Summary Report of the

Workshop on Development of Strategy to Contain Artemisinin Resistant Malaria among Migrants and Mobile Populations

In the context of

“A Strategy to Contain Artemisinin Resistant Malaria Parasites in Southeast Asia”

Century Park Hotel
Bangkok, Thailand

8 – 10 June 2009
Background and Introduction

There is evidence for the emergence of artemisinin resistance along the Cambodia-Thailand border area. In recognition of this worrying situation as a global emergency, the World Health Organization (WHO) has begun to take steps to confirm and characterize artemisinin resistance, to define optimal strategies and support the preparation of plans of action in Cambodia and Thailand, and to contain the spread of artemisinin tolerant parasites. This initiative is funded by the Bill and Melinda Gates Foundation (BMGF) and initially runs for a period of two years, 2009 – 2010.

It is acknowledged that containment of resistance will require a joint, harmonized cross-border strategy, particularly with regards to migrant and mobile populations who are one of the target populations in the containment strategy. As the containment of artemisinin resistance is a regional and global public health concern, it will be beneficial to share experiences and lessons learned from various governmental and non-governmental organizations, local authorities, and other countries. The Malaria Consortium (MC), one of the partners in this WHO-led strategy to contain artemisinin resistant parasites along the Thai-Cambodian border, in collaboration with WHO will organize a series of technical meetings in 2009 to support the monitoring and evaluation of the Project.

This joint workshop between Thailand and Cambodia is a follow-up to the Informal Consultation of experts for the “Development of a Strategy Towards Elimination of Plasmodium falciparum Parasites with Altered Response to Artemisinins” held in Bangkok, Thailand 13 – 14 February 2008.

As a critical component of the strategy to contain artemisinin resistant parasites, migrants and mobile populations/cross-border issues were discussed in round-table working groups.

Key points from the informal consultation included:

- Definition and magnitude of migratory patterns is still a big question. Mobile populations move from one place to another, either temporarily, seasonally, or permanently, for either voluntary or involuntary reasons. “Migrant” is a more specific term used for those mobile people who take up residence or remain in another location for an extended period of time, including seasonal migration. Internal migrants move from their homes to other places within the same country. External migrants are people who cross international borders and live in another country.
- Knowledge is sparse regarding the number of migrants, where they came from and where they are going, both within and between countries.
- There is a need for increased boundary border surveillance and active investigation.
- Regulations and policy in Cambodia and Thailand for migrants are different and continuously evolving, e.g., pertaining to free access or not to health care services.
- Cambodia should focus on internal migration while Thailand should focus on cross-border investigations, but activities need to be linked to ensure both internal and cross-border migration is addressed.
• Establish and harmonize cross-border activities with a multisectoral approach with involvement of ministries from health, interior, defense, foreign affairs and labor.

The overall objective of this workshop is to develop a strategy to contain artemisinin resistant malaria among mobile and migrant populations in 7 border provinces in Thailand 10 border provinces in Cambodia.

Specific objectives

• To share information about mobile and migrant populations (i.e., defining who is a migrant, patterns of migration, identifying NGOs and community organizations working with migrants)
• To get an update on situational analysis of mobile and migrant populations in Thailand and Cambodia
• To share novel and creative approaches for the delivery of prevention, diagnosis and treatment of health and malaria interventions for mobile and migrant populations
• To formulate a working strategic framework to access mobile and migrant populations for the containment of artemisinin resistance

The agenda and list of participants are included as annexes 1 and 2, respectively.

The full presentations were distributed to participants and are available on CD ROM by request.

Introduction to the meeting and participants.
Dr David Sintasath, Regional Epidemiologist, Malaria Consortium

This is the second of four meetings to be organized by the Malaria Consortium. The main aim of the workshop is to develop a strategy to access mobile and migrant populations and deliver effective prevention and treatment of malaria to stop the spread of resistant parasites outside the area of the containment project. To this end, it is anticipated that a basis for a clear plan of action will be developed from this workshop.

A strategy to contain the spread of artemisinin resistant malaria parasites among migrant and mobile populations is critical to the Containment Strategy, as these populations are the most difficult to access and are more at risk for spreading the resistant parasites.

Containment Project Overview
Dr Najibullah Habib, Containment Project Manager, WHO

Main points
Dr Habib stressed the urgent need to prevent the spread of artemisinin resistant parasites as it has world-wide implications. All the objectives of the Containment Project are pertinent to mobile and migrant populations. We need to:

- Detect and eliminate resistant parasites and clear gametocytes to prevent transmission
- Reduce drug pressure by stopping the sale of monotherapies and substandard drugs and increasing patient compliance to drug regimes
- Prevent transmission by distributing preventive methods especially LLIN
- **Prevent transmission of the parasite by migrant and mobile populations**
- Support containment/ elimination by advocacy and IEC/BCC and community mobilization
- Plan for operations research to fill the knowledge gaps and to develop novel, evidence-based strategies
- Provide effective management and coordination

All this will require high quality implementation over the next two years with money initially from BMGF and extending to 2015 through potential support from the Global Fund to Fight HIV/AIDS, TB, and Malaria (GFATM) Round 9 proposals.

The Containment Project is taking place in Zone 1 (8 administrative districts (ADs) in five operational districts (ODs) in four provinces in Cambodia and 3 districts in two provinces in Thailand) where there is evidence already of artemisinin resistant *Plasmodium falciparum* and Zone 2 (7 provinces in Thailand and 10 provinces in Cambodia) where there is no evidence yet, but the risk is high due to their proximity to Zone 1.
The project is a collaborative effort of agencies with the range of key skills and capacity to mount the necessary response led by the WHO at global, inter-regional, regional, and country level. Managed by both WHO SEARO (Thailand) and WPRO (Cambodia), the project management team is based in Cambodia but with strong liaison with the Bureau of Vector Borne Disease (BVBD) in Thailand and Center for Malariology, Parasitology, and Entomology (CNM) in Cambodia. The project has several partners including the Malaria Consortium for overall monitoring and evaluation (M&E) and technical input, Institute Pasteur Cambodia (IPC), Mahidol-Oxford Research Unit (MORU), and the Center of Excellence for Biomedical and Public Health Informatics (BIOPHICS). Furthermore, there are two national (Thailand and Cambodia) and one international task force committees to provide technical advice and oversight for the project.

Mobile and migrant populations are considered important factors in the potential spread of artemisinin resistant parasites within countries and across borders. We urgently need to develop concrete proposals to address these specific issues. Objective 4 of the Containment Project specifically deals with containing the spread of artemisinin resistant parasites among migrants and mobile populations. The indicators associated with Objective 4 include many of the aspects which will be explored in this workshop including the situation analysis, how to distribute LLINs and LLNHs, points of access of the populations to diagnosis and treatment when they become sick with malaria and how to deliver appropriate and effective IEC/BCC to these populations. There is also a need to collect the names of organizations involved in providing services to migrant and mobile populations (e.g., local and community organizations, including civil society and NGOs as well government organizations). Dr Najib also mentioned about the recent micro-planning meeting in Battambang which explored the issues of how to get LLINs/LHINs to this population.

**Opening remarks**

Dr Chea Nguon, Vice Director, CNM Cambodia

Dr Chea Nguon welcomed the participants on behalf of the CNM Director, Dr Duong Socheat. He pointed out that health in the context of migration has become an important issue in view of the ever increasing mobility of the population both for reasons of work, trade and tourism. Malaria has received much less media attention than other hot topic diseases such as SARS and Swine Flu (H1N1) but it is indeed important to remember that malaria has plagued civilizations for thousands of years.

People move in diverse ways and this contributes to the transmission of malaria. Previously resistance to antimalarials such as chloroquine, sulphadoxine-pyrimethamine (SP), and later mefloquine arose in the Thai-Cambodian borders and has spread from Southeast Asia to Africa and the rest of the world. If artemisinin resistance spreads in a similar fashion it would not only set back the successes made so far against malaria but also be a global public health catastrophe.

Movements of populations within the forest fringe areas have been a key focus for interventions for CNM over the last few years as well as looking at the seasonal migration of
laborers for planting and harvesting activities. Most of these people come from nonendemic areas and have little to no immunity.

The exact number of temporary and migrant populations is not known but migration could be on the increase because of the economic slow down and the loss of jobs in the cities. One example of which is the garment workers in Phnom Penh. This could add to the problems by increasing urban to rural migration.

The movement of populations cannot be controlled in a free society and we have to work within these limitations. There is an information gap about mobile and migrant populations which needs to be filled. We have to agree to a process to close the gaps, which hopefully the planned situation analysis will add to our knowledge.

In closing, Dr Chea Nguon stressed that poverty is the root cause of migration. In accessing the mobile population it will be important to provide long-lasting insecticide treated nets (LLIN)/long-lasting insecticide treated hammock nets (LLHN) and artemisinin-based combination therapies (ACTs) free of charge to these populations.

**Opening remarks**  
Mr Samart Vongprayoon, Containment Project Coordinator, BVBD

Mr Samart Vongprayoon also extended his welcome to the participants. He stressed that we need to study the populations who may spread malaria and thus resistant parasites. To this end, we must ensure cooperation between Thailand and Cambodia. We also need to improve the surveillance of cases. If a case occurs in Thailand they must be able to receive treatment in Thai health facilities. Even if they are not Thai nationals and if the case occurs in Cambodia, they should still be able to access treatment in Thailand.

Cooperation and collaboration with information technology will also be essential. Information systems will increase the possibilities of exchange of information between Cambodia and Thailand. Thai and Cambodian counterparts can already exchange information by email. Staff members should also make contact with NGOs and companies working in the border areas to increase their knowledge of the situation as containment of artemisinin resistant malaria parasites requires not only cooperation between countries but with other involved organizations as well.

**Objectives of the meeting**  
Dr David Sintasath, Regional Epidemiologist, Malaria Consortium

Dr David Sintasath reviewed the overall aim of the project, which is to contain artemisinin resistant parasites by removing selection pressure and reducing and ultimately eliminating *Plasmodium falciparum* malaria.

**Objectives of the Workshop**
• To share information about mobile and migrant populations (i.e., defining who is a migrant, patterns of migration, identifying NGOs and community organizations working with migrants)
• To get an update on situational analysis of mobile and migrant populations in Thailand and Cambodia
• To share novel and creative approaches for the delivery of prevention, diagnosis and treatment of health and malaria interventions for mobile and migrant populations
• To formulate a working strategic framework to access mobile and migrant populations for the containment of artesiminin resistance

Overview of migrants and mobile populations
Ms Monique Filsnoel, Chief of Mission, International Organization for Migration (IOM)

An overview of migrants and mobile populations was delivered by Ms Monique Filsnoel, Chief of Mission, IOM Thailand, who brought along several members of her team to participate in this meeting. She urged us to continue to work together to address this dynamic and constantly evolving issue of migration.

Main Points

The IOM definition of migration is the process of moving across borders or within a state.

• Migration can be regulated or unregulated (includes trafficked and smuggled migrants). The majority of migrants are irregular and do not appear in government statistics. Thailand has memorandums of understanding (MOUs) with neighboring countries but the legal process is complicated and expensive. Recruitment agencies can make large profits from unregulated migrants.
• There are an estimated 1.3 million migrants in Thailand: 80% from Myanmar, 13% from Cambodia, and also from Laos, China and Vietnam.
• There are many reasons for migration, but most can be categorized into:
  Push factors: poverty, high fertility, no jobs available, political oppression
  Pull factors: unequal development (i.e., the rapid economic development of Thailand compared to its neighbors continues to attract migrants looking for work)
• Migrants can be men, women or children (traveling with families or alone). Migrants are predominately men in agriculture and construction, while mostly women in domestic work. Interestingly, the proportion of migrants is increasingly women.
• Out migration from Cambodia and Thailand occurs, mainly to Malaysia, the Gulf countries and South Korea
• Internal migration is most common in Cambodia (but also occurs in Thailand, where internal migrant have access to health care). Internal migration involves rural to rural as well as urban to rural and rural to urban movements.
• Cambodia also receives migrants from other countries, they mostly work in towns (but could be involved in construction and logging) and come from China, Vietnam and some from Thailand looking for forest products or intermarriage.
• Migration can be long or short term.
• Determinants of migrant health include: socio-economic background, work and housing conditions, and access to health care.
• Migrants are often exploited by employers particularly if they are illegal migrants

Migration in Thailand – What we know and challenges
Mr Samart Vongprayoon, Containment Project Coordinator, BVBD

Main points

• There is a high incidence of malaria on Thailand’s western border and in the South East corner on the Myanmar border
• Information about migrants is obtained from government statistics. These statistics are gathered from village malaria workers, health centers and malaria posts and provincial health offices.
• At least 50% of migrants are unregistered. This is especially true for those migrants outside migrant camps where 80-90% are unregistered.
• In 2004, the total number of migrants was 1,847,525, which includes those possessing work permits (1,012,051) and those with health insurance (817,245).
• Demand for migrant labor is high - 1.2 million people passed through the official borders last year.
• 25% of migrants in the Thai/Cambodia border area are from Myanmar
• Data collection does not distinguish between legal and illegal migrants
• There is good cooperation between MOPH, IOM and other NGOs
• Epidemiological survey tool used to conduct a survey in three provinces of Tak, Ranong and Samouth Sakorn to gather data on migrants. Data collected included sleeping under a bednet, use of health services, symptoms experienced and diagnosis. When the survey tool is used regularly, it can detect trends in migrant health.

Challenges include:

• Migrant populations are dynamic
• Achieving good coverage of these target groups
• Establishing and maintaining communications with migrants who do not want to be known to authorities
• Lack of awareness of prevention measures
• Follow up of malaria cases among migrant populations

Migration in Cambodia: What we know and challenges
Dr Chea Nguon, Deputy Director, CNM

• The 2004 Cambodia Inter-Censal Population Survey (CIPS) showed that 4.5 million (1/3) of the Cambodian population were migrants (based on the fact that they had recently moved from their original villages). Reasons for migration included search of employment (13%), moving with family (50%), repatriation after the war (14%), and visiting with family (7%). There was a new census in 2008 whose results will be available in 2009. This new census will include migration within Cambodia, the
reasons for migration, the age/sex of migrants, the duration of stay the occupation and the educational level/literacy.

- Population movements can be daily, periodic, seasonal and long term. This classification has been developed for malaria control in the Malaria Control Strategic Plan (2006 – 2010).
- The main risk groups for malaria in Cambodia include the following:

<table>
<thead>
<tr>
<th>Risk group</th>
<th>Ethnic group</th>
<th>Composi-</th>
<th>Access to health care</th>
<th>Immunity</th>
<th>Highest at risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Traditional forest inhabitants (montagnards)</td>
<td>Mixed non Khmer minority groups</td>
<td>Families</td>
<td>Little due to remoteness and linguistic barrier</td>
<td>Adults only</td>
<td>Children and pregnant women</td>
</tr>
<tr>
<td>(B) Forest fringe inhabitants. Make overnight visits to the forest to hunt &amp; to collect construction wood /other products.</td>
<td>Khmer</td>
<td>Villagers (predomi-</td>
<td>Relatively good in recent years</td>
<td>None</td>
<td>All age groups but the majority of cases are found in adult males.</td>
</tr>
<tr>
<td>(C) Temporary migrants. Individual forest workers, gem-miners, hunters, and others</td>
<td>Khmer and foreigners</td>
<td>Mostly adult males</td>
<td>Inadequate, but better than in (A) due to high mobility and more cash; private sector often preferred</td>
<td>Little or no immunity</td>
<td>Adult males</td>
</tr>
<tr>
<td>(D) Organized groups: plantation-workers, road-workers, military, police-forces</td>
<td>Khmer and foreigners</td>
<td>Mostly adult males</td>
<td>Usually good, as employers want to protect workers</td>
<td>None</td>
<td>Adult males, sometimes females or entire families</td>
</tr>
<tr>
<td>(E) Refugees, displaced persons</td>
<td>Khmer</td>
<td>Families</td>
<td>Relatively good in recent years</td>
<td>None</td>
<td>Children and adults alike</td>
</tr>
<tr>
<td>(F) New forest settlers, sometimes aftermath of (E)</td>
<td>Khmer</td>
<td>Families</td>
<td>None, not even private sector</td>
<td>Usually low</td>
<td>Children and adults alike</td>
</tr>
</tbody>
</table>

- **Internal migrants:** Different groups of mobile and migrant people have been described who might be at risk of malaria and might increase the risk of transmission. For Cambodia these include: Ethnic minorities (200,000), Forest fringe dwellers (1,300,000), and border crossers and temporary migrants (400,000). Many of these border crossers and temporary migrants who are attracted by the seasonal work often come from non-malarious areas and have little to no immunity. With the recent economic downturn, it is estimated that 10% of garment workers have become unemployed and may result in populations moving from urban to rural areas looking for work.
- The malaria programme might learn from the work done by the HIV/AIDS control programme (NCHADS) with migrants in Cambodia. A variety of surveys have been done which provide valuable information about migrants in Cambodia and some
Provincial Health Departments (PHD) keep track of new settlers and offer them ITNs and early diagnosis and treatment, etc.

- **Out-migration** from Cambodia does occur. The main destinations for Cambodian migrant workers are: Thailand, South Korea and Malaysia. There is anecdotal evidence of the presence of Cambodian migrant workers in Gulf Countries (Saudi Arabia and Qatar) and other Asian countries (Hong Kong, Taiwan, Japan, etc.), but there is no information available on their number and occupation.

- Thailand has become the prime destination for irregular Cambodian labor migrants. As of October 2005, there were 181,579 registered Cambodian labor migrants in Thailand (123,998 Male and 57,581 Female), representing approximately 13% of legal migrant workers in Thailand. The current figures may be lower because of fewer new work permits. It is estimated that there are another 180,000 undocumented migrants. Both for registered and undocumented migrants, the employment sectors with the highest number of Cambodian migrants are: fisheries (fishing boats or fish processing factories), construction and agriculture.

- Undocumented migration from Cambodia to Thailand is an increasing concern. Documented migrant workers in Thailand have limited access to health care and treatment services due to language and cultural barriers. Undocumented migrants, who are less visible and thus more difficult to reach by non-profit organizations, remain largely isolated from health care services. Poor living conditions and discrimination are just some of the difficulties Cambodian migrants face.

- Migration into Cambodia occurs for various reasons. Cambodia is a destination country for labor migrants, mainly from Viet Nam and China. The country has also been a major host for Vietnamese asylum seekers and refugees. Cambodia is a source and transit country for men, women, and children trafficked for commercial sexual exploitation and forced labor to Thailand and Malaysia. It is also a transit and destination country for Vietnamese and Chinese women and children for sexual exploitation.

- Migrants in Cambodia are equally distributed between males and females, but in rural areas it is more men. Of those who migrate, **62 % migrate within their own province**, 37% outside province but within Cambodia and only 4% move outside Cambodia.

- Migrants need LLINs as these are one of the most effective forms of prevention along with access to free diagnosis and treatment. This could be provided by Village Malaria Workers (VMWs) and Mobile Malaria Workers (MMWs). It is anticipated that MMWs will understand the migration networks that they are a part of but will need incentives to work.

- Migrants need information about prevention and the correct treatment which could be delivered on buses and taxi stands where migrants get transport but these messages must be appropriate for the needs of this population.

- There is a need for better information exchange between bordering countries about migrants and mobile populations.

- There has been considerable work on migrants and mobile populations in the past in Cambodia. The following table summarizes this work:

<table>
<thead>
<tr>
<th>Risk group</th>
<th>Surveys &amp; Research</th>
<th>Interventions</th>
</tr>
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<table>
<thead>
<tr>
<th>NMCP</th>
<th>Other stakeholders</th>
<th>NMCP</th>
<th>Other stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organized groups</td>
<td></td>
<td>Qualitative Study based on FGDs with migrant farm workers (URC, 2008)</td>
<td></td>
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<tr>
<td>Refugees, displaced persons</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>New forest settlers</td>
<td>Fever surveys in gem-mining settlements in Rattanakiri (2002-03) Suspected epidemic outbreak investigations (??)</td>
<td>PHDs in some provinces have been keeping track of new settlers &amp; provided them with ITNs, EDAT, etc.</td>
<td>Village Malaria Worker Project (MSF in Pailin, 2003-07)</td>
</tr>
</tbody>
</table>

**Challenges**
- Locating mobile and migrant populations particularly in the light of recent changes in causes of migration (e.g. from closure of garment factories)
- Need for migrants (patients) to understand what drugs are acceptable
- Overcoming language barriers
- Need to inform people about new interventions, etc.
- Persuading unwilling traders/drug sellers to change their practices
- Countering deliberate misinformation on drugs
- Linking communications with assured availability of options that are promoted.

**Country Plans**
1. Contribute to situational analysis being carried out by TA supported by WHO
2. Finalize and begin implementation of Containment Project BCC strategy including for mobile/migrant populations
3. Select, train, position and equip Mobile Malaria Workers (contact points for mobile/migrant populations)
4. Distribute LLINs for populations making overnight stays in the forest
5. Participate in workshop for Cross-Border Strategy Development as well as in follow-up cross-border meetings
6. Implement other interventions following recommendations from situational analysis
7. Establish and maintain malaria surveillance and management system including data on mobile/migrant populations
8. Update situational analysis with regard to migrants in October ’09 following publication of Final Results Census 2008 in Sep ’09
9. Conduct Baseline survey in Oct ’09 and follow-up survey embedded in CMS 2010 with a module on mobile/migrant populations

Mobile and Migrant Workers in Malaria Endemic Areas along Cambodia-Thai Border
Dr Kheang Soy Ty, University Research Corporation

Main Points
• Dr Soy Ty gave a brief overview from the Assessment Workshop on Mobile and Migrant Populations held in Battambang & Sampov Loun ODs, Battambang Province in July 2008. The objective of this workshop was to gather information on mobile/migrant movement in target malaria endemic areas from health facility staff and commune chiefs.
• Key findings included that 1) people stay mainly for more than 1 month especially from other provinces; 2) People travel mainly by taxi or moto from other provinces or from other district in BTB; 3) the migration patterns of workers to/from Battambang provinces:

• Dr Soy Ty gave a second presentation on the qualitative research that URC conducted among mobile and migrant workers along the Cambodian-Thai borders. Understanding migration patterns, knowledge, concept, behaviors, and practices regarding to malaria prevention and treatment seeking behaviors could guide in developing effective strategic interventions among mobile and migrant workers.
• The objectives of the study described are the following:
  – Describe the migration pattern of mobile and migrant people in the malaria project areas
– Gain better understanding on their knowledge and concept on malaria related issues, and behavior and practice in malaria prevention
– Explore their knowledge, behavior, and practice on malaria treatment
– Determine effective communication channel and strategy for health education

• Using focus group discussions in 4 areas Samlot, Pailin, Pnom Prek and Sampoaloun, some of the key results included:
  – Migrants come to this area for work in agriculture (planting and harvesting of corn, soy beans and cassava). Some get additional income from harvesting insects for food. Most are from outside the area (non malaria endemic areas) and return home after working.
  – Many travel by taxis, motorbikes, bus or in trucks owned by the employer. Work is usually arranged by individual farm owner, extended families, and/or previous experiences working with the employer. Some are frequent travelers, while others come for the first time usually with other more experienced workers. They stay for the whole period of work (6 – 8 weeks). Some come to rent land (paid for by clearing land for landlord) grow crops and may stay for up to 3 years. Some come with families, as couples, or alone or with other members of the same home village.
  – In terms of knowledge of malaria, most knew malaria was a serious problem in this area. Most know the symptoms of malaria, and knew that malaria could attack them after returning home. Traditional beliefs on causation were also very strong. Few believed mosquitoes alone could cause malaria. Many workers still used bednets and regarded mosquito nets as an essential household item.
  – Some used health facilities when they were ill but many used private medicine sellers to obtain treatment. Some had heard malaria messages on TV and radio but preferred to receive messages from health providers as they could ask questions and clarify meanings when in face to face encounters.
  – In Anlong Veng in Banteay Meanchey province, there were many unregistered villages of new settlers who had very limited access to care. These mobile populations are not familiar with local services that may be available.

• Field testing will be conducted on mobile & migrant workers in Chak Krey HC. The objectives will be to discuss with public health sector & local authority, brainstorm with community volunteers & HC staff, estimate # of mobile & migrant in the HC catchment area, prepare for nets distribution in the harvesting season in July. The strategy to be tested involves a system of retaining nets among the farm owners for future use. In other words, nets will be distributed to farm owners so that they keep them for the workers on their farm and replaced when needed. On smaller farms, nets will be distributed directly to individual workers.

Migrant situation in Malaysia
Dr Jiloris Dony, Sabah Area Medical Officer of Health, Ministry of Health, Malaysia

Main points
• Malaria in Sabah Island showed marked decrease between 1996 and 2008 (50,000 to 4,000 cases) but rate of decline among foreigners has been less dramatic. Half of all cases are among foreigners.
• Main source of migrants is Indonesia and the Philippines who work in agriculture and forestry and are often illegal but includes international tourists. About 80% of malaria cases occur among migrant workers. Most workers live in logging camps with poor living conditions. They are often accompanied by their families and camp owners do not provide good care for their workers. Access to services is poor due to remote areas and poor infrastructure.

Malaria Cases, by Citizenship in Sabah, Malaysia (2002-2007)

<table>
<thead>
<tr>
<th>Citizenship</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>3,274 (64.3%)</td>
<td>1,124 (51.0%)</td>
<td>1,562 (57.0%)</td>
<td>1,645 (50.4%)</td>
<td>1,509 (49.8%)</td>
<td>1,704 (53.4%)</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1,244 (24.4%)</td>
<td>794 (36.1%)</td>
<td>868 (31.6%)</td>
<td>1,238 (37.9%)</td>
<td>1,015 (33.5%)</td>
<td>1,106 (34.7%)</td>
</tr>
<tr>
<td>Philippines</td>
<td>564 (11.9%)</td>
<td>284 (12.9%)</td>
<td>303 (11.1%)</td>
<td>366 (11.2%)</td>
<td>360 (11.9%)</td>
<td>365 (11.4%)</td>
</tr>
<tr>
<td>Others</td>
<td>14 (0.3%)</td>
<td>0</td>
<td>8 (0.3%)</td>
<td>18 (0.5%)</td>
<td>145 (4.8%)</td>
<td>16 (0.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>5,096</td>
<td>2,202</td>
<td>2,741</td>
<td>3,267</td>
<td>3,029</td>
<td>3,191</td>
</tr>
</tbody>
</table>

• When outbreaks are detected, there is a special outbreak investigation team that goes to the field to conduct investigations. Diagnosis is confirmed by microscopy.
• The Malaysian government has developed malaria control and elimination plans for 2010 - 2015. These include establishment of health posts for malaria detection and treatment and improvement of patient compliance with dosage regimes. For migrants the focus will be on camps and new employment sites in the forest. ITNs will be distributed to people who stay in the forest including timber workers hunters. Follow up of utilization of the nets will occur.

Comments

Points raised by Dr Soy Ty and Dr Ros Seyha involved the way migrants are accessed in Malaysia.

Dr Dony reported that many cases of malaria are imported by migrants and therefore there is a need to provide them with information on how to protect themselves against malaria and how to obtain treatment. This is especially important when opening up new areas of the forest. Private and public screening of migrants will be encouraged and regular border meetings with Indonesia to exchange information and improve education of incoming workers. Free bednets are also given to camp owners for distribution.

Update on situational analysis planned for Thailand and Cambodia
Dr James Eliades, WHO consultant

• Dr Eliades provided a brief overview of the methodology for “A Field Survey of Migrant and Mobile Populations in Cambodia and Thailand Using Respondent-Driven Sampling.” More details of this methodology were presented and discussed on the third day.
• It is important to remember the overall goal of this survey is to characterize movement of migrant and mobile populations and potential points of access to develop coordinated multi-country action plans to better target them.
• The objectives of this survey include:
  – To define migratory patterns
  – To define health seeking behavior, barriers to access, and effectiveness of health messaging
  – To determine knowledge about malaria, and access and use of malaria control interventions
• Dr Eliades described the difficulties of sampling from this group/population and the various methods that have been used to access hard-to-reach populations. He described this novel method of respondent-driven sampling (RDS) which uses migrants to recruits other migrants, relies on social network of migrants, and is motivated by incentives to participate. This methodology relies on the selection of seeds to obtain further recruits through subsequent waves until the sample size is reached.
• The survey questionnaires will include questions regarding: Demographic information, Migratory patterns, Work history, Health care seeking behavior and barriers, Knowledge about malaria and use of malaria control interventions, and Exposure to health messaging.

Day 3: Discussion of survey issues

• Dr James Eliades gave a presentation outlining the steps for the situational analysis, which will include conducting formative focal group discussions in Thailand and in Cambodia. It was proposed that focus group discussions to guide the development of the surveys would be conducted in Trat and Chantburi provinces (Thailand) and in Pailin and Battambang provinces (Cambodia).
• Other topics for discussion include: Site selection, Staffing, Seed selection, Coupons, Incentives, and Forms
  – Site selection: It was agreed that site selection will be important and will have to be somewhere migrants are comfortable coming to. These can be established health facilities (but needs to be verified), established public sites, rented spaces, and the sites must not change during the course of the survey, and must be able to provide appropriate privacy.
  – Staffing: It was suggested that each site would be staffed with a site supervisor, coupon management and incentives, an interviewer/screener, and translator. It will also be important to consider workload issues and with whom would the migrants be comfortable speaking to.
  – Seed Selection: The issue of seed selection is very important and will affect the sampling in the subsequent waves. Seeds should be diverse, be social and active members of their community, and a mixture of male and female.
• There was much discussion from the group regarding selection of seeds. Dr Soy Ty brought up the point that Cambodian farm owners might not be happy with their workers participating in such studies. Seeds selected in isolated farms where transportation is difficult may limit the ability of seeds to reach unknown networks. This may not be as much of an issue for Thailand as preliminary FGDs suggest that migrant
workers are more able to move around and farm owners are less restrictive of their workers movements and participation in such studies.

- Incentives: The issue of incentives was also discussed. It will be important to provide appropriate incentives to not lead to coercion. Further discussion of this will be needed to identify appropriate country-specific incentives.

### Group Work

The participants were assigned to the following 4 working groups pertaining to migrants and mobile populations:

1. Prevention
2. Case management
3. BCC / IEC
4. M&E and surveillance

The first task of the groups involved 1) defining the issues, 2) the problems or challenges associated with the issues, 3) the activities or actions needed to overcome these problems and 4) the cross-border implications of the issues, problems and solutions. The outputs from the groups are compiled into the table below.

The second task of the groups was to develop the working plan of action. Prior to formulating the identified issues into specific objectives, the groups were asked to discuss their working definitions of migrants and mobile populations.

Each of the activities and actions identified in the previous exercise were developed further in a detailed action plan, which includes setting indicators for these actions, define who would be responsible for these actions and a time line for the actions to be achieved. Assumptions would need to be made to complete the plan.

### Outputs

**A. Definition of “migrant” versus “mobile population”**

Thailand and Cambodia use different definitions for migrants and mobile populations but generally they are can be defined with regard to:

- Temporary vs permanent (time)
- Internal vs external
- Reasons for migration
- Operational definition (easy to reach, intermediate, hard to reach)

**Migrant:** The general definition of a migrant is any person who moves from one place to another. "External migration" refers to moving across international borders. On the other
hand, "internal migration" refers to movement from one area (province, district or municipality) to another within one country.

For our purpose which is containment of resistant malaria parasites, it was proposed that a migrant be described as anyone who moves out from their permanent residence and stays in a malaria endemic area for whatever purposes with regards to targeting malaria intervention. Therefore, operational definitions can be used to describe migrants as those who can be classified as easy-to-reach (e.g., within 5km of a health center), intermediate to reach (e.g., within reach of VMWs or MMWs), and hard-to-reach migrants (e.g., those who engage in illegal activities in the forest).

• In Cambodia, a migrant is anyone who moves across a border (provincial, national, or international).

• In Thailand, migrants are classified as internal or external. Internal migrants move from one province to another within the country. External migrants often come from Cambodia and Myanmar for economic reasons but not exclusively. While migrants can be classified as temporary or permanent, they are still migrants even after long period of time.

Mobile population: Any person who moves from one area to another (whether internally or externally) usually for a short period of time (less than one month)

• In Cambodia, a mobile person is anyone who has moved from a village outside the containment project area to within the area for any of the push/pull factors.

• In Thailand, the term “internal migrant” is generally used in place of “mobile population.”

B. Identification of Issues, Challenges and Solutions

<table>
<thead>
<tr>
<th>Issues</th>
<th>Challenges</th>
<th>Specific actions required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to mobile and migrant populations</td>
<td>Farm owners do not want to share information regarding migrant and mobile populations</td>
<td>• Meet with farm owners and local authorities to introduce objectives of the Containment Project</td>
</tr>
<tr>
<td></td>
<td>Migrants/mobile populations stay for short periods of time and cross international borders</td>
<td>• Work with farm owners to share information about migrants</td>
</tr>
<tr>
<td></td>
<td>Limited knowledge of networks of migrants and mobile populations</td>
<td>• Conduct situational analysis among mobile and migrant populations in Thailand and Cambodia</td>
</tr>
<tr>
<td></td>
<td>Limited access to networks of migrants and mobile populations</td>
<td>• Select and train mobile malaria workers (MMWs) in the target areas to access these migrant networks</td>
</tr>
</tbody>
</table>
### Distribution of LLINs for mobile and migrant populations

Distribution of LLINs for mobile and migrant populations is difficult due to inability to quantify accurately population (demands for LLINs usually higher than estimated due to highly mobile population).

- Work with local authorities to collect and update information on numbers of mobile and migrant populations

### Group 2: Case Management

<table>
<thead>
<tr>
<th>Access to appropriate services among mobile and migrant populations</th>
<th>Difficult to identify network and location of migrant workers</th>
<th>CAM: Limited coverage of services for migrant populations working and staying outside the villages or in the remote areas:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• remoteness: they tend to rely on stand-by treatment,</td>
<td>• quality of information: mixed, lacked or inappropriate information</td>
<td>• remoteness: they tend to rely on stand-by treatment,</td>
</tr>
<tr>
<td>• quality of information: mixed, lacked or inappropriate information</td>
<td>• appropriate services: mixed/inappropriate services (mono-therapy, sub-standard/fake anti-malarial drugs, cocktail drugs)</td>
<td>• quality of information: mixed, lacked or inappropriate information</td>
</tr>
<tr>
<td>• appropriate services: mixed/inappropriate services (mono-therapy, sub-standard/fake anti-malarial drugs, cocktail drugs)</td>
<td>CAM: Limited coverage of services for isolated settlement (migrant) population</td>
<td>• appropriate services: mixed/inappropriate services (mono-therapy, sub-standard/fake anti-malarial drugs, cocktail drugs)</td>
</tr>
<tr>
<td>Limited information regarding migrant/mobile population on available service and their right to (freely) access to malaria diagnosis and treatment</td>
<td>Limited information regarding migrant/mobile population on available service and their right to (freely) access to malaria diagnosis and treatment</td>
<td>CAM: Limited coverage of services for isolated settlement (migrant) population</td>
</tr>
<tr>
<td>Inadequate or timely supplies (blood test &amp; anti-malarial drugs) for diagnosis and treatment</td>
<td>CAM: Limited coverage of services for isolated settlement (migrant) population</td>
<td>CAM: Limited coverage of services for isolated settlement (migrant) population</td>
</tr>
<tr>
<td>• Ensure proper planning, effective management and coordination at all levels</td>
<td>CAM: Limited coverage of services for isolated settlement (migrant) population</td>
<td>CAM: Limited coverage of services for isolated settlement (migrant) population</td>
</tr>
</tbody>
</table>

### Group 3: BCC/IEC

<table>
<thead>
<tr>
<th>Lack of communication</th>
<th>Migrants come from various countries, speaking various languages</th>
<th>CAM: Limited coverage of services for isolated settlement (migrant) population</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Develop tools in specific languages</td>
<td>Migrants come from various countries, speaking various languages</td>
<td>CAM: Limited coverage of services for isolated settlement (migrant) population</td>
</tr>
<tr>
<td>Low literacy among migrants and mobile populations</td>
<td>Design, develop, and field test pictorial media that is useable across languages and cultures</td>
<td>CAM: Limited coverage of services for isolated settlement (migrant) population</td>
</tr>
<tr>
<td>Limited knowledge and awareness about containment issues among</td>
<td>Conduct trainings and workshops for private providers</td>
<td>CAM: Limited coverage of services for isolated settlement (migrant) population</td>
</tr>
</tbody>
</table>

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**Group 2: Case Management**

- Investigate and identify network of organized/unorganized migrant workers in remote areas (logging, mine, explore the forest products, etc)
- Identify companies (road construction companies, logging companies, agricultural farms, etc) to inform them about the intervention and to quantify the needs for their employees
- Standardize malaria diagnosis and treatment for private service in line with the public health service and make adequate/appropriate anti-malarial available and accessible, according to the national policy
- Provide appropriate information and effective communication to reach those groups
- Need to develop appropriate national policy/regulation for improving the private health care services
- Expand the community health network (VMW/MMW) – need to revise criteria to establish VMW/MMW service
- Provide appropriate information and effective communication to target population through appropriate channels
- Ensure proper planning, effective management and coordination at all levels

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**Group 3: BCC/IEC**

- Develop tools in specific languages
- Design, develop, and field test pictorial media that is useable across languages and cultures
- Conduct trainings and workshops for private providers
<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Solution/Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private providers</td>
<td>• Establish malaria corners in private businesses along the border</td>
</tr>
<tr>
<td>Limited awareness among consumers</td>
<td>• Distribute materials and multimedia to promote consumer awareness</td>
</tr>
</tbody>
</table>
| Weak cross-border communications between Thailand and Cambodia regarding containment issues and messages | • Form cross border committees for information sharing  
• Exchange presentations, key messages, and information by email  
• Develop generic tools for countries to adapt  
• Conduct containment campaigns at border check points  
• Develop bilingual billboards along the border |
| Weak coordination and cooperation for stakeholder | • Conduct stakeholders workshops for information sharing  
• Conduct joint Malaria Day Campaigns (25 April) in Thailand and Cambodia |
| Lack of awareness | • Develop new methodologies to reach mobile and migrant populations, including placing information in taxis and buses  
• Provide malaria information in workplaces |
| Lack of targeted interventions | • Identify MMWs, farm/factory owners, monks, employers, and village chiefs  
• Conduct informal trainings for above |
| Lack of accessibility | • Target delivery of health messages through employers  
• Increase awareness and government advocacy for hidden and illegal migrants through governments |
| Knowing where target groups are located and their needs | • Share information between stakeholders on where to locate target groups |

**Group 4: M&E and Surveillance**

<table>
<thead>
<tr>
<th>Finding mobile/migrant people who are difficult to find:</th>
<th>Accessing target populations involved in illegal activities in the forest</th>
<th>Employer cooperation (employers doing illegal activities not likely to cooperate)</th>
</tr>
</thead>
</table>
| **THA:** Illegal foreigners plus highly mobile internal migrants  
**CAM:** Mobile Internal migrants | • Migrant Health Workers (THA) to collaborate with employers of illegal migrants  
• Migrant Malaria Workers (CAM) require specific training in mobile population plus MMW required | • Work with employers of migrants and mobile populations  
• Ensure incentives for employers to cooperate |
| Accessing hidden and illegal migrants | • Target delivery of health messages through employers  
• Increase awareness and government advocacy for hidden and illegal migrants through governments | |
| Knowing where target groups are located and their needs | | |

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Lack of accessibility: Knowing where target groups are located and their needs

Employer cooperation (employers doing illegal activities not likely to cooperate)
| Cross-border communication and information sharing | • Conduct regular cross-border meetings  
• Set up information sharing mechanisms  
• Utilize border malaria posts (already in THA) and planned for CAM for information sharing |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In Cambodia, there is the challenge of selecting MMWs</td>
<td>• Select MMWs who are part of the migrant and mobile populations networks, but are not highly mobile</td>
</tr>
</tbody>
</table>
| Difficulty in conducting case follow up among migrants and mobile populations | **THA**: Low follow up rates for mobile populations because they often move on after diagnosis  
**CAM**: currently only passive case detection and follow-up  
• CAM to examine Thai method of case follow up  
• CAM to use VMWs to implement case follow up for mobile populations  
• THA to use RDTs and slides for outreach of migrants  
• THA to share information about all Cambodian malaria cases treated in Thailand  
• Give referral document to Cambodians seeking treatment in THA  
• In future, harmonization of MIS systems to include information on mobile and migrant populations |
| Legal issues | **THA**: status of illegal migrants (overcoming fear of being reported)  
**CAM**: illegal activities (working in the forest)  
• Conduct outreach activities to educate migrants about their rights through Migrant Health Workers (THA) and MMW/VMWs (CAM)  
• Share experiences in cross-border meetings and international malaria cross-border meetings |
C. Proposed Framework and Action Plan

Overall Goal: To contain the spread of artemisinin-resistant malaria parasites among migrant and mobile populations

<table>
<thead>
<tr>
<th>Objective 1: To provide malaria prevention measures by accessing migrant and mobile population networks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity</strong></td>
</tr>
</tbody>
</table>
| 1.1 Meeting with farm owners and local authorities to introduce objectives of the Containment Project | Number of meetings conducted with farm owners and local authorities | Minutes from meetings | **CAM:** CNM – PHD/OD  
**THA:** BVBD – OPC, BVBC, BVBU  
By end Q3 of 2009 | Budget for meeting available |
| 1.2 Conduct situational analysis among mobile and migrant populations in Thailand and Cambodia | Situational analysis conducted | Report of situational analysis | **WHO/SEARO consultant**  
By end Q3 of 2009 | |
| 1.3 Organize meeting with OD/PHD for training of trainers (TOT) | Number of TOTs conducted | Report of TOT training | **CAM:** CNM – PHD/OD  
**THA:** BVBD – OPC, BVBC, BVBU  
By end Q3 of 2009 | Budget available |
| 1.4 Select and train mobile malaria workers (MMWs) in the target areas to access these migrant networks | Number of MMWs recruited and trained | Report of training/list of participants | **CAM:** CNM – PHD/OD  
**THA:** BVBD – OPC, BVBC, BVBU  
By end Q3 of 2009 | Budget, drugs, supplies available |
| 1.5 Work with local authorities to collect and update information on numbers of mobile and migrant populations | Number meetings with local authorities | Minutes from meetings | **CAM:** CNM – PHD/OD  
**THA:** BVBD – OPC, BVBC, BVBU  
By end Q3 of 2009 | Budget available |
| 1.6 Monitor LLIN distribution to migrant and mobile populations in target areas | % of target population covered with LLIN | Rapid assessment survey | **CAM:** CNM – PHD/OD  
By Q4 of 2009 | Budget available |
**Objective 2: To improve access to malaria case management (enabling environment) by migrant and mobile populations**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Indicator</th>
<th>Means of Verification</th>
<th>Responsibility and Timeframe</th>
<th>Important Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Investigate and identify networks of organized/unorganized migrant workers in remote areas (logging, mine, explore the forest products, etc)</td>
<td>Number of networks of organized and unorganized migrant workers identified</td>
<td>Report submitted</td>
<td><strong>CAM:</strong> CNM – OD malaria units  &lt;br&gt; <strong>THA:</strong> BVBD – VBDC units  &lt;br&gt; <em>By Q3 of 2009</em></td>
<td>National programme will initiate and provide guidance to OD (CAM) and VBDC (THA) units; available budget for implementation</td>
</tr>
<tr>
<td>2.2 Identify companies (road construction companies, logging companies, agricultural farms, etc) to inform them about the intervention and to quantify the needs for their employees</td>
<td>Number of private companies contacted</td>
<td>Report submitted</td>
<td><strong>CAM:</strong> CNM – OD malaria units  &lt;br&gt; <strong>THA:</strong> BVBD – VBDC units  &lt;br&gt; <em>By Q3 of 2009</em></td>
<td></td>
</tr>
<tr>
<td>2.3 Review national policy/ regulation for improving the private and public health care services</td>
<td>National policy reviewed and updated</td>
<td>Policy paper approved by MOH</td>
<td><strong>CAM:</strong> Refer to Private-Public Mix Partnership Strategy  &lt;br&gt; <em>By Q4 of 2009</em></td>
<td>PPM Strategy implemented</td>
</tr>
<tr>
<td>2.4 Provide appropriate information and effective communication to target population through appropriate channels</td>
<td>Proportion of migrants and mobile populations reached with key messages</td>
<td>Special survey</td>
<td><strong>CAM:</strong> Refer to BCC/IEC; technical support provided by MC  &lt;br&gt; <em>By Q4 of 2009</em></td>
<td>BCC/IEC strategy implemented</td>
</tr>
</tbody>
</table>

**Objective 3: To increase access to malaria diagnosis and treatment for intermediate to reach migrants and mobile populations through the establishment of Mobile Malaria Workers (MMW) network**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Indicator</th>
<th>Means of Verification</th>
<th>Responsibility and Timeframe</th>
<th>Important Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Organize workshop for HC staff on process of establishment of MMW network</td>
<td>Number of HC staff attending workshop</td>
<td>Workshop report</td>
<td><strong>CAM:</strong> OD malaria unit with support from PMS  &lt;br&gt; <em>By end of Q3 of 2009</em></td>
<td>Budget available</td>
</tr>
<tr>
<td>Objective 4: To strengthen the coordination and management mechanisms for adequate and timely supplies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity</th>
<th>Indicator</th>
<th>Means of Verification</th>
<th>Responsibility and Timeframe</th>
<th>Important Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Conduct consultative meetings to enable proper supply management, planning, and implementation</td>
<td>Number of meetings conducted</td>
<td>Effective operational supply management plan available</td>
<td>CAM: CNM By Q4 of 2009</td>
<td>Budget available</td>
</tr>
<tr>
<td>4.2 Conduct regular supervision by HC staff to target MMW areas</td>
<td>Number of supervisory visits conducted</td>
<td>Supervision reports (monthly)</td>
<td>CAM: Provincial Malaria Unit THA: VBDC</td>
<td>Budget and staff available</td>
</tr>
<tr>
<td>4.3 Conduct regular supervision from ODs to target MMW areas</td>
<td>Number of supervisory visits conducted</td>
<td>Supervision reports (monthly for first 6 months, then bimonthly)</td>
<td>CAM: OD Malaria Unit THA: VBDC</td>
<td>Budget and transportation for supervision available</td>
</tr>
</tbody>
</table>
4.4 Conduct regular supervision from Province to target MMW areas
   Number of supervisory visits conducted
   Supervision reports (monthly for first 6 months, then bimonthly)
   **CAM:** PMS  
   **THA:** VBDU
   Budget and transportation for supervision available

4.5 Conduct regular supervision from central level to HC with MMWs
   Number of supervisory visits conducted
   Supervision reports (quarterly)
   **CAM:** CNM  
   **THA:** BVBD
   Budget and transportation for supervision available

4.6 Procure and provide motorcycles to HC with MMWs
   Number of motorcycles procured and distributed
   Procurement and supply report
   **CAM:** CNM  
   By Q4 of 2009
   Budget and transportation for supervision available

4.7 Support for communication (phone cards) to HC
   Number of HC receiving phone card in the previous 3 months
   Monthly HC reports
   **CAM:** OD Malaria Unit
   Budget available

4.8 Support MMWs to attend meetings at HC
   Number of MMW attending meetings
   MMW meeting reports
   **CAM:** Health Center
   Budget available and allocated

4.9 Support HC for conducting investigation in target clusters covered by MMW activities
   Number of clusters/villages investigated
   Investigation reports
   **CAM:** CNM
   Budget available and allocated

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**Objective 5: To increase awareness of malaria prevention, treatment, and diagnostic messages for and among migrant and mobile populations**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Indicator</th>
<th>Means of Verification</th>
<th>Responsibility and Timeframe</th>
<th>Important Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Conduct stakeholders workshops for information sharing and strategy refinement</td>
<td>Number of stakeholder meetings</td>
<td>Meeting report</td>
<td>Provinces and districts 2x per year</td>
<td>Budget available</td>
</tr>
<tr>
<td>5.2 Conduct trainings and workshops for public and private providers regarding key messages for mobile and migrant populations</td>
<td>Number of providers participating in workshops</td>
<td>Participant list</td>
<td>Provinces and districts Quarterly By Q4 of 2009</td>
<td>Budget available</td>
</tr>
<tr>
<td>5.3 Distribute materials and multimedia to promote consumer awareness</td>
<td>Number of materials and multimedia distributed</td>
<td>Distribution report</td>
<td>CNM/BVBD Quarterly By Q4 of 2009</td>
<td>Budget and materials available; materials prepared on time</td>
</tr>
<tr>
<td>5.4 Form cross border health committees for information sharing</td>
<td>Number of cross-border health committees established</td>
<td>Meeting report</td>
<td>Provinces and districts Quarterly By Q3 of 2009</td>
<td>Budget and time available</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>5.5 Identify and conduct informal trainings for MMWs, farm/factory owners, monks, employers, and village chiefs</td>
<td>Number of participants trained</td>
<td>Meeting report</td>
<td>PHD/OD/HC BVBD/VBDU/MP/MC By Q3 of 2009</td>
<td>Budget and participants have time to participate</td>
</tr>
<tr>
<td>5.6 Increase awareness and government advocacy for hidden and illegal migrants</td>
<td>Number of advocacy events for hidden and illegal migrants</td>
<td>Advocacy reports</td>
<td>CNM/BVBD communications units Annual</td>
<td>Issue of hidden and illegal migrants can be openly discussed</td>
</tr>
<tr>
<td>5.7 Conduct joint Malaria Day Campaigns (25 April) in Thailand and Cambodia</td>
<td>Number of joint Malaria Day campaigns</td>
<td>Activity reports</td>
<td>National, Provincial and districts Q2 of 2010</td>
<td></td>
</tr>
</tbody>
</table>

**Objective 6: To target communications of health education messages for migrants and mobile populations**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Indicator</th>
<th>Means of Verification</th>
<th>Responsibility and Timeframe</th>
<th>Important Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Target delivery of health messages through employers by establishing malaria corners in private businesses along the border</td>
<td>Number of malaria corners in private businesses</td>
<td>Supervision reports</td>
<td><strong>THA: BVBD/Provinces</strong> By Q3 of 2009</td>
<td>Businesses are willing to participate</td>
</tr>
<tr>
<td>6.2 Develop and share generic tools for each country to adapt</td>
<td>Number of generic tools developed and emailed between THA and CAM</td>
<td>Annual reports</td>
<td>CNM/BVBD Communications Units By Q3 of 2009</td>
<td></td>
</tr>
<tr>
<td>6.3 Design, develop, and field test pictorial media that is useable across languages and cultures</td>
<td>Number of pictorial media produced</td>
<td>Annual reports</td>
<td>CNM/BVBD Communication Units By Q3 of 2009</td>
<td></td>
</tr>
<tr>
<td>6.4 Develop bilingual billboards along the border</td>
<td>% of respondents who can recall billboard messages</td>
<td>Special survey</td>
<td>CNM/BVBD Communication Units By Q3/Q4 of 2009</td>
<td>Billboards are effective media tools</td>
</tr>
<tr>
<td>6.5 Conduct containment campaigns at border check points</td>
<td>Number of border check points with containment campaign</td>
<td>Supervision reports</td>
<td>Provinces By Q4 of 2009</td>
<td>Border check points are willing to participate</td>
</tr>
</tbody>
</table>
6.6 Develop new methodologies to reach mobile and migrant populations, including placing information in taxis and buses

<table>
<thead>
<tr>
<th>Activity</th>
<th>Means of Verification</th>
<th>Responsibility and Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of respondents who have received IEC messages from taxis and buses</td>
<td>Special survey</td>
<td>CNM/BVBD Communication Units By Q4 of 2009</td>
</tr>
</tbody>
</table>

6.7 Exchange presentations, key messages, and information by email

<table>
<thead>
<tr>
<th>Activity</th>
<th>Means of Verification</th>
<th>Responsibility and Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of key messages developed through email exchanges between THA and CAM</td>
<td>Annual reports</td>
<td>CNM/BVBD Communication Units By Q3 of 2009</td>
</tr>
</tbody>
</table>

### Objective 7: To strengthen monitoring of and access to migrants and mobile populations who are difficult to find

<table>
<thead>
<tr>
<th>Activity</th>
<th>Indicator</th>
<th>Means of Verification</th>
<th>Responsibility and Timeframe</th>
<th>Important Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1 In Thailand, identify Malaria Post Workers to collaborate with employers of illegal migrants</td>
<td>Number of employers who are involved in the project</td>
<td>Annual report</td>
<td>THA: VBDC/VBDU By Q3 of 2009</td>
<td>Employers are willing to cooperate</td>
</tr>
<tr>
<td>7.2 In Cambodia, train Migrant Malaria Workers (MMWs) in how to reach migrant and mobile populations</td>
<td>Number of MMWs trained</td>
<td>Training reports</td>
<td>CAM: CNM/PHD By Q3 of 2009</td>
<td>3 MMWs proposed per HC in Zones 1 and 2</td>
</tr>
<tr>
<td>7.3 Conduct meetings with village chiefs/village health volunteers for monitoring of migrants flow and movements</td>
<td>Number of meetings at village level</td>
<td>Meeting reports</td>
<td>THA: VBDC/VBDU CAM: PHD/OD/HC By Q3 of 2009</td>
<td>Regular meetings with HC and village chiefs are held</td>
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<tr>
<td>7.4 Conduct meetings with local authorities to discuss migrant and mobile population situation</td>
<td>Number of meetings with local authorities</td>
<td>Meeting reports</td>
<td>CAM: CNM/PHD/OD By Q4 of 2009</td>
<td>Local authorities can lobby hidden companies working in the forest</td>
</tr>
</tbody>
</table>
Objective 8: To improve case follow up of migrant and mobile populations through a harmonized surveillance system

<table>
<thead>
<tr>
<th>Activity</th>
<th>Indicator</th>
<th>Means of Verification</th>
<th>Responsibility and Timeframe</th>
<th>Important Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1 Facilitate follow-up study visits by Cambodia to review the Thai method of case follow up</td>
<td>Study trip conducted</td>
<td>Action points resulting from the meeting</td>
<td>CNM/BVBD&lt;br&gt;Visit conducted to BIOPICS and BVBD in June 2009</td>
<td></td>
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<tr>
<td>8.2 Utilize Malaria Workers and MMWs to implement case follow up for migrant and mobile populations</td>
<td><strong>THA:</strong> At least 50% of migrant patients are followed up &lt;br&gt;&lt;br&gt;<strong>CAM:</strong> number of malaria patients referred to health facilities after 3-day treatment</td>
<td>Case follow up reports</td>
<td><strong>THA:</strong> VBDC/VBDU&lt;br&gt;<strong>CAM:</strong> HC/OD/MMW&lt;br&gt;By Q4 of 2009</td>
<td>In zones 1 and 2 of Cambodia; all malarious areas of Thailand</td>
</tr>
<tr>
<td>8.3 In Thailand, use RDTs (as well as microscopy, if possible) for outreach of migrants in remote areas</td>
<td><strong>THA:</strong> 90% of migrant patients are diagnosed by RDTs/microscopy during outreach activities</td>
<td>Outreach activity reports</td>
<td><strong>THA:</strong> VBDC/VBDU&lt;br&gt;By Q4 of 2009</td>
<td></td>
</tr>
<tr>
<td>8.4 Thai side will share summary information about all Cambodian malaria cases treated in Thailand</td>
<td>Number of cross-border meetings to share information</td>
<td>Meeting report</td>
<td>BVBD/VBDC/VBDU&lt;br&gt;CNM/PHD/OD/HC&lt;br&gt;By Q3 of 2009</td>
<td>Thai forms will include cases by nationality</td>
</tr>
<tr>
<td>8.5 Thai side will provide bilingual referral cards/documents to Cambodian patients for case follow up and monitoring in Cambodia</td>
<td>90% of migrants receive referral cards</td>
<td>Case follow up reports</td>
<td>BVBD/VBDC/VBDU&lt;br&gt;CNM/PHD/OD/HC&lt;br&gt;By Q4 of 2009</td>
<td>Bilingual referral cards can be used to monitor treated cases across the border</td>
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</tbody>
</table>
Summary and Recommendations

- Information on migrants and mobile populations exists and many organizations are working with these vulnerable populations, particularly along the border areas. **There is an urgent need to consolidate existing data on migrants/mobile populations** so that we can understand what information is already available and be able to identify the gaps for further operational research. Some rapid mapping activities may be needed— including of farm owners and private companies and industries.

- Different definitions for migrants and mobile populations are being used in Cambodia and Thailand which may include aspects of temporary versus permanent, internal/external, and reasons for migration. It was suggested at this workshop to **use a more operational definition for migrants who move into and out of the containment zones as easy-to-reach, intermediate, and hard-to-reach**. Furthermore, national policy for dealing with migrants and mobile populations should be advocated at higher levels.

- Since migrant workers generally move from one location to another looking for work, involvement of the private sector will be important to help us access these migrant and mobile populations. Novel approaches were shared at the workshop (i.e., malaria corners in private businesses, taxi drivers to distribute messages, and use of farmer owners to distribute LLINs, etc). However, there is a need to further **develop new approaches and innovative ideas for both countries to reach these hard-to-reach populations**.

- Mobile/Migrant Malaria Workers (MMWs) introduced in the Containment Project Strategy aims to specifically address containment of artemisinin resistant malaria among mobile and migrant populations. However, the roles of MMWs need to be more clearly defined (i.e., case management, ACD, case follow-up, referral system) as well as the selection criteria for these individuals needs further clarification.

- **BCC/IEC messages and strategies for migrants and mobile populations should be harmonized between Thailand and Cambodia** to ensure that messages are targeted and appropriate for these populations.

- The proposed situational analyses to be conducted in both Thailand and Cambodia will provide the much needed information on potential networks of migrants and mobile populations. The migrant situations are very different between the two countries, and it will be important to address these needs separately to adequately capture the relevant information. **Focus group discussions among migrants and mobile populations along the border will be one of the first steps in providing key information on how to design and adapt the situational analyses for both countries**.

- **There is a need to strengthen cross-border communications and collaboration (including for case detection and follow up and routine surveillance) by identifying commonalities on both sides and facilitating information sharing (e.g., lessons learned from THA surveillance system)**. Community-based malaria data (including for migrant and mobile
populations) should be integrated into other information systems (such as HIS) in the long-term.

Good ideas were shared and developed during the course of this workshop, which has provided a basis for development of a detailed action plan and framework.

Focal persons for migrants/mobile populations in Cambodia (Dr Chea Nguon) and Thailand (Ms Piyaporn Wangroongsarb) will review the action plan and continue to work together to make sure the action plan can be implemented in a timely and coordinated manner.

Next steps

National programs, with technical input from partners and WHO, will decide what data is required to be collected from migrants and mobile populations and what minimum information needs to be exchanged between Thailand and Cambodia.

A website needs to be created for such information to be shared between the two countries, partners, and the malaria community at large. Further discussion is needed about who will develop and maintain such a cross-border website.

National programs will establish and strengthen engagements with the private sector (e.g., malaria corners in Thailand, distribution of LLINs through employees, and possibly tap into their access to migrant networks). They will also encourage the involvement other partners, stakeholders, local authorities, etc who are working with migrants and mobile populations.

Focus group discussions will be conducted as soon as possible among migrants and mobile populations along the border to guide the design of the situational analysis, and the results will be used by the National Programs to improve their strategies to reach migrants and mobile populations.

The draft report and action plan will be distributed to country focal persons and other relevant individuals for further refinement and incorporation into existing plans of action if possible. National Programs need to endorse this action plan and begin implementation of these activities.
Annex 1. Workshop on Development of a Strategy to Contain Artemisinin Resistant Malaria among Migrants and Mobile Populations

Century Park Hotel, Bangkok
8 – 10 June 2009

AGENDA

**Objectives:**
- To share information about mobile and migrant populations (i.e., defining who is a migrant, patterns of migration, identifying NGOs and community organizations working with migrants)
- To get an update on situational analysis of mobile and migrant populations in Thailand and Cambodia
- To share novel and creative approaches for the delivery of prevention, diagnosis and treatment of health and malaria interventions for mobile and migrant populations
- To formulate a working strategic framework to access mobile and migrant populations for the containment of artemisinin resistance

<table>
<thead>
<tr>
<th>Monday 8 June 2009</th>
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<tbody>
<tr>
<td>08:30 – 09:00</td>
<td>Registration</td>
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<tr>
<td>09:00 – 09:15</td>
<td>Opening remarks and welcome</td>
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<tr>
<td>09:15 – 09:20</td>
<td>Introduction of participants</td>
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<tr>
<td>09:20 – 09:30</td>
<td>Containment Project Overview</td>
</tr>
<tr>
<td>09:30 – 09:35</td>
<td>Objectives of the meeting</td>
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</table>

**Objective 1: To share information about mobile and migrant populations**

| 09:35 – 10:00      | Overview of migrants and mobile populations                      |
|                   |                                                                  | Ms. Monique Filsnoel, IOM |
| 10:00 – 10:30      | Migrants in Thailand: what we know and challenges                  | Mr. Samart Vongprayoon, BVBD |
| 10:30 – 11:00      | TEA BREAK (& Group Photo)                                         |
| 11:00 – 11:30      | Migrants in Cambodia: what we know and challenges                  | Dr. Chea Nguon, CNM       |
| 11:30 – 12:00      | Mobile and Migrant Workers along Cambodia-Thai border             | Dr. Kheang Soy Ty, URC    |
| 12:00 – 12:30      | Discussion                                                        |
| 12:30 – 14:00      | LUNCH                                                            |
| 14:00 – 14:30      | Migrant situation in Malaysia                                      | Dr. Jiloris Dony, MOH Malaysia |

**Objective 2: To get an update on situational analysis of mobile and migrant populations in Thailand and Cambodia**

| 14:30 – 15:00      | Situational analysis: update and discussion                       | Dr. Jamie Eliades, WHO    |

**Objective 3: To develop novel and creative approaches for the delivery of prevention, diagnosis and treatment of malaria interventions for mobile and migrant populations**

| 15:00 – 15:30      | TEA BREAK                                                        |
15:30 – 17:30  Group Work: Prevention, Case Management, BCC/IEC, M&E and Surveillance
1) Identify issues and problems/challenges
2) Solutions to problem – what specific actions or activities are required?
3) Cross-border collaboration

Tuesday 9 June 2009

Objective 4: To formulate a working strategy or framework to address issues pertaining to mobile and migrant populations with regards to the containment strategy

08:30 – 08:45  Group Work (continued)  Dr David Sintasath, MC
08:45 – 10:30  Group Work: Development of Framework and Action Plan
  - Specific Objectives
  - Activities
  - Indicators
  - Means of Verification
  - Responsibility and timeframe
  - Assumptions

10:30 – 10:50  TEA BREAK
10:50 – 11:20  Group 1: Prevention  Group rapporteurs
11:20 – 11:50  Group 2: Case Management (including diagnosis)  Group rapporteurs
11:50 – 13:30  LUNCH
13:30 – 14:00  Group 3: BCC/IEC  Group rapporteurs
14:00 – 14:30  Group 4: M&E and Surveillance  Group rapporteurs
14:30 – 14:50  TEA BREAK
14:50 – 16:00  Next Steps: Action plan, discussion, conclusions, and recommendations
  - What data needs to be collected?
  - Cross-border information exchange – what information needs to be exchanged?
  - How do we involve other partners, stakeholders, agencies?
  - How do we involve private sector?
  - Need to identify focal persons for migrants/mobile populations in Cambodia and Thailand

16:00 – 16:15  Closing Remarks  Dr Charles Delacollette, WHO

Wednesday 10 June 2009

9:00 – 12:00  Training session on Respondent-Driven Sampling  Dr Jamie Eliades, WHO
(For National and Provincial Programme Staff and those interested)