

# COMMUNITY-LED MALARIA ELIMINATION: ENGAGING FOREST GOERS TO LEAD APPROPRIATE MALARIA PREVENTION AND CASE MANAGEMENT EFFORTS IN CAMBODIA



## SHIFTING MALARIA VULNERABILITY

As Cambodia progressed towards malaria elimination, cases became more focused in and around forested areas. Reaching populations in these areas with timely and quality malaria services, therefore, became more urgent yet challenging due to their remote location and high mobility patterns.<sup>i</sup>

In 2013, Population Services International (PSI) began supporting rubber plantation workers to have access to quality, free malaria testing and treatment services, which was later supported by the Bill & Melinda Gates Foundation under the Greater Mekong Subregion Elimination of Malaria through Surveillance (GEMS) program from 2016-2020.<sup>ii</sup> In addition to easy access to malaria services, the project also included onsite social and behavior change communication (SBCC) messaging and peer educator training for selected worksite workers to monitor coworkers for fevers or suspected malaria cases and to provide referrals to treatment, as well as support for community volunteer malaria workers who could provide onsite testing and treatment. Quality assurance and reporting mechanisms were also established.

Over time, however, this approach was not finding many cases on worksites, even as testing increased. From observation and community feedback, it emerged in 2018 that new communities were forming further in the forest to pursue economic opportunities, yet little was known about the new communities other than that

malaria cases were increasing among them.

Due to the remote forest locations and unofficial status of the communities, it was difficult to engage these populations effectively and establish linkages with available health services. Figures 1 and 2 present an overview of the malaria tests conducted on worksites<sup>iii</sup> and the number of malaria cases diagnosed and treated, clearly demonstrating the decrease in case detection.

Figure 1: Malaria testing and caseload on worksites, by year

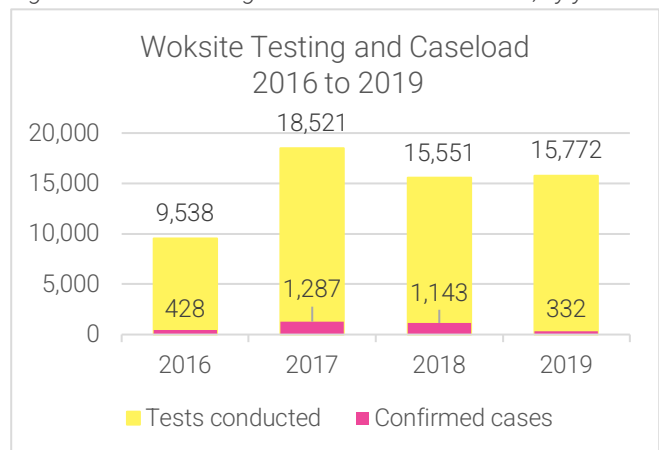
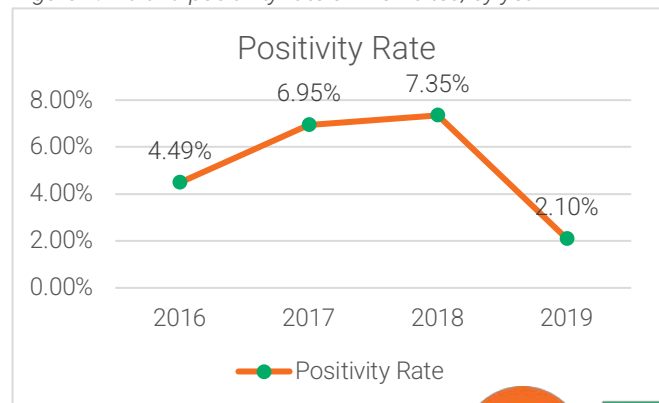


Figure 2: Malaria positivity rate on worksites, by year



At this point, PSI undertook three efforts to learn more about these forest goers to design and deliver appropriate malaria prevention and case management services in partnership with the community. The first effort was a human-centered design approach carried out by PSI; the second was an anthropological study by the Institute of Tropical Medicine, Antwerp (ITM); and the final was a case control study, integrated into the work of health workers seeing forest goers.

## USER-CENTERED DESIGN APPROACH TO ENGAGING FOREST GOERS

PSI deployed a [user-centered design methodology](#) to engage these communities with a view to ensuring access to quality malaria services. This began with establishing trust with the community and gaining their permission to work with them on addressing the malaria challenge. Once the community agreed, focus group discussions and key informant interviews were organized to better understand the lives of the people living in these communities, including their knowledge and behaviors related to malaria, the risks they faced, where they received information, and the barriers they face in accessing treatment. The following participatory tools were used to explore these issues with community members:

1. **Empathy map:** to explore what forest communities see, hear, think, feel, say, and do about malaria.
2. **Journey mapping:** to understand the steps community members take if they have a fever, to understand behaviors, and identify enabling and limiting factors when accessing health care.
3. **A Day-in-the-Life:** to learn about the day-to-day life of a forest goer (typically identifying as male), and a family member of a forest goer living in or near a forested area (typically identifying as female), to identify potential malaria risk moments from the time they wake up, to when they go to bed.
4. **Circle of trust:** to understand to which sources of information forest communities have

access, where they obtain their information, and which information sources they tend to trust more than others.

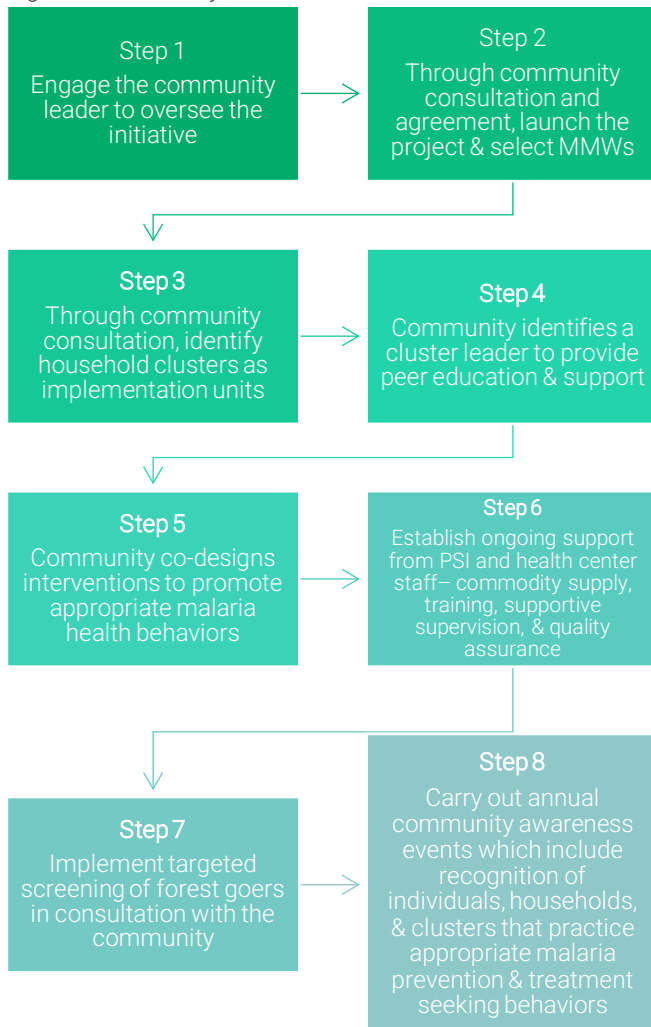
Representatives of the forest community were then invited to a workshop with the PSI team, and representatives of the local health authorities to review this information. A series of reflection exercises established empathy for the challenges faced by these communities, and further analysis resulted in insights that inspired solutions. This process confirmed that there was low access to health services by people living in or near forests, low malaria awareness, limited knowledge of malaria prevention behaviors, and low community engagement in malaria elimination. It also found that as community members came together recently to seek economic opportunities, they did not have the usual social structures to support each other.

*User-centered design workshop, Cambodia*



Based on these insights, different solutions were rapidly prototyped using “How might we...?” questions to address different challenges or barriers. These prototypes were critiqued by the representatives of the forest communities. Successful prototypes were developed as a visual storyboard or a model, which were taken back to the community for discussion. Following these consultations, the different prototypes were combined into one model – the community-led initiatives for malaria elimination (CLIME). The final model is outlined in Figure 3.

Figure 3: Community-Led Initiatives for Malaria Elimination



This user-centered design exercise was quite time and resource intensive, and rather than repeating the full exercise in each community, the final prototype was taken to other similar communities and presented for feedback and adaptation. This abridged exercise allowed each community to learn what others were doing and decide whether this model or something similar may be appropriate in their community.

Rather than a full week or more, the shortened exercise was conducted over two-days: one day to collect and analyze information, and one day to present and discuss with the community and to begin preparing for immediate implementation. This allowed CLIME to be implemented in more communities simultaneously.

During the ten-months that CLIME was implemented, the positivity rate was high (4.96%) compared to worksites (2.10%) (see Figure 4) and resulted in higher community engagement and interest. Data were reported monthly to sub-national health institutions, and local health staff recognized the contributions of the community in malaria elimination efforts. This approach was also acknowledged by the national malaria program, who integrated the project’s mobile malaria workers (MMWs) into the village malaria worker (VMW) network, supported by the Global Fund, when PSI’s support from the Bill & Melinda Gates Foundation ended.

Figure 4: Worksite vs. CLIME Results, 2019

	WORKSITES	CLIME
TESTS CONDUCTED	15,772	1,412
CASES CONFIRMED	332	70
POSITIVITY RATE	2.10%	4.96%

The relatively high positivity rate in Figure 4 indicated that CLIME is an appropriate approach for malaria elimination in the Cambodian forest goer contexts. This was particularly because the malaria risk perception among the community was very low, and malaria infection was mainly associated with the forest and among the forest-going population. CLIME’s success was also due to the community involvement in the design that contributed to both community ownership and sustainability.

### ANTHROPOLOGICAL APPROACH TO ENGAGING FOREST GOERS

The Medical Anthropology Unit (MAU) of the Institute of Tropical Medicine, Antwerp conducted

a qualitative ethnographic study five communities where CLIME was being implemented to gain an in-depth understanding of the communities, build deeper trust, and identify enablers and obstacles of CLIME. The study used Community Lab of Ideas for Health (CLIH) in forest communities describe the social, economic, macro, and micro politics that influence malaria risk, prevention, and care seeking; and to explore the feasibility of applying/adapting CLIME.

The CLIH approach used dialogue to share ideas for solutions to health-related issues. This enabled user-centered negotiation of health project design and implementation that was adapted to real-life settings, strengthening creativity, developing, trust and co-creating innovation. The study provided a clearer picture of the complex movement and mobility dynamics of the communities; the impact this had on community structures and social dynamics; and in turn – individuals' vulnerability to malaria by engaging in different activities or movement patterns, which can also vary between men and women.<sup>iv</sup> Some key insights that informed the malaria response activities in these communities included:

1. **Network:** The communities were relatively new, and community members were from different places, yet there were social and support networks – both based on reciprocity and on business.
2. **Structure:** There was a formal social structure in the community, yet informal social networks that emerged organically played an important role in information circulation.
3. **Everyone is a forest goer:** Everyone went to the forest for their daily consumption and/or work, and thus targeting the malaria risk group as 'forest goers' was not relevant in this context.
4. **Activity-linked risk:** Exposure to potential malaria risk could be linked to the activities, and it was important to look into the characteristics of each activity.
5. **Sensitivities:** Some activities in the forest were sensitive and there needed to be a careful consideration for capturing individual data about who, where, and what activities.

The study found that although there were some

weaknesses in CLIME's selection process for mobile malaria workers (MMWs), the consultative nature of the process led to a widespread recognition, acceptance, and trust of the MMWs.

## CASE CONTROL STUDY

The third effort to better understand forest communities and risk factors was a case control study adapted from the University of California, San Francisco's (UCSF) Malaria Elimination Initiative Toolkit.<sup>v</sup> The main objective of the case control study was to profile the risk factors of different malaria species in order to fill knowledge gaps around an individual's malaria risk based on location and activities. However, the study did not reveal significant learnings due to implementation challenges and a lack of budget to address them. Issues included the limited time and capacity of the VMW/MMW data collectors to collect detailed, quality data, in addition to low detection rates during the study period resulting in a low sample size. In future, PSI would propose that MMW/VMWs refer cases and controls to professional interviewers, who could be on standby at central locations. The study should also be carried out during the high transmission season to achieve the necessary sample size.

## CONTINUED COMMUNITY ENGAGEMENT IN MALARIA ELIMINATION

While PSI's GEMS program in Cambodia ended in 2020, its lessons learned were shared with other implementers, including the Government of Cambodia's national malaria program, and other non-governmental organizations. CLIME demonstrated the importance of a participatory approach to engaging communities. Lessons from GEMS have continued under the other programs implemented by PSI in Cambodia, such as the USAID-funded "Promoting Healthy Behavior" (PHB) – a social and behavior change (SBC) project. This program has used participatory approaches to identify key areas and appropriate program interventions to serve the target population and to meet community needs and expectations. For example, in developing the malaria aspect of PHB, information from an "Formative Assessment with Forest Goers"<sup>vi</sup> was used to understand influential behavioral determinants, which were discussed



with forest goers to develop appropriate and acceptable approaches to deliver messages to promote sleeping under an insecticide-treated bed net and to seek treatment for fevers within 24 hours. Representatives from the forest goer community participated in program prototyping, revision, and finalization to ensure that the final intervention design was recognized by the target population. Data collection also included capturing the experiences and insights from the affected communities to ensure that their voices were heard and concerns raised. This ensured that the PSI team could feel confident that the program was responsive to community needs, and that the community felt ownership over the program.

### ACRONYMS

CLIH	community lab of ideas for health
CLIME	community-led initiatives for malaria elimination
EIP	empathy, insights, prototyping
ITN	insecticide-treated net
MAU-ITM	Medical Anthropology Unit, Institute of Tropical Medicine (Antwerp)
MMP	mobile and migrant population
MMW	mobile malaria worker
PSI	Population Services International
SBC	social behavior change
UCSF	University of California, San Francisco
USAID	United States Agency for International Development
VMW	village malaria worker

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