NATIONAL MONITORING AND EVALUATION PLAN
FOR MALARIA CONTROL & ELIMINATION IN VIET NAM
FOR THE PERIOD 2011-2020

Hanoi, March, 2011
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EXECUTIVE SUMMARY
1. **INTRODUCTION**

1.1 **Background**

Viet Nam has developed the first national malaria control and elimination strategy in accordance with the Resolution of WPR/60.RC5 of the Regional Committee of the Western Pacific region, which urges Member States where malaria is endemic to use the Regional Action Plan for Malaria Control and Elimination in the Western Pacific (2010-2015). This Resolution also recommends that governments update and use their national malaria control or elimination plans and as a framework for monitoring implementation and mobilizing resources. Viet Nam’s national control and elimination plan’s goal and specific objectives and accompany targets have been clearly defined. The need to develop a corresponding country program monitoring and evaluation (M&E) plan becomes critical to assess progress in strategy implementation and evaluate program outcomes and impact.

A monitoring and evaluation plan is a guide that describes how a program will track and monitor progress and achievement of a strategic plan. It assists implementers to focus on intended set goals and targets and guide program implementation. It is a tool that can detect gaps and potential implementation bottlenecks and provide signals for immediate adjustments and reprogramming. Finally, it generates necessary information for justification of utilized resources for malaria control activities.

1.2 **Country Profile**

Viet Nam occupies the eastern and southern part of the Indochinese peninsula in Southeast Asia, with the South China Sea along its entire coast. The Census 2009 shows the population of Viet Nam more than 85.8 million.

Viet Nam is a multi-ethnic country with over fifty distinct groups (54 are recognized by the Viet Namese government), each with its own language, lifestyle, and cultural heritage. The largest ethnic groups are: Kinh (Viet) 86.2%, Tay 1.9%, Tai Ethnic 1.7%, M'ng 1.5%, Khmer Krom (Kh Me Cr m) 1.4%, Hoa 1.1%, Nùng 1.1%, Hmong 1%, others 4.1% (1999 census). Ethnic Viet Namese, or Viet (known officially as Kinh), live in the lowlands and speak the Viet Namese language. This group dominates much of the cultural and political landscape of Viet Nam.

In the past, most of the leading causes of morbidity were communicable diseases. However, in 2008, noncommunicable diseases were also among the leading causes (reported by public hospitals), the incidence rate for hypertension being particularly high. Currently, the vital registration system in Viet Nam does not operate effectively and cannot provide accurate data on number of deaths, causes of death, or age, sex and socioeconomic status of those who die. Therefore, it is still necessary to rely on mortality data collected in public hospitals for assessment of mortality patterns and
trends. According to 2008 data from hospitals, injuries, AIDS-related conditions, pneumonia, accidents and some noncommunicable diseases are the leading causes of mortality.

1.3 Health System

Viet Nam’s health system consists of four administrative levels: central, provincial, district and commune levels as shown in Figure 2. The curative system encompasses three level of hospitals (i.e. central, provincial and district) and health stations at the commune level. Preventive care consists of various MOH structures including national medical institutes, which provide the highest level of service, provincial and district health centres and commune health stations.

Health stations at the commune or grassroots level are providing primary health care services, which include treating common diseases, attending normal deliveries, and the provision of family planning and health promotion activities. They also serve to detect early epidemic outbreaks at the commune level. Activities in the commune health stations are conducted in close communication with provincial and district level medical institutions. The 2001-2010 strategy on public health care and protection states that 80% of commune health stations will have doctors (the corresponding figures for mountainous communes is 60%), 80% of all commune health stations will have secondary midwives by 2010.

In addition to health care staff, each commune has some village health workers (VHWs) who are mostly volunteers who receive a small allowance or incentive. VHWs are under the direct management and direction of the commune health station and village leaders.
They conduct various health promotion tasks in primary health care and other health programs such as in malaria control and prevention.

1.4 Malaria in Viet Nam

1.4.1 Epidemiological Profile

Malaria transmission is highly focal in Viet Nam, occurring in remote forested areas and disproportionately affecting ethnic minorities and migrants. Between 2000 and 2009 Viet Nam reported decreases > 50% in the number of confirmed cases. Estimated coverage of vector control interventions appears to be low in Viet Nam which may reflect the focal nature of malaria in the country. In addition, household surveys indicate that more than 90% of households own a mosquito net in Viet Nam (MICS 2006) although only 5% and 19% respectively sleep under an insecticide-treated nets (ITN). Hence, ITN coverage derived from public sector deliveries of ITNs may underestimate prevention efforts in the country. In summary, Viet Nam has shown evidence of a sustained decrease of > 50% in the number of cases associated with large scale implementation of malaria control activities. In addition, a comparison of case fatality rate with other countries where the use of artemisinin and its derivatives is more restricted, (especially in the public sector) suggests that the widespread use of these drugs has played some role in reducing malaria mortality in Viet Nam.

1.4.2 Malaria Control in Viet Nam

Malaria control is now still a high-priority programme managed by the MOH and its specialized institutions. Antimalarial drugs are given free of charge to malaria patients and suspected cases through public sector outlets. Commune health staff and village health workers, motivated by government incentives, detect and treat 65% of all malaria cases. Vector control coverage protected 12 million people in 1996, while, in 1998, insecticide-treated nets (ITN) covered 11 million people and indoor residual spraying (IRS) 2.6 million. A number of community-based studies indicated that ITN were effective in most areas, although rarely among ethnic minority groups living in forest environments.

Since 2005, operational epidemiological stratification has been applied in targeting malaria control. In the last five year (2005-2009), annually 8.5 to 10 million people have been protected by ITNs and 1.6 to 2 million by IRS. The number of people at risk has fallen from 37 million (pre-2005) to 27 million (post 2005). The number of confirmed cases has decreased significantly from 19,490 (2005) to 16,130 (2009), with malaria mortality rates ranging between 0.02 and 0.04 per 100,000 people per year within the same period.

National drug policy is revised every two years based on available evidence. A new drug policy was introduced in late 2009, by which artemisinin-based combination therapy (ACT) (dihydroartemisinin-piperaquine [DHA-PIP]) is first line drug for P. falciparum malaria. This is made available at commune and village levels. Among 28 provinces in
the northern part of the country, there were only four provinces with more than 100 confirmed malaria case in 2009, and no malaria death was reported. In 2009, confirmed cases were concentrated in the Central and Highland region (12,237 cases, 76% of Viet Nam).

1.4.3 Trends in the burden of malaria

The challenge facing the malaria control programme is effectively combating malaria among the forest-goers, migrant populations and those in the cross-border areas. Artemisinine resistance is emerging in Binh Phuoc province, in southern Viet Nam. Comprehensive control measures including containment of artemisinin resistance are needed to reach areas where the poorest and most disperse populations live, especially ethnic groups in the northern and central highlands and populations living in dense forests. In the latter areas, the primary constraint to malaria control is the inadequate local service network.

2. MONITORING AND EVALUATION FRAMEWORKS

An M&E framework is a conceptual tool that can assist a program to develop M&E plans that allow managers and other stakeholders to know the extent to which their projects are achieving their objectives and leading to their desired effects. They clearly define program goals and measurable objectives and the relationship between program inputs, processes, outputs, and outcomes, and program activities and the external context.

The development of a framework begins with the identification of inputs or resources that are necessary for implementing a program. Implementation of a framework also involves the process of identifying program processes or interventions and outputs. Results of a framework are captured by assessing the outcomes or benefits and eventual program impacts. Below are some global and regional level frameworks that have informed the developed of Vietnam’s national malaria strategic and M&E plans.

2.1 Global Malaria Action Program 2008 (Goals and Targets)

The Global Malaria Action Plan outlines the RBM Partnership’s vision for a substantial and sustained reduction in the burden of malaria in the near and mid-term, and the eventual global eradication of malaria in the long term, when new tools make eradication possible. To reach this vision, the targets of the GMAP are to:

- Achieve universal coverage, as recently called for by the UN Secretary-General, for all populations at risk with locally appropriate interventions for prevention and case management by 2010 and sustain universal coverage until local field research suggests that coverage can gradually be targeted to high risk areas and seasons only, without risk of a generalized resurgence;
- Reduce global malaria cases from 2000 levels by 50% in 2010 and by 75% in 2015;
• Reduce global malaria deaths from 2000 levels by 50% in 2010 and to near zero preventable deaths in 2015;
• Eliminate malaria in 8-10 countries by 2015 and afterwards in all countries in the pre-elimination phase today; and
• In the long term, eradicate malaria world-wide by reducing the global incidence to zero through progressive elimination in countries.

2.2 Regional Action Plan for Malaria Control and Elimination in the Western Pacific Region (2010 – 2015)

The goal of the Regional Action Plan for Malaria Control and Elimination in the Western Pacific (2010-2015) is to consolidate and build on the recent achievements in malaria control in the region and progressively eliminate malaria, where possible. Viet Nam’s National Strategy on Malaria Control and Elimination is closely aligned with this goal and many of its objectives which aim to:

• Strengthen malaria programme management, based on firm political commitment and strong partnerships
• Ensure full coverage of the population at risk with appropriate vector control measures,
• Maximize utilization of malaria services (through appropriate information, education and communication and/or behaviour change communication) and dramatically strengthen community mobilization efforts,
• Ensure access for all to early diagnosis and affordable, safe, effective and prompt antimalarial combination treatments through active public and private sector initiative
• Ensure comprehensive coverage of vulnerable, poor and/or marginalized populations at high risk of malaria with appropriate malaria control measures
• Establish and/or strengthen the routine malaria surveillance system (all species) and ensure adequate outbreak response capability
• Accelerate malaria (all species) elimination efforts in participating countries

The Regional Action Plan has developed the following key performance indicators:

• Deaths due to malaria (number and rate) reduced by at least 50% by 2015 compared with the 2007 baseline.
• Confirmed malaria cases (number and rate) reduced by at least 50% by 2015 compared with the 2007 baseline.
• Percentage of cases due to P. falciparum decreased compared with the 2007 baseline.
• Admitted malaria cases (number and rate) reduced by at least 50% by 2015 compared with the 2007 baseline.
• Malaria test positivity rate (for microscopy and rapid diagnostic tests) reduced to less than 5% in at least six countries by 2015.
• At least seven countries have achieved interruption of malaria transmission in targeted areas by 2015.
2.3 Bi-Regional Malaria Indicator Framework 2011 (BMIF)

National control program including Viet Nam and partners such WHO, USAID, MEASURE Evaluation, CDC and Malaria Consortium have recently finalized a Bioregional Malaria Indicator Framework (BMIF) to build capacity for an effective response to malaria in the Greater Mekong Subregion (GMS). The BMIF is regional commitment for the control and progressive elimination of malaria through a uniform method of monitoring and evaluation. This framework reflects many of the objectives agreed to in the Regional Action Plan to Control and Eliminate Malaria. BMIF is designed to be a guide for national control programs and other organizations who work on malaria control and prevention. The framework and indicators should be used to gather data that are useful for national programs and can be used to towards the development or revision of national M&E plans.

The framework’s indicators are organized into six categories corresponding to the key programmatic approaches identified by NMCPs for achieving malaria control. These tactics were selected to illustrate the GMS malaria control programming priorities and organize indicators into groups measuring related outcomes. The six approaches are: (1) policy and management; (2) prevention; (3) information, education and communication/behavior change communication (IEC/BCC); (4) case management; (5) engaging vulnerable populations; and (6) strategic information. The indicators are represented by core indicators created by WHO Global Malaria Programme and supplemental regional indicators, which were created specifically for the GMS.

In Viet Nam, the BMIF was used to inform the development of this national malaria control and elimination M&E plan. Representatives from the national malaria control and elimination program along with external consultants aligned its national strategic plan with that of this framework. The BMIF indicator reference sheets served as a guide towards the identification of data sources to ensure that collection was feasible, standardized and uniform.

2.4 National Strategy for Malaria Control and Elimination in Viet Nam (2011-2020):

The goal of the National Strategy for Malaria Control and Elimination in Viet Nam is to actively control malaria in the medium and highly malaria endemic areas and to eliminate malaria in areas where malaria has been reduced to low levels for many years.

2.4.1 The specific objectives are to:

1) Ensure all people have better access to early diagnosis and prompt and effective treatment at the public and private health facilities.

2) Ensure the coverage of all people at risk of malaria by appropriate malaria control measures.

3) Enhance the use of malaria control services and increase the community mobilization and participation in malaria control through IEC activities.
4) Improve the malaria epidemiological surveillance system and ensure sufficient capacity to malaria epidemic response.

5) Eliminate malaria in the districts and provinces with low malaria endemicity.

2.4.2: The impact measures: By 2020, malaria morbidity is below 0.15/1,000 population and malaria mortality below 0.02/100,000 population, malaria is eliminated in at least 40 provinces, contributing to the health care of the population and to the cause of culture and economic development of the country.

Impact indicators: By 2020,

- Malaria morbidity is reduced below 0.15/1,000 population in 2020 from 0.62/1000 in 2010
- Annual parasite incidence (API) is reduced below 0.1/1000 in 2020 from 0.2/1000 in 2010
- Malaria mortality is below 0.02/100,000 population by 2020
- Number of highly malaria endemic communes is reduced 30% by 2015 and 60% by 2020 as compared with that in 2009
- Malaria is eliminated in at least 40 provinces by 2020

2.4.3: Indicators by Objectives

Objective 1: Ensure all people have better access to early diagnosis and prompt and effective treatment at the public and private health facilities.

- % of reported malaria (clinical) cases in the malaria endemic area have blood tests taken for malaria parasitological examination from both public and private facilities (adapted BMIF 4.1)
- Percentage of uncomplicated malaria cases with: (a) confirmed P. falciparum malaria that received artemisinin-based combination therapy (ACT), and (b) confirmed P. vivax that receive appropriate antimalarial treatment including radical treatment, according to national guidelines (BMIF 4.3)
- Country has functional quality assurance systems for antimalarial medicines (BMIF 4.4)
- Percentage of health facilities without stock-outs of first-line antimalarial medicines and diagnostics during the last 12 months (by month) (BMIF 4.5)

Objective 2: Ensure the coverage of all people at risk of malaria by appropriate malaria control measures.

- Percentage of existing conventional bednets in targeted malaria endemic area that are retreated
- Percentage of targeted population covered by retreated mosquito nets (BMIF 2.2)
- Percentage of targeted population covered by LLINs distribution (BMIF 2.1)
- Percentage of targeted population covered by indoor residual spraying (IRS) (BMIF 2.3)
- Percentage of people at high risk of malaria (going to and staying overnight in the forest for cultivation) applying malaria control measures (i.e., use of ITNs/LLINs and/or other methods for personal protection)
- Percentage of households in targeted endemic areas (moderate and high) with at least one LLIN/ITN and/or sprayed by IRS in the last 12 months (BMIF 2.5)

Objective 3: Enhance the use of malaria control services and increase the community mobilization and participation in malaria control through IEC activities.
- Percentage of respondents in the malaria endemic areas who can recall at least 2 main messages on malaria control
- Percentage of respondents in the malaria elimination areas who can recall at least 2 main messages on malaria elimination
- Percentage of respondents in malaria endemic areas who slept under an ITN/LLIN the previous night before the survey (BMIF 3.2)
- **Treatment seeking indicator is to be determined**

Objective 4: Improve the malaria epidemiological surveillance system and ensure sufficient capacity to malaria epidemic response.
- Percentage of villages having village health workers for malaria program in endemic areas
- Percentage of VHWs in malaria endemic areas who take blood slide/RDT and reporting monthly to commune health center staff
- Percentage of monthly health facility reports received on time (adapted BMIF 6.1)

Objective 5: Eliminate malaria in the districts / provinces with low malaria transmission.
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- ....
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Malaria Monitoring and Evaluation System in Viet Nam:

Situation Analysis of Malaria M&E Capacity:

A rapid assessment of country malaria M&E capacity was conducted using an abridged MESST (M&E System Strengthening Tool) tool adapted from the Global Fund’s Monitoring and Evaluation Toolkit for HIV, Tuberculosis, and Malaria and Health Systems Strengthening. Key M&E system components assessed include M&E coordination; institutional capacity building; availability of tools and data management processes; routine and periodic reporting; and available / potential resources. The current situation by M&E system component is as described below.

M&E coordination:

- There is an M&E Sub-Committee called Statistics Group, that meets on a monthly basis
- The NCMP’s M&E Unit is located at NIMPE and an M&E focal point coordinates related activities in the regional IMPEs.
- The focus of M&E activities is the recent National Malaria Strategy
- M&E Plan’s implementation activities are being developed and will be costed
- Standardized M&E tools are available e.g. reporting forms at different levels, checklists and survey forms patterned after international tools

M&E Capacity building:

- There is no M&E training plan however training is integrated into national training for Training of trainers (TOT) courses and cascaded down to district level
- Training is conducted every 2 years; Follow up evaluation is rarely done
- Supportive supervision is conducted with at Global Fund provinces (national to province twice per year; from province to district 4 times per year; from district to commune 6 times per year). Ad hoc visits are conducted using GF checklists.

Routine Reporting

- Routine data and information is mainly from the public health sector. No data is collected yet from private sector. The lowest level of data collection is the village level.
- Data is transcribed in hard copy from village to commune; commune to district; district to provincial are by both hard copy and electronic versions. The GF project will soon have a web based database to be piloted in GF provinces by July 2011 and nationwide by July 2012. No SMS is currently being used.
- Frequency of reporting by level: monthly at every level; outbreak reporting uses means to forecast cases.
- CHWs are given incentives by the health system for reporting. There are no incentives in place for reporting separately for malaria.

Data Management:
• Relevant data collection instruments are available at all levels. Analysis including summaries is carried out at all levels except at village level. Data quality assurance is done, beginning at district level upwards, none at commune level. No data audit is done.
• Storage mechanism at different levels (including database): Data is stored in hard copies at all levels. There is electronic copy (database) of data kept at commune level up to national level.
• Dissemination mechanism at different levels: includes NIMPE and IMPE websites, updated with monthly data. There is no bulletin or newsletter published yet. NIMPE journal is issued 6 times a year specifically for research in malaria and parasitic activities.
• Feedback mechanism at different levels is provided in area of microscopy, otherwise scanty for other activities.

**Periodic reporting:**
• List of surveys conducted in past 5 years included malaria KAP survey in GF provinces every year; once every 5 years national malaria indicator survey (2010) in 30 districts with NIMPE and IMPE lead partners. A list of related other research studies conducted in past 5 years is available.
• Degree of involvement of NMCP in planning and implementation, reporting and dissemination is high. Reports are availability of report by research and survey as well as journals and websites.

**M&E Resources:**
• There is a dedicated budget for M&E activities by the government and Global Fund. Financial partners include Global Fund and WHO and USAID through MMP. The proportion of M&E budget in GF grants is about 15%.

**Data Sources**
Data sources for the indicators include the routine health information system for malaria, surveillance activities and information from health facilities. Some information is also available from annual program reports. Household level surveys and special studies provide population based information.

**Routine data**
The Malaria Information System (MIS) database is generated from the reporting and monitoring system based on the existing vertical system of Malaria Control in Viet Nam. Current key indicators captured in the MIS:
• Malaria morbidity and mortality rates at province and district and communal levels.
• Number of ITNs distributed.
• Number of nets treated and number of people covered by Insecticides Treated Nets.
• Number of houses sprayed and number of people covered by Indoor Residual Spraying.

**Data collection and reporting tools**
Reporting forms are collected and aggregated from commune to district to provincial levels on a monthly basis. The comprehensive provincial reporting forms include aggregated data on the following (Annex XX):

- malaria cases (clinical, confirmed, severe, and deaths due to malaria)
- laboratory examination results (microscopy and RDT)
- vector control activities
- BCC/IEC activities
- foci investigations and epidemics
- training activities
- stock monitoring of antimalarial drugs, insecticides, and other supplies

Currently these reporting forms are largely paper-based at the commune and district levels. At the provincial level, data are keyed into Excel files and sent to IMPE and NIMPE (Statistics Office) at the beginning of each month for the preceding month for collation and analysis. Completeness and accuracy of reporting depends on many factors; such as resources, data utilization at the local level, feedback from higher levels, practices of public and private facilities, capacity of staff on information management and reporting, availability of laboratory, and the accessibility to health services to vulnerable groups.

The current paper-based malaria information system is very thorough and there is generally complete reporting by communes, districts and provinces. As such, stock quantities correspond to logistics records and reports supported by well-qualified, trained, and dedicated staff at all levels. The issues of such a paper-based system result in some provinces and districts adapting the forms or creating new forms to fit their needs (which is good for data ownership but not for standardization of reporting).

**Web-based Malaria Information System**

Through the Global Fund Round 7 malaria grant (supporting 29 out of 63 provinces), NIMPE sought to develop unified software system for the MIS that would streamline procedures for data entry, collection, and analysis. This software would also allow for more detailed data to be available for decision making at central level (province, district and commune data) and can produce various standard reports in different formats and for different recipients (NIMPE, GF, MoH, WHO, etc). It is envisioned that ad-hoc reports for special problem cases particularly at district level can be produced through this system.

The web-based malaria information system aims to automate current functions of monthly routine reporting including malaria case reporting, vector control activities, stock management, and IEC activities. This system through Global Fund support is being piloted in 29 provinces and it is hoped to be scaled up in the remaining provinces in Viet Nam. In the future, this web-based system has the potential to include geographic information systems (GIS) mapping of cases and vector control down to commune levels, using the data for development of epidemic prediction models, and risk stratification down to village level.
Other information systems in Viet Nam

It should be noted that there are other systems initiated in Viet Nam to improve data collection and analysis, including the database systems in IMPE Quy Nhon for 15 provinces, the European Commission (EC) project for 8 provinces, and AusAID project for 5 provinces. Many of these use Excel spreadsheets for data entry and reporting.

Data Integration into Health information

In addition to the vertical programme of the National Malaria Control Programme to collect malaria data, there are other health information systems in Viet Nam that routinely collect information:

- MoH Health Information system
- MoH Preventive medicine
- Hospital Management Software VIMES – Stock Management for District Hospitals (Binh Dinh)
- H5N1 Software in Lam Dong Province
- DHIS2 – Health Management Information Software

The new MIS will be able to exchange data with any of these systems, using modern software approaches

Periodic surveys (health facilities, household, and malaria prevalence surveys)

Surveys are useful tools for gathering primarily quantitative information about target populations of interest which are not otherwise accessed through routine reporting or surveillance. A survey may focus on opinions or factual information depending on its purpose, and many surveys involve questioning individuals. They can be resource intensive if a large sample size is needed to ensure wide representation, such as population censuses which attempt to include every individual in the population. Smaller surveys that are qualitative in nature are useful for obtaining answers to specific inquiries.

Population-based surveys are a key part of collecting some of the necessary data for constructing many of the important indicators for this project. These community and health facility-based surveys are designed by experts in the Department of Epidemiology at NIMPE together with Regional IMPEs and the Provincial Malaria Stations, and are carried out by teams formed by the health staff from Central to Districts levels. Data entry and analysis are usually conducted at NIMPE.

Periodic surveys conducted in Viet Nam generally fall into three types: household surveys, health facility surveys, and prevalence surveys:

a) Household surveys

Household surveys are conducted annually at the end of each year (end of malaria transmission season). Household surveys are carried out in the selected communes where health facilities survey is done. In each commune about 180 people who are
representatives of the households will be interviewed using a household questionnaire form.

Indicators collected by household surveys include:
- Proportion of people in target communes sleeping under an LLIN/ITN.
- Proportion of migrant settlers protected by ITN within 6 months of their identification.
- Proportion of interviewees at selected border crossings in Viet Nam who can recall at least 2 key messages on malaria.
- Proportion of existing nets which have been retreated with insecticides.
- Proportion of households sprayed with insecticides.

b) Health facility survey

Health facility surveys are usually conducted at the end of the project for overall project evaluation. A representative sample of about 20% of the district health facilities and 10% of the commune health centres will be selected for health facilities survey. Form or check list of items will be developed in order to obtain information on the following indicators:
- Number and percentage of reported malaria cases confirmed by microscopy/RDTs.
- Number and percentage of confirmed P.falciparum cases who receive ACT.
- Number and percentage of health facilities provided with ACT.
- Number and percentage of health facilities which have RDTs.
- Number of RDTs performed at public health facilities.
- Number and percentage of districts fully equipped and trained to deal with outbreaks.
- Number and percentage of health facilities at different levels with equipment and supplies for malaria diagnosis and treatment of malaria...

c) Prevalence survey

Prevalence surveys are usually conducted at the end of the project for overall project evaluation. Prevalence surveys are carried out to measure the proportion of people (in all age-groups) who have malaria parasites at a particular point in time. The prevalence rate in malaria “hotspots” is one of the main impact indicators of the project. The prevalence surveys are combined with household surveys to determine estimates of malaria prevalence in “hotspots” and at the same time yield information from interviews with the head of the households in the selected villages of the communes which identified as hotspots.

The “hotspots” are villages in the communes with high malaria endemicity as compared with other communes. The list of “hotspot” villages is identified annually by NIMPE based on the stratification used for this survey.

This cross-sectional malaria prevalence survey collects data on spleen and blood slide examination, and body temperature measurements (recorded in the survey forms).
Given the average prevalence of malaria is about 5% in hotspot communes, a sample of about 3,000 individuals would be adequate for this survey. With average number of 5 persons per household, a total of 600 households will be selected. As the prevalence survey will be combined with household survey, all hotspot communes selected for individual and household survey will be done by systematic random sampling. With this method, it is estimated that there is about 40 (or 30?) villages in 20 communes (2 villages/commune) will be selected.

All members in 600 selected households have spleen examination and blood slides taken for examination, body temperature measurement at the same time, and the head of the household interviewed.

Blood slides are stained and examined at NIMPE site by qualified microscopists.

**Other studies: Insecticide resistance monitoring studies**

In Viet Nam, insecticide resistance monitoring of *Anopheles* mosquitoes is routinely carried out. Existing information on the resistance status of the main malaria vectors, *An. dirus* s.l., *An. minimus* s.l. and *An. epiroticus*, in the Mekong region is patchy and region-wide comparable resistance data are required to make informed decisions on the correct use of insecticides in malaria vector control. Since 2003, a cross-country insecticide resistance monitoring network MALVECASIA (Cambodia, Lao PDR, Thailand and Viet Nam) was initiated to define the insecticide susceptibility status of the major malaria vectors in different physio-geographical regions using WHO-bioassays\(^1\). The results of this three year study demonstrated that insecticide resistance in Viet Nam is largely limited to low or transmission-free areas but will require rigorous monitoring in these areas.

**Therapeutic Drug efficacy monitoring studies**

There are 6 sentinel sites (4 WHO and 2 Global Fund sites) for the monitoring of therapeutic drug efficacy in Viet Nam. These sites using WHO approved protocols are the following: Quang Binh and Quang Tri in Central Viet Nam; Gia Iai, Dak Nong, Ninh Thuan, and Binh Phuoc in South Viet Nam. These sentinel sites monitor the therapeutic drug efficacy and safety of 7-day artesunate monotherapy and artemisinin-based combination therapies (ACT) of dihydroartemisinin-piperaquine (DHA – PIP) for the treatment of uncomplicated *Plasmodium falciparum* malaria. Therapeutic efficacy of DHA-PIP remains generally highly effective (proportion of patients who remain positive on Day 3 is below 5%) with the exception of Binh Phouc where reduced artemisinin susceptibility has been recently reported. Binh Phouc is the only province in Viet Nam where reduced susceptibility to artemisinins has been reported, and further studies including pharmacokinetics, molecular markers, and in vitro studies are ongoing.

As part of the Malaria Mekong Programme for monitoring the therapeutic efficacy of antimalarial drugs in the region, the data from these routine monitoring sites provide very useful information that feeds into the decision-making for national programmes to

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update their national treatment guidelines, particularly in the context of detection and containment of artemisinin resistance in the region.

**Operational Research Activities**

Viet Nam is engaged with numerous operational research activities in collaboration with NIMPE, IMPE, national and international research institutions, organizations, and partners. Data generated from operational research are often useful to inform national programmes of knowledge gaps and to generate evidence for decision-making. Some recently conducted research activities which are usually published in NIMPE’s *Journal of Malaria and Parasite Disease Control* each year for dissemination include:

1. **Malaria epidemiology**
   - Malaria epidemiological stratification for operational intervention in the whole country: to propose suitable interventions for each area (non malaria area, area at risk of malaria resurgence, low, moderate and high endemic areas).

2. **Research on diagnosis and treatment of malaria.**
   - Efficacy of malaria treatment regimens: Arterakins and CV Artecan (Dihydroartemisinin-Piperaquine) as first line treatment of *P. falciparum*.
   - Drug resistant malaria and its resistant mechanism: *P. falciparum* resistant to chloroquine, detection of artemisinin resistance in Binh Phuoc province.
   - Study on the G6PD deficiency in the ethnic groups of Viet Nam.

3. **Vector control measures**
   - Evaluation trial on the insecticidal and residual effects of insecticides for vector control: to select insecticide for every 5 year planning period: Alphacypermethrine, Lambdacyhalothrine.
   - Evaluation study on the insecticide resistance of the main vectors to Alphacypermethrine, Lambdacyhalothrine.
   - Research on appropriate control measures for forest, border malaria and with migrant people such as effectiveness of LLIN face nets for rubber workers, LLIN hammock nets for people involved in field agriculture and forest based activities.

4. **BCC/IEC**
   - Research on appropriate IEC/BCC measures for each ethnic group: selection of suitable IEC materials, suitable language and channels.

The NMCP has identified the following research areas as priorities in the effort to control and eliminate malaria in Viet Nam:

- Drug resistant mechanism, artemisinin resistant containment and insecticide resistance, study on appropriate malaria control measures for migrant people, seasonal workers and people involved in swidden field for agriculture, border malaria and malaria elimination.

- New highly effective antimalarial drugs.
• Strengthening the supervision and management of the drug quality, particularly at private sector to ensure the Viet Nam standard quality of the drugs used.
• Capacity building to conduct research and fill knowledge gaps: Technology transfer and exchange of experiences and experts’ training. Organize periodically scientific meetings to share experiences and to publish the results of researches and to apply them in the malaria control.

**Other sources of routine data:**

The NCMP will also use Activity, Performance Reports and Supervisor Reports as sources of routine data and information.
Data Flow and Use

The flow of information in the health information stems

Description of data flow through health information system

Figure 1: Flow of information. Arrows represent monthly reports
6. IMPLEMENTATION OF M&E PLAN

Overview: summary of key components

The implementation of the national M&E plan requires sound data management

Monitoring and evaluation of malaria programme

Routine data management

NMCP will support routine data generation from all sources; surveillance system strengthening; minimal analysis at all levels; track data flow from public, private facilities and community levels; and integration of malaria data into National Health Information System (NHIS).

Periodic data management

NMCP will prepare a list of surveys and periodic evaluations e.g. DHS, MIS, MICS, Program reviews, GF and other project evaluations; support proposal development; conduct of surveys and periodic evaluations; develop Operational Research agenda and support implementation as necessary; Support survey reporting and dissemination; and Advocate for survey results use.

Special Studies

Special studies such as Therapeutic Efficacy Studies (TES) and Insecticide Resistance Monitoring will be conducted at the sentinel surveillance sites.

Monitoring and Evaluation Program Management

Coordination of M&E activities: Roles and responsibilities

Within and outside of the NMCP, focus will be on the following: Buying into the finalised, costed M&E Plan through a consensus process by all stakeholders; Establish and support M&E Working Group (including Terms of Reference) at all levels; Standardising relevant tools (manuals, checklists, etc); Organising coordination / review meetings and implement actions as recommended; and Participation in Regional M&E Network activities

Capacity building in M&E

To ensure sustainability of the M&E efforts, NMCP will use capacity building strategies including tools development and harmonization, application of IT solutions, staff training during orientation workshops at regional, national, provincial, district and commune levels; and supportive supervision; refresher in-service trainings; on-the-job trainings to
strengthen local capacities on M&E. As and when required, new tools and technologies will be developed and introduced. NMCP will ensure that monitoring and evaluation tools are developed with the participation of all stakeholders.

**Data Use for Decision-making and Communication**

Communicating results (Reporting, Dissemination and Provision of feedback): NMCP will document and disseminate to relevant partners (national, state and local) the lessons learned from the malaria control program activities. In collaboration with partners, it will use standardized and participatory methodology to monitor, assess and improve performance in both public and private sectors.

**Reporting for M&E**

The NMCP results will be reported in Annual MNCP Reports, GFATM reports and other donors’ reports. The results will also be included in the Global Malaria Report.

**Annual M&E Workplan Development**

A costed annual workplan has been developed (see Annex X) as a part of the M&E plan development process. This workplan details

**Advocacy and sustainability**

**Financing for the Monitoring and Evaluation plan**


ANNEXES

Documents available

1. Final Draft of Malaria control and elimination in Viet Nam 2011-2020
2. M&E Plan for Malaria Control Project (Global Fund)
3. Reporting forms for National Malaria Control Program

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1 National Strategy for Malaria Control, Prevention and Elimination in Viet Nam for 2011 to 2020 and a vision towards 2030
2 Regional Action Plan for the Control and Elimination, where visible of malaria in the Western Pacific Region, 2010 to 2015
3 Hiroshi Ohara and Yasuyo Matsumoto, International Medical Center of Japan. October 2009. Assessment of health systems in relation to interventions between disease specific programs and health systems strengthening in Viet Nam
4 Wikipedia November 2010.
5 WHO World Malaria Programme World Malaria Report 2010
6 Regional Action Plan for the Control and Elimination, where visible of malaria in the Western Pacific Region, 2010 to 2015