[NATIONAL MALARIA CONTROL PROGRAMME
DEPARTMENT OF HEALTH
MINISTRY OF HEALTH]

ANNEX 7.1

Addendum to M&E plan for Myanmar RAI malaria grant

Department of Health, Myanmar

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Abbreviations

3DF	The Three-Disease Fund
3MDGs	The Three Millennium Development Goals Fund
ACT	Artemisinin-based Combination Therapy

BMGF	The Bill and Melinda Gates Foundation
ERAR	Emergency Response to Artemisinin Resistance
GMS	The Greater Mekong Sub-region
HMIS	Health Management Information System
IRS	Insecticide Residual Spray
LLIN	Long-lasting Insecticide treated Net
MARC	Myanmar Artemisinin Resistant Containment
M&E	Monitoring and Evaluation
NMCP	National Malaria Control Programme
PSI-Myanmar	Population Services International-Myanmar
RAI	Regional Artemisinin Initiative
VHV	Village Health Volunteer

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Introduction

Myanmar has made a tremendous achievement in malaria control, particularly in the past few years. The success can be attributed to many factors including substantial financial assistance from the 3DF 3MDGs and the BMGF, technical assistance from WHO and other partners such as the Malaria Consortium, and collaborations among operational partners, both the public and the privates formal as well as informal sectors. Death and suffering from malaria have dwindled among the general population over the year, but malaria continues to post threats among marginalized populations. Of particular importance is malaria among mobile illegal occupational migrants on international borders, particularly the Myanmar-Thai border where there is a serious threat to ACT effectiveness. In 2011, Myanmar joined the global efforts on a containment of falciparum malaria resistance to ACT—MARC.

A global consensus was reached in order to eliminate the artemisinin resistance in GMS. A framework for action was developed and described by WHO in Emergency Response to Artemisinin Resistance (ERAR) in GMS, for which funding was requested to the Global Fund through this Regional Artemisinin Initiative (RAI).

Goal and objectives of the Regional Artemisinin Initiative

The overall goal is to make an as large as possible contribution to the elimination of falciparum malaria from the GMS, and to prevent the emergence or spread of artemisinin resistance to new areas.

The objectives of the RAI are divided by tier as follows:

Tier 1: areas for which there is credible evidence of artemisinin resistance

- To interrupt transmission of *P. falciparum* by universal coverage and usage of insecticide treated bed nets (either long-lasting nets or treated conventional nets) in targeted areas.
- To provide universal access to quality diagnosis and treatment for static populations at health facilities (public and private) and through community malaria workers.
- To provide access to prevention, diagnosis and treatment for mobile and migrant populations.
- To halt marketing and sale of oral artemisinin monotherapies in the private sector.
- To establish and operationalize a rigorous surveillance system linked to a focal response mechanism.

Tier 2: areas with significant inflows of people from tier 1 areas, including those immediately bordering tier 1

- To ensure high levels of usage and coverage of insecticide treated bed nets (either LLIN—long-lasting insecticide treated nets or treated conventional nets) in all targeted areas.
- To provide universal access to quality diagnosis and treatment at health facilities (public and private) and through community malaria workers in targeted areas.
- To halt marketing and sale of oral artemisinin monotherapies in the private sector.
- To closely monitor trends in malaria cases, to identify and take action to control outbreaks and to undertake Therapeutic Efficacy Studies (TES) in sentinel sites.

This initiative adds up to the existing 3MDG fund for malaria grant, with UNOPS Myanmar as PR. The National Strategic Plan is also being revised, albeit with minor changes to cover 2016, with a plan for major revision in 2015 to incorporate the ERAR framework.

As RAI closely complements the existing 3MDG malaria grant for MARC, it is expected that the current monitoring and evaluation (M&E) system will be used as well. The key features of the national malaria M&E system include the following:

- Routine monitoring & supervision at different levels (from central to community level)
- Quarterly monitoring meetings at township level and Regional level
- Annual evaluation and planning meetings at Regional and Central level in order to monitor progress, draw lessons, institute appropriate mid-course corrections and ensure achievement of key objectives.
- External programme review
- Surveys such as community survey, health facility survey, malariometric survey and entomological surveys
- Studies including Antimalarial drug efficacy (Therapeutic Efficacy Studies), Insecticide resistance monitoring
- Operational research on efficacy of different insecticide treated materials for outdoor transmission
- Quality assurance on data, laboratory and antimalarial drugs in collaboration with Department of Health Planning for HMIS, Department of Food and Drug Administration, PSI-Myanmar and other implementing partners

  Total cost budgeted for M&E in RAI is as follows:

Year 1	Year 2	Year 3	Total	% from total budget
734,279	221,149	319,922	1,275,350	6.17

List of Indicators

Impact indicators
1) Confirmed falciparum malaria cases (microscopy or RDT) per 1000 persons per year (Results disaggregated by source and tier)
2) % of administrative units with falciparum incidence <1/1000 (Results disaggregated by tier)
3) % of indigenous cases among investigated case (Results disaggregated by tier)

Outcome indicators
1) % of mobile people that used an ITN the last time they slept in transmission areas (disaggregated by category of mobile/migrant person)
2) % of mobile people with fever in the last 3 months that accessed parasite-based diagnosis (disaggregated by category of mobile/migrant person)

Coverage /Output and Other indicators
1) # of ITNs/LLINs distributed to at-risk populations through mass campaigns
2) # & % of population at risk potentially covered by ITNs distributed
3) % of suspected malaria cases that receive a parasitological test (numerator and denominator presented in results)
4) % of confirmed malaria cases that received first – line antimalarial treatment according to national policy (numerator and denominator presented in the results)
5) % of confirmed cases in low endemic areas fully investigated.
6) % of confirmed transmission foci that received an appropriate response (screening and IRS, LLIN top-up and/or treatment).
7) % of confirmed falciparum malaria cases receiving DOT
8) % of private sector outlets stocking oral artemisinin-based monotherapies
9) % of public sector health facilities or private sector sites without stock-outs of key commodities lasting more than one week in the last three months

Indicator reference sheet:

Impact indicators

Impact indicator 1:	Confirmed falciparum malaria cases (microscopy or RDT) per 1000 persons per year (Results disaggregated by source and tier)
Rationale/Purpose	This indicator measures annual confirmed *Plasmodium falciparum* (P.f.) and mixed malaria cases per 1,000 mid-year population reported in public health facilities and by community level through Village Health Volunteer (VHV). Two different laboratory tests are reported through public health facilities: microscopy and rapid diagnostic test (RDT); whereas, only RDTs are used at community level by VHV. This indicator is the most important measure of progress and management in low endemic areas.
Numerator	Total number of *P.f*. and mixed malaria cases (diagnosed through microscopy or RDT) and can be collected through Routine surveillance [ACD – mobile team/community based, PCD – HF based, VHVs, Worksite volunteers, Screening points, MSaT), response to positive Pf cases (eg; Day 3 positive & response to D3+ case(s) in low endemic areas)] in Tier 1 and Tier 2.
Denominator	Estimated mid-year population in Tier 1 and Tier 2 based on MoH data used by Township Health Department, Census pop: of Township
Data collection frequency	Monthly
Data sources	NMCP collected from Township Health Departments Including community case management and health facilities.
Data Reporting	Yearly
Measurement Tool	Malaria case registers (BHS/Volunteer:) of NMCP, record forms from NGOs (clinics, volunteers),Screening points, MSaT, positive& report
Method of measurement	Indicators should be developed source wise and Tier wise.
Interpretation	
Other relevant information	The country aims to achieve over 20% reduction from the baseline of 8.5/1000 (Pf only). Malaria burden in Myanmar remains high compared with rest of GMS countries. Hence the targets in Tier 1 & 2 are consistent with country targets for the rest endemic areas. The NMCP and its technical partners projected and increase in numbers of reported malaria morbidity as the expansion of services to 'hard to reach' areas where malaria interventions were hardly present. Thus it is not feasible to expect sharp reduction of the

	disease burden over the coming three years.
Impact indicator 2:	% of administrative units with falciparum incidence <1/1000 (Results disaggregated by tier)
Rationale/Purpose	• To eliminate artemisinin resistant *P.f.* malaria in administrative unit where pre-elimination status (*P.f.* incidence <1/1,000) has already been achieved. • This indicator is useful for consideration of pre-elimination if we go down to RHC or Sub-RHC or Village level. RHC or Sub-RHC or Villages with falciparum incidence <1/1,000 should be delineated for consideration of pe-elimination in this particular area. • It is also useful for effective, targeted intervention aiming at reduction of malaria problem (morbidity) if we can identify high falciparum prevalence rate.
Numerator	Number of administrative units with falciparum incidence <1 per 1,000 people. (mixed infection cases are included)
Denominator	Total number of administrative units in Tier 1 and Tier 2 (52 Townships)
Data collection frequency	Monthly
Data Reporting	Yearly
Data sources	NMCP collected from Township Health Departments
Measurement Tool	Malaria Case Register at health facilities and VHV Register at community level
Method of measurement	Calculation - Number of administrative units with falciparum incidence <1 per 1,000 people. (mixed infection cases are included) x100 / # of Administrative Units in Tier1 & 2
Interpretation	Definition of Administrative Unit will be – "Township" (at reporting level) and "Village" (at operational level later)
Other relevant information	- There are total of 52 TSPs in Tier 1 and 2. In 2014 the country will start developing the new Malaria Strategic Plan when elimination targets and timeline is expected to be defined. - Indicators represent the # of TSP engaging pre-elimination status in Tier 1&2. Targets are set with projected overall 17 % reduction Pf <1/1000 by end of grant period.

Impact indicator 3:	% of indigenous cases among investigated cases. (applied only to low endemic areas)
Rationale/Purpose	The aim is to eliminate artemisinin resistant *P.f.* malaria from (administrative unit) where pre-elimination status has already been achieved. An indigenous case is any malaria patient who contracted infection locally, without any strong evidence of a direct link to an imported case (ie; malaria patient who got infection from the area rather than his/her locality). The definition of indigenous (locality) will apply to village level.
Numerator	Number of all indigenous positive cases (regardless of species) in Stratum 1c of Tier 1 area
Denominator	Total number of malaria cases investigated.
Data collection frequency	Quarterly
Data Reporting	Yearly
Data sources	NMCP from townships, NGOs from project sites
Measurement Tool	Malaria Case Investigation Form used in 1c area in Tier 1.
Method of measurement	Calculation – all indigenous positive cases (regardless of species) in defined strata 1 c area in Tier 1 X100/all positive cases investigated in that particular 1 c area in Tire 1
Interpretation	Presence of Indigenous malaria case(s) indicate active transmission foci still going on in low transmission area that needs to be eliminated.
Other relevant information	This is a new activity and target set with no clear assumptions. Case investigation will be started as of 2014. Thus baseline will be set based on 2014 data and after targets will be set accordingly. The program and its partners will set up the system, the investigation format has been developed in June 2014.

Outcome indicator 1:	% of mobile people that used an ITN the last time they slept in transmission areas (disaggregated by category of mobile/migrant person)
Rationale/Purpose	Mobile and migrant populations are crucially important for the containment and prevention of the spread of artemisinin resistance P.f malaria. Access to the universal coverage of LLIN implemented in malaria control programme in Myanmar also incorporated the migrant populations. Albeit the distribution of LLIN to migrants is included in the programme, utilization of those nets by them is more important to be measured.
Numerator	mobile and migrant people that used an ITN the last time they slept in transmission areas (at survey areas)
Denominator	# of mobile & migrant population at survey areas
Data collection frequency	Baseline Survey in Year 1 and end-line survey in Year 3
Data sources	Survey data of mobile and migrant populations
Measurement Tool	Survey Questionnaire
Method of measurement	According to the survey methodology & protocol
Interpretation	Results reported will be also disaggregated by category of mobile/migrant person. The category of migrants will be defined during developing survey protocol.
Other relevant information	Baseline for this indicator is not available. This indicator will be monitored through special surveys among mobile populations with standard methodology for all countries that will be carried out in Y1 and Y3. First survey in Y1 (2014) and results will be used as baseline. Targets for Y3 (2016) will be set based on Y1 results.

Outcome indicator 2:	% of mobile people with fever in the last 3 months that accessed parasite-based diagnosis (disaggregated by category of mobile/migrant person)
Rationale/Purpose	Mobile populations are crucially important for the containment and prevention of the spread of artemisinin resistance P.f malaria. Access to the universal coverage of quality diagnosis and treatment is one of the objectives of Inception Plan,ie; coordination of the Emergency response to artemisinin resistance in the Greater Mekong subregion.
Numerator	Number of mobile population with fever in the last 3 months who accessed parasite-based diagnosis (microscopy or RDT).
Denominator	Total number of mobile & migrant population with fever in the last 3 months.
Data collection frequency	Baseline and end-line Survey
Data sources	
Measurement Tool	Survey Questionnaire
Method of measurement	According to the survey methodology & protocol
Interpretation	Results reported will be also disaggregated by category of mobile/migrant populations
Other relevant information	Baseline for this indicator is not available. This indicator will be monitored through special surveys among mobile populations with standard methodology for all countries that will be carried out in Y1 and Y3. First survey in Y1 (2014) and results will be used as baseline. Targets for Y3 (2016) will be set based on Y1 results.

Coverage/Output indicator 1:	Number of ITNs/LLINs distributed to at-risk populations through mass campaigns
Rationale/Purpose	Insecticide-treated nets have been shown to reduce malaria-related morbidity and mortality. NMCP distributed LLIN to Stratum 1a areas (Highest Risk Area) before MARC project because of limited resources. But, the planned LLIN distribution under RAI area for100% coverage in all endemic areas in Tier 1 & Tier 2. The distribution is planned as 1 double LLINs for 1.8 persons.
Numerator	Number of insecticide-treated nets distributed to individuals at risk
Denominator	None
Data collection frequency	Quarterly
Data Reporting	Yearly
Data sources	NMCP can collect the data from Townships where activities were carried out with LLIN distribution forms
Measurement Tool	LLIN distribution records at the field level, compiled at Township
Method of measurement	Counting the number of LLIN distributed
Interpretation	Baseline refers to LLINS distributed by all sources in 2012.
Other relevant information	In Summary, the total need of LLINs for Y1 is 1,920,410 however, only 1,708,542 LLINs will be procured under RAI as the rest will be supported by GF and other donors. The total need of LLINs for Y2 is 636,826. However, only 536,826 are procured by RAI as 100,000 are funded by other donor. Total need of LLINs for Y3 is 335,970 and RAI contribution is 235,970 LLINs.

Coverage/Output indicator 2:	Number & % of population at risk potentially covered by ITNs distributed
Rationale/Purpose	Insecticide-treated nets have been shown to reduce malaria-related morbidity and mortality. NMCP distributed LLIN to Stratum 1a areas before MARC project because of limited resources. But, the planned LLIN distribution under RAI will be for100% coverage in all endemic areas in Tier 1 & Tier 2. The distribution is planned as 1 double LLINs for 1.8 persons.
Numerator	Number of LLIN distributed during last 3 years in defined area x 2 persons
Denominator	Total population in defined area
Data collection frequency	Quarterly
Data Reporting	Yearly
Data sources	LLIN distribution activity at field level and compiled at township level
Measurement Tool	LLIN distribution formats
Method of measurement	
Interpretation	To know the coverage of LLIN in the population
Other relevant information	This indicator measures hanging or use of ITN/LLIN among the populations that LLIN distribution had been carried out.

Coverage/Output indicator 3:	% of suspected malaria cases that receive a parasitological test (numerator and denominator presented in results)
Rationale/Purpose	The replacement of conventional antimalarial drugs with high-cost artemisinin-based alternative and decreasing prevalence of malaria among fever cases has created an increased need for accurate malaria diagnosis. Accurate malaria diagnosis avoids unnecessary treatment with expensive drug combinations and ensures appropriate treatment for febrile patients. Diagnosis allows for more reliable tracking of malaria burden and the impact of control interventions. Accurate diagnosis allows a more rational use of drugs that might effectively reduce drug pressure, thereby delaying the onset of drug resistance. This indicator captures the baseline levels and subsequent scaling up of diagnostic activities within malaria-endemic areas.
Numerator	Number of all suspected malaria cases that received a parasitological test either by microscopy or RDT
Denominator	Number of all suspected malaria cases
Data collection frequency	Monthly
Data sources	RDT /Microscopic tested suspected malaria cases should include routine surveillance (ACD – mobile team /community based, PCD – HF based, GP, VMWs). Results reported will be also disaggregated by tier.
Measurement Tool	Malaria case register of BHS & VHV register at community level in public sector and same formatted registers of clinics and volunteers of other IPs
Method of measurement	Total # of suspected malaria cases tested by RDT or microscopy X 100 /Total # of suspected malaria cases
Interpretation	Baseline is from Routine NMCP from MARC Project areas.
Other relevant information	Suspected Malaria cases are expected to increase slightly on an annual basis as services will be expanded to more villages and migrant/mobile populations. Hence more people are likely to be tested for Malaria. Based on past performance it's expected the percentages of suspected cases will increase from 9% in 2014 and nearly 10% in 2015 and 2016 respectively. Actual numerator and denominator achieved will report in progress update.

Coverage/Output indicator 4:	% of confirmed malaria cases that received first – line antimalarial treatment according to national policy (numerator and denominator presented in the results)
Rationale/Purpose	Prompt treatment with an effective antimalarial drug regimen is a key component of the technical strategy for controlling and preventing spread of drug resistant falciparum malaria. It is already instructed that all suspected malaria cases must be tested with RDT or microscopy and treated all confirmed malaria cases with first line antimalarial in accordance with national treatment policy.
Numerator	Number of all confirmed malaria cases that received first line antimalarial treatment (ie; ACT +PQ for Pf and CQ + PQ for Pv) according to national treatment policy
Denominator	Number of all confirmed malaria cases
Data collection frequency	Monthly
Data sources	Routine surveillance system Results reported will be also disaggregated by tier.
Measurement Tool	Malaria case register at health facilities and VHV register at community level
Method of measurement	Actual numerator and denominator achieved will report in progress update
Interpretation	Baseline is from Routine NMCP from MARC Project areas.
Other relevant information	Routine data from MARC areas reported % of Pf cases as 70% and it is expected to decline to 57% by end of 2016. In the first year it is expected that more positive cases will be detected and then the trend will decrease gradually. Pf is expected to be 63% in 2014; 58% in 2015 and 57% in 2016.

Coverage/Output indicator 5:	% of confirmed cases in low endemic areas fully investigated.
Rationale/Purpose	Case investigation is part of active surveillance that should be instituted when programmes move into pre-elimination phase. Its purpose is to detect new cases early and provide a quick and adequate response. This activity is intended to be performed in low endemic areas (ie; Stratum 1c villages of Tier1 area).
Numerator	Number of confirmed cases fully investigated
Denominator	Number of confirmed cases reported
Data collection frequency	Monthly
Data reporting	Yearly
Data sources	Routine Surveillance Data of NMCP and all IPs
Measurement Tool	Malaria Case Investigation Form
Method of measurement	# of confirmed cases fully investigated x 100/ # of confirmed cases reported
Interpretation	Results reported will be also disaggregated by tier.
Other relevant information	Low endemic areas are stratified as 1 c. Routine Data from MARC showed that low endemic areas contributed 18% of P.f in 2012 with expansion of services it is expected that cases from these areas increase slightly to reach 21%. The target is to investigate 16%, 32%, 50% of cases from low endemic areas in 2014, 2015 and 2016 respectively. NMCP covers 50% of case investigation.

Coverage/Output indicator 6:	% of confirmed transmission foci that received an appropriate response (screening and IRS, LLIN top-up and/or treatment)
Rationale/Purpose	Focus is defined as a circumscribed locality situated in a currently or formerly malarious area with the continuous or intermittent epidemiological factors necessary for malaria transmission. Once a case of locally acquired malaria has been detected, a focus investigation is carried out to describe the areas where malaria occurred and delineate the population at risk. The focus investigation identifies the main features of the location, including the populations a t greater risk, the vectors responsible for transmission, where they are located and when transmission occurs. Appropriate response includes screening and focal insecticide residual spraying (IRS) of households around the index cases. A response plan is prepared according to the results of the field and focus investigation, including the entomological evaluation.
Numerator	Number of confirmed transmission foci where an appropriate response was taken following a *Pf, Pv* and mixed malaria patient investigation.
Denominator	Total number of confirmed transmission foci identified through *Pf, Pv* and mixed malaria case investigation in Tiers 1 and 2
Data collection frequency	Monthly
Data reporting	Yearly
Data sources	NMCP collected from Townships and other partners such as INGOs have to report to NMCP.
Measurement Tool	Data will come from case investigation and Response taken forms, for low endemic areas in Tier 1 & 2 .
Method of measurement	Number of confirmed transmission foci where an appropriate response was taken x100/Total number of confirmed transmission foci identified
Interpretation	Results reported will be also disaggregated by tier.
Other relevant	The present assumption is calculated as 1 foci per township i.e 52 foci annually.

information

Coverage/Output indicator 7:	% of confirmed falciparum malaria cases receiving DOT
Rationale/Purpose	This is new indicator to adopt DOT strategy for confirmed Pf cases. DOT will be implemented in all endemic areas in tier 1& 2. DOT is aimed at all patients confirmed with Pf. However, as VHV need to be selected, trained and equipped hence the target to cover over 25%, over 55% and more than 80% in 2014, 2014, and 2016 respectively.
Numerator	Number of confirmed Pf and mixed malaria cases who received DOT(ie; first and last dose of ACT and first dose must include PQ)
Denominator	Total number of confirmed Pf. and mixed malaria cases reported.
Data collection frequency	Monthly
Data Reporting	Yearly
Data sources	NMCP after collection of data from Townships and INGOs from their respective reporting centres and report to NMNCP
Measurement Tool	Day 0 and Day 3 Blood Examination Results and Treatment forms
Method of measurement	Number of confirmed Pf and mixed malaria cases who received DOTx100/ Total number of confirmed Pf. and mixed malaria cases reported. To check for completion of all 6 doses of ACT by looking empty ACT strips by DOT provider during giving the last dose of ACT for DOT
Interpretation	Result reported will be also disaggregated by tier.
Other relevant information	For Myanmar the consensus among the partners is to observe the first dose of ACT+ Primaquine and the last dose of ACT.

Coverage/Output indicator 8:	% of private sector outlets stocking oral artemisinin-based monotherapies
Rationale/Purpose	In Myanmar private sector outlets are defined as "pure private outlets which includes 3 types of outlet types 1) pharmacies or drug shops (synonymously used in Myanmar); 2) itinerant drug vendors; 3) general stores/retail stores". Although artemisinin monotherapy (AMT) has been banned in December 2012, some forms of AMT still remain in the market and drug shops. With support of GF and MARC, PSI- Myanmar had already carried out drug outlet surveys in 2012 and 2013 and made baseline those figures.
Numerator	Number of private sector outlets stocking oral artemisinin –based monotherapies
Denominator	Total number of private sector outlets surveyed
Data collection frequency	Drug outlet Survey yearly
Data Reporting	Yearly
Data sources	PSI-Myanmar
Measurement Tool	Survey protocol
Method of measurement	According to the survey protocol
Interpretation	Presence of oral Artemisinin based monotherapies indicate strengthening of programme in collaboration with related sector.
Other relevant information	The baseline figure at 2012 was 86%. The second round outlet survey was recently carried out in 2013 and the result is expected in coming weeks - around > 60%. Therefore, targets are set at 50% at 2014; 25% at 2015; and to reduced up to 5% by the end of 2016.

Coverage/Output indicator 9:	% of public sector health facilities or private sector sites without stock-outs of key commodities lasting more than one week in the last three months
Rationale/Purpose	Accessibility of quality diagnosis and treatment is one of the objectives of
Numerator	Number of public sector health facilities (or) private sector facilities without stock outs of RDT & ACT
Denominator	Number of public health facilities (or) private sector facilities surveyed
Data collection frequency	Due to large numbers of HFs it is not practically to collect routine data on stock level. An annual Health Facility Survey with random sample from both tiers will be administered.
Data Reporting	Yearly
Data sources	Health Facility Survey
Measurement Tool	Survey Protocol
Method of measurement	Survey Questionnaire format assessing the stock out
Interpretation	If stock out of RDT and/or ACT occurred, it effects on project's main objectives of "Reduction of malaria transmission/ containment of artemisinin resistance".
Other relevant information	No data is currently reported by the private sector. However a partnership with be strengthened during the RAI implementation, and private in tier 1 &2 are expected to report to the national program.