KINGDOM OF CAMBODIA
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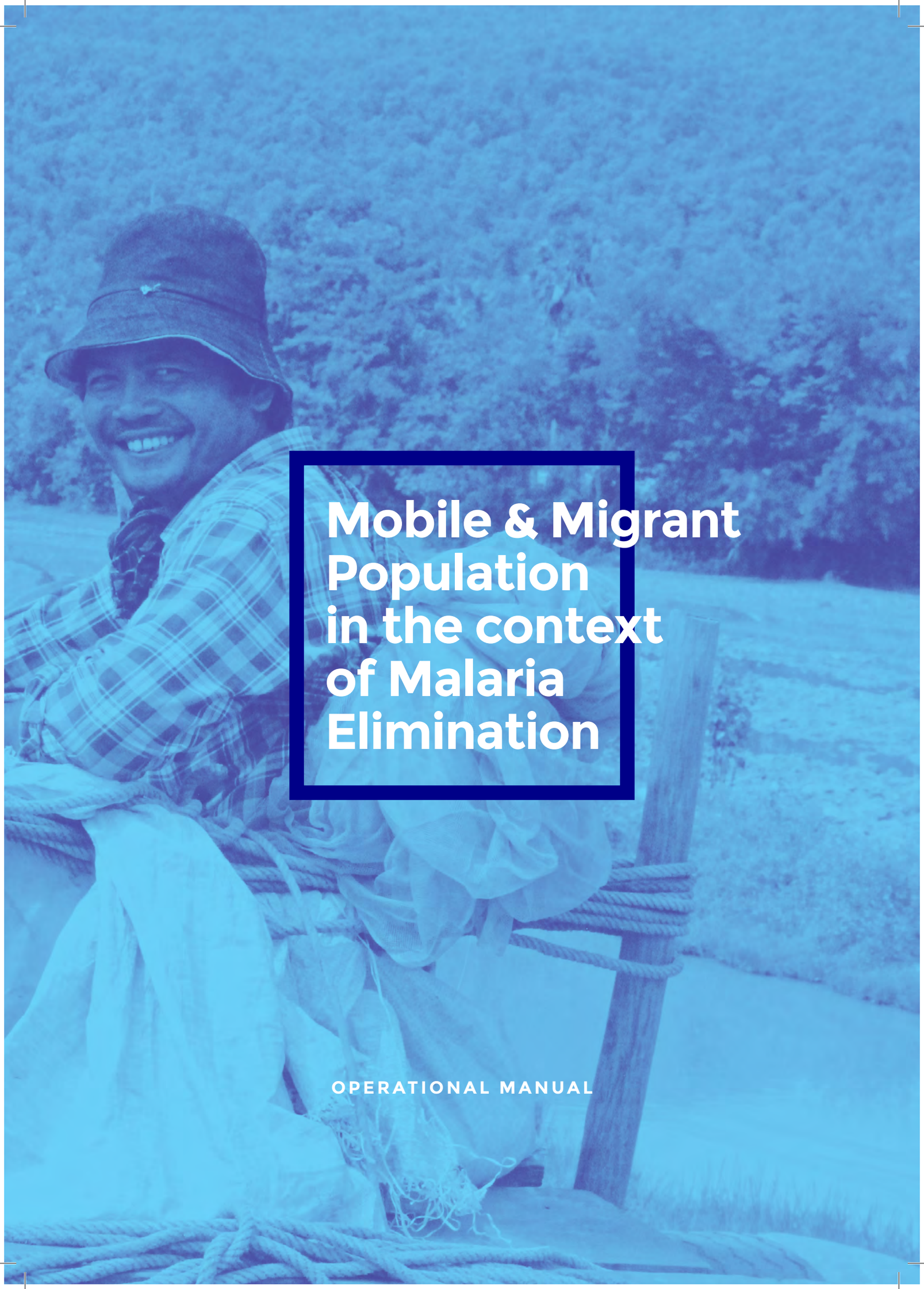
Mobile & Migrant Population in the context of Malaria Elimination

OPERATIONAL MANUAL



Mobile & Migrant Population in the context of Malaria Elimination

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Foreword

"The necessary guidance for strategic interventions and surveillance as an intervention to achieve malaria elimination"

The Mobile and Migrant Population (MMP) in The Context of Malaria Elimination Operational Manual has been developed in line with the Government's Malaria Elimination Action Framework (MEAF) 2016-2020 and GMS Regional Strategy for Malaria Elimination2015-2030 with an overall goal to achieve falciparum elimination by 2020.

This manual is a product of extensive consultations and collaboration between CNM, WHO and technical partners. It provides the strategic framework for the combined set of interventions required to provide to and for improving accessibilities to quality service by MMPs. It is also designed as a practical guide for implementation of field operations at all levels including annexed standard operating procedures.

This manual provides the necessary guidance for strategic interventions and surveillance as an intervention to achieve malaria elimination and I therefore urge all stakeholders to put all effort into its implementation to enable the country move towards the vision of malaria-free Cambodia.

Phnom Penh, 4th April, 2018

Professor ENG HUOT
SECRETARY OF STATE

Preface

The Mobile and Migrant Population (MMP) in The Context of Malaria Elimination Operational Manual has been developed in line with the Government's Malaria Elimination Action Framework (MEAF) 2016-2020 and GMS Regional Strategy for Malaria Elimination2015-2030 with an overall goal to achieve malaria falciparum elimination by 2020. The strategic objectives related to package interventions and surveillance in this manual is based on MMP risk categories and district elimination status.

This document provides National Program and partners in Cambodia with a framework for tackling malaria among most at risk population (MARP/hot pop) and hot spot areas. The manual is designed as a practical guide to standardize implementation of strategic intervention and surveillance strategies at the central, peripheral, and community level. It gives detailed guidance for field operation to be conducted by district health staff, health center officers, village malaria workers and other points of care. Sections of this manual will be the basis for building capacity of district level and peripheral staff based on OD's stratification and related surveillance intervention packages. It outlines all surveillance standard operating procedures (SOPs) that each level health staff is expected to follow.

This manual will be revised based on results produced and the availability of new evidence or tools and the set of interventions be gradually expanded.

Mobile & Migrant Population in the context of Malaria Elimination

Acknowledgement

The Operational Manual targeting MMPs and other disadvantaged groups in the context of Malaria Elimination has been developed through a series of meetings and a two-day workshop leaded by CNM including partners and members of the MMP working group between October 2016 and February 2017.

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Acronyms and abbreviations

ACT	Artemisinin-based Combination Therapy
AFRIMS	Armed Forces Research Institute of Medical Sciences
API	Annual Parasite Index
AS-MQ	Artesunate-Mefloquine
BCC	Behaviour Change Communication
CHAI	Clinton Health Access Initiative
CNM	National Center for Parasitology, Entomology and Malaria Control
CRS	Catholic Relief Services
DHQ-PPQ	Dihydroartemisinin-Piperaquine
GMS	Greater Mekong Subregion
HC	Health Center
HIS	Health Information System
HPA	Health Poverty Action
IEC	Information Exchange Communication
IOM	International Organization for Migration
LLIN	Long-Lasting Insecticide Net
LLIHN	Long-Lasting Hammock Insecticide Net
MC	Malaria Consortium
M&E	Monitoring and Evaluation
MEAF	Malaria Elimination Action Framework
MDR	Multidrug resistance
MIS	Malaria Information System
MMW	Mobile Malaria Workers
MMP	Mobile and Migrant Populations
MOH	Ministry Of Health
MSF	Médecins Sans Frontières
OD	Operational District
PCU/ADB	Program Control Unit/Asian Development Bank
P. f	Plasmodium falciparum
PfD	Partners for Development
PHD	Provincial Health Department
PMI/USAID	U.S. President's Malaria Initiative/ US Agency for International Development
PMW	Plantation Malaria Workers
PPM	Public-Private Mix
PSI	Population Services International
PSI/C	Population Services International/ Cambodia
RCAF	Royal Cambodian Armed Forces
RDT	Rapid Diagnostic Test
UNOPS	United Nations Office for Project Services
URC	University Research Co. LLC
VMW	Village Malaria Workers
WHO	World Health Organization


01


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03


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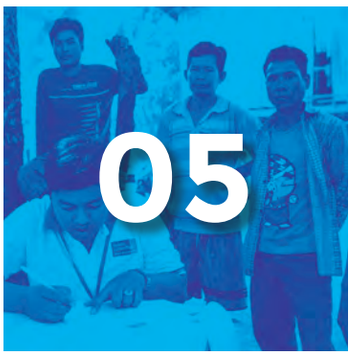
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06

Executive summary

The movement of populations contributes to the continuous distribution of malaria within endemic and non-endemic areas with the additional threat to the spread of artemisinin resistance parasites in the Greater Mekong Sub-region. Mobile and Migrant Populations (MMPs) are usually poorly connected to routine public health interventions and surveillance systems and therefore represent a vulnerable group with regards to malaria control. To address this group, an operational manual was developed to support the Malaria Elimination Action Framework 2016-2020 through adapting and better targeting interventions to mobile, migrant and hard to reach populations.

International Organization for Migration (IOM) Definition:
A migrant is any person who is moving or has moved across an international border or within a State away from his/her habitual place of residence, regardless of the person's legal status; whether the movement is voluntary or involuntary; what the causes for the movement are; or what the length of the stay is.

In the first part, the operational manual describes the process of characterizing and defining MMPs in Cambodia by identifying the different activities and risks of malaria infection. For their activity profile, MMP are classified in five groups: Seasonal Workers, Construction/Mine Workers, Forest Workers/Goers, Security Personnel and Border-crosser. Based on vulnerability, exposure and access index, mobile forest workers/goers have been evaluated as the group at highest risk of malaria infection followed by migrant forest workers/goers, local forest workers/goers, mobile construction workers and mobile security personnel.

The second part of the operational manual proposes intervention strategies targeting MMP in Burden Reduction and Elimination-targeting districts based on the phase of malaria elimination in Cambodia. MMP hotspots represent stationing (temporary living sites or referent villages) or touch points (entry/exit points of non-accessible worksites) where mobile and migrant populations are reachable. In burden reduction districts, the interventions need to be prioritized in targeted MMP hotspots based on API and proximity to receptive forests. In elimination-targeting districts the surveillance based on active case detection consider each MMP hotspots as a village. Every P. f case is investigated as foci and classified as active based on receptivity and vulnerability.

A review of existing literature on previous work at national and regional level was conducted. Stakeholders meetings and a two-day workshop with all the partners were conducted to collect updated information of the key interventions occurring in the country and define the appropriate operational strategy to address to each MMP group.

The operational manual will be revised every year in order to update the MMP situation in Cambodia and adapt the interventional strategies.

Mobile, migrant & disadvantaged groups.

MMP situation analysis

01

01.1
MMP Definition

Migrants are human beings and they have a right to health as all the other citizens. Health of migrants remains a crucial challenge of public health programs because continuous population movement is considered to be one of the main drivers of major infectious disease transmission. Most of the migrants are healthy however the conditions surrounding their movement can pose health risks and vulnerabilities. Living and working conditions often expose Mobile and Migrant Populations to higher risks of infectious diseases (malaria, HIV, TB), and economic (health related spending capacity, insurance, costs) and social (language barriers, stigma, xenophobia, social exclusion) barriers deprive them of receiving adequate treatments. Furthermore, policy and structural factors (legal status, migrant's sensitive health system, social security) make the access to medical care more complicated.

01.2
Disadvantaged Groups Definition

Disadvantaged, marginalized and vulnerable groups are groups of people who, due to factors outside their control, do not have the same opportunities as the general population and are at a higher risk of poverty and social exclusion. Depending on the context, these may include unemployed people, refugees, indigenous peoples or those from ethnic minorities, internally displaced people and migrants, the homeless, those struggling with substance abuse, people with mental illness and disabilities, isolated older people and children.

"...they have a right to health as all the other citizens."

01.3

MMP in Cambodia

In Cambodia, as elsewhere in Asia, poverty is the mainly reason of people migration. Albeit often the destination points lack land ownership, proper housing and basic assets, MMP are driven to migrate within the country or in neighbours' countries looking for new job opportunities. The main destination targets of population movement are the less densely populated forested and border areas which are rich in natural resources. Land development offers a variety of opportunities including farming work, mining, investment, trade, and visiting relatives, leaving open the perspectives of finding a new settlement[1]. Relying on the analysis of the range of activities conducted by individuals and groups working in and around forested areas[2] MMP are classified for their activity profile into five groups as shown in Table 1. Seasonal workers involved in agriculture activities during the planting season and the harvesting season are usually localized in foothills/plains/valleys; Construction/mine workers related to construction, mining, dam and demining activities are usually found in foothills/plains/valleys; Forest workers/goers working in heavily forested and remote areas in upland forest/hills; Security personnel includes military and police often related to patrolling activities in forested border areas; Border-crosser that cross international borders for legal or illegal activities located in forest areas. The activities conducted by Border-crosser often correspond to seasonal/forest and construction activities. However, the different movement type across international borders requires adjustment for certain operational interventions requiring collaboration and coordination among GMS countries.

[1,2] CF. References p.69

>Table 1

Profile and Activities of Mobile and Migrants Populations in Cambodia

PROFILE

Seasonal Workers

ACTIVITIES

Agricultural activities occurring during planting season (end of dry season) and harvesting season (end of rainy season, usually in foothills/plains/valleys)

EXAMPLE

- Farming
- Rubber, cassava, palm oil, sugar cane plantations

PROFILE

Construction, Mine workers

ACTIVITIES

Activities related to infrastructure construction, mining or demining in forested areas, usually in upland forest/hills/valleys.

EXAMPLE

- Road, building, dam construction
- Gold, gem, charcoal mines
- Demining

PROFILE

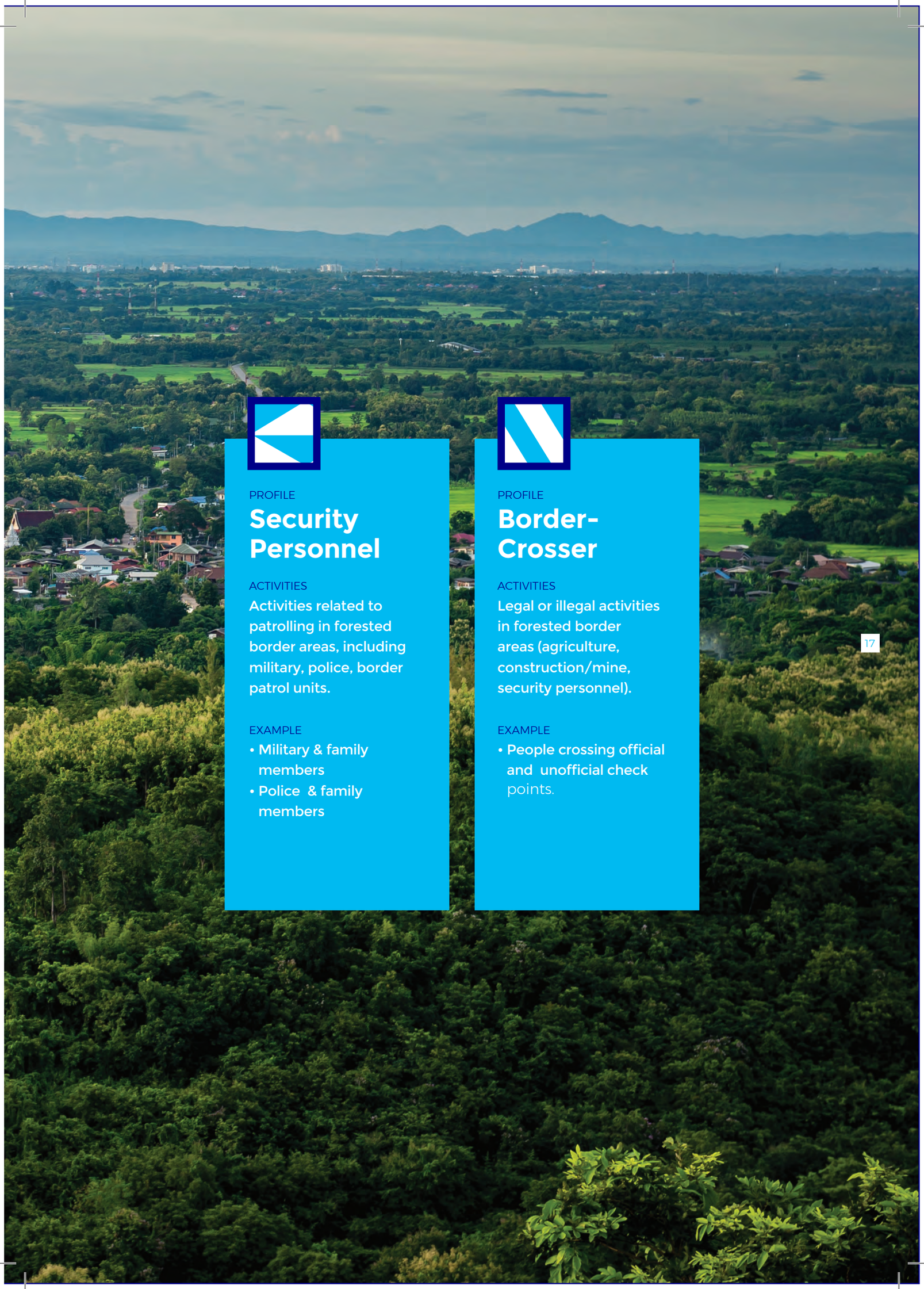
Forest, Goers Workers

ACTIVITIES

Activities in heavily forested and remote areas in small mobile groups, usually in upland forest/hills.

EXAMPLE

- Gathering forest products
- Hunting
- Logging
- Fishing
- Farming
- Plantation



PROFILE

Security Personnel

ACTIVITIES

Activities related to patrolling in forested border areas, including military, police, border patrol units.

EXAMPLE

- Military & family members
- Police & family members

PROFILE

Border-Crosser

ACTIVITIES

Legal or illegal activities in forested border areas (agriculture, construction/mine, security personnel).

EXAMPLE

- People crossing official and unofficial check points.

Based on their mobility and migration status and on the main activities conducted in forests the population has been divided in three categories: local, mobile and migrant. As represented in Table 2 the "Local" population includes individuals residing in the area for more than one year with daily work in nearby forested areas for livelihood activities where they occasionally spend 1-2 nights in the forest. "Mobile" population refers to individuals residing in the area for less than 6 months; they can circulate in forested areas periodically (up to 1 week) or seasonally (1 week to 6 months). "Migrant" population includes individuals residing in the area more than 6 months and less than one year; they can migrate irregularly for more than 6 months but moving out of the area or in a long-term migration which finalize in a new settlement over 6 months of stay.

>Table 2

Population movement framework

POPULATION TYPE **Local**	POPULATION TYPE **Mobile**	POPULATION TYPE **Migrant**
RESIDING TIME **> 1 year**	RESIDING TIME **< 6 months**	RESIDING TIME **6 months to 1 year**
MOVEMENT TYPE **Circulation**	MOVEMENT TYPE **Circulation**	MOVEMENT TYPE **Migration**
MOVEMENT FREQUENCY **Occasional** (1 to 2 nights)	MOVEMENT FREQUENCY **Periodic** (up to 1 week) **Seasonal** (1 week to 6 months)	MOVEMENT FREQUENCY **Irregular** **Long-term**

01.4

MMP and Malaria in Cambodia

Population movements have always been a challenge in the control and elimination malaria programs. The mass movement among endemic and non-endemic zones increases the risk to import cases into malaria-free areas and spreads drug resistant parasites to new areas.

Cambodia Malaria Survey 2013 showed that forest goers have higher risk to be contracted malaria 5.7 times compared to stable population.

Cambodia Mobile and Migrant Population Survey 2017 showed 37% of the MMPs reported to have had at least one episode of fever within the last three months preceding the survey. Of those with fever, 89% had sought medical advice or treatment for the fever, but only 29% (95% CI: 27% - 33%) of them had a parasitological blood test for malaria. The most common places where they got the malaria blood test were public health facilities (56%), followed by VMWs/MMWs/ VHVs (21%), and private health providers (19%) and other place (4%). Among those who had blood test, nearly 40% reported that the result was positive for malaria.

These results highlight the high risk of malaria infection for mobiles and migrants who are driven to move to forested and border areas rich in natural resources offering a variety of employment. Indeed, forests represent a hot spot for malaria transmission because the main vectors Anopheles dirus (usually found in thick forest or forest fringe with heavy shade and high humidity) and Anopheles minimus (present in edges of flowing waters such as foothill streams, and springs) are forest vectors.

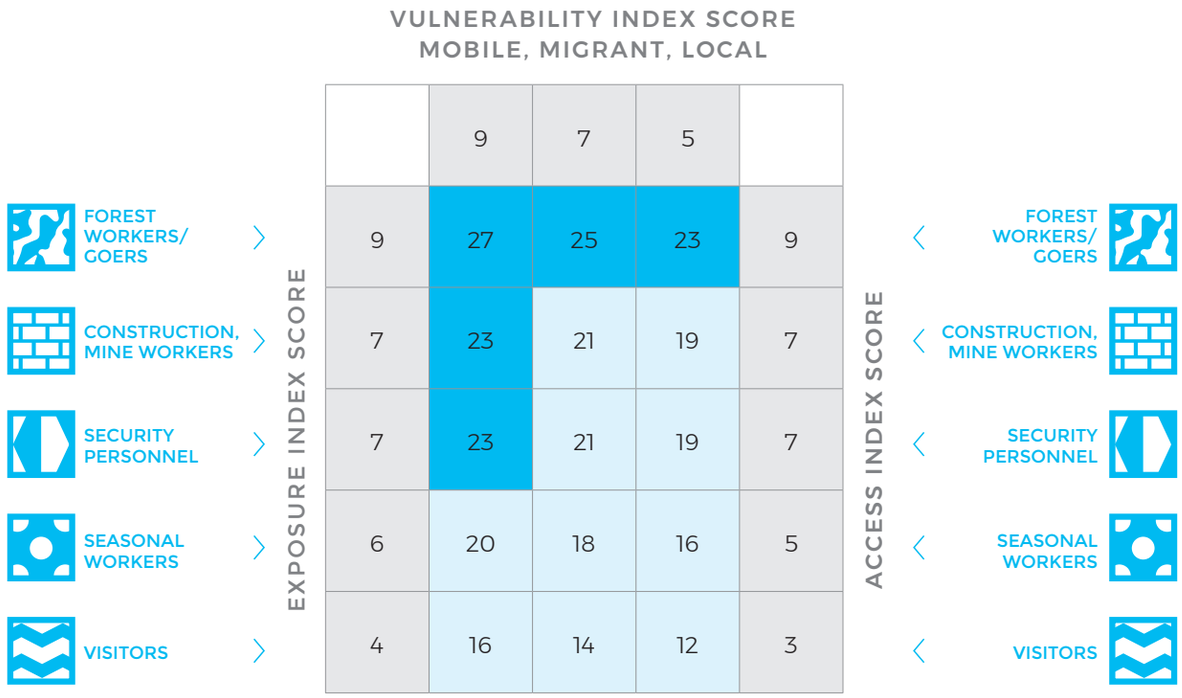
Thus, mobile and migrant populations involved in forest activities are at high risk of contracting the disease and their unstable life conditions leading to poor access to health services increasing the risk of receiving late and sub-standard treatments. Recent studies suggest a method to calculate the malaria risk index among different types of MMP (Local/Mobile/Migrant) and profiles (Seasonal workers, Construction/Mine workers, Forest workers/goers, Security Personnel and Visitors) based on the summation of three indices scores: vulnerability index score, exposure index score and access index score[2] which are in turn calculated as shown in Annex 1. Vulnerability index scores have been calculated for mobile, migrant and local; exposure index scores for forest workers/goers, construction/mine workers, security personnel and visitors; access index scores for forest workers/goers, construction/mine workers, security personnel and visitors represented in grey in Figure 1. The composite score represented in the blue square is the summation of the respective score.

[2, 3] *CF. References p.69*

The highest malaria risk score, highlighted in dark blue, belongs to mobile forest workers/goers followed by migrant forest workers/goers, local forest workers/goers, mobile construction workers and mobile security personnel. The results underline the necessity to prioritize operational interventions to Mobile forest workers/goers, construction/mine workers and security personnel, Migrant forest workers/goers and Local forest workers.

>Figure 1

Malaria risk index [2]. Exposure, vulnerability and access index score are represented in grey. In blue, the composite score.



01.5
Malaria Situation in Cambodia

Despite considerable progresses, malaria continues to remain a public health concern in Cambodia. Morbidity due to malaria remain high compared to other countries in the Greater Mekong Subregion. In 2016, Cambodia recorded 23,627 malaria cases in the public health sector comprised of public health facilities, Village Malaria Workers (VMWs) and Mobile Malaria Workers (MMP), a 53% decrease from 2015. Nearly 1,200 licensed private providers engaged in a PPM/PPP initiative to

[2] *CF. References p.69*

test and treat by National Center for Parasitology, Entomology and Malaria Control (CNM), Population Services International (PSI) and University Research Council (URC) are distributed in 34 ODs out of the 45 malaria endemic ODs and recorded 3,985 confirmed malaria cases in 2016. Furthermore, the case data from unlicensed health and non-health outlets that also provide malaria services is not captured.

01.6

Potential Spread of Multi Drug Resistance

Western Cambodia is the epicentre of P. falciparum multi-drug resistance. Artemisinin resistant clinical cases have been identified since in 2006 in Cambodia. Between 2008 and 2014, an increase in treatment failures has been identified in therapeutic efficacy studies in Pailin and subsequently in seven other provinces in the western and northern part of the country. Today, parasite resistance to artemisinin and other ACT partner drugs has been detected within the country and in five South-East Asian countries representing an emergency issue for all of the Great Mekong Sub-region (GMS). The dominant artemisinin-resistant P. falciparum prevalent in 2014 and 2015 in North Eastern Thailand and Southern Laos is the same as that observed from 2008 onwards in Western Cambodia, indicating a common origin[5]. Although direct evidence is lacking, MMP are likely to be a significant factor for the spread of drug resistance to the neighbouring countries of GMS. The risk of spreading resistant parasites from GMS to other regions of the world is also a serious concern, in particularly to African countries.

"The risk of spreading resistant parasites is a serious concern."

[5] *CF. References p.69*

Strategy to adress MMP in the context of Malaria Elimination

02

02.1

Malaria Elimination Action Framework

2016-2020 Components Targeting MMP

The aim of Malaria Elimination Action Framework (MEAF) 2016-2020 is to reduce the incidence of malaria to less than 1 infection per 1000 people at risk in each operational district and eliminate Plasmodium falciparum, including multidrug resistant malaria, by 2020. The five objectives outlined in the MEAF 2016-2020 aim to:

1. Provide effective program management and coordination at all levels to efficiently deliver a combination of targeted interventions for malaria elimination by 2019
2. 100% parasitological diagnosis of all suspected cases and effective, efficacious treatment of all confirmed cases
3. Protect at least 95% of all populations residing in malaria active foci with an appropriate vector control intervention
4. Enhance the surveillance system to immediately investigate, classify, report and respond to all cases and foci to move toward malaria elimination
5. Implementing comprehensive IEC/BCC approach that facilitate at least 90% of people seeking treatment for fever within 24 hours at a health facility or a qualify care provider and at least 85% of at risk population utilizing an appropriate protection by 2017

The high risk of infection among mobile and migrant populations – due to their activities close to forests and their economic and social difficulties in accessing adequate treatments – raises the urgent need to develop specific intervention targeting mobile, migrant and other disadvantaged groups. This is the reason why each of the five above described objectives includes specific strategies targeting MMP:

Effective program management and coordination is essential to expand and maintain functional partnerships, strengthen cross border collaboration for malaria elimination and introduce and scale up appropriate interventions for mobile, migrant and other disadvantaged groups at risk of malaria infection.

The strengthening of case management quality at all public health facilities, licensed private sector providers, trained village malaria workers and mobile malaria workers located in all villages in malaria risk areas, military medical services, and select border check points will offer free malaria diagnosis and treatment.

Among mobile populations, LLINs/LLIHNs will be distributed annually at workplaces (e.g. farms, plantations, construction/mine sites) through net giving programs. LLIHNs will

be distributed continuously near forest locations at select touch points. Personal protection tools will also be provided to MMPs where the needs are and resources available.

The strengthening of surveillance based on passive and active case detection and case investigation will routinely report all malaria infections. Strengthened investigation, classification, and appropriate response will target all malaria transmission foci.

The improvements of IEC/BCC quality and dissemination for malaria elimination will mobilize the community for increased uptake of malaria interventions.

02.2

Strategic Plan Targeting MMP

Goal: provide appropriate interventions for mobile, migrant and other disadvantaged groups at risk of malaria infection

Specific objectives:

01	Coordinate partners and activities related mobile, migrant and other disadvantaged groups
02	Achieve coverage of case management services to ensure diagnosis and effective treatment through mobile malaria worker located inside worksites or at entry/exit touch points at malaria risk, military medical services and select border check points
03	Project MMPs with an appropriate vector control intervention at workplaces (e.g., construction/dam/mine site, plantation, farm or barrack) and selected touch points
04	Enhance the surveillance system to detect, immediately notify, investigate, classify and respond to all MMPs cases
05	Implement comprehensive IEC/BCC with an MMPs approach considering language, accent, gender and cultural differences without any discrimination of the country of origin and legal status

02.3

Phasing of intervention targeting MMP

"The surveillance is based on active case detection and investigation"

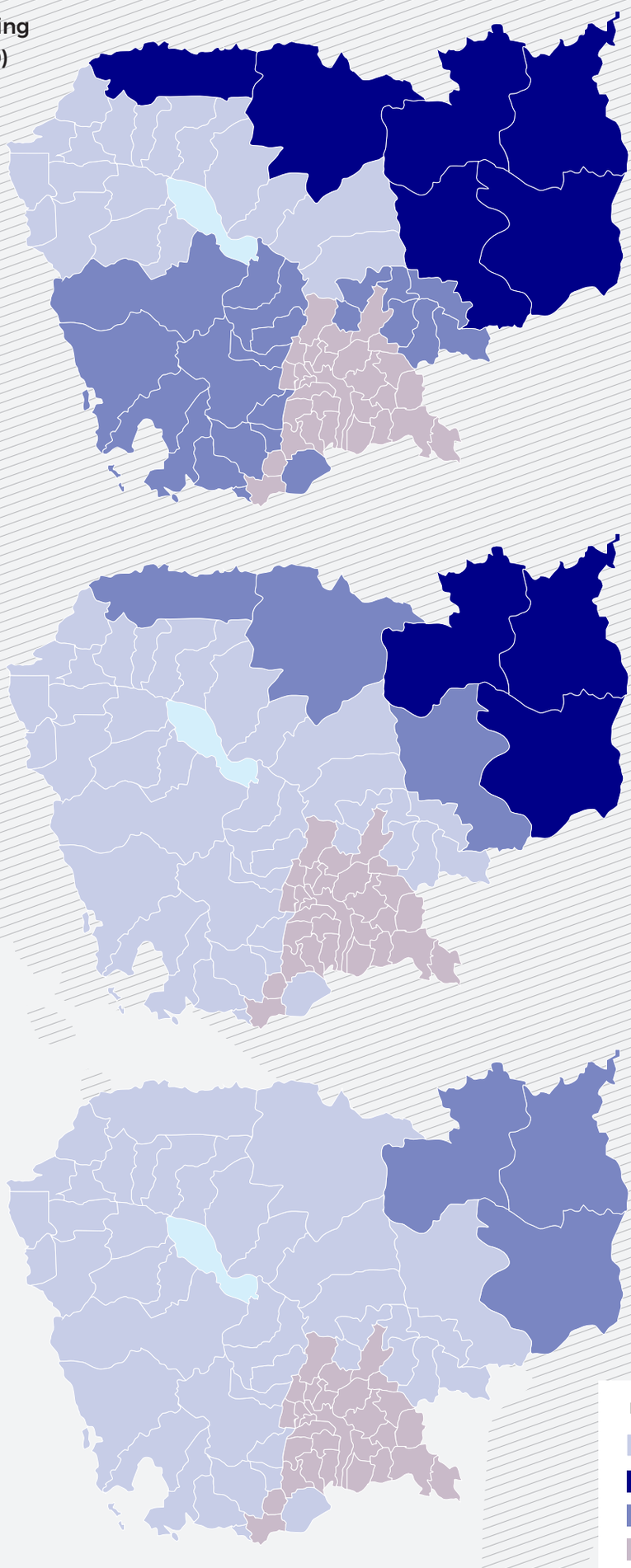
The malaria situation in Cambodia is heterogeneous due to variance in malaria burden by geographic area, growing multidrug resistance and mobility of at-risk populations. Different approaches will be implemented in different geographical areas to reach the targeted goal of national malaria elimination. According to the MEAF 2016-2020 the phasing of malaria elimination has been determined utilizing malaria incidence, specifically incidence of P. falciparum and distribution of population and drug resistance. As shown in Figure 2 Operational districts (OD) were divided into three phases: Elimination-targeted ODs, Transitional ODs and Burden Reduction ODs.

In Burden reduction and Transitional phases where the number of cases is high, interventions target all at-risk areas localised by passive case detection. In Elimination-targeted phases with rare cases of malaria, the surveillance is based on active case detection and investigation in order to identify active foci with local cases and foci investigation to select the appropriate intervention to interrupt transmission. Over the timeline of the MEAF, elimination operations will be gradually expanded and by 2019 the entire country will be in elimination phase.

Ongoing activities will be conducted to make a more precise stratification by village to refine targeting of interventions to smaller population at risk. This village stratification used a combination of reported incidence and modelled risk based on several environmental factors including distance to the forested areas.

Figure 2

Elimination Phasing (MEAF 2016-2020)



02.4

Strategy to Access MMP in Cambodia

The mobility of MMP requires special strategic approach to localise them in some places where specific interventions would be implemented. These "MMP hotspots" could be locations where MMP are stationing long enough or are usual transit points before or after seasonal migrations.
The two MMP groups with the highest malaria risk index as highlighted in Figure 2 can be regrouped in three categories referring to specific MMP workplaces where they can be detected (Figure 3) and interventions need to be addressed:

1 Forest, Construction, Seasonal Workers and Security Personnel are mostly mobiles populations (reside in the area for less than 6 months). Based on their activities they refer to a temporary living site installed inside the worksite: forest for forest workers/goers; construction, dam and mine sites for construction workers; plantations and farms for seasonal workers; barracks for security personnel. The temporary living site inside the worksite represents then the MMP hotspot wherein MMPs are reachable and the operational interventions have to be addressed. Tight collaboration between local NGOs and private companies or brokers is essential to get access to the worksites.

2a Other Forest Workers/Goers are either migrants or local populations. They are more stable and could be reached in organised camps, temporary accommodations or even new villages created close to large logging, forest clearance or plantation projects. Some local populations with intermittent work in the forest have permanent shelter and family members in a referent village where they are reachable and accessible to interventions.

2b Some of Forest Workers/Goers is continuously moving through non-accessible worksites without any connection with a referent living site (village or temporary living site) and often involved in illegal activities. Due to the inaccessibility of the worksites, entry and exit touch points need to be mapped in order to reach MMP in their transit before reaching the destination point or in moving toward the following inaccessible destination. Efforts need to be done in mapping the entry/exit points in order to increase the possibility to reach MMP always moving in non-accessible worksites and intervene individually or in small group.

> Figure 3

Three MMP categories with the respective MMP hotspots

1	MOBILE	MMP HOTSPOTS
	FOREST WORKERS, GOERS	Temporary living site inside forests
	CONSTRUCTION, MINE WORKERS	Temporary living site inside construction/dam/ mine sites
	SECURITY PERSONNEL	Barracks
	SEASONAL WORKERS	Temporary living inside plantations and farms
2a	**MIGRANT AND LOCAL**	**MMP HOTSPOTS**
	FOREST WORKERS, GOERS	Referent village
2b	**CONTINUOUSLY MOVING**	**MMP HOTSPOTS**
	FOREST WORKERS, GOERS	Entry and exit touch points


Malaria Ag P.f/P.v

02.5

Operational Interventions in Burden Reduction Districts

Based on the MMP categories described above (Figure 3), specific operational interventions will be addressed to the referred MMP hotspots corresponding to temporary living sites for mobile forest, construction, seasonal workers and security personnel; referent villages for migrant and local forest workers/goers; entry/exit touch points for forest workers/goers continuously moving through different workplaces and without any referent living site. The operational interventions are detailed in the following sections and summarized below.

1 Mobile Forest, Construction, Seasonal Workers and Security Personnel residing in the area for less than 6 months.

	MMP HOTSPOTS	CASE MANAGEMENT	VECTOR CONTROL	SURVEILLANCE	IEC/BCC
FOREST WORKERS, GOERS	Temporary living site inside forests	• Quality services assured through MMWs • Training and supervision of MMWs • Quality assured for diagnosis and treatment • Strengthen collaboration with Security Personnel	• LLLINs/LLIHNs distribution through MMWs supported by health promotion • Distribution of repellents for people working in the night • Strengthen strong collaboration with Security Personnel	• Passive case detection through MMWs • All data entered and managed monthly into MIS • Proactive case detection at high risk targeted MMPs hotspots • Strengthen strong collaboration with Security Personnel	• Health education through MMWs • MMP focussed health education campaigns • Health education messages in temporary living sites • Interpersonal communication campaigns • Community mobilization • Strengthen strong collaboration with Security Personnel
CONSTRUCTION, MINE WORKERS	Temporary living site inside construction/ dam/mine worksites				
SECURITY PERSONNEL	Barracks				
SEASONAL WORKERS	Temporary living site inside plantation and farms				

2a Migrant and Local Forest Workers residing in the area for more than 6 month and less than 1 year or more than 1 year

FOREST WORKERS, GOERS

MMP HOTSPOTS	CASE MANAGEMENT	VECTOR CONTROL	SURVEILLANCE	IEC/BCC
Referent village where MMPs reside temporary (migrants) and permanently (locals)	• Quality services assured through health facilities and VMWs • Training and supervision of all healthcare staff • Quality assured for diagnosis and treatment	• LLINs/LLIHNs distribution through VMWs supported by health promotion • Distribution of repellents for people working in the night	• Passive case detection through VMWs • All data entered and managed monthly into MIS • Proactive case detection at high risk targeted MMPs hotspots	• Health education through VMWs • MMP focussed health education campaigns • Health education messages in referent villages • Interpersonal communication campaigns • Community mobilization

2b Forest workers continuously moving without any referent living site and often involved in illegal activities

FOREST WORKERS, GOERS

MMP HOTSPOTS	CASE MANAGEMENT	VECTOR CONTROL	SURVEILLANCE	IEC/BCC
Entry and exit touch points of non accessible forests or worksite Official and unofficial border check points	• Quality services assured through MMWs • Training and supervision of MMWs • Quality assured for diagnosis and treatment	• Individual LLIHNs distribution through MMWs supported by health promotion • Individual distribution of repellents at entry/exit touch points	• Passive case detection through MMWs • All data entered and managed monthly into MIS • Proactive case detection of high risk touch points	• Health education through MMWs • MMP focussed health education campaigns • Health education messages at entry and exit touch points • Health education messages on public transports • Mass media and social networks

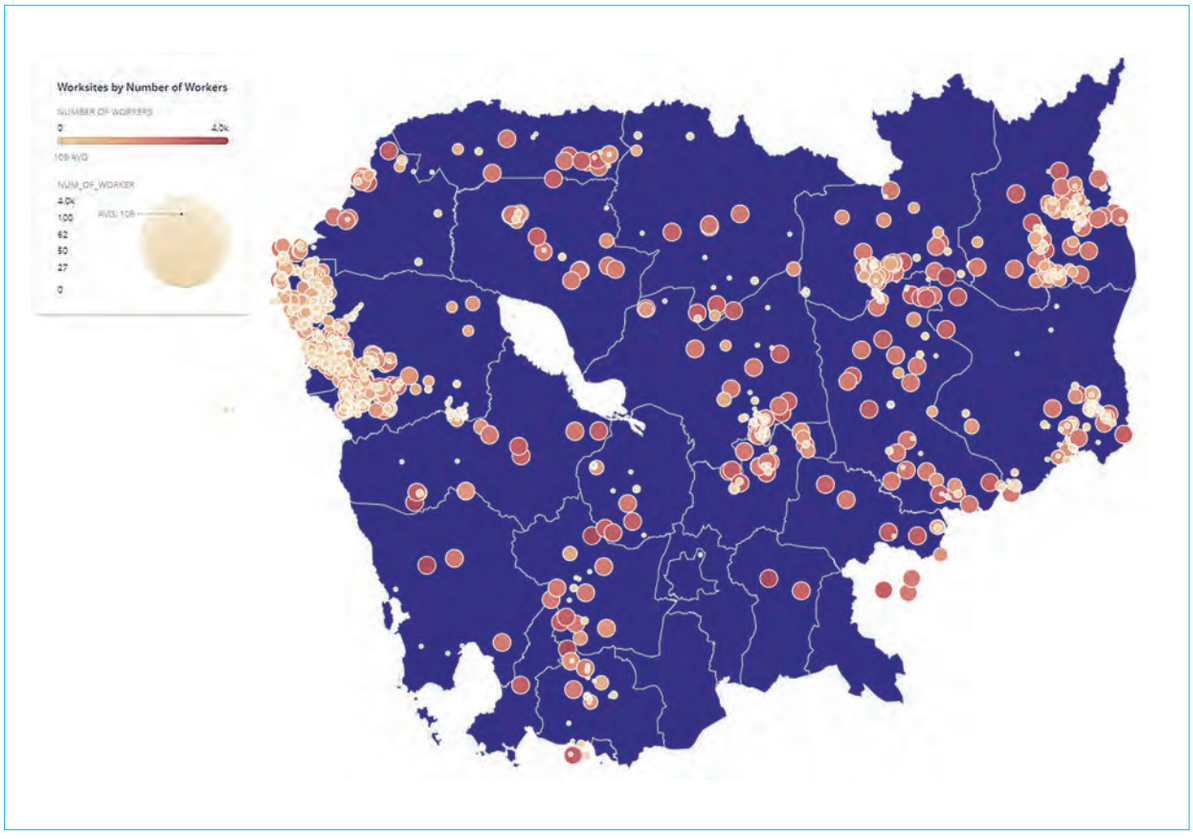
02.5.1
Mapping of MMP Work Places and Touch Points

The identification and localization of forests, plantations, farms, construction/ mine/dam sites, official and unofficial check points and entry/exit touch points of non-accessible worksites at malaria risk is the first step to determine which MMP hotspots need to be targeted by interventions. Efforts to conduct and update registration of MMP hotspots are on-going but an exhaustive and dynamic mapping exercise covering the whole country is required.

As an example, the following map showed in Figure 4 represents the worksites by number of workers registered in 2013 by Population Service International Cambodia (PSI/C). It includes agriculture, road construction, mining and hydroelectric sites which represent some of the worksites of MMP.

Figure 4

PSI/C's 2013 worksite mapping by number of workers.



Out of the 1455 agriculture worksites, 177 are solely rubber plantations, 128 cassava and corn, 90 solely cassava, 30 rubber and cassava, 190 a different combination of crops and in the other 840 the crop information are not defined. Among other worksites, 13 correspond to road construction, 8 mining sites and 5 hydroelectric and 2 not defined.

However, the current continuous changing in lands activities, construction, mine, dam sites require the collaboration of operational partners and stakeholders update the map at least once a year.

In addition, localisations of official and unofficial check points at borders need to be mapped.

02.5.2
Defining MMP Hotspots to be Targeted by Interventions

MMP worksites should be considered like villages and are therefore assessed for risk of transmission for the population living in them. After localisation and contact with owners or community leaders, the high hotspot should be visited to have a baseline assessment of malaria risk. This should capture the following:

- Rough mapping of worksites and accommodation
- Distance to forest
- Estimated workers and family members over the last year with seasonality
- Survey questionnaire to estimate incidence over the last 1 month/6 months/12 months

In Burden reduction areas: MMP workplaces with estimated Annual Parasite Index (API)* >5 and distance to forest <5Kms are considered as MMP hot-spots to be targeted by interventions.

Only the selected MMP hot-spots will be targeted by interventions of case management, vector control, surveillance and IEC/BCC as described in the following sections.

* Note for estimation of API (see detail in questionnaire1)

There are 3 ways of estimated API in the MMPs' work site:

- Based on available malaria data
- Based on rapid questionnaires to 50 workers
- Based on rapid screening of workers

02.5.3

Case Management in Burden Reduction Districts

MMWs have to be allocated to the targeted MMP hotspots in order to assure malaria diagnosis and treatment. After localisation and contact with owners or community leaders, the hotspot should be visited to have a baseline assessment of the necessity of a MMWs inside the MMP worksite. This should capture the following:

- Distance to the closest health center (HC)

In Burden reduction areas: Targeted MMP hotspots with estimated distance to the closest health center > 5 km need MMWs. Big groups of workers (more than 200) will be supported by MMWs specifically located at the worksite; middle groups of workers (between 10 and 200) will be supported by MMWs moving around different worksites; small groups of workers (less than 10) might be need to response case by case in consultation with ODMS.

02.5.4

Vector Control Interventions in Burden Reduction Districts

Long Lasting Insecticide-treated Nets (LLINs) and/or Long-Lasting Insecticide-treated Hammock Nets (LLIHNs) and/or repellents should be distributed to targeted MMP hotspots. MMP worksites should be visited to have a baseline assessment of workers needs based on living and working condition. This should capture the following:

- Rough mapping of worksites and accommodation
- Estimated workers and family members over the last year with seasonality
- Questionnaire to estimate workers working at day and night time

In Burden reduction areas: In targeted MMP hotspots, LLINs or LLIHNs and/or personal protection tools are distributed to workers and family members depending on their needs related to working and sleeping conditions

Depending on the conditions, LLIHNs and personal protection tools should be distributed individually or in small groups at entry/exit touch points of non-accessible forests or worksites through MMWs.

02.5.5
Surveillance interventions in Burden Reduction Districts

According to the Surveillance for Elimination Operational Manual Malaria Elimination Operational Manual Cambodia 2017 passive case investigation should be assured in targeted MMP hot-spots through VMWs and MMWs. Detected cases are submitted monthly to ODs and analysed in order to track changes in the malaria situation.

Proactive case detection might be conducted for high risk targeted MMP hotspots. After contact with owners or community leaders, if feasible, workers should be screened at the entrance and at the exit time. High affluence seasons with regular seasonal workers might be considered for mass screening.

02.5.6
Information Exchange Communication and Behaviour Change Communication in Burden Reduction Districts

According to the MEAF 2016-2020, IEC/BCC should be assured in targeted MMP hot-spots. However, the communication methods need to respond to the targeted population needs linked to the language, education and social barriers.

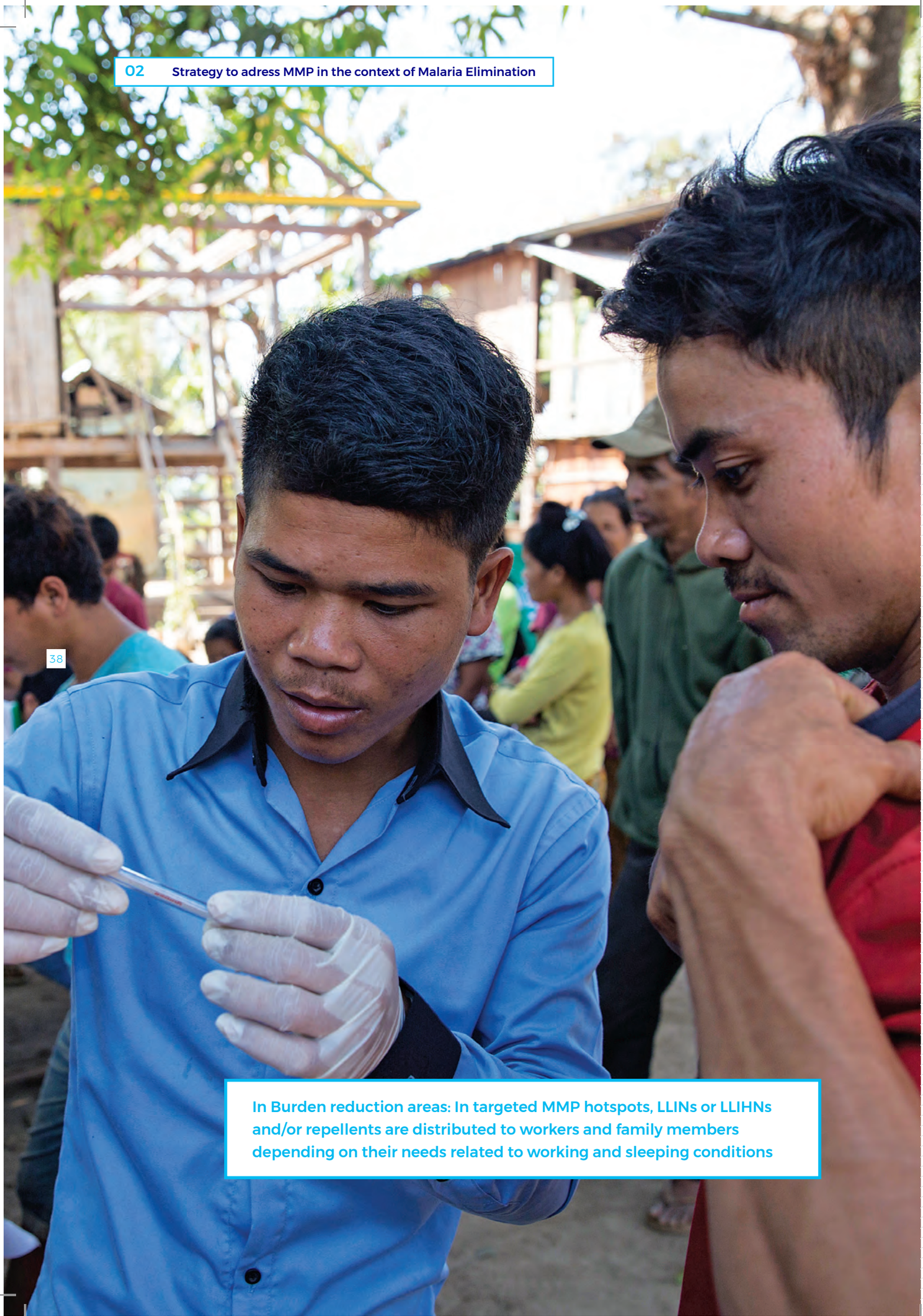
The following proposed strategies aim to strengthen malaria prevention among MMP considering the difficulties described above:

- Multi-lingual (Khmer and indigenous languages or foreign languages depending on the localization) health promotions with few key messages which consider language, accent, gender and cultural differences. The use of pictorial materials represents an alternative if the level of literacy is low. In border areas both languages - Khmer and the border country languages (Thailand, Lao, Vietnam) - need to be used.
- Regular messaging need to be ensured especially at peak times on worksites

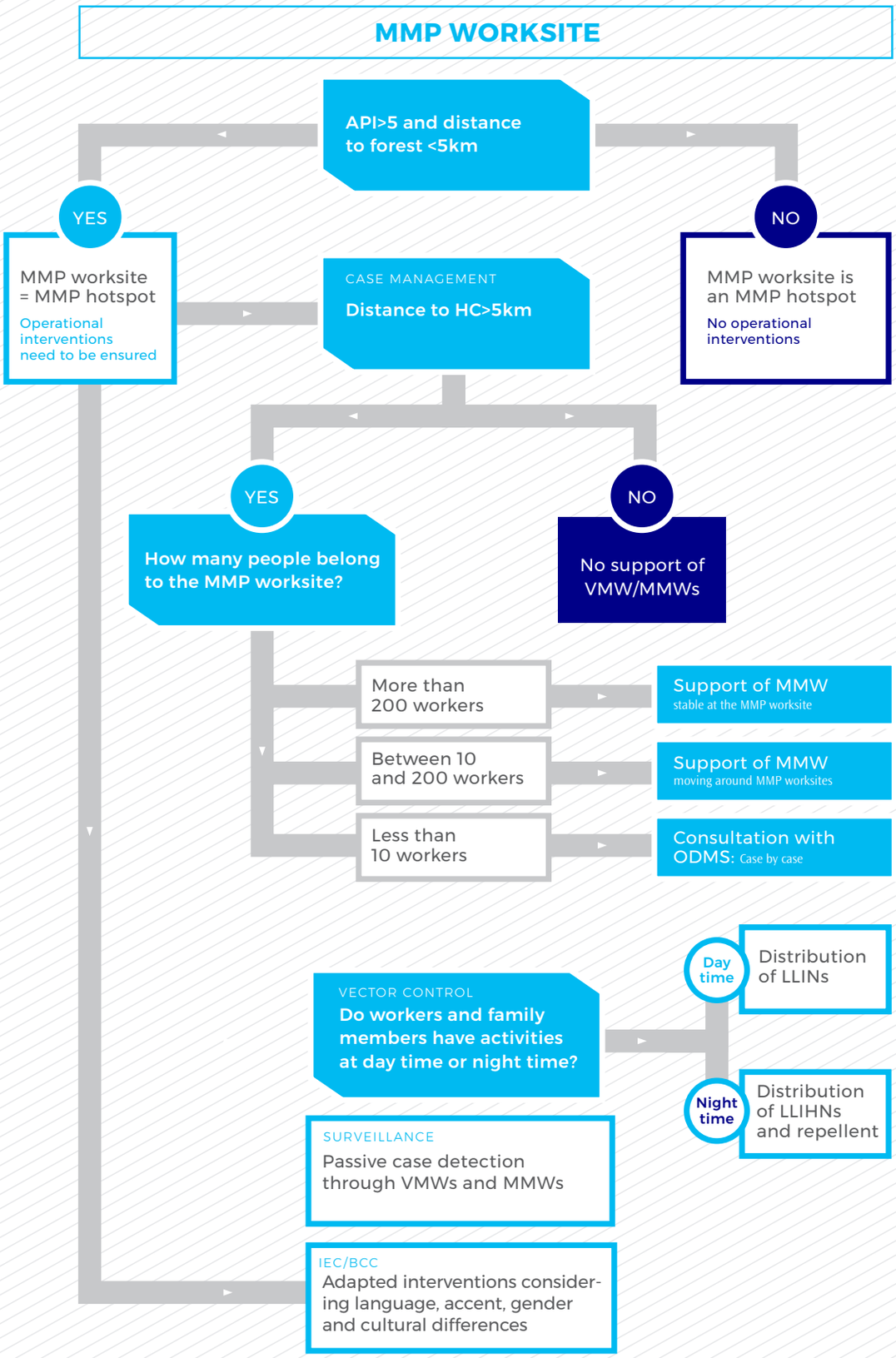
- Health education messages on public transport (taxi, bus, boat, tuk-tuk) to reach MMP before their destination always moving among inaccessible worksites and without any referent living site
- Mass media and social networks can be used to extend messages to highly mobile or hard to reach populations such as illegal loggers
- Interpersonal communication campaigns to deliver highly tailored messages to particular individuals and hard to reach small groups that are not engaged through broader health promotion. These activities can be carried out by VMWs and MMWs at health centers, at village meetings, in temporary living sites inside construction/ mine/dam site, plantations and farms.

In Burden Reduction districts MMP workplaces with API > 5 and a distance to forest < 5km are selected for operational interventions: case management, vector control, surveillance and IEC/BCC. Distance to health centers > 5 km will define the attribution of MMWs at the MMP hotspot. Working conditions will define the vector control measures that have to be addressed to MMP. Surveillance is based on passive case detection and IEC/BCC have to consider language, accent, gender and cultural differences.

"...consider language, accent, gender and cultural differences."



In Burden reduction areas: In targeted MMP hotspots, LLINs or LLIHNs and/or repellents are distributed to workers and family members depending on their needs related to working and sleeping conditions


MMP WORKSITE
API>5 and distance to forest <5km
YES
MMP worksite = MMP hotspot
Operational interventions need to be ensured
NO
MMP worksite is an MMP hotspot
No operational interventions
CASE MANAGEMENT
Distance to HC>5km
YES
How many people belong to the MMP worksite?
NO
No support of VMW/MMWs
More than 200 workers
Support of MMW
stable at the MMP worksite
Between 10 and 200 workers
Support of MMW
moving around MMP worksites
Less than 10 workers
Consultation with ODMS: Case by case
VECTOR CONTROL
Do workers and family members have activities at day time or night time?
Day time
Distribution of LLINs
Night time
Distribution of LLIHNs and repellent
SURVEILLANCE
Passive case detection through VMWs and MMWs
IEC/BCC
Adapted interventions considering language, accent, gender and cultural differences

02.6
Operational Interventions in Elimination-targeted Districts

02.6.1
Overview of the Strategy Based on Surveillance

In elimination-targeted districts, case based surveillance represents the main intervention. Every case will be investigated and classified as local or imported. Every place with local P. f case will be investigated as foci and classified as active based on receptivity and vulnerability according to the Surveillance for Elimination Operational Manual Malaria Elimination Operational Manual Cambodia 2017.

Based on the MMP categories described above in chapter 2.4, the first two categories are grouped together whereas the third one is considered separately.

1 **Mobile Forest, Construction, Seasonal Workers and Security Personnel (1a) and Migrant and Local Forest Workers/Goers (1b)**

The MMP hotspots corresponding to temporary living sites for Mobile Forest, Construction, Seasonal Workers and Security Personnel (first MMP category) and referent villages for Migrant and Local Forest Workers/Goers (second MMP category) are considered as villages. Once the acquired case is identified at the MMP hotspot, a foci investigation is carried out by trained malaria staff to assess the receptivity and vulnerability of the area to understand what drives transmission and determine what interventions are necessary to successfully interrupt transmission.

2 **Forest Workers/Goers continuously moving without any referent living site**

More difficult is the access to Forest Workers/Goers continuously moving through non-accessible worksites because they do not have any referent living site and they are often involved in illegal activities. Entry and exit touch points of non-accessible worksites represent the MMP hotspots where case investigation can be conducted. However, the foci investigation of non-accessible areas cannot be performed leading to interventions that are focussed on the singular or small group of workers rather than the entire area. Forest packs containing prevention, diagnosis and treatment tools may be considered as a tool for individual or small group distribution to forest goers always moving through non-accessible forests.

The operational interventions are detailed in the following sections and summarized in the tables below.

1a Mobile Forest, Construction, Seasonal Workers and Security Personnel residing in the area for less than 6 months

	MMP HOTSPOTS	CASE MANAGEMENT	VECTOR CONTROL	SURVEILLANCE	IEC/BCC
 Forest Workers	Temporary living site inside forests	• Quality services assured through MMWs • Training and supervision of MMWs • Quality assured for diagnosis and treatment • Strengthen strong collaboration with Security Personnel	• LLINs/LLIHNs distribution in MMPs transmission foci through MMWs supported by health promotion • Strengthen strong collaboration with Security Personnel	• Active case detection • Case investigation and immediate reporting via cell phone through MMWs • All data entered and managed in MIS • Reactive case detection around confirmed cases or cluster of cases in temporary living site within worksites • Foci investigation and response • Continual analysis to identify and mitigate drivers of transmission • Strengthen collaboration with security personnel	• Health education through MMWs in temporary living site localized in MMPs transmission foci • MMP focussed health education campaigns • Health education messages in temporary living site localized in MMPs transmission foci • Interpersonal communication campaigns in temporary living site localized in MMPs transmission foci • Strengthen collaboration with security personnel
 Construction, Mine workers	Temporary living site inside construction/ dam/mine worksites				
 Security Personnel	Barracks				
 Seasonal Workers	Temporary living site inside plantation and farms				

1b Migrant and Local Forest Workers residing in the area for more than 6 month and less than 1 year or more than 1 year

FOREST WORKERS, GOERS

MMP HOTSPOTS	CASE MANAGEMENT	VECTOR CONTROL	SURVEILLANCE	IEC/BCC
Referent village where MMPs reside temporary (migrants) and permanently (locals)	• Quality services assured through health facilities and VMWs • Training and supervision of all healthcare staff • Quality assured for diagnosis and treatment	• LLINs/ LLIHNs distribution in MMPs transmission foci through MMWs supported by health promotion	• Active case detection • Case investigation and immediate reporting via cell phone through VMWs • All data entered and managed in MIS • Reactive case detection around confirmed cases or cluster of cases in MMPs referent villages • Foci investigation and response • Continual analysis to identify and mitigate drivers of transmission	• Health education through VMWs in referent villages localized in transmission foci • MMP focussed health education campaigns • Health education messages in referent villages localized in transmission foci • Interpersonal communication campaigns in referent villages localized in transmission foci

2 Forest workers continuously moving without any referent living site and often involved in illegal activities

FOREST WORKERS, GOERS

MMP HOTSPOTS	CASE MANAGEMENT	VECTOR CONTROL	SURVEILLANCE	IEC/BCC
Entry and exit touch points of non accessible forests or worksite Official and unofficial border check points	• Quality services assured through MMWs • Training and supervision of MMWs • Quality assured for diagnosis and treatment	• Individual or small group distribution of forest packs to forest goers	• Active case detection • Case investigation and immediate reporting via cell phone through MMWs • All data entered and managed in MIS • Re-active case detection based on the screening and testing of forest workers at the entry and exit touch point of non-accessible worksites • Monitoring of forest goers movements	• Health education through MMWs addressed to individuals or small groups of forest workers

02.6.2

Case Management in Elimination-targeted Districts

According to Surveillance for Elimination Operational Manual 2016 in Elimination-targeted district with low malaria cases, interventions aim to assure high quality diagnosis and treatment in order to classify each case and identify the likely source and reason for infection in order to reduce the parasite reservoir and lower the risk of onward transmission. VMWs and MMWs at temporary living site, referent villages and entry/exit touch points will assure the quality of interventions and the treatment follow up for the three MMP categories.

02.6.3

Vector Control Interventions in Elimination-targeted Districts

Long Lasting Insecticide-treated Nets (LLINs) and/or Long-Lasting Insecticide-treated Hammock Nets (LLIHNs) and/or repellents will be strictly distributed within transmission foci through VMWs and MMWs located on temporary living sites and in referent villages.

For Forest Workers/Goers continuously moving through non-accessible worksites, forest packs should be distributed individually or to small groups through VMWs and MMWs who usually know who the forest workers/goers of the area are. The distribution can occur at temporary living sites, referent villages or at entry/exit touch points. A baseline assessment of malaria risk for forest workers/goers should capture the following:

- Estimated nights spent in non-accessible worksite
- Accessibility to the closest health center
- Questionnaire to estimate work and sleep conditions for forest workers/goers

In Elimination-targeting areas: Forest packs are distributed to individual or small group of forest workers/goers spending night/s in estimated non-accessible and endemic forests located in highly remote areas non-accessible to health centers.

Based on the questionnaire, working and sleeping conditions will determine which kind of vector control measures forest workers/goers need among LLINH, LLIN and repellent. The forest pack will also include an information leaflet. Treatment inclusion in forest pack needs to be considered for forest workers/goers spending > 5 nights in non-accessible and endemic forests located in highly remote areas non-accessible to health centers. A supporting training needs to be ensured.

02.6.4
Surveillance interventions in Elimination-targeted Districts

According to the Surveillance for Elimination Operational Manual 2016 all confirmed cases reported will be classified to identify the likely source and reason for infection. Foci investigation will be conducted around each P. f case detected in MMP hotspots like temporary living sites, referent villages and entry/exit touch points. Based on receptivity and vulnerability, the foci are classified and interventions will be addressed to successfully interrupt transmission.

02.6.5
Information Exchange Communication
and Behaviour Change Communication in Elimination-targeted Districts

IEC/BCC interventions need to be focussed on MMP transmission foci at temporary living site, referent villages and entry/exit touch points of non-accessible worksites. Multi-lingual (Khmer and indigenous languages or foreign languages depending on the localization) health promotions with few key messages should consider language, accent, gender and cultural differences. The use of pictorial materials represents an alternative if the level of literacy is low. Interpersonal communication campaigns should be used to deliver high tailored messages to small groups of forest workers/goers localized at entry/exit touch points through MMWs.

02.7

Intervention Strategy for Security Personnel

Security Personnel including Military and Police & family members need to be considered separately because of their specific needs and non-accessible policies. Their interventions sites, often located in forested areas expose them to a high risk of malaria highlighting the necessity to define specific interventions.

CNM will strengthen coordination and their relationship with the Military and Police in order to adapt the strategies to their needs. Their malaria policies for prevention, case management and surveillance will be aligned with the national malaria policies.

According to the needs and policies of security personnel, missions occurring in endemic areas should include a member trained for malaria prevention and treatment (MMW like). Prevention treatment measures should be taken before missions and a mass screening should occur once back to the referent barrack.

02.8

Intervention Strategy for Border-crosser

Border-crosser are often involved in legal or illegal activities located in forest areas at international borders. The interventions above described for the three categories are also available for cross borders which belong to temporary living sites for the first category or referent villages for the second one. However most of Border-crosser involved in illegal activities belong to the third category of forest workers/goers always moving through non-accessible worksites and requiring interventions at entry/exit touch points of non-accessible worksites.

Specific touch points for cross borders correspond to the border check points, official either unofficial. To assure malaria diagnosis and treatment, malaria corners might be created at official check points while the existing system based on VMWs and MMWs might be used for the unofficial ones.

Monitoring & Evaluation

03

To ensure a continual progress toward malaria elimination, MMP interventions must be regularly monitored and critically evaluated. Monitoring on a routine basis will allow CNM to identify which activities are successfully implemented and which need to be adjusted/modified/changed and which require additional financial or technical support.

Routine monthly surveillance is strengthened across the country to ensure complete and timely reporting from all service providers. In particular Village Malaria Workers (VMWs), Mobile Malaria Workers (MMWs) and military/police health services are responsible when MMPs are the target. The collected data have to be reported and submitted to the Malaria Information System (MIS) in a timely manner.

According to the M&E of the MEAF 2016-2020, the following indicators referring to impact, program management and coordination, case management, vector control, surveillance and IEC/BCC should be disaggregated by MMP.

IMPACT INDICATORS

- Test positivity rate: Percentage of positive malaria tests (includes both microscopy and rapid diagnostic tests)
- Annual Parasite Incidence: Number of confirmed malaria cases per 1,000 population

OBJECTIVE N°1: PROGRAM MANAGEMENT AND COORDINATION

- Percentage of points of care with no stock-out of RDTs
- Percentage of points of care with no stock-out of first-line anti-malarial

OBJECTIVE N°2: CASE MANAGEMENT

- Deployment of VMW/MMW/PMW: Number of villages/points of care covered by with VMW/MMW/PMW
- Percentage of people from the mobile population with fever in the last 3 months that accessed parasite-based diagnosis

OBJECTIVE N°3: VECTOR CONTROL

- Percentage of mobile people that used an ITN the last time they slept in transmission area
- Number of LLIN distributed by mass campaign
- Number of LLIN distributed by continuous distribution

OBJECTIVE N°4: SURVEILLANCE

- Completeness of reporting: Percentage of expected monthly MIS reports submitted from VMW/MMWs

OBJECTIVE N°5: INFORMATION EXCHANGE COMMUNICATION AND BEHAVIOUR CHANGE COMMUNICATION

- Percentage of population who could explain how malaria is prevented through the use of ITN

However, some indicators are specifically addressed to MMP as follow in Table 3:

>Table 3

M&E indicators specifically targeting MMP

Objective one:
Coordinate partners and activities related mobile, migrant and underserved populations

INDICATOR	BASELINE	2017	2018	2019	2020	SOURCE OF DATA	FREQUENCY
Number of targeted MMPs hotspots (worksites and entry/exit touch points)	N/A					MIS	Monthly

Objective two:
Achieve coverage of case management services to ensure diagnosis and effective treatment to mobile, migrant and underserved populations

INDICATOR	BASELINE	2017	2018	2019	2020	SOURCE OF DATA	FREQUENCY
Number of cases targeted in MMPs hotspots	N/A					VMW and MMW	Annually

Objective three:
Protect MMPs population with an appropriate vector control intervention

INDICATOR	BASELINE	2017	2018	2019	2020	SOURCE OF DATA	FREQUENCY
Number of LLINs distributed in targeted MMPs hotspots	N/A					MIS	Annually
Number of LLIHNs distributed in targeted MMPs hotspots	N/A					MIS	Annually
Number of repellents distributed in targeted MMPs hotspots	N/A					MIS	Annually
Number of forest pack distributed in targeted MMPs hotspots to forest workers	N/A					MIS	Annually

Objective four:
Enhance the surveillance system to detect, immediately notify, investigate, classify and respond to all MMPs cases and foci

INDICATOR	BASELINE	2017	2018	2019	2020	SOURCE OF DATA	FREQUENCY
Percentage of investigated targeted MMPs hot-spots selected for proactive case detection	N/A					MIS	Monthly


ចូលព្រៃកុំភ្លេចម
2017
2017

Coordination Mechanism

04

CNM represents the leading coordinator of the activities targeting MMP essential for malaria elimination within the country. A CNM focal person should be appointed to coordinate partners and activities related to mobile, migrants and other disadvantaged groups.

At the national level, CNM will coordinate the activities with partners and stakeholders with the support of the Ministry of Health (MOH) and other ministries. It is strongly recommended and expected that partners and security personnel will align their malaria programs with the national strategy. MMP meetings, chaired by CNM, will be organized quarterly with partners and security personnel to share and evaluate program results, facilitate technical discussion and ensure that the activities are well conducted and coordinated. Meetings will be eventually convened concomitantly with the National Malaria Elimination Task Force with the support of the MMP Working Group.

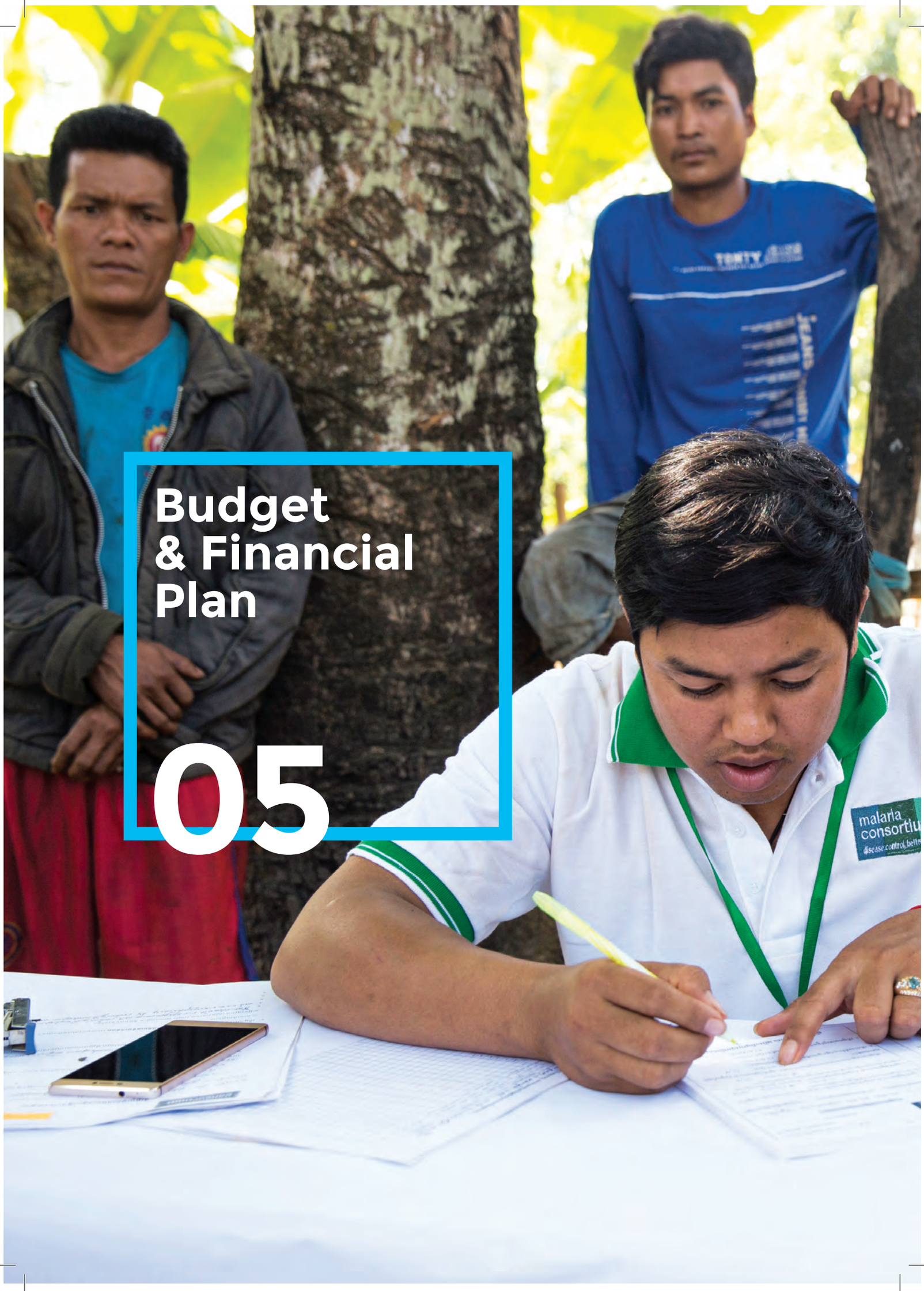
At the provincial level, PHDs should play a key role in the coordination of the activities within the province. Every 6 months, a meeting will be organized with the provincial governor, provincial departments, security personnel and local NGOs.

At the district level, quarterly meetings will be organized with the district chief, district authorities, security personnel and local NGOs. Local authorities should facilitate the contact with non-health stakeholders, such as private companies, involved in MMP activities.

At the village level, monthly meeting will be organized to evaluate and ensure that the activities are well conducted. Refresh trainings focusing on MMPs will be conducted for VMWs and MMWs.

At the international level, annually meetings should be organized with border countries to strengthen cross border collaboration and coordination among GMS countries.

"CNM represents the leading coordinator of the activities targeting MMP essential for malaria elimination within the country."



Budget & Financial Plan

05

The total estimated cost for the MEAF 2016-2020 over the next five years is approximately $ 141,350,000. The five objectives targeting MMP are aligned with the five objectives outlined in the MEAF 2016-2020 as follows:

- Objective 1: Program Management
- Objective 2: Case Management
- Objective 3: Vector Control
- Objective 4: Surveillance
- Objective 5: IEC/BCC

According to the MEAF 2016-2020 financial plan some of the strategies refer specifically to MMP whereas some others can be considered as common strategies.

For the Objective 1: Program Management, the introduction and scaling up of appropriate interventions for mobile, migrant and other disadvantaged groups at risk of malaria infection is particularly addressed to MMPs. The estimated spend of $ 794, 821 is spread over five years: $ 165,614 in 2016, $ 154,375 in 2017, $ 159,203 in 2018, $ 154,129 in 2019 and $161,500 in 2020 as shown in Figure 6.

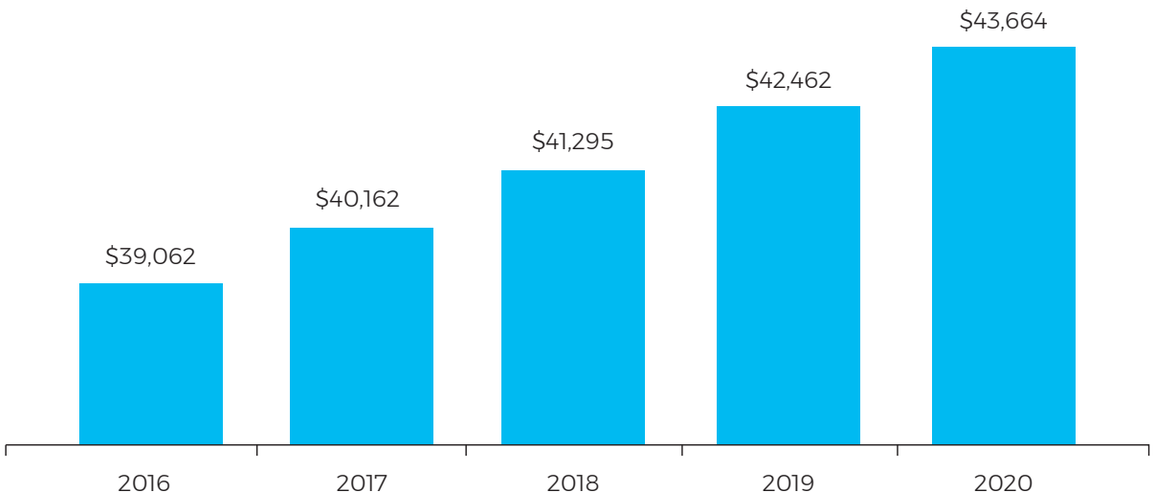
>Figure 6

2016-2020 Spend by year to introduce and scale up appropriate interventions for mobile, migrant and other disadvantaged groups at risk of malaria infection

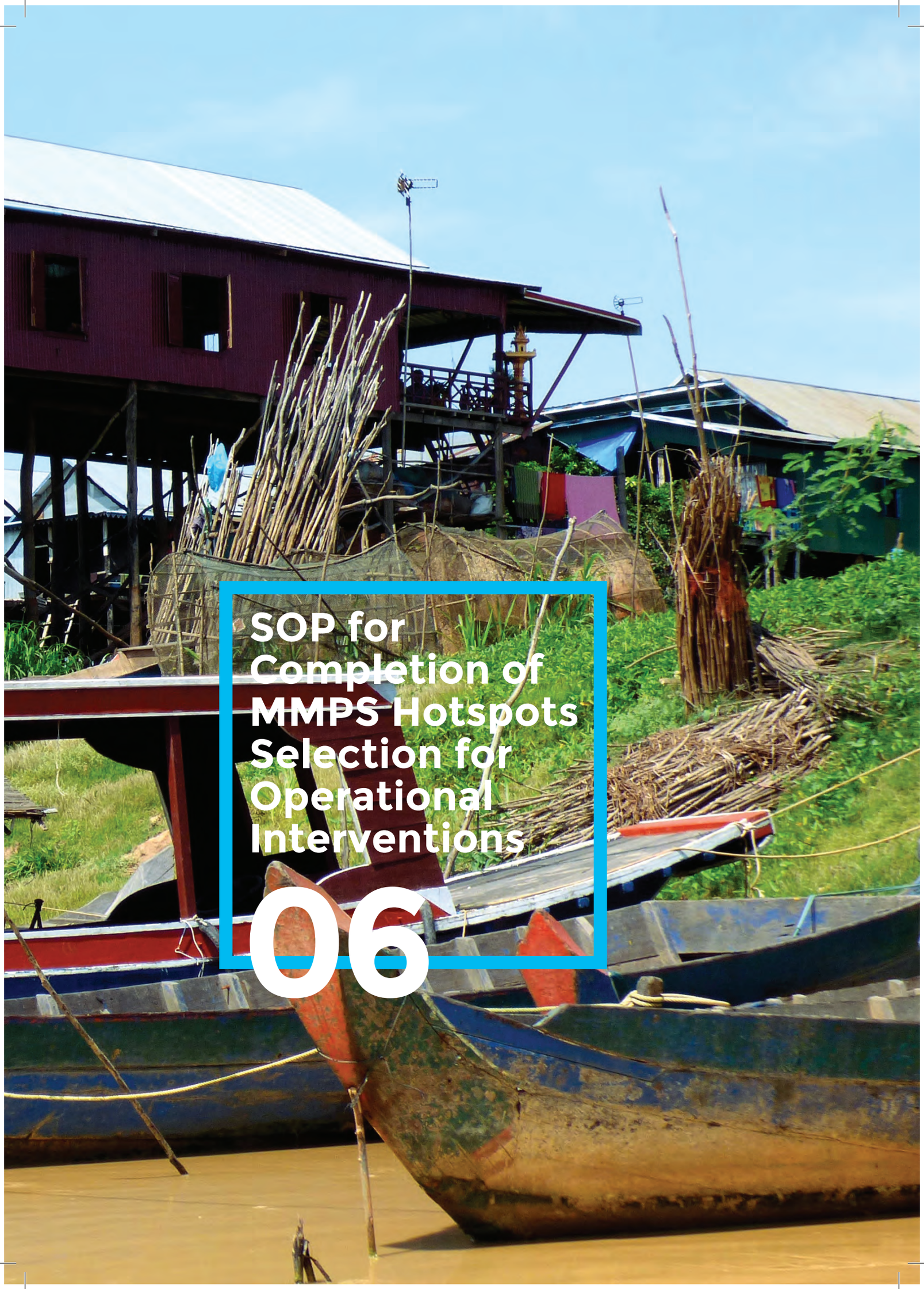
Strengthening cross border collaboration for malaria elimination outlined in the objective 1 of MEAF 2016-2020 also refers to MMPs. The estimated spend of $206,643 is spread over five years: $39,062 in 2016, $40,162 in 2017, $41,295 in 2018, $42,462 in 2019 and $43,664 in 2020 as shown in Figure 7.

Figure 7<

2016-2020 Spend by year to strengthen cross border collaboration for malaria elimination



The estimated spend for case management, vector control, surveillance and IEC/BCC aims to cover all at risk populations including mobile, migrant and other disadvantaged groups. The financial plan is aligned with the one described in the MEAF 2016-2020.



SOP for Completion of MMPS Hotspots Selection for Operational Interventions

06

PURPOSE

Define a MMPs worksite as MMPs hotspot to target with operational interventions in Burden Reduction Districts

OBJECTIVE

Monthly report of the number of MMPs hotspots targeted with operational interventions and the number of MMPs tested and treated for malaria infection

OPERATORS

- NGOs (Care, CRS, HPA, IOM, MC, MSF, PfD, PSK, URC) supported by CNM
- Public and Private Mix and VMW/MMW/PMW
- Local authorities at Province, District, Commune and Village level
- Military and Police

REQUIRED RESOURCES AND MATERIAL

- Questionnaire 1 to define if a MMPs worksite need to be targeted with operational interventions
- Questionnaire 2 to support NGOs to define a MMPs worksite
- Questionnaire 3 to support NGOs to define MMPs life style conditions (randomly select 50 MMPs)

OPERATION STEP BY STEP

QUESTIONNAIRE 1:

- Target forested areas in Cambodia in Burden Reduction districts
- Build community relationships with community leaders, health centers, local and forestry authorities, logging camp brokers and local partners in order to set up a network in the community strengthening their capacities and responsibilities
- Calculating the estimated API from the previous year:

1- Work site with available malaria case record:

- Number of malaria cases recorded among worker in the work site
- Average number of workers in the work site
- Estimated API= (Total casesx1,000)/Average number of workers

Eg. Only 1 cases recorded in the work site of 50 workers on average throughout the year

Estimated API= (1x1,000)/50= 20

2- Work site without malaria case record: Administer Questinnaire3 (question 13) to 50 workers

- Number of malaria cases in the last 3 months
- Estimated API= [(Total cases/50 workers)x1,000]x4

Eg. Only 1 worker had experience malaria in the last 3 months among 50 workers in the worksite

Estimated API= [(1/50)x1,000]x4= 80

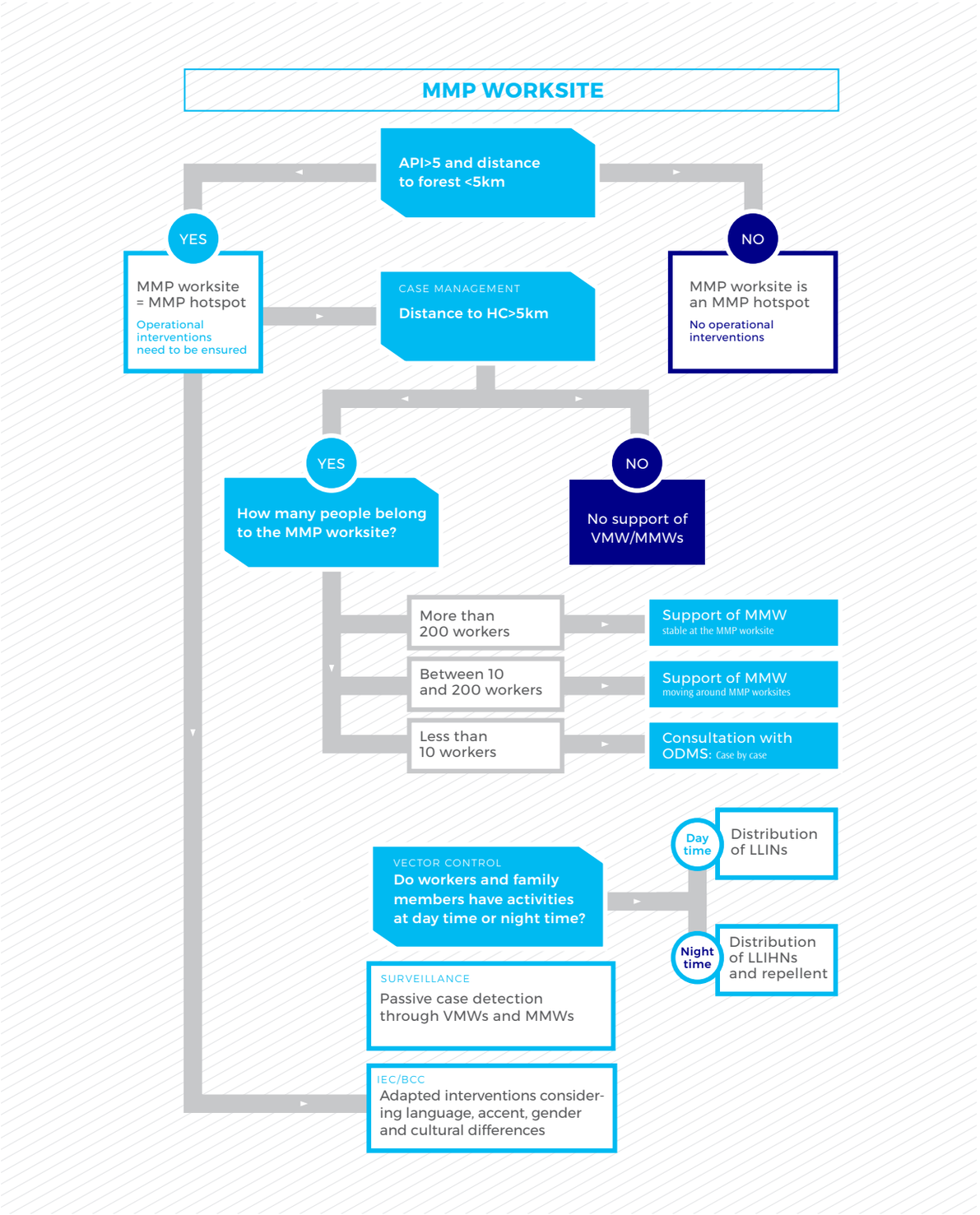
- Based on the following questions, define if the MMPs workplace need to be targeted with operational interventions (the information may be referred to the closest HC)

1- Is the Annual Parasite Index (API) >5? ☐ Yes ☐ No

2- Is the place less than 5 km from the forest? ☐ Yes ☐ No

If both answers of the two questions are positives, proceed with mapping and operational interventions (Case Management, Vector Control, Surveillance, IEC/BCC) for the MMP worksite as show in the following Figure. Please review and update these information every six months.

According to the Surveillance for Elimination Operational Manual 2016 all confirmed cases reported will be classified to identify the likely source and reason for infection. Foci investigation will be conducted around each P. f case detected in MMP hotspots like temporary living sites, referent villages and entry/exit touch points. Based on receptivity and vulnerability, the foci are classified and interventions will be addressed to successfully interrupt transmission.



In Burden reduction areas: In targeted MMP hotspots, LLINs or LLIHNs and/or repellents are distributed to workers and family members depending on their needs related to working and sleeping conditions

QUESTIONNAIRE 2:

1- Date of Visit (DD/MM/YYYY): _____ /_____ /_____

2- Location: Village: _____Commune:_____

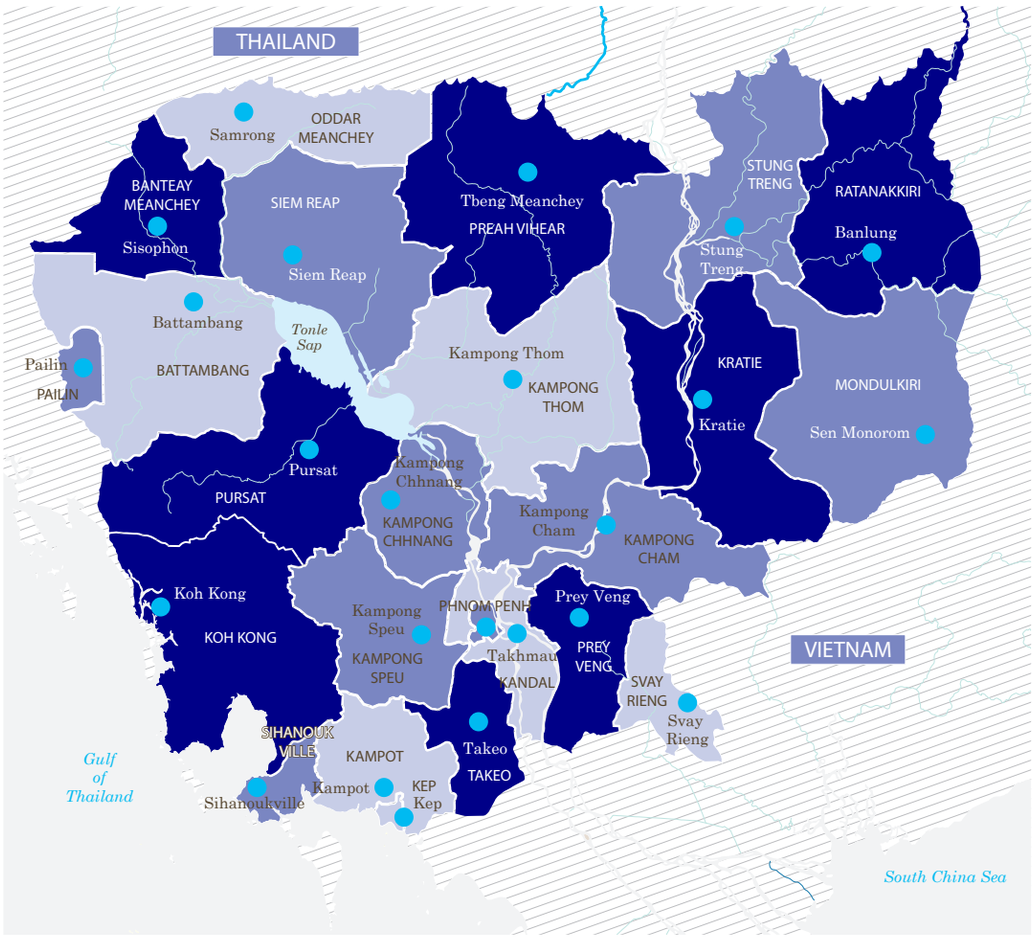
Health Center:_____OD:_____

Province:_____

3- Point in the map where the worksite is localized:

4- Type of workplace:

- ☐ Forest worksite (ex: logging camp)
- ☐ Plantation
- ☐ Construction site
- ☐ Mine site
- ☐ Dam site
- ☐ Farm
- ☐ Checkpoint



5- How difficult is the worksite reachable?

☐ Difficult (Very bad road conditions. Accessibility only by motorbike or tractor)

☐ Medium (Bad road conditions. Accessibility by motorbike or car)

☐ Easy (Good road conditions. Easily accessible by car)

6- Number of MMPs working and living in the worksite:

☐ Less than 10 people (Ex: group of Forest Goers spending several nights into the forests)

☐ Between 10 and 200 people (Ex: construction sites or mine site)

☐ More than 200 people (Ex: plantations)

7- Which kind of accommodation MMPs use:

☐ Go back to village at night time

☐ Tents

☐ Barracks

☐ None

☐ Other Specify_____

Are there any VMWs and/or MMWs at the worksite?

☐ YES If yes, how many?

☐ NO

Distance from working place to health Center?_____km

Distance from working place to VMW/MMW?_____km

QUESTIONNAIRE 3:

1- Date of Visit (DD/MM/YYYY): _____ /_____ /_____

2- Name: _____

3- Age: _____

4- Gender: ☐ Male ☐ Female

5- Occupation: _____

6- Location:

Village: _____ Commune: _____

OD: _____ Province: _____

7- Type of workplace:

☐ Forest worksite (ex: logging camp)
☐ Plantation
☐ Construction site
☐ Mine site
☐ Dam site
☐ Farm
☐ Checkpoint

8- Do you usually conduct night activities?

☐ YES
If yes, are these activities conducted inside the forest? ☐ Yes ☐ No
☐ NO

9- Where did you sleep last night?

☐ Bed
☐ Hammock
☐ None

10- Last night, did you sleep under mosquito bed/hammock net?

☐ YES
If yes, is it treated with insecticide? ☐ Yes ☐ No
☐ NO

11- Did you sleep inside the forest in the last 2 weeks? ☐ Yes ☐ No

12- Do you have fever (check temperature first) ☐ Yes ☐ No

13- Did you have malaria during the last 3 months?

☐ YES
If yes, how did you know? ☐ Suspected ☐ Blood test
Precise the name of the taken treatment? _____
☐ NO

07 References

1 **Bourdier et al.,** Malaria and population dynamics in Cambodia ethnographic investigations in three remote areas (Pailin, Samlaut andTrapaeng Prasat).

2 **Guyant et al.,** Malaria and the mobile and migrant population in Cambodia: a population movement framework to inform strategies for malaria control and elimination. Malaria J. 2015 14:252

3 **CNM.** Cambodia Malaria Survey 2013.

4 **ACT watch 2013**

5 **Imwong et al.,** The spread of artemisinin-resistant Plasmodium falciparum in the Greater Mekong Subregion: a molecular epidemiology observational study Lancet Infect Dis 2017

6 **WHO, IOM,** Population Mobility and Malaria, 2017

08 Annex

ANNEX 1: MMP MALARIA RISK SCORES

Vulnerability encompasses the factors that lead to variation in the impact of disease between different communities and individuals[2]. Immunity response, economic availabilities and knowledge on malaria and health varies on the different types of MMP (Local/Mobile/Migrant) as shown in Table below[2].

	Local population	Mobile population	Migrant population
Definition	Permanent resident for more than 1 year	Resident for <6 months	Permanent resident for more than 6 months and <1 year
Main residence	Village/house	Farm, plantation, company, outreach/mobile vendors/providers	Village/house
Biological factors			
Immune status	Low to medium	None or low	None or low
Immunity score	2	3	3
Economic factors			
Economic conditions	Low to medium	Low	Low to medium
Economic score	2	3	2
Social factors			
Knowledge malaria/health services	Medium to high	Low	Low to medium
Knowledge Score	1	3	2
Vulnerability index	5	9	7

The Exposure index mainly depends on intensity, duration and frequency of interaction with the forest and it varies among the MMP profiles (Forest workers/goers, Construction workers, Security personnel, Seasonal workers and Visitors). Forest location, housing type and prevention measures adopted determine the exposure index score[2].

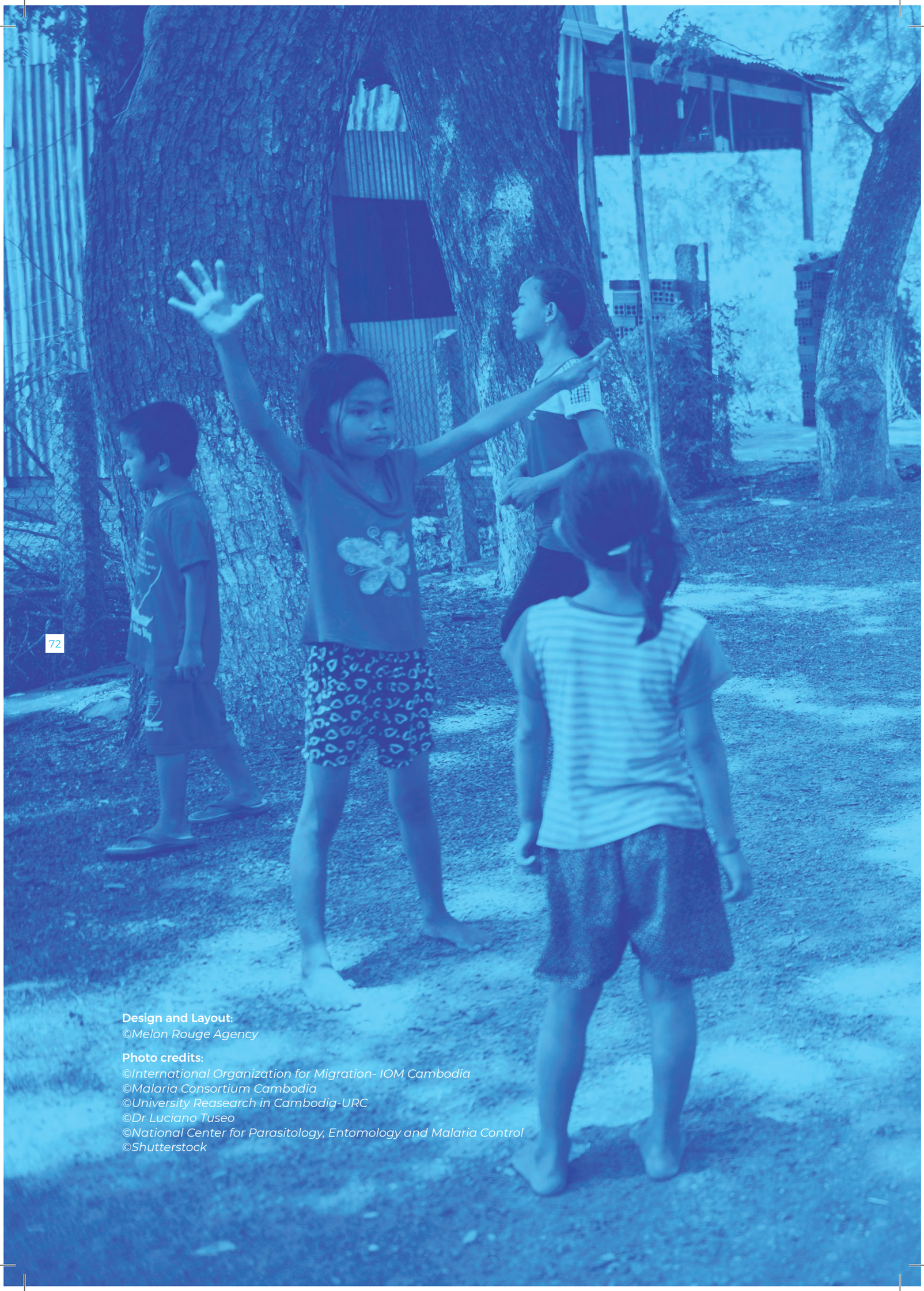
[2] *CF. References p.69*

	Forest workers (FW)	Construction workers (CW)	Security personnel (SP)	Seasonal workers (SW)	Visitors (V)
Main activities	Gathering forest products, fishing, hunting, logging	Dam or road construction, mining	Patrolling	Farming-chamkar, plantation	
Population type	Local, Mobile, Migrant	Mobile, Migrant	Mobile, Migrant	Local, Mobile, Migrant	Mobile
Work area	Upland forest, forested hills	Upland forest, forested hills	Border forest	Foot hills, plains, valleys	
Forest location Score	3	3	3	2	2
Housing type	Tents, none	Huts, barracks, tents	Huts, barracks, tents	Tents, huts	Wooden or concrete house
Housing type Score	3	2	2	2	1
Prevention measures use	Very low	Low	Low to medium	Low	Medium
Prevention measures Score	3	2	2	2	1
Exposure index	9	7	7	6	4

Similarly, the Access index changes between MMP profiles and it relies to the geographical accessibility in term of individual's access to health service providers and as well the ability of health service providers to reach individuals. The remoteness work area, the mobility work location and the access point of contact define the final score of the access index for each MMP profile[2].

	Forest workers (FW)	Construction workers (CW)	Security personnel (SP)	Seasonal workers (SW)	Visitors (V)
Main activities	Hunting, fishing, logging, non-timber forest products	Dam or road construction, mining	Patrolling	Farming, plantation, chamkar	
Population type	Local, Mobile, Migrant	Mobile, Migrant	Mobile, Migrant	Local, Mobile, Migrant	Mobile
Work area	Upland forest, forested hills	Upland forest, forested hills	Border forest	Foot hills, plains, valleys	Variable
Remoteness work area	High	High to medium	High	Medium	Low
Remoteness work area score	3	3	3	2	1
Work location	Mobile	Fixed	Semi-mobile	Fixed	Fixed
Mobility work location	High	Medium	Medium–high	Medium	Low
Mobility work location score	3	2	2	2	1
Linkage	None or village for local population	Company	Government; military base	Farm owner/company	Village; guest houses/ hotels
Access through linkage	Low	Low–medium	Medium	Medium–high	Medium–high
Access through linkage score	3	2	2	2	1
Access index	9	7	7	6	3

[2] *CF. References p.69*



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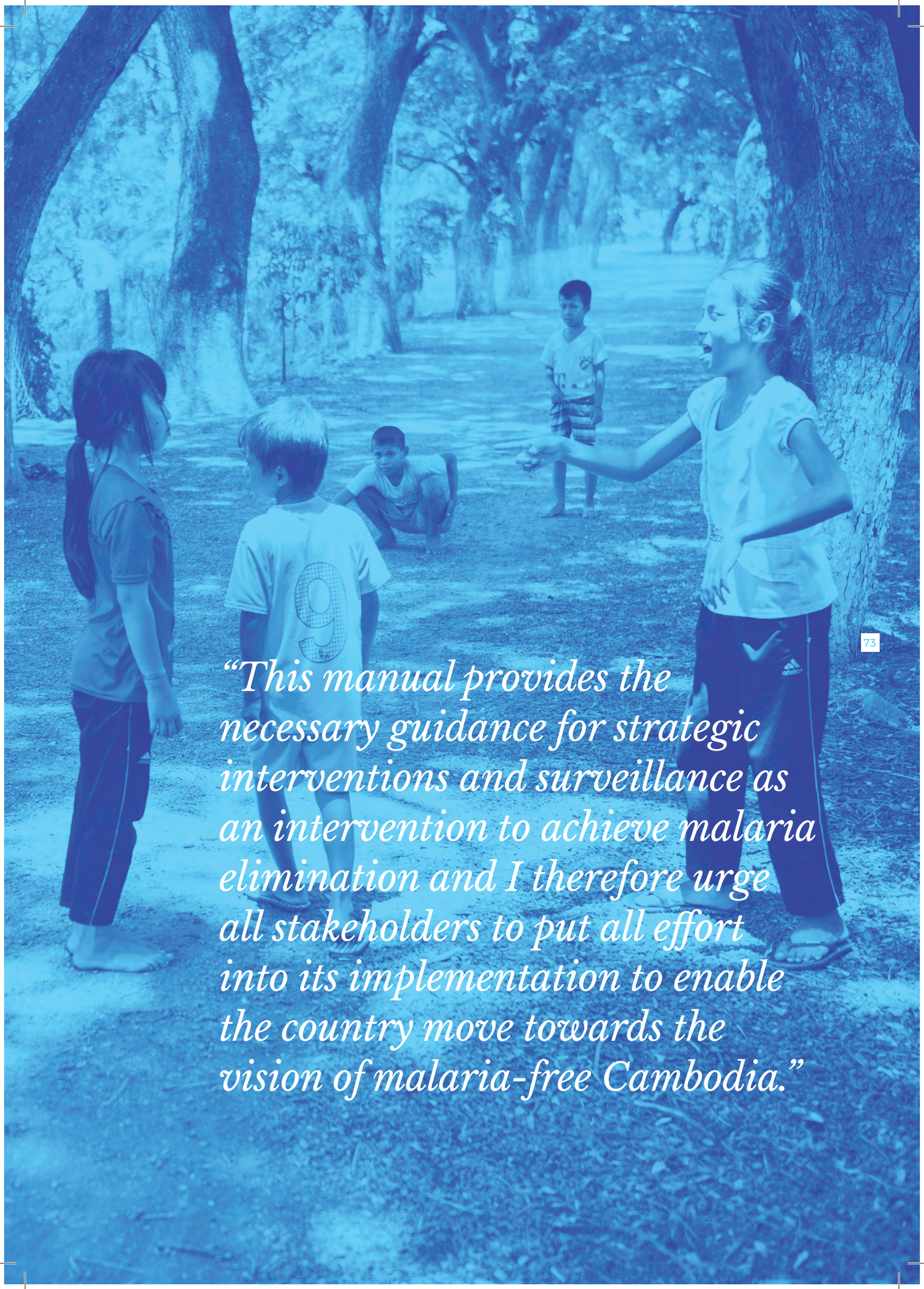

"This manual provides the necessary guidance for strategic interventions and surveillance as an intervention to achieve malaria elimination and I therefore urge all stakeholders to put all effort into its implementation to enable the country move towards the vision of malaria-free Cambodia."

Mobile & Migrant Population in the context of **Malaria Elimination**

The goal of this Operational Manual is to provide appropriate interventions for mobile, migrant and other disadvantaged groups at risk of malaria infection

- Coordinate partners and activities related mobile, migrant and other disadvantaged groups
- Achieve coverage of case management services to ensure diagnosis and effective treatment through mobile malaria worker located inside worksites or at entry/exit touch points at malaria risk, military medical services and select border check points
- Project MMPs with an appropriate vector control intervention at workplaces (e.g., construction/dam/mine site, plantation, farm or barrack) and selected touch points
- Enhance the surveillance system to detect, immediately notify, investigate, classify and respond to all MMPs cases
- Implement comprehensive IEC/BCC with an MMPs approach considering language, accent, gender and cultural differences without any discrimination of the country of origin and legal status