MONITORING - EVALUATION PLAN MALARIA PREVENTION & CONTROL THE REPUBLIC OF THE UNION OF MYANMAR 2010-2015

DISEASES CONTROL & PREVENTION,
THE MINISTRY OF HEALTH,
THE REPUBLIC OF THE UNION OF MYANMAR

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TABLE OF CONTENT

Abbreviations

AMT	Artemisinin Monotherapy
ACT	Artemisinin-based Combination Therapy
BHS	Basic Health Staff
DHP	Department of Health Planning
DMR	Department of Medical Research
DQA	Data Quality Assurance
EDAT	Early diagnosis and appropriate treatment
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HA	Health Assistant
HMIS	Health Management Information System
IRS	Indoor residual spraying
ITN	Insecticide Treated Nets
LLIN	Long-Lasting Insecticidal Nets
M-CCM	Myanmar Country Coordination Mechanism
MARC	Myanmar Artemisinin Resistance Containment
M&E	Monitoring & Evaluation
MW	Midwife
MIS	Management Information System
NGO	Non-Governmental Organization
NMCP	National Malaria Control Programme
RHC	Rural health center
RDT	Rapid Diagnostic Test
S/R	State/Region
SDP	Service Delivery Point
TL	VBDC team leader
TMO	Township medical officer
TSG	Technical Strategic Group
TSP	Township
VBDC	Vector Borne Diseases Control
VHV	Volunteer Health Volunteer
WHO	World Health Organization

1. Background

Malaria is still today a leading cause of morbidity and mortality in the Republic of the Union of Myanmar. Progress in the fight against the disease has been made yet malaria still poses a major burden for the society and the health system.
The malaria burden is particularly high in the remote forested areas to where transport of supplies is difficult and from where collection of data and information is challenging. Additionally, there is growing national and international concern of the spread of antimalarial drug-resistance in Myanmar.

The Vector Borne Disease Control (VBDC) is a vertical programme under the Department of Health, Ministry of Health. The malaria control strategy in Myanmar is in accordance with the Global Malaria Control Strategy promoted by WHO and adopted at the Ministerial Meeting in Amsterdam in 1992.
The four elements in the strategy are:

1) To provide early diagnosis and prompt treatment of malaria, wherever it occurs.
2) To plan and implement selective and sustainable preventive measures, including vector control.
3) To prevent, detect early, or contain malaria epidemics.
4) To strengthen local capacity in basic and applied research to permit and promote the regular assessment of countries' malaria situation, in particular the ecological, social and economic determinants of the disease.

The overall goal of malaria control in Myanmar is: To reduce malaria morbidity and mortality by at least 50 per cent by 2015 (baseline: 2007 data), and contribute towards socio-economic development and the Millennium Development Goals.

The aim is to achieve this through the following objectives:

- By 2015, at least 80% of the people in high and moderate risk villages in 284 malaria endemic townships (212 priority townships) are protected against malaria by using insecticide-treated nets/long-lasting insecticidal nets complemented with another appropriate vector control methods, where applicable.
- By 2015, malaria cases in each township receive quality diagnosis and appropriate treatment in accordance with national guidelines preferably within 24 hours after appearance of symptoms.
- By 2015, in 284 malaria endemic townships (270 priority townships) the communities at risk actively participate in planning and implementing malaria prevention and control interventions.
- By 2015, the Township Health Department in 284 malaria endemic townships (270 priority townships) are capable of planning, implementing, monitoring and evaluating malaria prevention and control programme with management and technical support from higher levels.

The Vision

By 2015…
The Republic of the Union of Myanmar is on track to achieve the malaria-related Millennium Development Goals. Malaria mortality is below 25% of the 2005 level, and that malaria is no longer a barrier to socio-economic development.

All patients with malaria symptoms have access to early diagnosis and effective treatment. All people living in areas of malaria risk are able to protect themselves to reduce that risk. Malaria outbreaks are prevented or effectively controlled.

Those communities, where the malaria risk cannot, for ecological reasons, be eliminated, have the knowledge and capacity to implement malaria prevention and control interventions, thanks to the continued efforts of their leaders and health services, and support from government, civil society and development partners.

The State, Regional and Township Health Departments plan, implement, monitor and evaluate malaria control interventions with the Vector Borne Disease Control (VBDC) Programme determining policies and strategies, organizing training sessions, providing oversight and implementing surveillance, monitoring and evaluation activities at national level.

National Research Institutions develop and evaluate novel control tools and implementation strategies, and with the VBDC Programme regularly exchange findings and know-how with countries with similar problems.

Political will to control malaria at all levels and in all sectors concerned is based on a thorough understanding of the problem and its social and economic dimensions, the risks of resurgence and the benefits of sustained control. In a spirit of partnership and solidarity, the international community provides essential support to strengthen the national response against malaria, led by the Ministry of Health.

2. Introduction

Monitoring is a regular, systematic process of measuring performance against set targets and benchmarks in a programme, while it is ongoing. Evaluation periodically assesses current versus desired performance standards and seeks to analyze whether the needs are met as envisaged and whether any gap, bottleneck encountered so as to further improve performance in similar or different contexts. A robust M&E thus, are imperative for VBDC. Through M&E, the programme performance, results are measured through a coherent framework (input, process, output, outcome, impact) which then provides the basis for accountability and evidence-based decision making at both programme and policy level.

Recognizing the importance of M&E, the VBDC with technical support from the WHO has developed a comprehensive national M&E plan. Discussion in a national stakeholder workshop on *M&E systems strengthening* has provided inputs in preparation of the draft. The M&E plan describes the following: logical framework, description of the indicators devised to measure the programme performance, their data sources, data collection methods and tools, reporting frequencies; programmatic and data quality assurance; reviews and evaluations, surveys and studies; information products for results dissemination; training/ capacity building on M&E; and coordination.

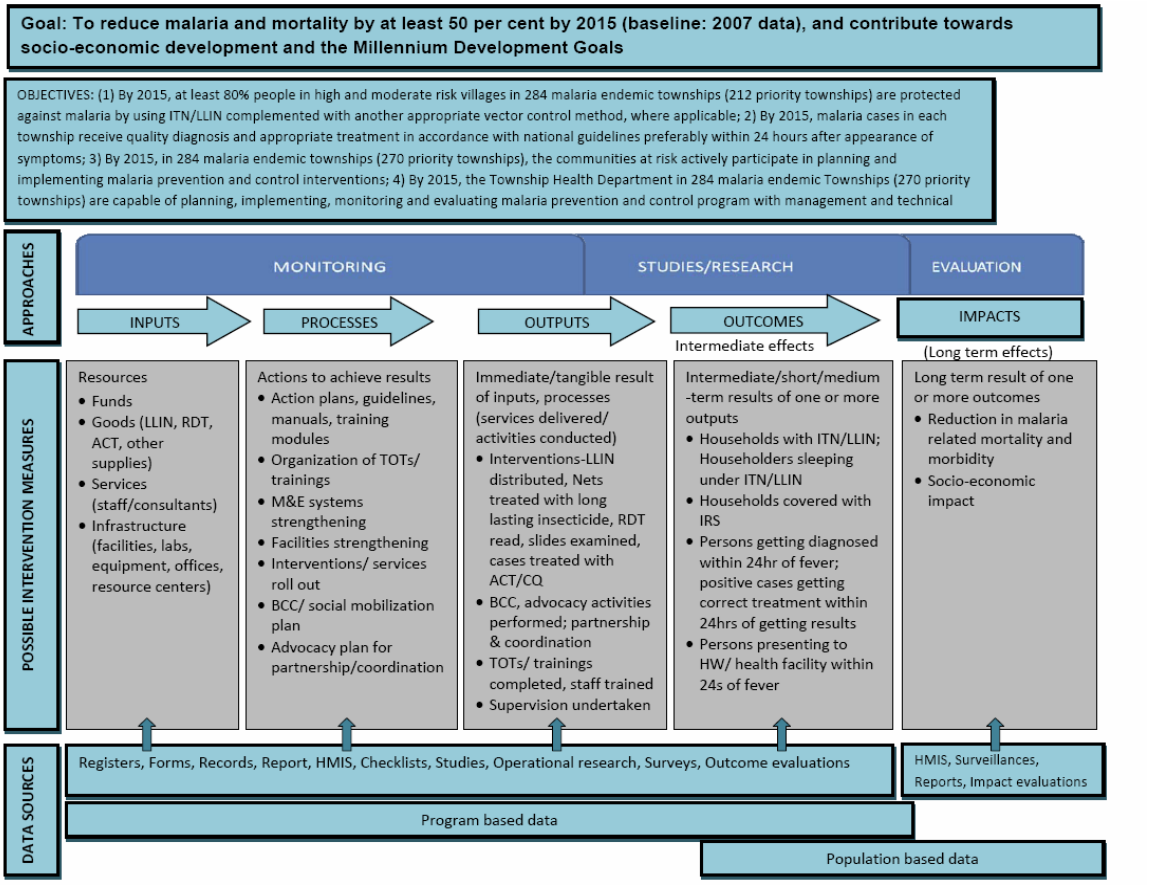
The purpose of the national M&E plan is to provide guidance on programmatic, logistics and financial M&E within and across implementation levels towards improving programme performance, institutionalizing M&E capacity and foster the critical need for establishing 'ONE agreed country level M& E system' across various in-country partners.

The national M&E plan is dynamic and open to refinements over the years as the strategic approaches for malaria control gets modified/ adapted to the country/ regional requirements.

In 2011 following the rolling out of Myanmar Artemisinin Resistance Containment (MARC) project the new indicators specific for MARC have been incorporated into the national M&E plan

3. Monitoring and Evaluation Framework

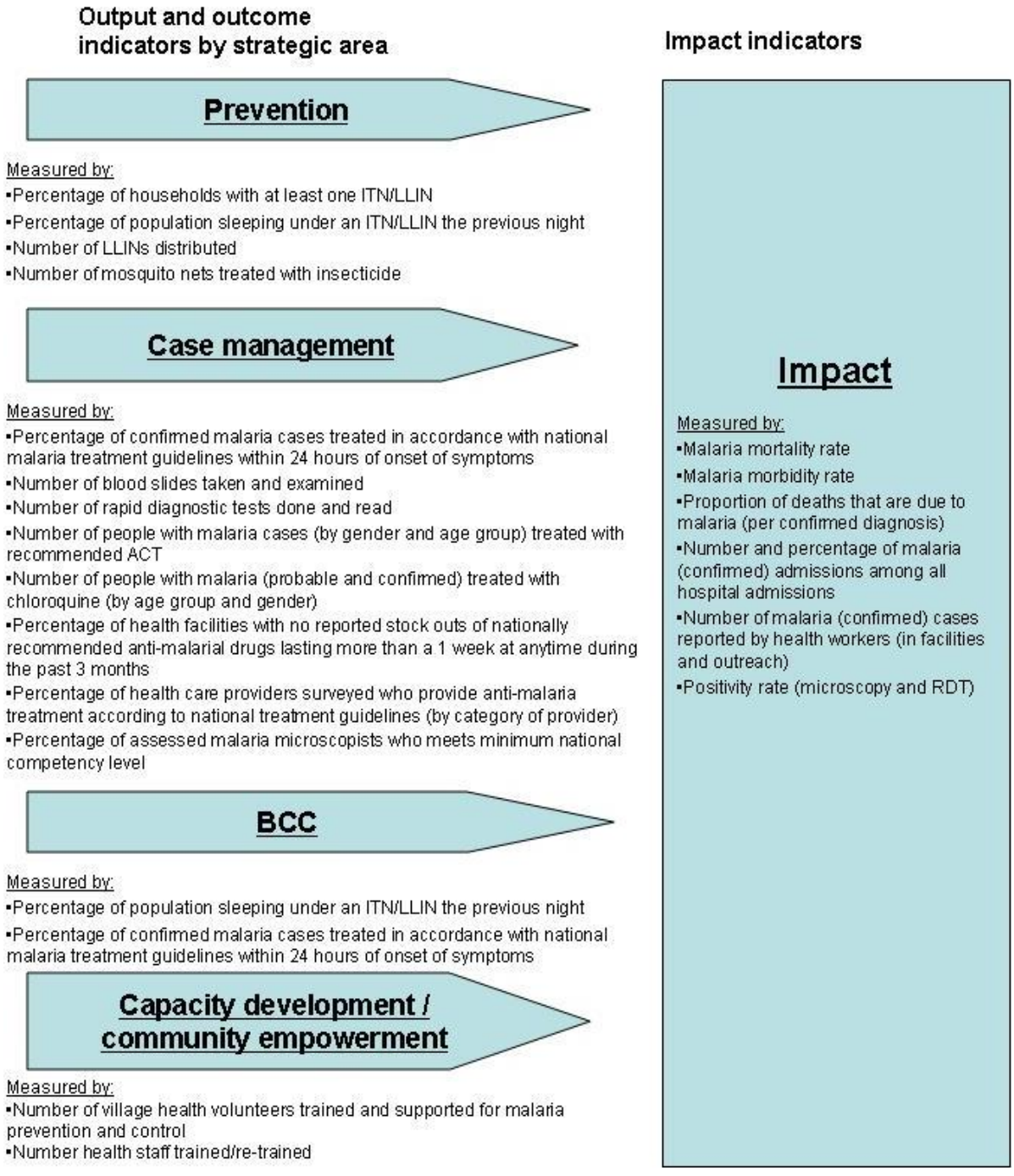
The tenants of the M&E framework are drawn from the National Strategic Plan 2010-2015. The framework assists in understanding the inputs (resources invested), processes (activities planned/ being carried out) outputs (interventions applied/ services delivered/ activities carried out relative to plan), outcomes (desired results related to objectives), impacts (desired effects related to goals). A thorough situation analysis/ assessment of needs and capacity; review of resources/ logistics, collaborative planning, etc. as in addition to application of relevant approaches and methods are necessary to measure these elements. The framework allows for consideration of various malaria control interventions and delivery strategies and choice of indicators, methods or sources of data collection. An M&E framework for VBDC is illustrated below as a schematic that indicates an overview of inputs, processes, outputs, outcomes, impacts as well as links between the goals, objectives and outcomes, impact. Details on the indicators chosen can be seen in the next part.



3.1. Indicators

The indicators listed in the National Strategic Plan 2010-2015 measure the effect of intervention in the different strategic areas set out in the plan. The indicators are international recognized indicators recommended by WHO and GFATM. Several new

indicators specific for Myanmar Artemisinin Resistance Containment (MARC) operation have been integrated into the indicator list.
The figure below shows the output and outcome indicators under different strategic areas and the impact indicators expected to capture longer term effects of the interventions.



A description of each indicator can be found in **Annex 1.**

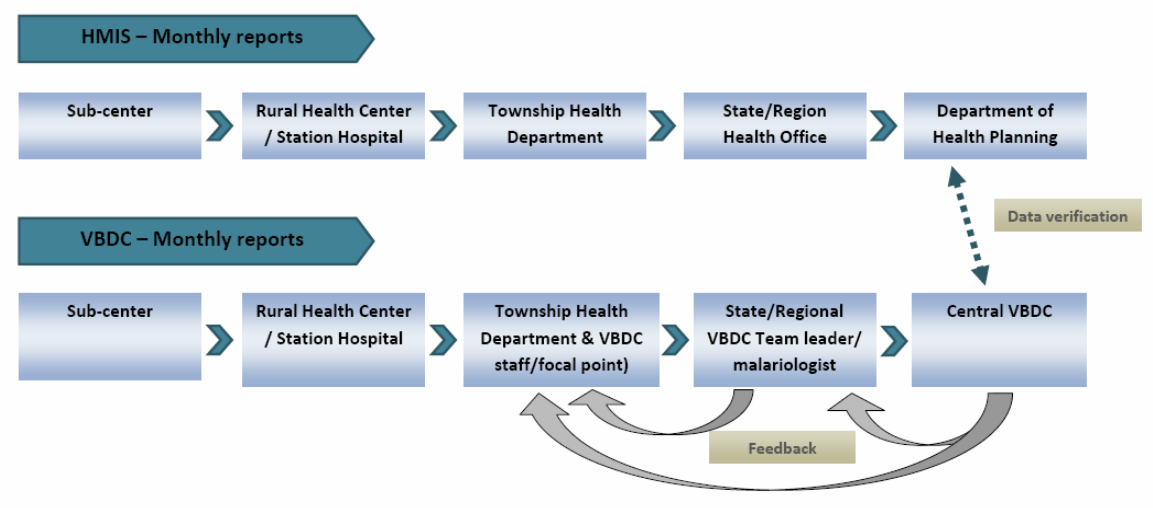
4. Routine data collection, analysis and reporting

4.1. Routine programmatic data collection, aggregation, analysis, reporting and feedback

A fully functional routine recording and reporting system is very important to target interventions and for monitoring of progress. Routine data related to implementation of malaria control interventions like case detection and treatment, insecticide treatment of bed nets, LLIN distribution, IRS application (as appropriate and planned) are collected and reported on monthly basis by the service delivery points on standardized registers/ forms. From 2009, the malaria case register (carbonless) was available in the public health facilities in 11 States/Regions and 100 townships in the country. From January 2011, 226 townships in (14) States and Regions use such register to collect routine data. Since January 2011, all townships that use the 'Nga Pha' (malaria) series form discontinued to use this forms. The forms used can be seen in **Annex 2**. However, changes in these forms may be done when deemed necessary.

The malaria register collects detailed information including information on age groups of the patients, how the patient was diagnosed, when treatment was sought and what treatment was given. Information for a limited number of malaria indicators are also collected through the HMIS. Though it is recognized that parallel systems of data collection is not ideal, the data collected through the HMIS is not adequate to supply the VBDC with the information needed to manage the programme.

The data flow is shown below.



The routine data from the health centre are transmitted to the township health department before 5th of each month. This is done at the monthly meeting at the township where all BHS comes to get their salary, pick up new supplies and hand in forms and registers. Levels below the township will not normally prepare specific malaria reports.

At the township level, the routine data are checked and aggregated manually to prepare a monthly report on programmatic indicators, trainings, as well as stock and flow of commodities and sent to the State/Region by post. In addition, each township in January-February prepares an annual report including an evaluation of the activities of the past year, and their outcomes and impact. This analysis then becomes the basis for a reassessment of the situation.

At the State/ Regional level, data from the township using the carbonless malaria registers is computerized. Thus, it is envisaged that from January 2011 data from all malarious township will be computerized. The data is also checked for obvious mistakes and inconsistencies. Thereafter, the computerized data is saved on compact disks (CDs) and posted to the central VBDC and WHO.

Routine data related to malaria control interventions from NGOs are required to be submitted to the township level. This remains a challenge. Presently, only data from a few NGOs are available at township levels. The data from the non-government sector are not integrated with the data reported from the public sector. With strengthening of systems and coordination, the VBDC plans to request routine data on regular basis to get a more comprehensive picture, to prioritize actions and avoid duplications.

On the basis of the reports and its own activities, the VBDC prepares its quarterly report, which is shared with higher levels in the MOH as well as the Technical Strategic Group (TSG). The VBDC prepares an annual report based on the quarterly reports. It includes a thorough assessment of the malaria control activities in the country. It is envisaged that routine data from the partners will be integrated in the report. This report will become a main tool for re-planning, advocacy and resource mobilization.

Feedbacks from the central level to state/ region and to township levels and from state/ division to township level are in general provided within 4-6 weeks of the reporting month or earlier if necessary. Feedbacks are also provided during the supportive supervision visits on site and/ or within one month of the visit.
Data flow for the 9th Round GFATM and MARC (the Three Diseases Fund) projects are shown in **Annex 2**

4.2. Data collection and reporting tools:

The tools for data collection and report are available in the country for case register and reporting including prevention activities as follows:

Activity	Tools
Early diagnosis and appropriate treatment (EDAT)	• Malaria Register o will cover all Sub-centres & RHCs o laboratories of Township/ District Hospitals • Monthly Report on Malaria Morbidity & Mortality • Monthly Reporting on Laboratory diagnosis & RDT • Monthly Report on Malaria Morbidity & Mortality of <5yr and pregnant

Activity	Tools
	women.
Malaria prevention	• Reporting Formats for LLIN distribution • Reporting Formats for ITN impregnation
Malaria epidemic	• Reporting Formats for Epidemics (if Any)

Reporting forms can be seen in **Annex 3.**

4.3. Data storage

The paper based data in township and lower levels of reporting are stored in cupboards; while in States/Regions and national level, data are stored in CDs. All programmatic and financial data are maintained for eight years for review, audit purpose. The data management SOP that is planned will provide clear instructions on data storage.

5. Surveys, Studies and Operational research

In the period 2010-2015 a number of studies, surveys and operational research have been planned to complement the information collected routinely.

5.1. Surveys

Surveys are primarily done to estimate the effects of interventions and get information on the need for further or adjusted interventions. The protocols and the questionnaires for the surveys will be developed by the national programme with technical assistance from WHO but will be brought to the Technical Strategic Group (TSG) for consensus. The national programme will take the lead in carrying out the surveys. However, where appropriate, the subcontracting of surveys can be done to NGO in the areas in which they are present.

Surveys that have envisaged for 2010-2015:

- Surveys of mosquito net ownership, usage, washing practices and insecticide treatment coverage is to be carried out by midwifes in 400 villages annually starting from 2011. The purpose of this survey is not only to gain knowledge of the net ownership and usage but also to get information on the local net washing practices and insecticide treatment coverage. The washing practices affect the durability of the insecticide coverage and knowledge thereof is importing for the programme planning.

- Annual surveillance of drug quality to be carried out by the Food and Drug Administration (FDA) in collaboration with VBDC and other partners. The purpose will be to detect fake, sub-standard drugs and counterfeit drugs and enforcement of regulations to address fake and counterfeit drugs. Ineffective anti-malarial drugs, those that do not comply with registration and national standards and those that are not in line with the national malaria treatment policy will be recommended for de-listing. Artemisinin monotherapy that has been banned by MOH will also be monitored through drug outlet surveys

- Stratification surveys to be carried out over the next five years including an update of the stratification guidelines in 2011. The purpose is to ensure an updated knowledge of the malaria risk in the targeted townships to assist in the programme planning.

- Community based surveys are to be carried out every year starting from 2011. The purpose of the cross-sectional population surveys will be:
    - Malariometric data combined with recording of recalled fever and treatment-seeking behaviour during latest 14 days to assess malaria burden and completeness of surveillance.
    - Mapping of risk behaviour.
    - Assessment of access to diagnosis and treatment.
    - Coverage with ITNs/LLINs or other vector control methods.

- Malariometric surveys focusing on the prevalence of fever, malaria parasites and enlarged spleens are carried out both to study the development of malaria in an area over a longer period or to measure the impact of a specific intervention.

- Health facility survey every year starting from 2011. The purpose of health facility surveys will be:
    - Assessment of adherence to the national treatment guidelines
    - Assessment of quality and availability of care.
    - Assessment of facility activities for malaria prevention and control including BCC.
    - Assessment of supervision.
    - Assessment of community and intersectoral involvement.

The health facility surveys will be supplemented by annual special monitoring of service providers. The monitoring aims to focus on adherence to policy by the service provider.

5.2. Studies

The studies planned for are focused on the efficacy of antimalarial drugs and vector resistance to insecticides. The outcome of the studies can effect the further programme planning as guideline might need adjusting and interventions modified.

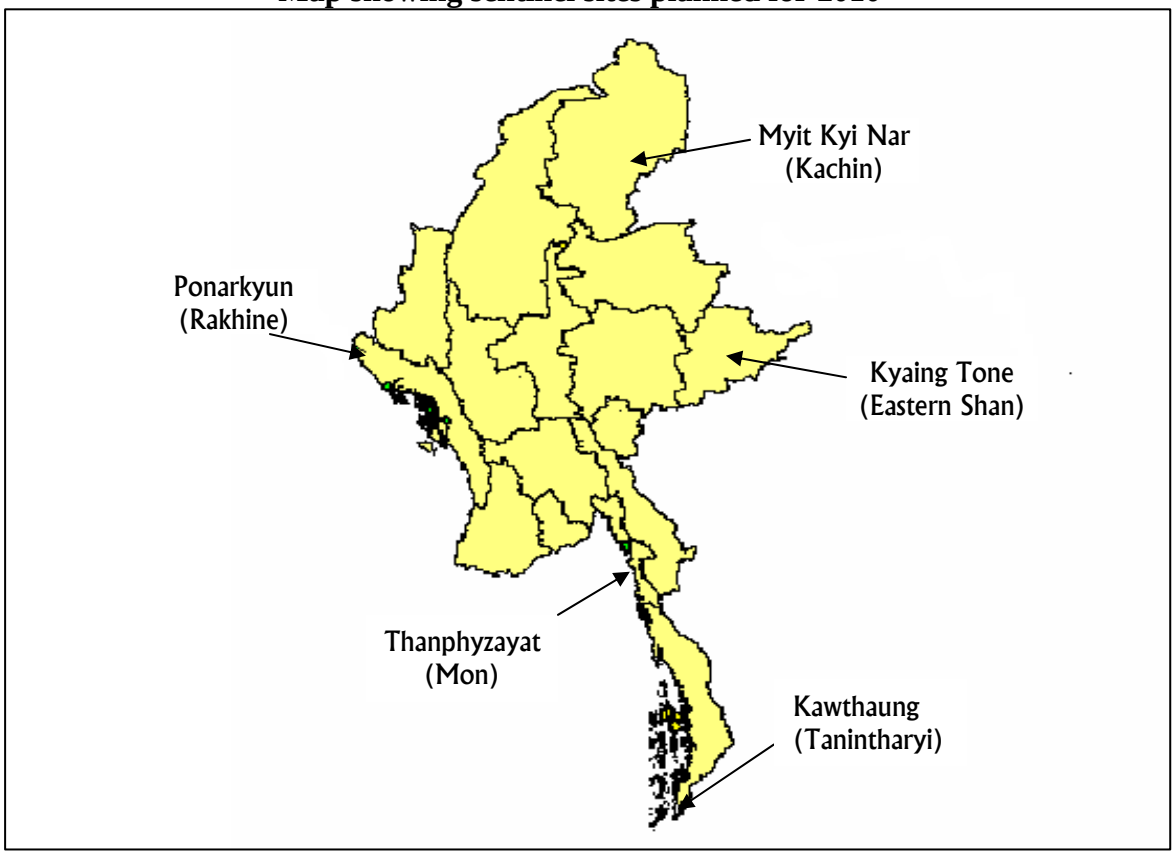
5.2.1. Anti malarial drug efficacy

The two most common species of Plasmodium are *P. falciparum and P. vivax* with occasional reports of *P. malariae and P. ovale.* The fifth human malaria parasiste, i.e.. *P. knowlesi* has been reported. *P. falciparum* accounts for approximately 70% -80% of all malaria cases in Myanmar. The development of resistance of *P. falciparum* to chloroquine and sulphadoxine-pyrimethamine led to the introduction of Artemisinin-based Combination Therapy (ACT). However, in recent years an increasing number of treatment failure cases to artesunate-mefloquine combination as well as artemether-lumefantrine (Coartem®) have emerged in western Cambodia and south-eastern part of Thailand. Myanmar nationals are among the miners of gems in western Cambodia. Resistance strains can thus be carried by people from Cambodia to the Thai-Myanmar border. This risk is augmented by limited quality control done for a wide variety of antimalarials, accessible as monotherapy through the private sector. Therefore, the risk of parasites resistant to ACT spreading in Myanmar is very high if action is not taken to

contain the situation. Hence, surveillance of parasite resistance and effective malaria control in Myanmar are of the greatest importance

With the support of WHO Myanmar, the Mekong Malaria Programme and the Global Malaria Programme (GMP/HQ), therapeutic efficacy studies are carried out in sentinel sites annually, using WHO standard protocol. The sites are identified as sentinel sites in areas where a decrease in anti malarial drug efficacy is suspected to have developed or where there is an increased risk of the development of anti malarial drug resistance. At present there are seven existing sentinel sites in Tanintharyi Region, Mon State, Eastern Shan State, Kachin State, Rakhine State and in Bago Region and they are being monitored every other year by Department of Medical Research (Upper Myanmar), Department of Medical Research (Lower Myanmar) and the Defence Services Medical Research Centre of Ministry of Defence. At the sites, studies are being done to determine if there are occurrences of *P. falciparum* resistance to ACTs or *P. vivax* resistance to chloroquine. Concerns over signs of tolerance to ACTs have furthermore led to an artesunate mono-therapy study to be done in Kawthaung in 2010. The map below show the sentinel sites in 2010.

Map showing sentinel sites planned for 2010



5.2.2. Vector resistance

Monitoring of the vector susceptibility to insecticides in sentinel sites is of high

importance for the continued programme planning. Data from 1997 showed that vectors are sensitive to pyrethroids and organophosphates whilst resistance of *An. annularis* to DDT has been documented in the Rakhine State. To update the knowledge on vector resistance in Myanmar, annual studies has been planned for 2011-2015. From these studies, the appropriate dosage required to kill 50% or 90% of mosquito populations can be calculated and be able to detect any changes in percentage mortality over a period of time as well as occurrence of resistance in the field. Also, the residual efficacy of insecticide on bed nets will be monitored. Bioassay will be done by checking mortality of the target mosquito vector exposed for three minutes to insecticide-treated nets.

5.3. Operational research

In addition to surveys and studies, VBDC also has plans to carry out operational research. The aim of the operational research is to improve implementation of existing tools, and to test new tools and approaches that will respond to the needs for malaria control among high risk groups such as internal migrant workers, forest related workers and ethnic communities. The operation research planned for at present is:

- Operational research to study locally appropriate strategies for vector control and personal protection. This research will focus on groups where the use of ITNs/LLINs or IRS might not be suitable. These groups could include rubber plantation workers and forest workers.

- Operational research to find locally appropriate strategies for maximizing utilization of diagnostic and treatment services. To control malaria, diminish the number of severe malaria cases and reduce self-treatment with AMT it is needed to research ways of affecting treatment seeking behaviour and increase knowledge on malaria.

- Operational research on ways to promote use of recommended ACT in preference to AMT in the private sector. The use of AMT poses a big risk for the continued effectiveness of artesunate drugs. It is therefore both of national and international importance that the use of AMT is significantly reduced.

6. Information products

The VBDC aims at preparing information products like annual reports, quarterly progress reports, etc. Such documents will be disseminated amongst the partners, as appropriate.

7. Programme review and evaluation

7.1. External programme review

The main aim of an external review is to improve the effectiveness of the malaria control programme. The objectives of the external programme review will be:

- To review malaria epidemiological trends
- To evaluate the achievement and adequacy of malaria prevention and control in reducing the mortality and morbidity and surveillance activities;

- To evaluate the contribution of developmental partners, private sector and communities in malaria control programme;
- To review the national policy and strategy in malaria control programme
- To provide guidance for strengthening organizational, technical and administrative measures in scaling up the programme

The National Malaria Control Programme will work closely with WHO and ensure that other partners including other UN agencies and NGOs are involved in the review.

The benefits of a review are:

- The review will help to improving the effectiveness of the malaria control programme
- The result of the review can used for advocacy to decision makers and donors for sustained support to the control programme
- The review can help enhance partnerships between partners
- The review can help focus on the future needs for optimal programme management

An external review is planned for the third quarter of 2012. This will review phase one of the Global Fund project and help prepare and make the necessary adjustment for phase two. Other major projects and national responses such as the artemisinin resistance containment, etc. will also be review. The second external review is planned for 2016-2017.

There are many aspects of malaria control programme that can be considered during a review. The key component of a programme review can be seen in **Annex 5.** The Ministry of Health will in the preparation for the review make sure that the review is designed to fit country-specific situation.

The preparatory steps for the external review will be as follows:

- Decide on technical assistance from WHO and other major stake holders
- Develop specific objectives of the review
- Develop terms of references
- Decide the number and constituent of international and national experts
- Identify team leader (chair person) and chief rapporteur for the review
- Organize a working group that is responsible for coordinating and facilitating the work.
- Prepare background documents and presentation for review

In conducting the review the following steps will be as follows

- Document review
- Presentations by programme staff and other stakeholders
- Field visits to various institutes related to malaria control
- Interview national staff, stakeholders, community leaders and clients
- Consolidate findings
- Formulate practical recommendations
- Presentation of key findings

- Report writing

After the review it will be planned how the recommendations made by the review team, will be followed up.

7.2. Annual programme evaluation

Regular evaluation is important to ensure both that implementation is going as planned and to enable any necessary changes in the planning. The main forum for the evaluation activities will be annual evaluation meeting that will be conducted at the Central, and State/Region. The following meetings have been planned for:

Annual evaluation and planning meeting at Central level:

Annual evaluation and planning meeting at central level is organized by VBDC. The participants will include: state/ region, VBDC team leaders, township officers and representatives from partner organizations. The key purpose of the meeting will be:

- To present and discuss data from all partners
- To present and discuss activities done by all partners
- To indentify gaps and strengthening measures
- To strengthen coordination and information sharing
- To share best practices
- To plan for the coming year

Annual evaluation and planning meeting at State/Regional level:

Annual evaluation and planning meeting at state/regional level is organized by the State/Regional Health Director/ VBDC. The participants will include: VBDC staff from all levels, TMOs and partner organizations. The purpose would contain those included at the central level but the discussion will be more focused on the situation in the townships and guidance will be given from the central VBDC as needed.

In addition to these, quarterly meeting at township level on malaria activities and evaluation and planning meetings at township level with VHVs involved both in prevention and case management have also been included in the plans.

8. Supervision and quality assurance

8.1. Supportive supervision

The purpose of supportive supervision is to help sustain the knowledge and skills of health staff and volunteers, to identify and resolve constraints, ensure rational use of RDTs and drugs, collect reports and provide feedback, etc.

Supportive supervision focus on meeting staff needs for management support, logistics, and training. Using short checklists helps the supervisors to provide guidance on the technical aspects, evaluate the services given and assess needs of the service provider/health facility. At present the following supportive supervision are planned for 2010-2015:

- Supportive supervision and routine monitoring by central level staff.
- Supportive supervision and routine monitoring by States/Regional level.

- Supportive supervision and routine monitoring by Township level
- Supervision and monitoring of VHVs by BHS and VBDC staff

Standardized supervision/observation checklists have been develop for supervision and can be seen in **Annex 4.**

Central Level supervision:
Central level staff (Programme Manager, Assistant Director and Assistant Malariologist) will visit each state/region at least annually and provide assistance and feedback according to findings of the visits.

State/Regional Level supervision:
State/Regional level supervisors will supervise and monitor the township. The plan is to visit all targeted townships at least annually and provide assistance and feedback according to findings of the visits.

Township Level supervision:
Township level supervisors will supervise and monitor the field level activities.

8.2. Quality assurance

8.2.1. Quality assurance of programme implementation:

VBDC staff will monitor the quality of the malaria control programme at all levels to ensure the service providers adherence to national policy. This will primarily be done through supportive supervision as mentioned above.

8.2.2. Quality assurance of laboratories:

A quality assurance system will be sustained by supporting national consultants, training/ re-training, supportive supervision, equipment and laboratory supplies. Yearly training and re-training of microscopists will be done by national trainers certified as *experts or trainers.*

9. Data Quality assurance

The role of a data quality assurance (DQA) system is to validate the quality of data and thereby provide information on possible needs to improve the reporting system and help inform decision makers on the extent to which data can be relied on to plan future interventions. Data quality assurance is different both in methodology and purpose from programmatic quality assurance. It is not the role of DQA to look at whether the programme implementation is according to the plan or if the target is reached. Instead, DQA focus only on the quality of the recorded, reported and aggregated data and seek to quantify the errors.

There are different dimensions of data quality. To ensure appropriate targeting and planning it is crucial that data is **precise, complete, timely, reliable and accurate**. Furthermore, it is important that the data has **integrity** to be considered credible. Each of these dimensions is described below including a description for how it is to be achieved.

Precise data is data that measures what it intents to measure with sufficient details. For instance, if data is required to be disaggregated by certain age groups, the recording forms needs to be accordingly adapted. To assure that this is the case, standard forms have been developed that record the data needed for programming and reporting. These forms will be adjusted and updated if needed.

Complete data is data that gathers information from the complete number of service providers and patients. Assuring that the total set of data is collected each month is a big challenge. Programme staff, with support from partners, will ensure that the desired level of completeness is achieved through visits to townships and health facilities and through working towards improved communication infrastructure.

Timely data is up-to-date and available when needed. A number of surveys and studies are planed to ensure updated information. The national programme is in the process of a computerization of the data from tate/regional level to improve the timeliness of the routine data.

Reliable data is data that is not biased by who collects it. To make certain that data is reliable, standard forms and guidelines are to be used and all staff must be trained in data recording. The TSG and WHO will assist in developing protocols and questionnaires for surveys.

Accurate data is data where errors have been minimized to a point of being insignificant. Likewise it is important that data has **integrity** is data where there is no deliberate bias. Lack of reliable, accurate data that has integrity can be caused by mistakes or misunderstandings at different levels of the reporting system. The figure below shows the different task relating to data.

Service Delivery Point	**Data tasks** • Monthly **reporting** of routine data (patient data and supply data) in malaria case registers • **Reporting** of non-routine data such as distribution of LLINs
▼ **Township Health Department**	**Data tasks** • **Reporting** of non-routine data such as training of BHS • Monthly **aggregation** of routine data on morbidity and mortality from Service Delivery Points in town • **Aggregation** of non-routine data such as data on distribution of LLINs
▼ **State/Regional Health Department**	**Data tasks** • Aggregation and computerization of data registered in the malaria case registers from the service • Aggregation of non-routine data such as the distribution of LLINs
▼ **Service Delivery Point**	**Data tasks** • **Aggregation** of computerized routine data as sent from the State/Region • **Aggregation** of non-routine data

The DQA system consists of different components:

1. Logical cross-check of data

2. Re-aggregation at the State/Regional and Central level
3. Field visit to townships and Service delivery points (SDP) for DQA
4. Ensuring adequate storing of data
5. Identification of training needs

Component 1 - Logical cross-check of data

The data recorded and computerized will be checked monthly for inconsistencies such as an unlikely number of drugs used compared to the number of patients and feedback will be given to the townships. A standard list of logical test is being developed to ensure consistency and easy reporting.

Component 2 - Re-aggregation at the State/Regional and Central level

Quality checks of the aggregation and computerization of routine data at the State/Regional level will be done quarterly either by visiting central level VBDC staff or by the State/Regional VBDC staff. The check will be done by randomly choosing one or two townships[1] in the States/Regions and re-aggregate all reported data from the SDP in this townships. The results will be reported to the central level as:

a) The number of SDPs where the aggregation for a given recorded data item was wrong compared to the total number of SDPs checked (for instance: for 4 out 35 checked SDPs, the aggregation for the total number of patients was wrong)
b) The total accumulated error for a township for the given reported data (for instance: a total of 305 recorded malaria patients versus a total number of 285 reported)

Quality check of the aggregation of non-routine data will be done at the same time as the quality check for the routine data if applicable (i.e. if activities such as training, LLIN distribution or ITN impregnation have occurred in the past quarter). The results will be reported as:

a) The total number of recorded trainees trained/LLINs distributed/ITN impregnated versus the number reported.

Standard forms will be developed together with detailed guidelines to enable easy and consistent reporting of the findings.

Component 3 - Field visit for DQA

Field visit will be conducted aimed at getting information on the quality of the data recorded and reported.

Field visits aimed at assessing the data quality should be random, meaning that all townships/ SDP should have equal likelihood of being visited. However, as resources for DQA is limited, the majority of the DQAs will be done as part of the regular supervision visits to the townships and service delivery points.

[1] Number of townships checked depends on the number of SDP in the township. The aim is to check the aggregation of 30-40 SPDs

At the township level the following checks will be done:

- It will be checked that data is stored properly
- Routine data from one month is chosen and re-aggregated and reported as the data re-aggregated at the State/Regional level. Additionally, it will be checked if the required data items are recorded.
- The reported stock will be checked against the stock book and what is in the store.
- If training has occurred then staff on the training list is asked if they have received the reported training.

At the SDP/community level the following test will be done:

- When possible, a number of the malaria patients listed are tracked and it is checked if the information recorded is correct.
- The reported stock will be checked against the stock book and what is in the store.
- If for instance LLIN distribution has happened, a random sample of beneficiaries will be asked if they have received LLINs as reported

Component 4 - Ensuring adequate storing of data

Adequate storing of data at all levels is important to ensure that data is available for validation. Ensuring that data is stored correctly is done through provision of clear instructions and supervision visits.

Component 5 - Identification of training needs

The components listed above will inform the programme on any problems and help identify any needed training to solve these issues.

10. Strengthening Capacity for M & E

Capacity development of staff on programmatic areas is an ongoing activity under VBDC. The country strategic plan includes training/ capacity building of township level staff using a comprehensive curriculum including M&E.

For strengthening M&E, review of existing capacity of the staff and infrastructure and a rapid capacity needs assessment will be carried out across townships, state/ region and central levels of the programme and will be translated into a M&E training plan for the target group. The purpose is to institutionalize M&E capacity within the VBDC. Subsequently, capacity building plans including learning objectives based on needs assessment, agenda, modules, facilitator guides, pre- and post-tests, checklists for overall assessment of training and trainers will be developed centrally and disseminated at state/ division and township levels for use. Necessary technical support will be sought from the partner organizations.

The pedagogy will focus on *active learning approach* with spirited contributions from the participants and aim both at knowledge and skill development. The approach will be executed through structured formats as, lecture (supported by presentations, reading materials/ hand-outs), discussions, and *"hands-on"* group exercises involving data recording/ reporting/ aggregation/ analysis and use as well as M&E with performance indicators (example, preparation and presentation of M&E framework with indicators,

etc). Therefore, 50% time will be spent in classroom sessions—for building theoretical understanding; and the other 50% will be focused on building skills (as appropriate for a specific target group).

The M&E training sessions will be tailor made for specific target groups. Overall, *the learning areas* will focus on the following:

- M&E fundamentals, the need for M&E for optimal performance
- Designing M&E plan
- M&E framework
- Routine data recording, reporting, aggregation, analysis
- Data dissemination and use (generation and use of information products, organization of cross learning workshops, etc.) for planning, decision making and resource allocation
- Evaluation, studies, research
- Data sources and data collection/ reporting tools for various interventions and health system strengthening (training, etc.)—registers/ forms/ records/ reports for routine and non-routine data; checklists/ questionnaire for supervision, evaluations, studies, surveys
- Data flow (vertical, lateral) within and across public sector, other partners
- Data quality assurance, audit
- National HMIS and its linkages with the VBDC
- Computer assisted data entry, analysis
- Implementation challenges of M&E

The trainee profile will include: all relevant personnel/ consultants at different levels of implementation.

Standardization and quality control of trainings will be ensured by:
- involving experts;
- developing standardized and customized training curriculum, modules;
- quality check of trainings using a standardized checklist (related to trainings and trainers) to be used on site by higher level of authority and/ or an independent agency.
- review of training modules, manuals, reports.

For monitoring programmatic training, the VBDC plans to develop an instruction manual/ guide specifying learning objectives for each course based on needs assessment; course outline, expected knowledge to be gained, pre- tests, post-tests, feedback on training and trainers by the trainees, etc. The checklist for supervision will also be expanded to include specific questions related to the objectives/ outcomes, quality of trainings as well as on job observation of trained staff. Importantly, the VBDC will now re-emphasize mandatory preparation of training reports with clear recommendations/ issues encountered (if any), to provide timely feedback and bring in quality improvements. A synthesis of the programmatic and M&E trainings will be compiled at the end of the year and shared with the partners, as appropriate.

All training related documents (e.g., attendance sheets, course outline with learning objectives, reports, etc.) will be kept safely and securely and made available for review and auditing purposes, as needed.

Further to trainings on M&E, during the *stakeholder workshops and meetings* that are held periodically, feedback from the trainees as well as supervisors/ observers will be shared. These platforms will also be utilized for brainstorming to improve ongoing programmatic and M&E training programmes. Through coordination mechanisms within VBDC and between partners will be strengthened to ensure that activities are not duplicated.

11. M&E Coordination

In Myanmar, malaria control is the primary responsibility of the VBDC. Several partner organizations complement the national efforts.

For a strong M&E coordination within VBDC and between partners for standardized tracking and gauging the national response to malaria control, *the structures and roles* within VBDC are defined. However, the structures and roles are dynamic and get adjusted/ modified time to time according to the needs.

Presently, at the central level, the Myanmar Country Coordination Mechanism (M-CCM) formed with 20 member organizations at the advent of the GFATM Round 9 grant oversees and coordinates the national response for malaria, TB, AIDS across all stakeholders. The M-CCM meets twice annually and/ or as needed.

A Malaria Technical Strategic Group (TSG) comprising the VBDC and various implementing partners is responsible for overall technical review and coordination across organizations. The member secretary of the TSG is WHO/ VBDC. The TSG meets quarterly. Within the TSG, formalization of an M&E Technical Working Group (TWG) is in process to provide guidance on M&E and ensure coordinated M&E action across partners.

At the state/ regional level, the Director/ VBDC team leader is responsible for coordination, while at the township level, the medical officer performs such role. They are supported by the national programme manager and other central levels officials.

The VBDC recognizes that while it is necessary to have structures and mechanisms at central and state/ regional levels for overall coordination; it is equally imperative at the township level to standardize programmatic data recording, reporting and to avoid duplication of efforts.

Existing/ planned M&E coordination is described below.

- Organization of quarterly meetings of the TSG.

- Strengthening health information system to capture data from public sector, NGOs, private practitioners and trained village health volunteers, in order to have comprehensive information on malaria situation. The partner organizations will be encouraged to submit data at township level on monthly basis. Such data will also be transmitted by the townships to the higher levels for consolidation.

- Updating and harmonization of data collection form to be used at service delivery points (community setting and health facilities, laboratory service points). [Such data will be disaggregated age and sex wise as well as by location (village), by health facility and by implementing organization].

- Organization of quarterly review meetings and annual review and planning meetings together with other partners at township level. These meetings will discuss progress in performance, programmatic and coordination bottlenecks and gaps, data quality and capacity building issues and suggest steps for resolutions. The annual planning meetings will discuss the annual plan and joint actions, as appropriate. These meetings will serve as important platforms for strengthening linkages and networking across public and non-public sectors. Selected peripheral level staff (sub-centre/ rural health centre staff), nurse/ midwife (on rotational basis, preferably from few better performing centres and those at the other end of performance scale) and the NGO representatives will participate in these meetings. The note for the record will be prepared and shared with state/ regional and central level for feedback/ action, as necessary.

- Organization of annual review and planning meetings at central level. The participants will include: state/ regional, township officers and representatives from partner organizations.

- Biennial monitoring missions for programme review to be undertaken jointly with partners and external technical agencies.

12. M&E budget and work plan

The work plan and the budget are drawn from the National Strategic Plan 2010-2015.

M & E Plan activity 2010-2015

ITEMS	UNIT	2010	2011	2012	2013	2014	2015
Supervision by Central level	package per year	1	1	1	1	1	1
Supervision by State/Regional level	package per year	17	17	17	17	17	17
Supervision by Township Health Department	township	284	284	284	284	284	284
Coordination meeting with partners at township level	meeting	360	360	360	568	568	568
Monitoring meeting at township level	meeting	180	180	180	284	284	284
Monitoring meeting with VHV and partners at township level	meeting	180	180	180	284	284	284
Annual evaluation and planning meeting at township level	meeting	180	180	180	284	284	284
Annual evaluation and planning meeting at State/Regional level	meeting	17	17	17	17	17	17
Annual evaluation and planning meeting - central	meeting	1	1	1	1	1	1
Collection, consolidation and analyses of reports (20/TSP*284 TSPs)	township	284	284	284	284	284	284
Health facility surveys	package	1	1	1	1	1	1
Community surveys	package	1	1	1	1	1	1
External programme evaluation	package	0	0	1	0	0	0
Drug resistantce monitoring	package	1	1	1	1	1	1
Insecticide resistance monitoring	package	1	1	1	1	1	1

Estimated M & E Budget Breakdown by activity (2010-2015)

					Estimated	costs	(US$)		
ITEMS	**Unit**	**Unit cost (US$)**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Total**
Supervision by Central level	package per year	12,000	12,000	12,000	12,000	12,000	12,000	12,000	72,000
Supervision by State/Regional level	package per year	1,000	17,000	17,000	17,000	17,000	17,000	17,000	102,000
Supervision by Township Health Department	township	300	85,200	85,200	852,00	85,200	85,200	85,200	511,200
Coordination meeting with partners at township level	meeting	250	90,000	90,000	90,000	142,000	142,000	142,000	696,000
Monitoring meeting at township level	meeting	300	54,000	54,000	54,000	85,200	85,200	85,200	417,600
Monitoring meeting with VHV and partners at township level	meeting	900	162,000	162,000	162000	255,600	255,600	255,600	1,252,800
Annual evaluation and planning meeting at township level	meeting	800	144,000	144,000	144,000	227,200	227,200	227,200	1,113,600
Annual evaluation and planning meeting at State/Regional level	meeting	1,000	17,000	17,000	17,000	17,000	17,000	17,000	102,000
Annual evaluation and planning meeting at central level	meeting	4,500	4,500	4,500	4,500	4,500	4,500	4,500	27,000
Collection, consolidation and analyses of reports (20/tsp*284tsps)	township	240	68,160	68,160	68,160	68,160	68,160	68,160	408,960
Health facility surveys	package	30,000	30,000	30,000	30,000	30,000	30,000	30,000	180,000
Community surveys	package	75,000	75,000	75,000	75,000	75,000	75,000	75,000	450,000
External programme evaluation	package	80,000	0	0	80,000	0	0	0	80,000
Drug resistance monitoring	package	60,000	60,000	60,000	150,000	150,000	150,000	150,000	720,000
Insecticide resistance monitoring	package	20,000	20,000	20,000	20,000	20,000	20,000	20,000	120,000
Total budget			**838,860**	**838,860**	**1,008,860**	**1,188,860**	**1,188,860**	**1,188,860**	**6,253,160**

13. ANNEXES

13.1. Annex 1: Indicators

Impact indicators

1.1

Indicator	**Malaria mortality rate**
Rationale/Purpose	The indicator measures the number of death with a confirmed malaria diagnosis per 100,000 people. Increased mortality rates are one of the major components of the burden of malaria. The indicator shows the impact of a range of different interventions from BCC, prevention and treatment.
Numerator	Number of all deaths with malaria diagnosis during the reporting period per 100,000 people in the area. **(**Number of all deaths among people with malaria diagnosis * 100,000)
Denominator	Total population in the area in mid-year
Measurement Tool	Reported via VBDC
Reporting frequency	Annually
Baseline value	2.18/100,000 in 2007 (1,84/100,000, 1.7/100,000 and 1.33/100,000 in 2008, 2009 and 2010, respectively)
Target value	In Myanmar, the goal of malaria control is to reduce malaria morbidity and mortality by at least 50 per cent by 2015 (baseline: 2007 data).
Strength & Limitations	Strengths: - Indicators can show the overall impact of BCC, prevention and adequate treatment - Data available through routine data collection Limitation: - Using the reported number of death with confirmed malaria diagnosis means that death due to malaria is likely to be underreported. - The mid-year population is rarely available. It should always be clearly stated what data is used instead.

1.2

Indicator	**Malaria morbidity rate**
Rationale/Purpose	The indicator measures the total number of confirmed as well as probable malaria cases per 1000 people in the area. The malaria morbidity rate assesses the disease burden and shows the impact of both the BCC, prevention and treatment activities.
Numerator	Number of confirmed and probable malaria cases during the reporting period per 1,000 people in the area. (Number of confirmed and probable malaria cases * 1000).
Denominator	Total population in the area in mid-year
Measurement Tool	Reported via VBDC.
Reporting frequency	Annually
Baseline value	9/1000 in 2007; (10.75/1000 in 2008; 10.00/1000 in 2009 and 14.20/1000 in 2010)
Target value	In Myanmar, the Goal of malaria control is to reduce malaria morbidity by at least 50 per cent by 2015 (baseline: 2007 data).
Strength & Limitations	Strengths: - Indicators can show the overall impact of BCC, prevention and adequate treatment - Data available through routine data collection Limitation: - Where self-treatment is common malaria morbidity is likely to be underreported. - The mid-year population is rarely available. It should always be clearly stated what data is used instead.

1.3

Indicator	**Percentages of all deaths that are due to malaria (per confirmed malaria diagnosis)**
Rationale/Purpose	The indicator measures the percentage of the total reported number of deaths in health facilities that are due to confirmed malaria. Increased overall mortality rates are one of the major components of the burden of malaria. The indicator shows the impact of a range of different interventions from BCC, prevention and treatment
Numerator	Number of all deaths at health facilities among people with confirmed malaria diagnosis during the reporting period
Denominator	Total number of deaths (all causes) reported at health facilities during the reporting period
Measurement Tool	Reported via HMIS (VBDC)
Reporting frequency	Annually
Baseline value	9.47 %(2008, As reported by VBDC only) 7.09% (2010, VBDC)
Target value	**2011**: 10% **2012**: 9% **2013**: 7% **2014:** 6% **2015**: 5%
Strength & Limitations	Strengths: - Data available through routine data collection - Diagnostic tools are available in health facilities - No double reporting as only data from health facilities are reported Limitation: - The indicator are affected by changes in other disease patterns than that of malaria - Death occurring outside health facilities not included

1.4 & 1.5

Indicator	**<u>Number and percentage of malaria (confirmed) admissions among all hospital admissions</u>**
Rationale/Purpose	The indicator measures the number of malaria hospital admission and the percentage of malaria hospital admission of the total number of patients admitted to the hospitals. It is especially impacted by interventions providing improved access to timely, adequate treatment as timely treatment is crucial in preventing the development of life-threatening complications that requires hospitalization. It also shows proportional burden that malaria is to the hospital system. The number of malaria cases admitted can be used as a proxy for the number of severe malaria cases.
Numerator	Number of confirmed malaria cases that has been admitted to the hospital in the reporting period
Denominator	Total number of hospital admissions (all causes) in the reporting period
Measurement Tool	Reported through HMIS (VBDC)
Reporting frequency	Annually
Baseline value	47,514 confirmed malaria admissions 6.42 % (2008, As reported by VBDC only) 43,603 confirmed malaria admission 5% (2010. VBDC)
Target value	**2011**: **2012**: **2013**: **2014:** **2015**: **2011**: 7% **2012**: 6.5% **2013**: 5% **2014:** 4% **2015**: 3.5%
Strength & Limitations	Strengths: - Data available through routine data collection Limitations: - Interpretation of the indicator requires knowledge of the local situation. A high number/ percentage can both be caused by limited access to adequate treatment but also by a high number of immigration by non-immune population to a highly endemic area. - The indicator is affected by changes in diseases other than malaria

1.6

Indicator	**Number of malaria (confirmed) cases reported by health workers (in health facilities and outreach)**
Rationale/Purpose	The indicator measures the total number of malaria cases confirmed by RDT or microscopy reported by health workers in health facilities and outreach in the reporting period. The total number of malaria cases is important information for the management of the programme and the procurement and supply system. The indicator shows the impact of both the BCC, prevention and treatment activities.
Numerator	Number of malaria cases confirmed by RDT or microscopy during the reporting period.
Denominator	Not applicable
Measurement Tool	Reported through HMIS (VBDC)
Reporting frequency	Annually
Baseline value	399,559 confirmed cases (2008, VBDC) 436,068 confirmed cases (2009, VBDC) 420,808 confirmed cases (2010 data, World Malaria Report 2011,)[2]
Target value	Based on 2009 value: 607,480 in 2011, 668,228 in 2012, 735,051 in 2013, 661,546 in 2014 and 595,391 in 2015.
Strength & Limitations	Strength: - Data is available through routine system collection Limitations: - Knowledge on baseline data incomplete in part because some RDTs used presently are only able to confirm *P.f.* malaria cases. - 552,255 estimated confirmed cases if Combo RDTs were used - Combo RDTs were introduced only in 2010. - Efforts should be made to change from Pf RDTs to Combo RDTs that can detect all malaria species

[2] In addition to the VBDC report in 2010 total confirmed and probable malaria cases reported by NGOs and INGOs is 209,999 (source: 3DF)

1.7

Indicator	**Positivity rate: Percentage positive slides/ rapid diagnostic tests among all slides /rapid diagnostic test taken**[3]
Rationale/Purpose	The indicator measures the proportion of cases found positive by RDTs or microscopy, among all tests or slides taken and examined in the reporting period. The positivity rate is an important measurement for estimating the prevalence of malaria. In areas with unstable malaria, an increasing positivity rate among fever patients is one of the warning signs of a possible epidemic.
Numerator	Number of blood slides found positive for malaria Number of RDT (testing only for P.f. malaria) found positive for malaria Number of RDT (combo tests) found positive for malaria
Denominator	Total number of blood slides taken and examined for malaria Total number of cases examined by RDT (testing only for P.f. malaria) Total number of cases examined by RDT (combo tests)
Measurement Tool	Recorded in malaria case registers and reported to VBDC
Reporting frequency	Annually
Baseline value	Baseline for SPR: 42.4 % Baseline for RDT: 43.5% (2009)
Target value	**SPR: 2011**:42 % **2012**:42 % **2013**:42 % **2014**:35 % **2015**:30 % **RDT:2011**: 43% **2012**: 43% **2013**: 43% **2014** 35% **2015**: 30%
Strength & Limitations	Strength: - Data available through routinely collected data Limitation: - The reliability of slide positivity rate dependent on the quality of microscopists - RDTs used in 2009 were mainly Pf RDT and Combo RDTs were introduced in 2010.

[3] For a period both Combo RDTs and RDTs testing only for P.f. will be used in the country, it is important in the reporting to distinguish between the positivity rate for the different RDTs. The National Programme will aim not to have overlapping of the two tests in a township to avoid errors in treatment and reporting.

OUTCOME INDICATORS

2.1

Indicator	**Percentage of households with at least one ITN/LLIN**
Rationale/Purpose	The indicator measures the proportion of households owning at least one ITN/LLIN. This indicator requires data collected from surveys from a representative sample of households in areas per policy targeted for ITNs/LLINs.
Numerator	Number of households surveyed with at least one ITN/LLIN (The data are to be collected on a household questionnaire, rather than on an individual questionnaire, as the individuals interviewed may not be representative of household possession. It is important to establish the age of any LLIN[4]/ retreatment time of ITN.)
Denominator	Total number of households surveyed
Measurement Tool	Household Survey
Reporting frequency	Annually
Baseline value	5.65 % (2008) 19.99% in 2011 (Periodic Net Survey)
Target value	**2011**: 53% **2012**: 94% **2013**: 98% **2014**: 100% **2015**: 98%
Strength & Limitations	Strengths: - Presence of a net is typically verified at time of interview. Limitations: - Because of issues of date recall of last impregnation, this indicator may not provide reliable estimates of net retreatment status - Information on whether the net was washed after treatment is not included. Washing can reduce effectiveness of ITN/LLIN. - The indicator does not report on whether then net was used - Does not report on whether there are sufficient nets to cover all the household members. One net per household will most often not be sufficient to protect all members of the household

[4] The exact boundary for when a treated net/LLIN are no longer deemed effective will be established at the time of the survey.

2.1 a

Indicator	**Percentage of households with at least one ITN/LLIN per 2 persons in Tier 1 and Tier 2 in MARC areas**
Rationale/Purpose	The indicator measures the proportion of households owning at least one ITN/LLIN per 2 persons in the target areas, i.e, Tier 1 and 2 of Myanmar Artemisinin Resistance Containment (MARC) areas . This indicator requires data collected from surveys from a representative sample of households in areas per policy targeted for ITNs/LLINs.
Numerator	Number of households surveyed with at least one ITN/LLIN per 2 persons (The data are to be collected on a household questionnaire, rather than on an individual questionnaire, as the individuals interviewed may not be representative of household possession. It is important to establish the age of any LLIN[5]/ retreatment time of ITN.)
Denominator	Total number of households surveyed
Measurement Tool	Household Survey
Reporting frequency	Annually
Baseline value	To be set after baseline survey in MARC areas conducted in Nov 2011-Jan 2012. Results will be available by 2012
Target value	The MARC project aims at 100% population coverage of ITN/LLIN. Therefore it implies that all (100%) households have at least one ITN/LLIN per 2 persons by the end of 2015
Strength & Limitations	Strengths: - Presence of a net is typically verified at time of interview. Limitations: - Because of issues of date recall of last impregnation, this indicator may not provide reliable estimates of net retreatment status - Information on whether the net was washed after treatment is not included. Washing can reduce effectiveness of ITN/LLIN. - The indicator does not report on whether then net was used - Does not report on whether there are sufficient nets to cover all the household members. One net per household will most often not be sufficient to protect all members of the household

[5] The exact boundary for when a treated net/LLIN are no longer deemed effective will be established at the time of the survey.

2.2

Indicator	**<u>Percentage of population at risk sleeping under an ITN/LLIN the previous night</u>**
Rationale/Purpose	The indicator measures the proportion of individuals who slept under a INT/LLIN the night before the survey. This indicator requires data collected from surveys from a representative sample of households in areas per policy targeted for ITNs/LLINs.
Numerator	Number of individuals who slept under an INT/LLIN the night before the survey (The data for the numerator are obtained from a listing of the household residents who slept under a mosquito net the previous night, in combination with information on whether the net had been treated with insecticide[6])
Denominator	The total number of individuals in the surveyed households (The data for the denominator are to be obtained from the household questionnaire that lists every individual who slept in the house the previous night.)
Measurement Tool	Household survey to conducted in high and moderate risk areas where ITN/LLIN is implemented
Reporting frequency	Annually
Baseline value	17.6 % in 2011[7]
Target value	**2012**: 75% **2013**: 78% **2014**: 80% **2015**: 78%
Strength & Limitations	Strength: - Indicator gives a better knowledge on how well the population is protected than a more simple indicator on net ownership Limitation: - Because people may not recall the date of last impregnation, this indicator may not reliably estimate net re-treatment status. - This indicator may be biased by the seasonality of survey data collection, which is most often done during the dry season when net use is likely at its lowest. - This indicator collects no information on whether the net was washed after treatment, which can reduce its effectiveness.

[6] The exact boundary for when a treated net/LLIN are no longer deemed effective will be established at the time of the survey.
[7] Source: Periodic Net survey 2011

2.3

Indicator	**<u>Percentage of confirmed malaria cases treated in accordance with the national malaria treatment guidelines within 24 hours of onset of symptoms (fever)</u>**
Rationale/Purpose	The indicator measures the number of confirmed malaria cases that was treated in accordance with the national treatment guidelines within 24 hours of the onset of symptoms (i.e. fever). Prompt and effective treatment within 24 hours of the onset of symptoms is important to prevent life-threatening complications. Fast treatment will also reduce further transmission. Myanmar has developed guidelines for the treatment of malaria and these guidelines are revised when needed. The data may be further segregated by age and gender if required
Numerator	Number of confirmed malaria cases that has been treated in accordance with the national malaria treatment guidelines within 24 hours of the onset of symptoms (fever).
Denominator	Total number of confirmed malaria cases
Measurement Tool	The previous method applied is malaria report. The health care providers routinely ask all malaria patients when the symptoms (fever) started, record in the malaria case register whether it is more or less than 24 hours ago The new method is annual health facility survey. The survey protocol will be developed for used in 9th round GFATM phase II
Reporting frequency	Annually
Baseline value	25% (2008)
Target value	**2011**: 30% **2012**: 50% **2013**: 60% **2014**: 60% **2015**: 60%
Strength & Limitations	Strength - The data is collected routinely - The indicator can give information on whether timely treatment is sought Limitations - The indicator only gives information on the percentage before and after 24 hours but not how late the proportion who seek treatment after 24 hours seek treatment. 24 hours is an international recognized target within which treatment ideally should be sought. In some setting it would however be more relevant to set the target to 48 or 72 hours. - The indicator does not separate the information for *P.f.* malaria. The risk of complications is higher with *P.f.* malaria.

OUTPUT INDICATORS
3.1a

Indicator	**Number of LLINs distributed free of charge**
Rationale/Purpose	The indicator measures the number of LLIN distributed to end-user in the reporting period. Distribution of Long-lasing insecticidal nets is a principal strategy for preventing malaria, especially in settings where it is deemed a more viable solution the retreatment of nets, for instance in areas where net ownership is low.
Numerator	Number of LLINs distributed to end-users who are targeted population at risk of malaria (households or individuals)
Denominator	Not applicable
Measurement Tool	For the National Programme during distributions to households, a list of household having received an LLIN is given to TMO. The number of LLINs distributed reported to S/D-VBDC who aggregate the numbers for all townships in the S/D and report to Central VBDC
Reporting frequency	Quarterly
Baseline value	282,846 LLINs distributed annual (2008, As reported by VBDC)
Target value	**2010:** 200,000 **2011**: 1,000,000 **2012**:2,000,000 **2013**: 2,500,000 **2014:** 1,000,000 **2015**: 1,000,000
Strength & Limitations	Strength: -Data easy to collect Limitations - Does not give information on usage

3.1b

Indicator	**Number of LLINs sold through social marketing**
Rationale/Purpose	Some NGOs sells subsidized nets. Distribution of Long-lasting insecticidal nets is a principal strategy for preventing malaria, especially in settings where it is deemed a more viable solution the retreatment of nets, for instance in areas where net ownership is low.
Numerator	Number of LLINs distributed reported as sold through social marketing
Denominator	Not applicable
Measurement Tool	Through LLIN sale report
Reporting frequency	Quarterly
Baseline value	Not available
Target value	**2011**: 70,000 **2012**: 70,000 **2013**: 70,000 **2014**:70,000 **2015**: 70,000
Strength & Limitations	Strength: -Data easy to collect Limitations - Does not give information on usage

3.1c

Indicator	**<u>Number of LLINs distributed to migrant/mobile population</u>**
Rationale/Purpose	The indicator measures the number of LLIN distributed to end-user in the reporting period. The target population in MARC areas is migrant/mobile populations Distribution of Long -lasing Insecticidal nets is a principal strategy for preventing malaria, especially in settings where it is deemed a more viable solution the retreatment of nets, for instance in areas where net ownership is low. This indicator can be applied to any other specific group of population at risk, such as pregnant mothers, displace persons, ethnic groups, etc.
Numerator	Number of LLINs distributed to migrant/mobile population (households or individual migrant workers)
Denominator	Not applicable
Measurement Tool	For the National Programme during distributions to households, a list of household having received an LLIN is given to TMO. The number of LLINs distributed reported to S/D-VBDC who aggregate the numbers for all townships in the S/D and report to Central VBDC
Reporting frequency	Six-monthly (MARC-3DF project)
Baseline value	Not available. To be established in 2012 following the Malaria Migrant Mapping
Target value	**2011:** 75000 LLINs by VBDC in MARC Tier 1 areas Targets of 2012 – 2015 to be established in 2012
Strength & Limitations	Strength: -Data easy to collect Limitations - Does not give information on usage

3.2

Indicator	**Number of mosquito nets treated with insecticide**
Rationale/Purpose	The indicator measures the number of nets (already owned by the community) treated/retreated[8] in the reporting period. Treatment /retreatment of nets is a principal strategy for preventing malaria especially in setting where net ownership is high. The insecticide may be conventional insecticide tablet or preferably the long-lasting insecticide tablet that last up to 12 months (or longer if available)
Numerator	Number of (community owned) nets treated/retreated with insecticide in the reporting period
Denominator	Not applicable
Measurement Tool	Reports from mosquito net impregnation given to TMO after impregnation and reported to VBDC
Reporting frequency	Quarterly
Baseline value	852,762 nets treated in 2008 (VBDC reports)
Target value	**2011**: 1,063,734 **2012**: 2,067,306 **2013:** 2.200,000 **2014**: 2,400,000 **2015**: 2,600,000
Strength & Limitations	Strength: -Data easy to collect Limitations - Does not tell anything about the nets actually used

[8] It is important in the reporting to include details on the form of treatment (i.e. long lasting or regular)

3.3

Indicator	**Number of people given with protection i) other personal protection measures (including repellents, insecticide- treated hammock nets and other protection methods other than ITN/LLIN) ii) indoor residual spraying (IRS)**
Rationale/Purpose	The indicator measures the number of persons received other methods of protection other than ITN/LLIN
Numerator	Number of people received repellents, insecticide-treated hammock net, insecticide-treated coat, jacket, etc and people who reside in the houses/huts sprayed with insecticide.
Denominator	Not applicable
Measurement Tool	Distribution reports of protection item IRS reports Household survey
Reporting frequency	Six-monthly in MARC-3DF project
Baseline value	Not available. To be established in 2012 after the baseline survey conducted in 2011.
Target value	By 2013 10% population residing in MARC Tier 1&2 are protected,.i.e. 1,073,181 people to be protected by non-ITN/LLIN or IRS.
Strength & Limitations	Strength: -Data easy to collect Limitations - Does not tell anything about the nets actually used

3.4

Indicator	**Number of blood slides taken and examined**
Rationale/Purpose	The indicators measures the number of blood slides taken and examined for malaria parasites. An adequately high number of slides needs to be taken and examined to help control malaria. Slides are cheaper than RDT and where microscopy, supplies and a trained microscopist are available slide testing is preferred to RDT.
Numerator	Number of blood slides taken and examined for malaria parasites in the reporting period
Denominator	Not applicable
Measurement Tool	Recorded in malaria case registers and reported to VBDC
Reporting frequency	Quarterly
Baseline value	499,296 slide tested in 2008 (VBDC reports)
Target value	**2010**: 750,000 **2011:** 1,000,000 **2012**:1,000,000 **2013**: 1,000,000 **2014:** 1,000,000 2**015**: 1,000,000
Strength & Limitations	Strength: - Important for the correct treatment of malaria Limitation - Does not report of the quality of slide examination

3.5

Indicator	**Number of rapid diagnostic tests taken and read**
Rationale/Purpose	The indicator measures the number of RDTs taken and read in the reporting period. RDTs are very important for the detection of malaria cases especially in areas where access to microscopy is limited. They can be used in health facilities and by health volunteers and are therefore a powerful tool in the efforts to control malaria
Numerator	Number of rapid diagnostic test taken and read in the reporting period
Denominator	Not applicable
Measurement Tool	Recorded in the malaria case register and reported to VBDC
Reporting frequency	Quarterly
Baseline value	543,941 RDT read in 2008 (VBDC reports)
Target value	**2010**: 3,353,578 **2011**: 4,023,765 **2012**: 4,694,716 **2013:** 5,100,237 **2014**: 4,334,396 **2015**: 3,535,125
Strength & Limitations	Strength: - Is an important component in the control of malaria - Data is routinely collected - Number of RDTs tested may not be equal to Number of patients tested due to invalid RDT results. Number of RDTs with invalid results (if any) should be added in the comment column of the reports to explain the discrepancy.

3.6

Indicator	**<u>Number of people tested for malaria at i) worksites ii) at malaria screening points</u>**
Rationale/Purpose	The indicator measures the number of RDTs taken and read in the reporting period. RDTs are very important for the detection of malaria cases especially in areas where access to microscopy is limited. The target populations for this intervention are migrant workers. The information is very useful for artemisinin resistance containment as migrants are regarded as the most important population at risk that contributed to the spreading of the resistant parasites.
Numerator	Number of people tested for malaria at worksites and at malaria screening points by microscopy or RDT. Migrant is generally defined as any person who moves from one place to another. This includes internal migrants who move within the country and the those who move across international borders (internal and external migration) Data should be disaggregated by sex and age and by worksite or malaria
Denominator	Not applicable
Measurement Tool	This indicator will be collected and reported by organizations working with mobile and migrant populations only. The malaria patient register book can be used for this purpose.
Reporting frequency	Six-monthly for the Myanmar Artemisinin Resistance Containment (MARC) project.
Baseline value	Not available. To be established in 2012 following Yr 1 MARC
Target value	**At least 15,000 people to be tested per year in MARC Tier 1 areas** Targets of subsequent years will be set in 2012
Strength & Limitations	Strength: - Is an important component in Artemisinin Resistance Containment Strategy - Data is not routinely collected but as the operations can be harmonized with the routine case detection by health facilities so it does not add much burden to staff. - Data collection does not distinguish between legal and illegal migrants. - Number of RDTs tested may not be equal to Number of patients tested due to invalid RDT results. Number of RDTs with invalid results (if any) should be added in the comment column of the reports to explain the discrepancy.

3.7

Indicator	**Number of people with malaria (by gender and age group) treated with recommended ACT**
Rationale/Purpose	The indicator measures the number of malaria cases[9] treated with an Artemisinin-based Combination Therapy (ACT) recommended by Myanmar Ministry of Health. Treatment with an effective antimalarial drug regimen is a key component for controlling and preventing malaria. The drug regimens that are effective differ between countries and change over time depending on local drug resistance patterns. Myanmar has developed guidelines for the treatment of malaria and these guidelines are revised when needed.
Numerator	Number of malaria cases treated with ACT recommended by the national treatment guidelines by gender and age groups (0-1, 1-4, 5-9, 10-14, 15+) Number of people with malaria means malaria cases have Pf (or mixed infection with Pf) confirmed by microscopy or by RDT
Denominator	Not applicable
Measurement Tool	Recorded in the malaria case registers and reported to the VBDC
Reporting frequency	Quarterly
Baseline value	394,529 malaria case treated with ACTs in 2007 (VBDC report)
Target value	**2010**: 1,292,627 **2011**: 1,582,486 **2012**: 1,793,836 **2013:** 1,921,575 **2014:** 1,680,335 **2015**: 1,428,565
Strength & Limitations	Strengths: - Data available trough routine data collection

[9] The "number of people diagnosed with malaria" as stated in the indicator name means the total number of episodes of malaria; if a person was diagnosed with malaria twice over the evaluation period of the program, this would contribute two episodes that potentially were correctly treated.

3.8

Indicator	**<u>Number of people with malaria (probable and confirmed) treated with chloroquine (by gender and age groups)</u>**
Rationale/Purpose	The indicator measures the number of confirmed and probable malaria cases[10] treated with chloroquine as recommended by Myanmar Ministry of Health for the treatment of *P. vivax*. Treatment with an effective antimalarial drug is a key component for controlling and preventing malaria. Chloroquine resistance is continually monitored and as resistance to chloroquine by *P. vivax* is still rare, this is at present the drug recommended to treat vivax malaria.
Numerator	Number of malaria cases (both confirmed and probable) treated with chloroquine by gender and age groups (0-1, 1-4, 5-9, 10-14, 15+)
Denominator	Not applicable
Measurement Tool	Recorded in the malaria case registers and reported to the VBDC
Reporting frequency	Quarterly
Baseline value	239,751 cases treated with chloroquine in 2007 (VBDC reports)
Target value	**2010**: 680,784 **2011**: 772,253 **2012**: 806,030 **2013**: 789,127 **2014:** 690,057 **2015**: 586,664
Strength & Limitations	Strength: - Data is routinely available Limitation: - As indicator reports on both probable and confirmed malaria, the number will differ from the actual number treated having non-P.f. malaria. This problem will lessen with the introduction of combination RDTs

[10] The "number of people diagnosed with malaria" means the total number of episodes of malaria; if a person was diagnosed with malaria twice over the evaluation period of the program, this would contribute two episodes that potentially were correctly treated.

3.9

Indicator	**Percentage of confirmed P. f cases treated with ACT plus primaquine according to the national guidelines**
Rationale/Purpose	The indicator measures the proportion of malaria cases[11] treated with an Artemisinin-based Combination Therapy (ACT) and a single dose primaquine as recommended by the Myanmar Ministry of Health. Treatment. ACT is key intervention in reducing malaria mortality as well as for controlling malaria. Additional single dosage of Primaquine was recommended in the amended national treatment guidelines in 2011 in order to further reduce transmission. Primaquine is contraindicated in pregnant women and children under one year of age. This indicator was introduced in Myanmar Artemisinin Resistance Containment Strategy
Numerator	Number of confirmed Pf cases (Pf and mixed infections with Pf) treated with ACT together with primaquine as recommended by the national treatment guidelines (excluding those for whom primaquine is contraindicated)
Denominator	Number of confirmed Pf cases include P.f and mixed infections with Pf confirmed by microscopy or by RDT. Those cases with contraindication of Primaquine are excluded from denominator.
Measurement Tool	Recorded in the malaria case registers and reported to the VBDC
Reporting frequency	Six-monthly in MARC project
Baseline value	Not available Country wise data in 2008 is 61% (308,620 cases treated with ACT out of 411,494 confirmed Pf cases in 2008: World Malaria Report 2008
Target value	100%
Strength & Limitations	Strengths: - Data available trough routine data collection

[11] The "number of people diagnosed with malaria" as stated in the indicator name means the total number of episodes of malaria; if a person was diagnosed with malaria twice over the evaluation period of the program, this would contribute two episodes that potentially were correctly treated.

3.10

Indicator	**Percentage of health facilities monitored with no reported stock outs of nationally recommended antimalarial drugs lasting more than a 1 week at anytime during the past 3 months**
Rationale/Purpose	The indicator measures the proportion of monitored health facilities that has no stock out of national recommended antimalarial drugs[12]. Ensuring adequate and continued supply of the recommended antimalarial drugs is key to the delivery of prompt and effective treatment at health facilities and success in preventing and controlling malaria.
Numerator	Number of monitored health facilities with nationally recommended antimalarial drugs available on the day of survey and with no stock-outs lasting one week or longer at any time in the last three months.
Denominator	Total number of health facilities monitored
Measurement Tool	Routine monitoring. through malaria database reporting The aim is to monitor minimum 1000 health facilities in 2011 and 1500 health facilities annually in year 2012-2015. The monitoring will be done throughout the year using standard checklists.
Data collection and reporting frequency	Annual
Baseline value	**78% in 2011**
Target value	**2012**: >90% **2013**: >95% **2014:** >95% **2015**: >95%
Strength & Limitations	Limitations: - The number of stock outs can vary over the year as both number of malaria cases and the accessibility of the health facility are likely to vary during the year.

[12] In the reporting of the indicator it should be clearly defined which drugs are included. It should in general include first line antimalarial drugs regularly procured and supplied for the treatment of malaria in the health facilities. For the national programme this includes chloroquine and artemether-lumefantrine (coartem®). Coartem® is supplied in 4 different packages for different age groups. Stock out will be defined as having less than one (non-expired) adult treatment course.

3.11

Indicator	**<u>Number of village health volunteers trained and supported for malaria prevention and control</u>**
Rationale/Purpose	The indicator reports on the number of village health volunteers (VHVs) trained/retrained and supported for malaria prevention and control in the reporting period. Village health volunteers are important in the control of malaria as they are in areas where health facilities are not easily reached.
Numerator	Number of village health volunteers trained[13] and supported[14] in the reporting period
Denominator	Not applicable
Measurement Tool	Training report will include the number of participants. After each training, the record will be sent to the VBDC.
Reporting frequency	Quarterly and annually cumulative
Baseline value	136 VHVs trained in 2008 (VBDC administrative records)
Target value	**2010:** 5,500 **2011: 8**,000 **2012:** 11,500 **2013:** 11,500 **2014:** 11,500 **2015:** 11,500
Strength & Limitations	Strength: - Data readily available from training reports Limitation: - Does not report on the quality of the training

[13] The training can both include training/retraining only on prevention and treatment seeking, and training/retraining on prevention and case management. It includes both training and retraining

[14] "Supported" means having received the hard ware materials, i.e., supplies necessary for them to carry out their task for malaria prevention and control. For volunteers doing malaria preventions this will include BCC materials. For volunteers who are trained to do malaria treatment it would include RDTs, drugs and case registers.

3.12

Indicator	**Number of village health volunteers trained and supported specifically for servicing migrant/mobile populations**
Rationale/Purpose	The indicator was introduced to serve as measurement for the Artemisinin Resistance Containment in which migrant/mobile populations are targeted. 'Migrant' is generally defined as any person who moves from one place to another. This includes internal migrants who move within the country and the those who move across international borders (internal and external migration)
Numerator	Number of village health volunteers (whose primary responsibility is to serve migrant/mobile population in malaria prevention and control) trained[15] and supported[16] in the reporting period
Denominator	Not applicable
Measurement Tool	Training report will include the number of participants. After each training, the record will be sent to the VBDC.
Reporting frequency	Six-monthly and annually cumulative (MARC-3DF)
Baseline value	Not available. To be established in 2012 following the Malaria Migrant Mapping
Target value	172 worksite volunteers will be trained in Yr 1 (July 2011-June 2012) Target of subsequent years to be set following the Malaria Migrant Mapping in 2012
Strength & Limitations	Strength: - Data readily available from training reports Limitation: - Does not report on the quality of the training

[15] The training can both include training/retraining only on prevention and treatment seeking, and training/retraining on prevention and case management. It includes both training and retraining

[16] "Supported" means having received the hard ware materials, i.e., supplies necessary for them to carry out their task for malaria prevention and control. For volunteers doing malaria preventions this will include BCC materials. For volunteers who are trained to do malaria treatment it would include RDTs, drugs and case registers.

3.13

Indicator	**Number health staff trained/re-trained**
Rationale/Purpose	The indicator reports on the total number of health staff[17] trained or retrained on malaria in the reporting period. Training and retraining is important to ensure that the health staff can give the best possible services.
Numerator	Number of staff trained/re-trained in malaria in the reporting period
Denominator	Not applicable
Measurement Tool	Training report will include the number of participants. After each training the record will be sent to the VBDC
Reporting frequency	Quarterly and cumulative annually
Baseline value	8,147 trained in 2008 (VBDC administrative records)
Target value	**2011**: 6313 **2012**: 15,114 **2013**: 10,713 **2014**: 10,713 **2015**: 10,713
Strength & Limitations	Strength: - Data readily available from training reports Limitation: - Does not report on the quality of the training - Indicator does not provide information on the specific type of training for malaria

[17] Health staff means staff delivering health care services in the health facilities.

3.14

Indicator	**Percentage of health care providers supported and monitored (or surveyed) who provide anti-malaria treatment in accordance with national malaria treatment guidelines (by categories of provider)**
Rationale/Purpose	The indicator measures the percentage of surveyed health care providers who provides anti-malarial treatment (for uncomplicated malaria)[18] according to national treatment guidelines (by category). The categories that will be used is: 1) Medical Officers (Private or public) 2) Basic Health Staff (such as Midwifes, Health Assistants etc.) 3) Trained Volunteers The indicator seeks to measure the quality of the services provided to malaria patients
Numerator	Number of surveyed health care providers that provides anti-malarial treatment (for uncomplicated malaria) according to national treatment guidelines (by category).
Denominator	Total number of health care providers surveyed (by category) These health care providers are provided with diagnostic facilities and antimalarial drugs to give treatment in the surveyed population.
Measurement Tool	Health facility survey/Survey of health care providers. The survey will include interview on treatment provision for confirmed uncomplicated *P.f.* malaria and confirmed/probable non-*P.f.* malaria. The questionnaires used will be finalized in consultation with the TSG. The national programme will collect data from the public sector. The indicator will be collected in areas covered by Global Fund using funding from Global Fund
Reporting frequency	Annually
Baseline value	Baselines for each category will be established in 2012 following the completion of health facility survey in 2011.
Target value	Targets for each category will be determined after the establishment of a baseline
Strength & Limitations	Strength: - Aims to measure quality of service instead of just the availability of drugs Limitations - To get reliable data for the quality of services provided it is important to that those doing the surveys are very well trained in carrying out the interviews

[18] Are limited to the correct treatment of confirmed uncomplicated P.f. malaria and confirmed/probable non-P.f. malaria.

3.15

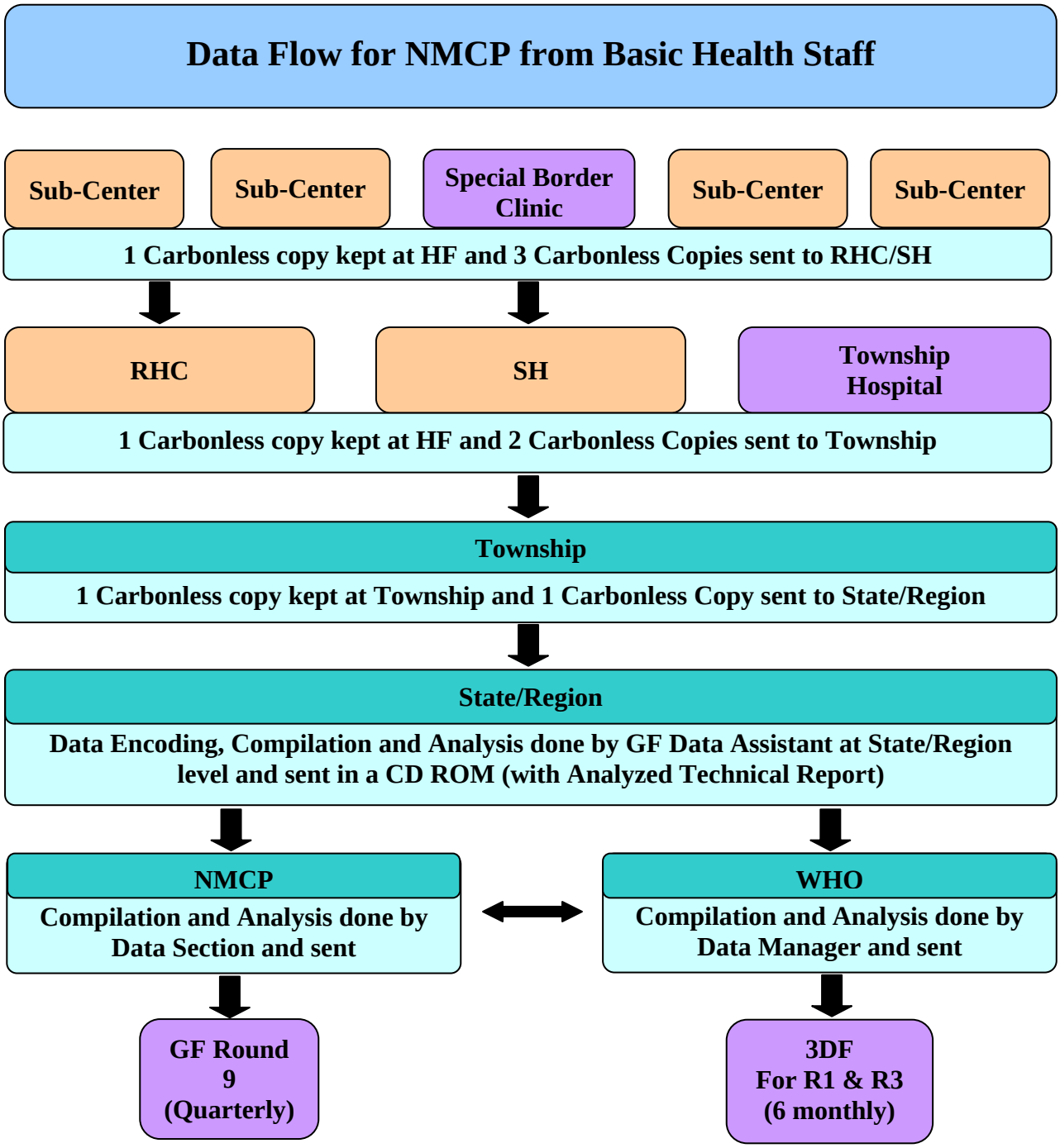
Indicator	**Percentage of assessed malaria microscopists who meets minimum national competency level**
Rationale/Purpose	The quality of the microscopists can be assessed by looking at the sensitivity[19], specificity[20] and accuracy[21] of their diagnosis. Continually, assessing the microscopists' level of competency is important to assure that quality of the service given ensure correct treatment. WHO has developed guidelines[22] that list the minimum competency levels that should be achieved after training by microscopists working at the peripheral level. These minimum competency levels include the ability: - to identify the presence of any malaria parasites in the blood - to identify the malaria species; and - to differentiate between *P. falciparum* and non-*P. falciparum* infections and The ability to quantify the number parasites found will not be included in this indicator as the rationale of the indicator is to measure the extent to which, the microscopists' service is good enough to ensure correct treatment in the basic health facilities.
Numerator	Number of microscopists assessed who have: 1 – Sensitivity of parasite detection ≥90%, 2 – Specificity of species identification (Can accurately identify malaria species) ≥80 %; and 3– Accuracy of reporting P.f. when present ≥95%
Denominator	Total number of assessed microscopists
Measurement Tool	Assessment will be done using gold standard slides. Microscopists will be assessed using 24 standard slides. The microscopists will get maximum 10 minutes. per slide. Annually, 200 microscopists will be called for assessment at the national level. At the assessment, the microscopists will fill out a sheet indicating for each reference slide, if the slide is found positive for malaria and if positive, what species is identified. On the basis of this, two 2x2 tables are made for each microscopist – one for the identification of any malaria parasites in the blood and one for the reporting on Pf presence in the blood:

[19] **Sensitivity** measures the proportion of actual positives which are correctly identified as positives (e.g. the percentage of people with malaria who are identified as having malaria).
[20] **Specificity** measures the proportion of actual negatives which are correctly identified as negative (e.g. the percentage of people without malaria who are identified as not having malaria).
[21] **Accuracy** is a combination of the sensitivity and specificity as it measures the proportion of test truly identified as being negative or positive.
[22]Malaria microscopy quality assurance manual (WHO, 2009) (http://www.who.int/entity/malaria/publications/atoz/mmicroscopy_qam/en/index.html)

Measurement Tool (cont.)	**Malaria parasites in blood** **True condition** (as determined by Gold Standard) **Reported by microscopist** POSITIVE: A, B NEGATIVE: C, D **Pf presence in blood** **True condition** (as determined by Gold Standard) **Reported by microscopist** Pf PRESENT: A, B Pf NOT PRESENT: C, D Based on the 2x2 tables the sensitivity, specificity and accuracy can be calculated for the presence of any malaria parasites in the blood and for the presence of Pf. This is done as: $\text{Sensitivity (\%)} = \frac{\text{No. of true positives (A)} \times 100}{\text{No. of true positives (A)} + \text{No of false negatives (C)}}$ $\text{Specificity (\%)} = \frac{\text{No. of true negatives (D)} \times 100}{\text{No. of true negatives (D)} + \text{No of false positives (B)}}$ $\text{Accuracy (\%)} = \frac{(\text{No. of true positives (A)} + \text{No. of true negatives (D)}) \times 100}{\text{No. of true positives (A)} + \text{No of false positives (B)} + \text{No of false negatives (C)} + \text{No. of true negatives (D)}}$ The indicator will report on the proportion of microscopists that: 1- With a sensitivity above 90 % identify the presence of malaria parasites in the blood and 2- Accurately identify more then 80 % of malaria species as measured by: $\frac{\text{No of species correctly identified}}{\text{All species present}}$[23] and 3- With an accuracy above 95 % reports the presence of Pf.
Reporting frequency	Annually
Baseline value	43% in 2011
Target value	**2012:** 60%, **2013:** 65%, **2014**: 70% **2015:**75%
Strength & Limitations	Strength - Provide important information for the planning of training needs Limitations - Assessment focus on the ability to read the slides correctly. Additional assessment is needed to get information on the other factors such as the ability to prepare quality slides and quality of the stain.

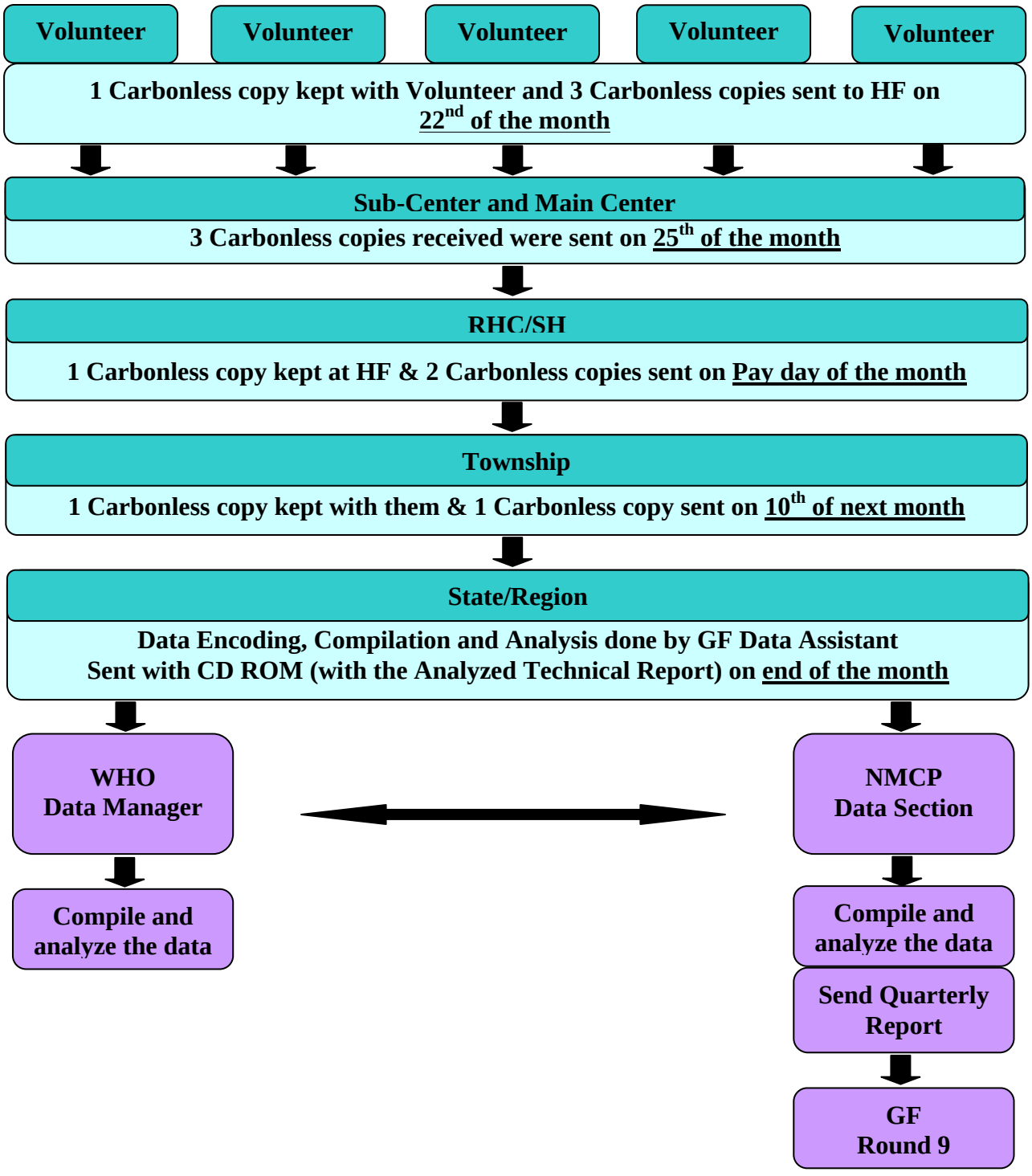
[23] Can be different that the total number of positive slides as mixed slides containing two different malaria will be included in the assessment

13.2. ANNEX 2: Data flow in special projects



Both WHO Data Manager and NMCP Data Section compile & analyze the data from Volunteers and BHS to get the National level Malaria data. They will change the data into Microsoft Access if necessary.

Data Flow for GFATM Volunteers (Non-MARC Areas)



Both WHO Data Manager and NMCP Data Section compile & analyze the data from Volunteers and BHS to get the National level malaria data. They will change the data into Microsoft Access if necessary.

Data Flow for MARC Volunteers

Volunteer | Volunteer | Volunteer | Volunteer | Volunteer

1 Carbonless copy kept with Volunteer and 3 Carbonless copies sent to HF

↓

Sub-Center and Main Center

3 Carbonless copies received were sent

↓

RHC/SH

1 Carbonless copy kept at HF & 2 Carbonless copies sent

↓

Township

Data encoded by MARC Data Assistant (Analysis also done for Township level)
1 Carbonless copy kept with them & 1 Carbonless copy sent

In MARC areas, Carbonless Copies from all BHS encoding is done by MARC Data Assistants with BHS Database Template and they also compile both Volunteer and BHS data to get the Township level Malaria data

CD ROM sent to State/Region Level, both for Volunteer and BHS data in separate Database Templates along with the Analyzed Technical Report

↓

State/Region

Data compilation will be done by MARC Data Assistant assigned in Capital City of State/Region. Compilation will be done separately for both Volunteer and BHS data in separate templates and then will combine both Volunteer and BHS data to get the State/Regional Malaria data

CD ROM sent
(With separate State/Regional level compiled templates for Volunteer and BHS)

↓

WHO Yangon MARC Office

Data Assistant Compiles & Analyzes the data in separate templates for Volunteer & BHS

↓ ↓

NMCP &
MARC Central Project Coordinator

WHO Data Manager will compile the data from MARC Volunteers & BHS in MARC Areas

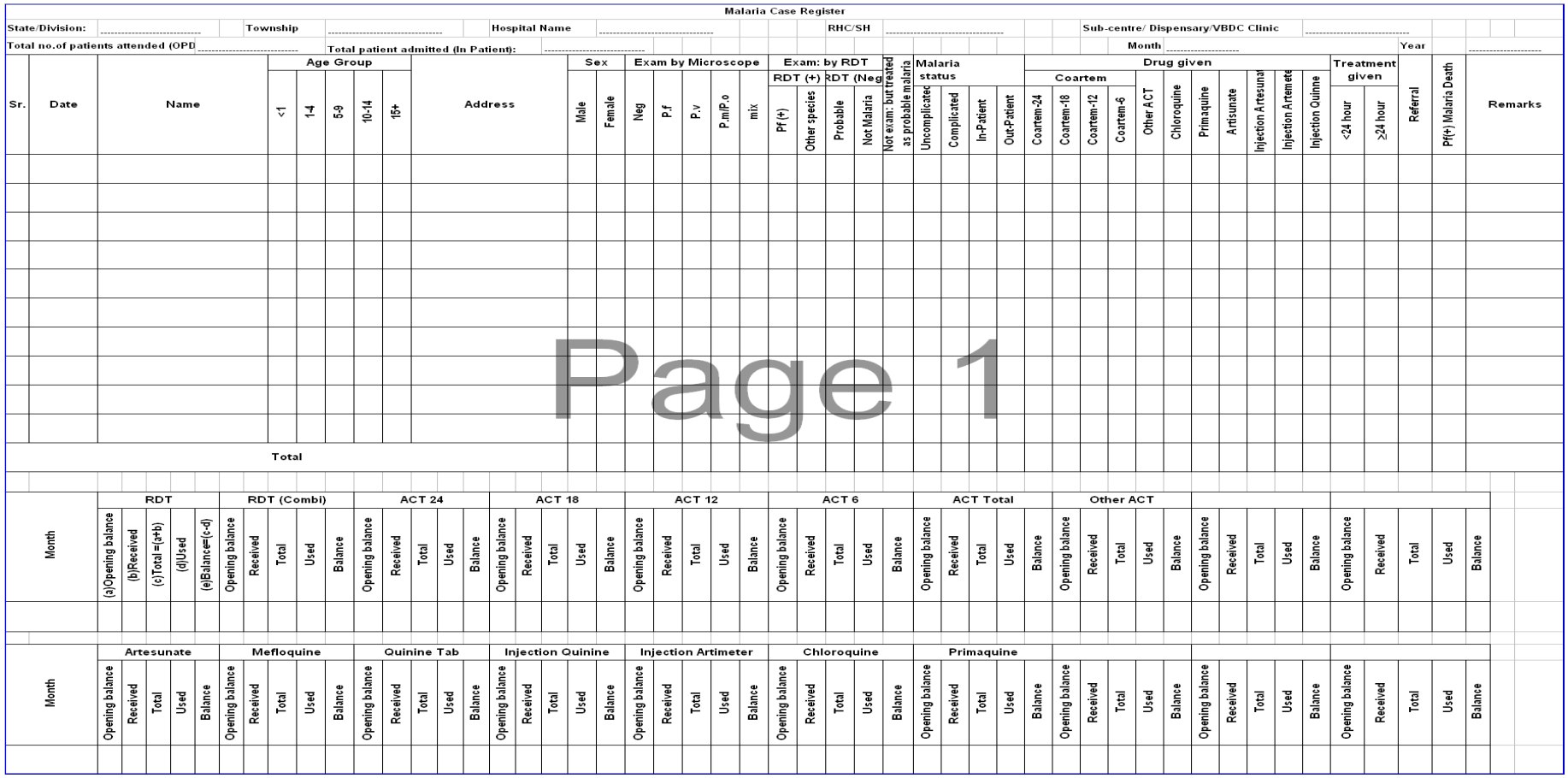
↓

Both WHO Data Manager and NMCP Data Section compile & analyze the data from Volunteer and BHS to get the National level malaria data. They will change the data into Microsoft Access if necessary.

3DF
(6 monthly)

13.3. Annex 3: Reporting formats

Malaria Case Register (English version) at Sub-centre, Rural Health Centre, Station Hospital, Township/District hospital, State/Regional hospital:



Malaria Case Register

State/Division: ..... Township ..... Hospital Name ..... RHC/SH ..... Sub-centre/ Dispensary/VBDC Clinic .....

Total no.of patients attended (OPD ..... Total patient admitted (In Patient): ..... Month ..... Year .....

Sr.	Date	Name	Age Group					Address	Sex		Exam by Microscope					Exam: by RDT				Malaria status				Drug given											Treatment given		Referral	Pf(+) Malaria Death	Remarks
																RDT (+)		RDT (Neg						Coartem											<24 hour	≥24 hour			
			<1	1-4	5-9	10-14	15+		Male	Female	Neg	P.f	P.v	P.mi/P.o	mix	Pf (+)	Other species	Probable	Not Malaria	Not exam: but treated as probable malaria	Uncomplicated	Complicated	In-Patient	Out-Patient	Coartem-24	Coartem-18	Coartem-12	Coartem-6	Other ACT	Chloroquine	Primaquine	Artisunate	Injection Artesunat	Injection Artemete	Injection Quinne					
		Total																																					

Month	RDT					RDT (Combi)					ACT 24					ACT 18					ACT 12					ACT 6					ACT Total					Other ACT														
	(a)Opening balance	(b)Received	(c)Total =(a+b)	(d)Used	(e)Balance=(c-d)	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance										

Month	Artesunate					Mefloquine					Quinine Tab					Injection Quinine					Injection Artimeter					Chloroquine					Primaquine																				
	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance	Opening balance	Received	Total	Used	Balance																

Malaria case report from sub-centre to Rural Health Centre:

Nga Pha (Ka-1)

Form for Sub-Centre/Rural Health Centre

---------- Sub-Centre ---------- Rural Health Centre

---------- Township ---------- Month ---------- Year

1. Patients treatment condition

No.	Description	With Microsope RHC (MC/SC)	RDT only RHC(MC/SC)
1.1	Total Patient attendance to the clinic (New Patient)		
1.2	Total patient tested for malaria		
1.3	*P.f* (+) Uncomplicated Malaria		
Total Malaria Patient	*P.f* (+) Complicated Malaria		
	P.v (+)		
	Mixed		
	From RDT Negative, Non-P.f suspected malaria		
1.4	Not-Malaria patients		
1.5	Total Death in Hospital		
1.6	Death with malaria		
1.7	Total malaria patients referred to upper level		

* Note : (1.2) = (1.3) + (1.4)

2. Drugs and RDT received / used condition

No.	Description	RDT	ACT (according to age)			
			1-4 (6's)	5-9 (12's)	10-14 (18's)	15+ (24's)
2.1	Previous month balance					
2.2	Received this month					
2.3	Total					
2.4	Used					
2.5	Balance this month					
2.6	Out of drugs	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No

Note : MC/SC/MCH/SH from RHC/SHU/UHC should fill in this form.

Authorized Signature

Malaria case report from Rural Health Centre (RHC) to Township/District Health Office:

Nga Pha (Ka-2)

Each rural health centre (RHC) Monthly Report

---------- Township ---------- Rural Health Centre ---------- Month ---------- Year

1. Patients treatment condition

No.	Description	With Microsope RHC (Main Centre)	RDT only RHC(Main Centre)	---------- S/C	---------- S/C	---------- S/C	---------- S/C	---------- S/C	---------- S/C	RHC total	
										Microsope	RDT
1.1	Total Patient attendance to the clinic (New Patient)										
1.2	Total patient tested for malaria										
1.3	*P.f* (+) Uncomplicated Malaria										
Total Malaria Patient	*P.f* (+) Complicated Malaria										
	P.v (+)										
	Mixed										
	From RDT Negative, Non-P.f suspected malaria										
1.4	Not-Malaria patients										
1.5	Total Death in Hospital										
1.6	Death with malaria										
1.7	Total malaria patients referred to upper level										

* Note : (1.2) = (1.3) + (1.4) (Each RHC/UHC fill this from) copy from Nga-Pha Ka (1). Subcenter from Station Hospital should fill in Nga Pha Kha-2

2. Drugs and RDT received / used condition

No.	Description	----------, MC					----------, SC					----------, SC					----------, SC					----------, SC					Total				
		RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT			
			1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+
2.1	Previous month balance																														
2.2	Received this month																														
2.3	Total																														
2.4	Used																														
2.5	Balance this month																														
2.6	Out of drugs	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No

Authorized Signature

Malaria case report from Station Hospital & Township/District Hospital to Township/District Health Office:

Nga Pha (Kha-1)

Township Hospital / State Hospital Form

---------- Township ---------- Hospital / Station Hospital

---------- Month ---------- Year

1. Patients treatment condition

No.	Description	With Microsope RHC (MC/SC)		RDT only RHC(MC/SC)	
		Out Patient	In Patient	Out Patient	In Patient
1.1	Total Patient attendance to the clinic (New Patient)				
1.2	Total patient tested for malaria				
1.3	*P.f* (+) Uncomplicated Malaria				
Total Malaria Patient	*P.f* (+) Complicated Malaria				
	P.v (+)				
	Mixed				
	From RDT Negative, Non-P.f suspected malaria				
1.4	Not-Malaria patients				
1.5	Death in Hospital				
1.6	Death with malaria				
1.7	Total malaria patients referred to upper level				

* Note : (1.2) = (1.3) + (1.4)

2. Drugs and RDT received / used condition

No.	Description	RDT	ACT (according to age)			
			1-4 (6's)	5-9 (12's)	10-14 (18's)	15+ (24's)
2.1	Previous month balance					
2.2	Received this month					
2.3	Total					
2.4	Used					
2.5	Balance this month					
2.6	Out of drugs	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No

Fill each Township Hospital and Station Hospital

Authorized Signature

Malaria case report from Township (Township report) to State/Regional Health Director Office:

Township Total Form

---------- Township ---------- Month ---------- Year

1. Patient treatment condition

No.	Description	RHC Total		Township TH, SH, SHU Total				Township Total			
		Microsope	RDT only	Microsope		RDT		Microsope		RDT	
		IP	OP	IP	OP	IP	OP	IP	OP	IP	OP
1.1	Total Patient attendance to the clinic (New Patient)										
1.2	Total patient tested for malaria										
1.3	*P.f* (+) Uncomplicated Malaria										
Total Malaria Patient	*P.f* (+) Complicated Malaria										
	P.v (+)										
	Mixed										
	From RDT Negative, Non-P.f suspected malaria										
1.4	Not-Malaria patients										
1.5	Death in Hospital										
1.6	Death with malaria										
1.7	Total malaria patients referred to upper level										

* Note : (1.2) = (1.3) + (1.4)

Copy Total from Each RHC/MCH form Nga Pha (Ka-2)

2. Drugs and RDT received / used condition

No.	Description	RHC Total					Total TH, SH, SHU					Township Total				
		RDT	ACT				RDT	ACT				RDT	ACT			
			1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+
2.1	Previous month balance															
2.2	Received this month															
2.3	Total															
2.4	Used															
2.5	Balance this month															
2.6	Out of drugs	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No

Copy from Nga Pha (Ka -3) and Nga Pha (Kha-3) and combine.

Authorized Signature

Compilation of reports:

Compilation of all Rural Health Centre report at Township level:

Nga Pha (Ka-3)

All rural Health Centre Report

---------- Township ---------- Month ---------- Year

1. Patient treatment condition

No.	Description	1. ---------- RHC		2. ---------- RHC		3. ---------- RHC		4. ---------- RHC		5. ---------- RHC		6. ---------- RHC		7. ---------- RHC		8. ---------- RHC		All RHC Total	
		Micro - scope	RDT	Micro - scope	RDT	Micro - scope	RDT	Micro - scope	RDT	Micro - scope	RDT	Micro - scope	RDT	Micro - scope	RDT	Micro - scope	RDT	Micro - scope	RDT
1.1	Total Patient attendance to the clinic (New Patient)																		
1.2	Total patient tested for malaria																		
1.3	*P.f* (+) Uncomplicated Malaria																		
Total Malaria Patient	*P.f* (+) Complicated Malaria																		
	P.v (+)																		
	Mixed																		
	From RDT Negative, Non-P.f suspected malaria																		
1.4	Not-Malaria patients																		
1.5	Death in Hospital																		
1.6	Death with malaria																		
1.7	Total malaria patients referred to upper level																		

* Note : (1.2) = (1.3) + (1.4)

Copy Total from Each RHC/MCH form Nga Pha (Ka-2)

2. Drugs and RDT received / used condition

No.	Description	----------, RHC					----------, RHC					----------, RHC					----------, RHC					----------, RHC					----------, RHC					Total				
		RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT			
			1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+
2.1	Previous month balance																																		
2.2	Received this month																																		
2.3	Total																																		
2.4	Used																																		
2.5	Balance this month																																		
2.6	Out of drugs	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No

Authorized Signature

Compilation of all Hospitals report at Township level:

Nga Pha (Kha-3)

Hospital Total in the Township

---------- Township ---------- Month ---------- Year

1. Patient treatment condition

No.	Description	Township Hospital				SHU/SH				SHU/SH				SHU/SH				Hospitals Total			
		Microspe		RDT		Microspe		RDT		Microspe		RDT		Microspe		RDT		Microspe		RDT	
		IP	OP	IP	OP	IP	OP	IP	OP	IP	OP	IP	OP	IP	OP	IP	OP	IP	OP	IP	OP
1.1	Total Patient attendance to the clinic (New Patient)																				
1.2	Total patient tested for malaria																				
1.3	*P.f* (+) Uncomplicated Malaria																				
Total Malaria Patient	*P.f* (+) Complicated Malaria																				
	P.v (+)																				
	Mixed																				
	From RDT Negative, Non-P.f suspected malaria																				
1.4	Not-Malaria patients																				
1.5	Death in Hospital																				
1.6	Death with malaria																				
1.7	Total malaria patients referred to upper level																				

* Note : (1.2) = (1.3) + (1.4)

To compile from Nga Pha Kha-1 Township hospital report and Nga Pha Kha-2 Station Hospital report

2. Drugs and RDT received / used condition

No.	Description	Township Hospital					SHU/SH					SHU/SH					SHU/SH					SHU/SH					SHU/SH					Total				
		RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT				RDT	ACT		
			1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+		1-4	5-9	10-14	15+
2.1	Previous month balance																																		
2.2	Received this month																																		
2.3	Total																																		
2.4	Used																																		
2.5	Balance this month																																		
2.6	Out of drugs	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No

Authorized Signature

List of household for LLIN distribution

LLIN Distribution Format to Townships

Division ---------- Township ---------- Health Center ---------- Village ---------- Date ----------
Responsible person of distribution ---------- Agency ----------

Sr.	Name of head of household	No. of family members	Age		Sex		Total	Bed net owned		Remark	Signature
			<5	>5	Male	Female		Ordinary	LLIN received		
	Total										

List of household for Net impregnation

Data collection format for bed net impregnation																
Bed Net Ownership Survey and Impregnation Format																
S/D----------	Township----------				Health Center----------					Sub Center----------			Village----------			
Bet net Ownership survey date----------					Bet Net Impregnation Date----------					Responsible person----------						
Sr	Name of head of HH	Population			Owned Bet Net			impregnated bed Net							Total Bed Net impregnated	HH without Net
								Nylon			Cotton					
		<5	5+ and abve	Total	Nylon	Cotton	Total	Single	Double	Family	Single	Double	Family			
	Total															

Reporting for Bed net impregnation (Township/Rural Health Center report):

Summary Reporting Format for ITN Impregnation in the Village

S/D---------- Township---------- Helath center----------

Date of survey---------- Date of impreg-------- Reporting Period----------

Total HH in Targeted village---------- Total Population in Target village----------

1	No: of Population	<5	5+and above	Total
2	No: of owned bed net	Nylon	Cotton	Total
3	No of HH with bed net			
4	No of HH without bed ne			
5	Total No of bed net impre			
6	Nylon	Single		
		Double		
		Family		
7	Cotton	Single		
		Double		
		Family		
8	Ko tab Received			
9	Ko-tab used			
10	Ko-tab balance			
11	% of HH with bednet			
12	% of HH without bed net			
13	% of bed net impregnate			

% of HH with bed net=No:of HH with bed netin target area/No of HH in Targeted areax100

% of HH without bed net=No: of HH without bed net/No of HH in target areax100

% of bed net impregnated =No: of bednet impregnated/No: of owned bed net in target areax100

13.4. Annex 4: Supervision Checklists

Checklist for State/Divisional Officer for supervision and Monitoring Activities

(Programme Manager, State/Regional Health Director)

Name of the S/R Health Director: _____ Date: _____
State/Region: _____ Supervised Township: _____
Person(s) met: _____

1 Programme Management at Township level

a) Is there a focal person assigned for malaria programme management at township level?
□Yes □No
(a-I) If Yes, what is his/her designation: □TMO □VBDC staff □HA
□THN □Other:_____

b) Have the township developed an action plan for malaria control? □Yes □No
(b-I) If Yes, when was it made: □In the last year □1-2 years ago
□2-5 years ago □More than 5 years ago
(b-II) If Yes, are the actions planed in the action plan, carried out? □Yes □No

c) From how many health centers /sub-centers does the township receive monthly malaria case reports? _____

d) From how many health centers /sub-centers does the township not receive monthly malaria case reports? _____

e) What does the township use the reported malaria data for?
□Nothing □Planning for supply needs at health centers
□Planning for other activities □Other:_____

2 Malaria Microscopy

a) What is the number of regular technicians and other staff trained for malaria microscopy in the township: ____

b) Number of functioning microscopes in the township: ____

c) Number of microscopes in township not functioning/ in need of repair: _

d) Are there adequate provisions of laboratory supplies? □Yes □No

e) Is the result of the microscopy always recorded in the malaria register? □Yes □No

3 Diagnosis using RDT

a) Does the TMO think that the staff has adequate knowledge and skills on the use of RDT?
□Yes □No □Partly adequate

b) Are the RDT results useful in the management of malaria cases? □Yes □No

4 Treatment of Malaria

a) Does the staff adhere to the national malaria treatment guideline treatment? □ Yes □ No
(a-I) If not, who and why not? _____

5 Logistic Management

a) At the township level, who is the responsible person for logistic management of malaria supplies? □TMO □VBDC staff □ HA □Midwife □LHV □Other:_____

b) How often is malaria supplies issued and replenished? □Monthly □Quarterly
□Twice a year □Whenever needed □ Other:_____

c) How is malaria supplies issued and replenished? □At monthly meetings □BHS collects
□When focal person visits center □Other:_____

d) How is it determined, how much drugs and how many RDTs are issued to each sub-center?
□Equally distributed between sub-centers □Based on analysis of needs
□Replenishment when used □Other: _____

e) What is done to ensure that health centers that are difficult to reach in the rainy season have enough supplies? _____

_____

f) Are there any expired malaria drugs? □Yes □No

g) Are there any expired RDT? □Yes □No

6 Township Supervision and Monitoring Status

a) How frequent does the TMO or responsible focal person visit RHCs for supervision of malaria activities? □Monthly □Quarterly □Yearly □Never □Other:_____

b) When was the last visit? □In the last month □1-3 months ago □3-6 months ago
□6-12 months ago □More than a year ago

c) What were the key findings and what was the action taken _____

_____

7 Summary of key finding, key problems, gaps and recommendations with reference to Central NMCP, S/D and WHO and target date:_____

_____

_____

_____

_____

_____

_____

____ (Kindly use additional sheet if necessary)

Signature:.....
Name:.....
Designation:.....
State/ Region:.....
Date:.....

Checklist for Township Medical Officer for Supervision and Monitoring Activities within the townships

(By Township medical officer/Health assistant-1 and Township health nurse)

Name of TMO: _____ State/Region:_____ Date: _____

Township: _____ Name of visited Health Center: _____

Person(s) met: _____

1 Programme Management at Health Center level

a) Is there a focal person assigned for malaria programme management at health center level? □Yes □No

(a-I) If Yes, what is his/her designation: □HA □Midwife □LHV □Other:____

b) What is the malaria activities at this health center during this year: □LLIN distribution □Bednet impregnation □BCC □Case management □Other:_____

c) What are the main problems in implementation of malaria programme activities at this health center?_____

_____

2 Malaria Microscopy (if the facility has a microscope)

a) Is the microscope functioning? □Yes □No

b) Is there a trained microscopist? □Yes □No

c) Are there adequate provisions of laboratory supplies? □Yes □No

d) Is the result of the microscopy recorded in the malaria register? □Yes □No

3 Diagnosis using RDT

a) Which patients, does the staff test using RDTs? □All fever-cases □All suspected malaria cases □Other:____

b) Is the staff's skills in using the RDT satisfactory (Kindly explore with some questions on how the RDT is used in tests)? □Yes □No

c) Does the staff trust the RDT results? □Yes □No

d) Are the RDT results considered useful in the management of malaria cases? □Yes □No

(d-I) If No, why _____

4 Treatment of Malaria

a) Does the staff adhere to the national malaria treatment guideline treatment? □Yes □No

(a-I) If not, who and why not? _____

_____

5 Logistic Management

a) In the health center, who is the responsible person for logistic management of malaria supplies? □HA □Midwife □LHV □Other:_____

b) How often is malaria supplies issued and replenished? □Monthly □Quarterly □Twice a year □Whenever needed □Other:_____

c) How is malaria supplies issued and replenished? □At monthly meetings □BHS collects □When focal person visits center □Other:_____

d) How is it determined, how much drugs and how many RDTs are issued to each sub-center? □Equally distributed between sub-centers □Based on analysis of needs □Replenishment when used □Other:_____

e) What is done to ensure that the health center, even in the rainy season, have enough supplies? _____

_____

f) How are the drugs stored? □In storeroom □In cupboard □Other:_____

g) Are the drugs? □Protected from moisture and rain □Protected from direct sunlight
□Kept as cold as possible □In storage place that can be locked

h) Are the stock book kept? □Regular updated □Not regular updated

i) Are there any expired malaria drugs? □Yes □No

j) Are there any expired RDTs? □Yes □No

k) Are the Malaria register (carbonless) available in health center? □Yes □No

l) How frequently are the malaria register forms sent? □Monthly □Quarterly
□Yearly □Never Other:_____

m) To whom are these malaria register forms sent? □RHC(for sub-centers) □Township
□State/ Division VBDC

n) Are there any constraints in filling out the malaria register? □Yes □No

(n-I) If yes, what constraints?_____

Please fill out the table below

Sr	Inputs	Total no. received in last 6 month	Date last received	Total no. distributed/ used in last 6 month	Balance (at present)	Expiry date	Any stock outs during last 3 month for more than 1 week?
1	Coartem 24's						
2	Coartem 18's						
3	Coartem 12's						
4	Coartem 6's						
5	Chloroquine Tab						
6	Primaquine Tab						
7	Inj Artemether 80mg						
8	RDTs						
9	Lancet						

6 Summary of key finding, key problems, gaps and recommendations and target date:

_____

_____

_____

_____

_____

_____ (Use additional sheet if necessary)

Signature: .....

Name: .....

Township: .....

Checklist for Regional Malariologist /Team leader for Supervision and Monitoring Activities in Health Centers or townships

(By Malariologist/Team leader)

Name of RO/TL: _____ State/Regional:_____ Date: _____
Township: _____ Health Center: _____
Person(s) met: _____
Monitoring visit done at: □Township □Health Center

1 Programme Management

a) Is there a focal person assigned for malaria programme management? □Yes □No
   (a-I) If Yes, what is his/her designation: □TMO □VBDC Staff □HA
   □Midwife □THN □LHV □Other:_____
b) How frequent does the focal person supervise malaria control activities at RHC/ Sub-center level? □Monthly □Quarterly □Yearly □Never
c) When was his/her last supervision visit? □In the last month □1-3 months ago
   □3-6 months ago □6-12 months ago □More than a year ago
d) What are key findings during the supervision visits and what action has been taken? _____
   _____
   _____
e) Are the malaria situation and programme activities discussed at monthly meetings?□Yes □No
f) Are any malaria health education activities done in this health center/township? □Yes □No
g) Are there any BHS trained in doing health education? □Yes □No
   (g-I) If Yes, when was he/she trained : _____
h) Are language barriers a problem in conducting health education? □Yes □No
i) Is IEC materials available? □Yes □No
   (i-I) If Yes, are the IEC material considered useful? □Yes □No
j) Have there been any distributions of LLINs in the last year? □Yes □No
k) Have there been any bednet impregnations done in the last year? □Yes □No
l) What are the main problems in implementation of malaria programme activities in this health center/township?_____
   _____

2 Recording and reporting

a) Are the Malaria register (carbonless) available in township/health center? □Yes □No
b) How frequently are the malaria register forms sent? □ Monthly □Quarterly
   □Yearly □Never □Other:_____

To whom are these malaria register forms sent? □Township □State/Division VBDC

c) Are there any constraints in filling out the malaria register? □Yes □No
   (c-I) If yes, what constraints? _____
d) From how many health centers /sub-centers does the township / health center receive monthly reports? _____
e) From how many health centers /sub-centers does the township / health center not receive monthly reports? _____
f) What does the township / health center use the reported malaria data for?

□Nothing □Planning for supply needs at health centers
□Planning for other activities □Other:_____

3 Treatment of Malaria

a) Does the staff adhere to the national malaria treatment guideline treatment? □Yes □No
(a-I) If not, who and why not? _____

4 Logistic Management

a) At the township/ health center, who is the responsible person for logistic management of malaria supplies? □ TMO □VBDC Staff □ HA □ LHV □Other:_____
b) How often is malaria supplies issued and replenished? □Monthly □Quarterly
□Twice a year □Whenever needed □Other:____
c) How is malaria supplies issued and replenished? □At monthly meetings □BHS collects
□When focal person visits center □Other: _____
d) How is it determined, how much drugs and how many RDTs are issued to each sub-center?
□Equally distributed between sub-centers □Based on analysis of needs
□ Replenishment when used □Other: _____
e) What is done to ensure that health centers that are difficult to reach in the rainy season have enough supplies? _____
_____
f) How are the drugs stored? □In storeroom □In cupboard □Other:_____
g) Are the drugs? □Protected from moisture and rain □Protected from direct sunlight
□Kept as cold as possible □In storage place that can be locked
h) Are the stock book kept? □Regular updated □Not regular updated
i) Are there any expired malaria drugs? □Yes □No
j) Are there any expired RDT? □Yes □No

Sr	Inputs	Total no. received in last 6 month	Date last received	Total no. distributed/ used in last 6 month	Balance (at present)	Expiry date	Any stock outs during last 3 month for more than 1 week?
1	Coartem 24's						
2	Coartem 18's						
3	Coartem 12's						
4	Coartem 6's						
5	Chloroquine (1000's)						
6	Primaquine (1000's)						
7	Inj Artemether 80mg						
8	RDTs						
9	Lancet						

Question only for supervision visits at health centers

5 Microscopy at health center (for facilities with microscope)

a) Is the microscope functioning? □Yes □No
b) Is there a trained microscopist? □Yes □No
c) Are there adequate provisions of laboratory supplies? □Yes □No
d) Is the result of the microscopy recorded in the malaria register? □Yes □No
e) For which patients are malaria microscopy asked for? □Clinically suspected malaria
□RDT pos. □RDT neg.
f) What are the main issues and constraints in laboratory activities: _____
_____

6 RDT use at health center

a) Which patients, does the staff test using RDTs? □All fever-cases
□All suspected malaria cases
b) Is the staff's skills in using the RDT satisfactory (Kindly explore with some questions on how the RDT is used in tests)? □Yes □No
c) Does the staff trust the RDT results? □Yes □No
d) Are the RDT results considered useful in the management of malaria cases? □Yes □No

Question only for supervision visits to Townships

7 Microscopy in township

a) What is the number of regular technician and other staffs trained for malaria microscopy in the township: _____
b) Number of functioning microscopes in the township: ____
c) Number of microscopes in township not functioning/ in need of repair: _
d) Are there adequate provisions of laboratory supplies? □Yes □No
e) What are the main issues and constraints in laboratory activities: _____
_____

8 RDT use in township

a) Does the TMO think that the staff has adequate knowledge and skills in the use of RDT?
□Yes □No □Partly adequate
b) Are the RDT results useful in the management of malaria cases? □Yes □No
(b-I) If No, why _____

9 Please provide a summary of main findings, key problems and constraints and recommendations: _____
_____
_____
_____

(Please use additional sheet if necessary)

Signature.....
Name.....
Designation.....
State/ Region.....
Date.....

Checklist for Malaria Assistant/ Malaria Inspector for Supervision and Monitoring Activities within the townships

(By Malaria assistant/Malaria inspector/other VBDC staff/Township Health staff)

Name of MA/MI: _____ State/Region:_____ Date: _____
Township: _____ Name of visited Health Center: _____
Person(s) met: _____

1 Programme Management at Health Center level

a) Is there a focal person assigned for malaria programme management at health center level? □Yes □No
   (a-I)If Yes, what is his/her designation? □HA □Midwife □ LHV □Other:_____
b) How frequent does the focal person supervise malaria control activities at RHC/ Sub-center level? □Monthly □Quarterly □Yearly □Never
c) When was his/her last supervision visit? □In the last month □1-3 months ago □3-6 months ago □6-12 months ago □More than a year ago
d) What are key findings during the supervision visits and what action has been taken? _____
   _____
   _____
e) Are the malaria situation and programme activities discussed at monthly meetings? □Yes □No
f) Are any malaria health education activities done in this health center? □Yes □No
g) Are there any BHS at health center trained in doing health education? □Yes □No
   (g-I) If Yes, when was he/she trained : _____
h) Are language barriers a problem in conducting health education? □Yes □No
i) Is IEC materials available? □Yes □No
   (i-I) If Yes, are the IEC material considered useful? □Yes □No
j) Have there been any distributions of LLINs in the last year? □Yes □No
k) Have there been any bednet impregnations done in the last year? □Yes □No

2 Recording and reporting

a) Are the Malaria register (carbonless) available in the health center? □Yes □No
b) How frequently are the malaria register forms sent? □Monthly □Quarterly □Yearly □Never
c) To whom are these malaria register forms sent? □RHC □Township □S/D VBDC
d) Are there any constraints in filling out the malaria register? □Yes □No
   (d-I) If yes, please mention_____
e) Are the reported data used for any purpose? □Yes □No
f) Are any feedback received on reported data? □Yes □No

3 Malaria Microscopy (if the facility has a microscope)

a) Is the microscope functioning? □Yes □No
b) Is there a trained microscopist at the facility? □Yes □No
c) Are there adequate provisions of laboratory supplies? □Yes □No
d) Is the result of the microscopy recorded in the malaria register? □Yes □No
e) For which patients are malaria microscopy asked for?
   □Clinically suspected malaria □RDT pos. □RDT neg.

f) What are the main issues and constraints in laboratory activities: _____
_____

4 Diagnosis using RDT

a) Which patients, does the staff test using RDTs? □All fever-cases
□All suspected malaria cases
b) Is the staff's skills in using the RDT satisfactory (Kindly explore with some questions on how the RDT is used in tests)? □Yes □No
c) Does the staff trust the RDT results? □Yes □No

5 Treatment of Malaria

a) Does the staff adhere to the national malaria treatment guideline treatment? □Yes □No
(a-I)If not, who and why not? _____

6 Logistic Management

a) At the health center, who is the responsible person for logistic management of malaria supplies? □ HA □Midwife □ LHV
b) How often is malaria supplies issued and replenished? □Monthly □Quarterly
□Twice a year □Whenever needed
c) How is malaria supplies issued and replenished? □At monthly meetings □BHS collects
□When focal person visits center □Other: _____
d) How is it determined, how much drugs and how many RDTs are issued to each sub-center?
□Equally distributed between sub-centers □Based on analysis of needs
□ Replenishment when used □Other: _____
e) What is done to ensure that the health center, even in the rainy season, have enough supplies? _____
_____
f) How are the drugs stored? □In storeroom □In cupboard □Other:_____
g) Are the drugs? □Protected from moisture and rain □Protected from direct sunlight
□Kept as cold as possible □In storage place that can be locked
h) Are the stock book kept? □Regular updated □Not regular updated
i) Are there any expired malaria drugs? □Yes □No
j) Are there any expired RDTs? □Yes □No

Please fill out the table below

Sr	Inputs	Total no. received in last 6 month	Date last received	Total no. distributed/ used in last 6 month	Balance (at present)	Expiry Date	Any stock outs during last 3 month for more than 1 week?
1	Coartem 24's						
2	Coartem 18's						
3	Coartem 12's						
4	Coartem 6's						
5	Chloroquine Tab						
6	Primaquine Tab						
7	Inj Artemether 80mg						

8	RDTs						
9	Lancet						

7 Summary of key finding, key problems, gaps and recommendations:_____

(Use additional sheet if necessary)

Signature: .....
Name: .....
Township: .....

13.5. Annex 5: Components of a programme review

During the review, certain key elements should be included while other element can be regarded as optional. In developing the objectives, the Ministry of Health will make sure that the review are fit for the country specific situation.

Key elements

- Political commitment for malaria control programme. Is the country committed to malaria control and the Millennium Development Goals (MDGs)
- Review of programme policy, strategies, targets and objectives
- Programme organization in public, private, NGO and other sectors. Position of malaria control within the general health services. Level of integration and decentralization
- Coordination with other vector borne disease control programmes like lymphatic filariasis, Dengue,, Japanese encephalitis, etc.
- Resources for malaria control (national, and from other sources (include WHO and all other donors such as the GFATM)
- Policy and current practices in:
  - early diagnosis and prompt treatment in public and private sectors
  - integrated vector management (IVM)
  - Communications for behavioural changes (BCC)
- Surveillance system (as a part of integrated disease surveillance)
- Epidemic detection and control as a part of epidemic preparedness
- Monitoring of drug resistance and insecticide resistance
- Quality control of microscopy, RDTs, antimalarial drugs and insecticides
- Multisectoral collaboration
- Cross border collaboration as deemed needed
- Monitoring and evaluation:
  - Health information system
  - National surveys
  - Special studies
- Operational research and utilization
- Supervision
- Procurement and supplies management
- Staff patterns (types and adequacy)
- Training
