Karen Trauma Management, and Karen Reproductive Health and Family Planning.

Figure 8. Division of expenses by program



- Karen Mobile Health Clinic Program (KMHCP)
- Karen Malaria Control Program (KMCP)
- Karen Trauma Management Program (KTMP)
- Karen Reproductive Health and Family Planning Program (KRHFP)
- Karen Tuberculosis Program (KTBP)
- Karen Lymphatic Filariasis Program (KLFP)
- Karen Vitamin A and De-worming Program (KADWP)
- Karen Immunization Program (KIP)
- Karen Targeted Feeding Program (KTFP)
- Karen Village Health Worker Program (KVHWP)
- Gender Based Violence Counseling Pilot Project (GBVC)
- Karen Mine Risk Education Program (KMREP)
- Emergency Health Care (EHC)
- Other Training (Medic/ Interpreter/ GMO)

The Future

KDHW hopes to expand its existing programs in the future and to build organizational capacity by strengthening health worker training and through implementation of more extensive monitoring and quality management programs. We hope also to establish maternal and child health care centers, a mental health assessment program, and a mental health, drug, and alcohol abuse treatment training program. We aim to continue serving the internally displaced person population through expansion of the mobile health clinic program, and to increase cooperation with local ethnic organizations also working in Karen state. With their help, and with continued support from donors, we shall continue to work toward our goal of providing medical care to all people living in Karen state.

The success of KDHW's future plans will depend on increased donor support in the form both of technical support and of financial support that allows for flexible funding. The lowering of drug procurement costs would greatly benefit all of KDHW's programs. In addition, KDHW's health workers must be recognized as politically neutral and medically necessary by Burma's government, and be allowed to travel inside Karen state without harassment or violence.

KDHW and other community based organizations (CBOs) have begun discussion of possible collaboration with groups working from inside Burma in the event that peace talks between the Karen National Union (KNU) and the Burmese government are successful. Plans for meetings with NGOs inside Burma and strategies for collaboration have come out of informal conversations among organizations. In 2012, KDHW and other cross-border organizations will solidify action plans for coordination and convergence of health programs when it becomes politically feasible.

Thank you to everyone whose hard work and support makes KDHW's work possible. We hope that this report has helped illuminate what we do and draws more attention to the situation inside Burma. Only when true peace is achieved can KDHW accomplish its goal of providing comprehensive health care to everyone in Karen state. We hope that day comes soon.

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