

1/2

SUNDAY FORUM

THE EPICENTRE OF THE BATTLE AGAINST MALARIA

On World Malaria Day, there is no more urgent mission than stopping the spread of the drug-resistant mosquito-borne parasite that has surfaced near the Thai-Cambodian border

By Anuraj Manibhandu

When the world's poorest people are still threatened by a killer disease like malaria and the lethal parasite that causes it is developing resistance to the best available drug to beat it, there is no other option but to try to contain and eventually eliminate this danger of potentially extensive proportions. Hence the "containment project" spearheaded by the World Health Organisation. Today marks World Malaria Day, initiated under the WHO's Global Malaria Programme.

The achievement of many experts and institutions, the project covers seven provinces in the extreme east of Thailand and 10 provinces in western Cambodia. The reason: it is in this Thai-Cambodian border area that tolerance to artemisinin — traditionally the most effective weapon against malaria — and its derivatives has reared its ugly head.

The race to characterise and define the geographical extent of the problem is propelled by fear that the spread of the resistance to South Asia or sub-

their respective systems to enhance their monitoring and evaluation work.

In Cambodia, it was evident that village malaria workers (VMWs) play a vital role as the first line of defence against malaria. Appointed by the National Malaria Centre, and trained by reputed non-governmental organisations, the VMW conducts rapid detection tests, dispenses drugs on the spot and reports monthly to the nearest local authorities.

Sok Bun Taoeun, a lab technician at the Health Centre in Pramoy, one of five communes in Veal Veng district in Cambodia's Pursat province, said his load was much lighter since the advent of VMWs in early 2009. From conducting 20-25 blood tests by microscopy per day, he now tests only 8-10 cases.

There are two VMWs in every village in Veal Veng, one of the last strongholds of the Khmer Rouge in the Cardamon Mountains, once famous for its lush forests, and now home to 11,659 people in 24 villages. At their service are two health centres and three health posts.

The two VMWs in Chav Louk village.

already rife with it, brought in people from mainland China who have no immunity to vector-borne diseases and drawn Cambodian migrants from other parts of the country eager to earn or save more money than they would in their hometowns.

Among the 300-plus Chinese working on the dam site, about 40 had been down with malaria in March. Only 10 were described as "cured", 20 were still hospitalised at the nearest provincial town of Pursat and another 10 in Phnom Penh. Most were struck by *P falciparum*, or the non-lethal but recurring *Plasmodium vivax*, with a smaller number hit by both parasites.

As for the 200-odd Cambodians labouring on the site, driving dump trucks, carving out parts of hillsides, unloading the red earth where bidden and levelling the ground, overall figures were not available because the Cambodian sub-contractor — who had won rights to all the jobs — could not be reached.

However, one of a group of four Cambodian migrants said he'd gone home

She beamed that she would never get malaria as she always sleeps under a bed net. Two truck drivers, both from Phnom Penh, who had arrived more recently, complained it was too hot to sleep under a net.

Encouraging people to sleep under insecticide-treated bed nets is one of the seven objectives the WHO has adopted as part of its containment strategy. But the ideal of having everyone in perilous areas, called Zones 1 and 2, sleeping under a net individually is yet to be realised.

In Phnom Reang village in Pailin province, VMW Penh Samol, 55, says all 544 persons in his village each have a net to sleep under. On the Thai side, people sleep under family-size nets.

Migrants pose problems on both sides of the border. In Pailin, a farmer lamented the tendency of farm hands from other provinces to go home with bed nets when their jobs were done during the planting and harvesting seasons.

In Pong Nam Ron, Cambodians crossing the border to work in orchards

Saharan Africa would be a horrible setback for global efforts to fight the disease, posing a risk to half the world's population and killing a million people every year.

China pioneered the use of artemisinin (qinghaosu) and has applied it in traditional Chinese medicine for more than 2000 years. Chinese scientists isolated it as an antimalarial in 1972, and among the artemisinin derivatives now produced in China are artemether, artesunate and dihydroartemisinin.

When Thailand began using Artemisinin Combined Therapies (ACTs) — a combination of artesunate and mefloquine — in 1995, the lethal *Plasmodium falciparum* parasite died within 48 hours.

In recent years, the clearance period lengthened to three days, sometimes to four and even five days. "This was a signal that if the parasite is not resistant, it is tolerant to the combination . . . and the WHO was very concerned," said Assoc Prof Pratap Singhavanon, dean of the Faculty of Tropical Medicine, Mahidol University. Hence the containment project that, among other strategies, advocates personal prevention, less selection pressure on artemisinin, and more research.

One of the great stories to come out of this project is the development by Mahidol University's Centre of Excellence for Biomedical and Public Health Informatics (Biophics) of an electronic surveillance system that was launched along the Thai side of the border on Oct 1, 2009. The system captures case detection, blood drawing, patient temperature, patient photos and locates his or her position. It has pinpointed households in Pong Nam Ron in Chanthaburi province and Bo Rai in Trat province, and mapped villages in the five other provinces. Both Thais and migrants benefit from the system linked to Google Maps. Twenty field workers affiliated with malaria clinics in Pong Nam Ron and Bo Rai hold smartphones with which they report incidence and follow-up to Biophics in real time. Biophics and its Cambodian counterpart are working on harmonising

also in Pursat province, are working against greater odds, however. A Chinese firm, a branch of the corporation that built the Three Gorges Dam across the Yangtze River in China, is putting up three dams across the Stung Atay River that flows into the Gulf of Thailand at Koh Kong. This is a five-year project, just one year shorter than the project at Kampot, which is under way further south.

"The word is the dams will help light up rural Cambodia," said a local elder. The river, which trickles pathetically in early April, surely has more hydro power at other times.

The Chinese investors at Chay Louk have boosted deforestation in an area

to nearby Koh Kong in September 2009 for malaria treatment. Daung Vanny, 25, was disappointed, however, when he came back on site eight days later. Not only had he been given no compensation for his illness, but he had been penalised by having as many days' pay deducted from his \$US150 (4,833 baht) a month salary. Now he knows better that he must protect himself from a recurrence of the illness by sleeping under a bed net. After all, he is earning twice the amount he would in his hometown.

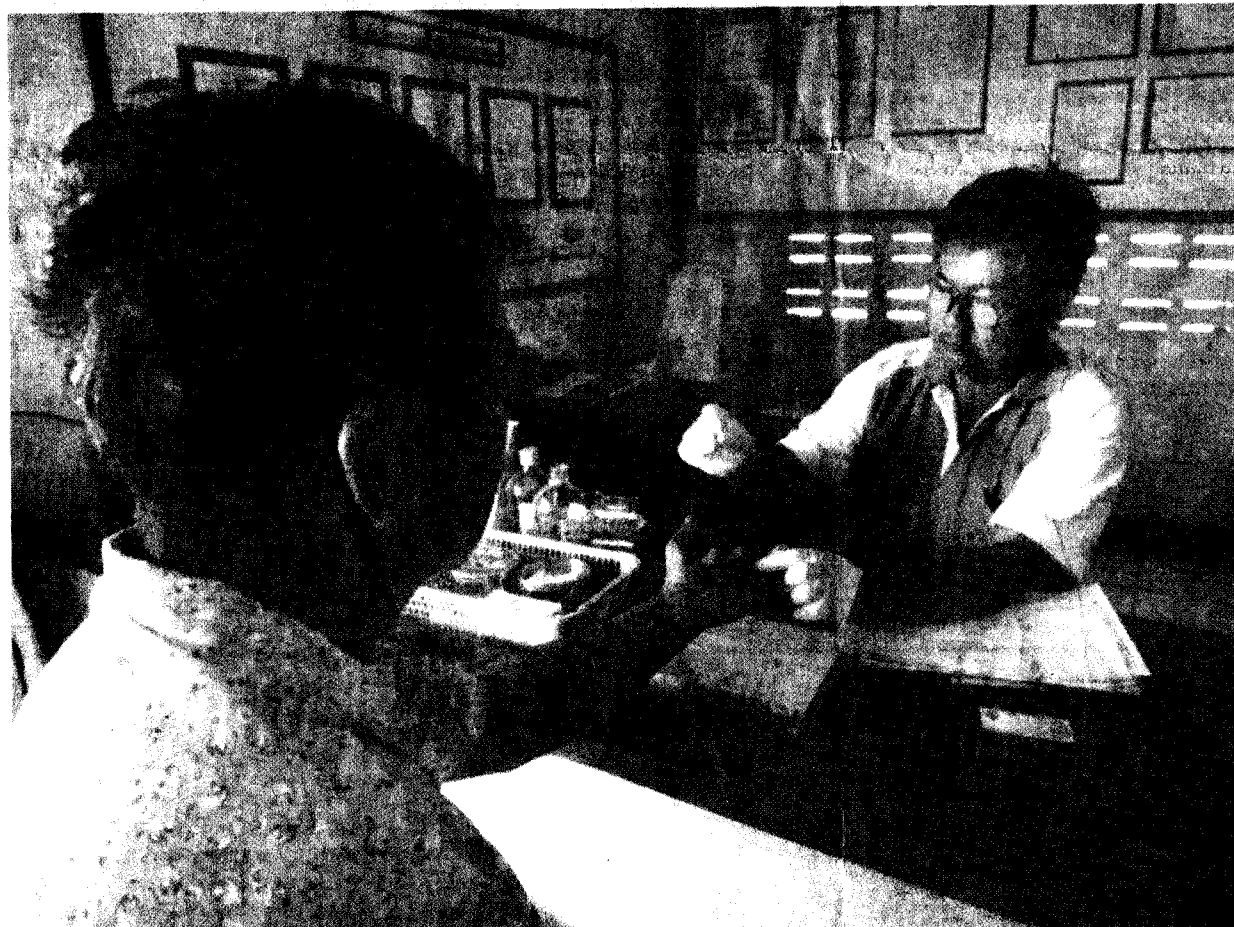
Daung Vanny took his job in January 2009, at about the same time as Soun Kanaa, 22, who cooks for eight Cambodian workers and gets \$50 for her pains.

during the peak periods of May to July and November to December were tested for malaria.

In the first period three workers tested positive for *P falciparum* and 39 for *P vivax*. From November to December, 28 workers tested positively for *P vivax* and none for *P falciparum*.

Hopefully, this is an indication that the cross-border project is starting to reach its objective of eliminating *falciparum* parasites, including those not responding well to artemisinin drug combinations.

The writer works for the Project for the Containment of Artemisinin Tolerant Malaria Parasites in Southeast Asia.



TESTING A migrant worker being checked for malaria parasites in Chanthaburi province.