



## **USAID Mekong Malaria Programme Core Partners' Meeting**

### **Meeting Report**

**7- 8 October, 2008  
Bangkok, Thailand**

**Final Edited Version**

## **Acknowledgment**

Dr Deyer Gopinah and Dr John Ehrenberg have drafted the meeting notes.

The WHO-Mekong Malaria Programme jointly organized the meeting with USAID/RDM-A. Inputs from participants are included in these meeting notes.

## LIST OF ACRONYMS AND ABBREVIATIONS

ACT	Artemisinin-based Combination Therapy
ACT Malaria	Asian Collaborative Training Network for Malaria
ANC	Ante-natal Care
ANEQAM	Asian Network of Excellence in Quality Assurance of Medicines
ASEAN	Association of Southeast Asian Nations
ART	Artemisinin
BCC	Behavior Change Communication
BMGF	The Bill and Melinda Gates Foundation
CNM	Cambodia National Centre for Parasitology, Entomology and Malaria Control
DHAPIP	Dihydroartemisinin-piperazine (co-formulated)
DRA	Drug Regulatory Authority
FETP	Field Epidemiology Training Program
FIND	Foundation for Innovative New Diagnostics
FY	Fiscal Year
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GMP	WHO Global Malaria Programme
GMS	Greater Mekong Sub-region
GSM	Global Management System (WHO)
IR	Intermediate Results
ITN	Insecticide-treated Net
LLIN	Long-lasting Insecticide Net
LLIHN	Long-lasting insecticide treated Hammock Net
MDA	Mass Drug Administration
M&E	Monitoring and Evaluation
MMP	Mekong Malaria Programme
MSH	Management Sciences for Health
PMI	President's Malaria Initiative
PSI	Population Services International
RAVREDA	The Amazon Network for the Surveillance of Antimalarial Drug Resistance
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
RPM Plus	Rational Pharmaceutical Management Plus
SPS	Strengthening Pharmaceutical Systems program
TB	Tuberculosis
SEARO	WHO Southeast Asia Regional Office
USAID RDMA	United States Agency for International Development Regional Development Mission Asia
USP	United States Pharmacopeia
URC	University Research Co., LLC
VHW	Village Health Worker
WHO	World Health Organization
WPRO	WHO Western Pacific Regional Office

## INTRODUCTION and BACKGROUND

In 1999, WHO and partners in the Greater Mekong Subregion (GMS) launched the Mekong Roll Back Malaria initiative (RBM). The partnership aimed at reducing malaria-associated death by 50 per cent by 2010. A key component to achieving the goal was to document and address multi-drug resistance by *Plasmodium falciparum* in the GMS and develop harmonized drug policies throughout the region. RBM Mekong is also focused on scaling up cost effective malaria control interventions targeting the most at-risk populations.

Since 2000, USAID Regional Development Mission in Asia (RDM-A) has contributed to malaria control in the GMS, particularly through its support of the RBM Mekong partnership initiative involving six countries: Cambodia, China (Yunnan Province), Lao PDR, Myanmar, Thailand and Viet Nam. RDMA also supports other partner agencies to initiate strategic projects and programs for malaria control in the Mekong region. The RBM Mekong initiative has since been re-named as the Mekong Malaria Programme (MMP). The WHO Mekong Malaria Programme (WHO-MMP) office, based in Bangkok, has the role of coordinating the activities of the MMP network and linking with all MMP partners including USAID-funded agencies.

USAID/RDM-A brings together its core partners for bi-annual meetings to take stock of the progress of USAID-funded activities and reorient activities in light of current challenges facing malaria control in the Mekong region. The first meeting was held in Chiang Mai from 7-8<sup>th</sup> November 2006. Partners at this meeting highlighted the contributions of USAID-funded malaria activities since 2001, examined existing gaps in malaria control, and developed a strategy for future USAID-funded activities in the GMS. This strategy is comprised of the following areas that guide USAID support to the Mekong Malaria Programme: 1) strategic information, 2) drug quality, 3) diagnostic quality, 4) drug procurement and distribution and 5) enabling environment. The last USAID partners' meeting took place on 28-29 April 2008 in Bangkok. The report posted on the WHO-MMP website (<http://www.whothailand.org/EN/Section3/Section113.htm>).

During the April 2008 partners' meeting it was suggested that WHO and MEASURE organize an informal consultation to review the GMS malaria surveillance, monitoring and evaluation framework and attempt to finalize a Mekong Monitoring and Evaluation (M&E) framework for the GMS countries. The rationale is that malaria control in the Mekong region is affected by epidemiological factors unique to the region and these factors affect many Mekong countries. Existing M&E frameworks for malaria reflect control efforts in Africa and are not applicable to Southeast Asia. A unified framework for the region would facilitate cooperation and collaboration among programme staff in Mekong countries. Such collaboration is especially pertinent because foci for malaria transmission are frequently located along borders. The Consultation on M&E framework development was organised in Bangkok (9-10 October, 2008) immediately following the partners' meeting. A separate technical report will follow. The agenda and list of participants are in Annex 1 and 2.

**Day one: 7 October, 2008 (Chair: K. Bowes, Director, USAID/RDM-A)**

**1. Opening remarks by Dr John MacArthur (USAID/RDM-A Infectious Diseases Team Leader) and Dr Charles Delacollette (WHO-MMP Coordinator)**

Ms Cathy Bowes, Director, Office of Public Health, USAID/RDM-A acted as Chair of the session. She welcomed the participants and introduced Dr John MacArthur. Dr MacArthur spoke about the role of partners in America's RAVREDA initiative and the Mekong Malaria Programme. There is a commitment from USAID to encourage WPRO and SEARO to heed the lessons learned from these experiences. Drug resistance is evident in the Greater Mekong Subregion and continues to be one of the region's major challenges. It is important to keep attention focused on this issue. Health officials are encountering problems with failure rates associated with artemisinin derivatives. Relevant research papers are starting to be published. The focus is on the elimination and containment of the parasites. Leadership by the US President in the Malaria Initiative (PMI) was acknowledged. The Mekong Malaria Programme also includes the Thai-Cambodia border and the artemisinin tolerance problem. Partners need to demonstrate measurable achievements with "data that can tell our story". All USAID funds go through PMI. The next meeting will focus on a strategic framework whereby countries can monitor programs themselves.

The agenda for Day 2 allocated time to discuss the National Malaria Control activities as they relate to the Global Fund (GF) proposal. USAID will try to leverage its funds to increase the level of funding. There is a precedent in the case where the GF allowed WPRO/SEARO to leverage funds from the Bill and Melinda Gates Foundation.

Dr Charles Delacollette, WHO-MMP Coordinator, welcomed the participants and thanked the WHO country and regional office staff who helped organize the meeting, particularly for their support to country representatives. He also thanked USAID/RDM-A for maintaining their critical support to the Mekong Malaria Programme network. USAID funding has provided critical technical assistance to a number of Mekong countries making it possible for them to develop successful GF proposals which contribute to pre-elimination malaria targets. The WHO-MMP network also promotes the use of quality diagnosis and quality drugs and works to inform policy makers on the use of the best ACTs in a timely manner. This welcome support aims to improve malaria control strategies and policies to target neglected populations such as migrants. Through the network, WHO continues to facilitate partnerships and active communication within the GMS. Dr Delacollette welcomed Dr Keith Carter to Bangkok from Washington and thanked him for sharing news of RAVREDA experiences in the Mekong region. He wished the participants a productive meeting and acknowledged the huge and dedicated efforts made by partners in 2008 to develop and implement strategies to contain artemisinin tolerant parasites.

**2. Progress made on identification and containment of artemisinin tolerant malaria parasites**

**2.1. Addressing artemisinin tolerant parasites in the GMS. Progress to date (Dr Eva Christophel)**

There is ample evidence for ACT treatment failure in Cambodia. There is good data thanks to the Cambodia program and USAID support. Drug (artemisinin) efficacy in Eastern Cambodia is good, not so in the West. This goes back to 2002. Coartem has also been tested and failures have also been detected. A clinical trial was conducted last year to look at artesunate and parasite clearance time. Prolonged clearance time was confirmed. It was found that this affected all the western part of Cambodia. A similar phenomenon was encountered in Thailand, especially in Trat province but less pronounced than on the Cambodia side. On progress since last year, the ARC-3 project was approved last year by the Bill and Melinda Gates Foundation. The project will be carried out in Northwest Cambodia and Northwest Thailand on the Burmese border.

Mapping of artemisinin tolerance is being conducted while the alternative drug regimens are being tested (DHAPIP, atovaquone-proguanil). The Swiss Tropical Institute is working on pharmacogenetics and on a treatment efficacy study in Cambodia. AFRIMS is also conducting studies in Cambodia. Dr Christophel acknowledged the confusion in the terminology between tolerance and

resistance. The lack of a proper model, lack of success in identifying genes (for example, to genotype resistance) are among some of the issues that will continue to pose a challenge to a clear cut definition of the phenomenon. On the containment of artemisinin tolerant malaria, this has generated a significant amount of work by all the key stakeholders. Meetings have taken place to develop a containment strategy (Geneva 2007; Bangkok February 2008, and National Stakeholders Planning Workshop in Phnom Penh, Cambodia), followed by a fundraising and resources mobilization meeting in June, 2008.

The goal of the containment initiative is to remove the selection pressure on artemisinin and reduce and ultimately eliminate artemisinin tolerant parasites in a total of ten provinces in Cambodia and seven in Thailand. This is the containment area: four million people in Cambodia, one million in Thailand. The strategy has several objectives and activities are centred on intensifying case detection, effective case management and access to free-of-charge diagnosis and appropriate treatment and access to bed nets.

The second objective focused on decreasing drug pressure in artemisinin tolerant parasites. This involves, among other actions, enforcement of a ban on importation of artemisinin monotherapy. The role of the private sector is critical, as is piloting public-private strategies.

Vector control is addressed in objective three. Full coverage Long Lasting Insecticide Treated Nets (LLIN) is key, including re-treating existing nets of which there are many in Cambodia and Thailand.

Migrant populations are the focus of objective four. This merits a good situation analysis. However, some activities focus on distribution of Long Lasting Insecticide Treated Nets (LLIHN) and training of mobile malaria workers. We need to learn as we go along.

Comprehensive behaviour change communication (BCC), community mobilization and advocacy activities are included in objective five to support interventions, especially at border level targeting mobile and migrant populations.

Research is contemplated in objective six. This includes operational research such as mass screening and treatment as opposed to Mass Drug Administration (MDA). RDTs and microscopy are not adequate and PCR is needed. The argument against mass drug administration is that it can't be done with a three-day treatment scheme. Management needs to be effectively implemented. This is contemplated in objective seven. Incentives are an issue where human resources are scarce.

An international containment task force will be put in place involving countries and key stakeholders. Strong national task forces will also be put in place.

A two-year costed work plan involving Thailand and Cambodia is now available. A proposal has been submitted for funding to the BMGF. Round 9 (Global Fund) will be the main resource mobilization mechanism to extend funding beyond the one provided by the BMGF.

### ***Comments and Questions***

Is prolonged tolerance accompanied by prolonged infectivity? This is an important issue, but there is no entomologist in the team at present to address this<sup>1</sup>.

The problem of artemisinin resistance might be bigger because data may not be available following the 28-day WHO protocol. Historically, chloroquine resistance started in this area and spread to other countries and eventually into Africa. Epidemiological and laboratory capacity strengthening has been at the centre of USAID support. This has been within the context of pandemic influenza (rapid alert and outbreak response). Dr MacArthur talked about FETP's new approach for training and incorporating research into modules. Epidemiologists in training should participate in research activities. Should USAID make more substantial investments in elimination, the management

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<sup>1</sup> Editor's Note: From ongoing studies and field observations, there is an increase of gametocyte carriers in areas where resistance to artemisinin derivatives is documented. If malaria transmission increases as a result of increasing gametocyte carriers, it remains to be proven, and will be difficult to document in a context of low mosquito densities.

structure of the Gates grant on malaria artemisinin containment is not compatible with the USAID system.

In quality control of drugs used in trials and the international containment task force, which organization will provide support in terms of drug quality?

Dr Sylvia Meek (Malaria Consortium) talked about the systematic process that has taken place to put this initiative together and pointed out that practitioners have already missed a season. Funding has been the key issue. Practitioners need to think about contingency funds to stay ahead and will need to be careful with the way affordable medicines are piloted in Cambodia. Dr MacArthur explained that donors can not react to this quickly, not even the Gates Foundation. USAID did channel existing funds for bed net purchase, distribution and reimpregnation.

## **2.2 Two-year artemisinin tolerant parasite containment budget (Dr Charles Delacollette)**

A budget of USD 40,251,222 was estimated to fully cover two-year containment activities in two countries. This estimate was based on intensive bilateral exercises over six months to identify all containment interventions in targeted areas, the human resources needed as well as materials, supplies, equipment, technical assistance and cross-country coordination meetings. The total bilateral funding gap was initially estimated at USD 17,251,319 after submission to BMGF. Further in-depth analysis of related containment interventions included various domestic and non-domestic funding sources like the GFATM and other projects. It was concluded that the final two-year funding gap remains in the range of USD 10,750,697, if the full proposal submitted to the BMGF is accepted<sup>2</sup>. Additional efforts are then needed to mobilize requested funds from sources such as USAID PMI before GFATM R9 proposals will scale up containment interventions from 2010 onwards.

### ***Comments and Questions***

Dr MacArthur asked about who would actually do the work? Countries eventually decided on the WHO as the principle recipient. Overall management will be channelled through WHO Geneva. There are many partners at country level, for example, those involved in Round 9.

Technical assistance will be provided by the Malaria Consortium and WHO. USP and other partners can be involved in the future.

## **3. Progress made by USAID funded partners**

Presentations from implementing partners consisted of progress reports and reports on the status of activities, identification of obstacles and constraints and corrective measures. These were reported against the Intended Results (IR) of the MMP objectives as below:

IR 1: Access Increased to Prevention Interventions

IR 2: Access Increased to Care, Support, and Treatment

IR 3: Access Increased to Strategic Information

IR 4: Enabling Environment Strengthened

IR 5: Model Programs Expanded and Use of Best Practices Strengthened

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<sup>2</sup> NFE: The 2-year containment proposal was accepted for funding by the BMGF on Nov10, 08 at the magnitude of USD 19,835,063 through WHO.

### **3.1 Twelve month achievements against FY07 planning (Ms Cecilia Hugo, ACTMalaria)**

Carryover funds were used to support capacity building of the National Malaria Programme. Ms Hugo mentioned that they were affected by WPRO's new GSM. Funds have been significantly delayed. However, ACTMalaria tried to compensate and proceeded to implement activities as planned in 2007. Strengthening Training on Malaria Microscopy and Quality Assurance was one of the planned activities. Language (English) turned out to be a challenge for some participants during the course and they required a translator. QA and microscopy manuals from WHO were not yet available so they used the draft versions. Ms Hugo also noted that senior microscopists are now in short supply, which is a challenge to the capacity strengthening objectives of ACTMalaria, specifically to create a core of trainers in the countries.

Ms Hugo reported that during the last meeting of the member countries, it was agreed that dengue be incorporated into the inter-country network of malaria control. However, the problem of adding dengue is the lack of funds for the program, as is the case in the Philippines.

In other training activities conducted by ACTMalaria in 2007 (Pharmaceutical Management of Malaria and the External Assessment on Malaria Microscopy), some of the Pacific Island Countries (Papua New Guinea, Solomon Islands and Vanuatu) have also benefited. Malaria slides collected and developed for the regional slide bank are now being validated in the three member countries (Philippines, Thailand, Cambodia) and even in Africa.

Ms Hugo also talked about the Vector Management workshop which was conducted in collaboration with WHO and Institute of Tropical Medicine in Antwerp. The issue on dengue was raised again. The problem remains lack of funds, but some level of integration with malaria was contemplated (case management for example). Issues concerning insecticide resistance and quality monitoring of data was raised. Countries agreed to use DDT and permethrin as standards in resistance monitoring. Reports of resistance to insecticides in several countries was also mentioned.

#### ***Comments and Questions***

Dr MacArthur commented on the delays of USAID funds due to GSM and asked for a clarification from WHO.

### **3.2 Twelve month achievements against FY07 planning (Dr Patrick Kachur, CDC Malaria Branch)**

CDC supports work on malaria indicators and M&E. They have worked with the Malaria Consortium. As reported by ACTMalaria, CDC is also under-funded and is subject to competing initiatives. Assessments on mass screening and treatment are being conducted as part of their research related activities. Leverage of funding from other sources was repeatedly raised as an issue. The Malaria Consortium is developing guidelines for an M&E system, mainly for the GF projects. CDC is also assessing surveillance methodologies for low malaria transmission settings.

#### ***Comments and Questions***

Dr MacArthur suggested looking at what PAHO is doing in terms of assessments in low transmission areas. He also suggested improving inter-regional coordination.

MACRO and "MEASURE Evaluation" have worked a lot in this field and offered their expertise. The GF has set funds aside to support surveillance but there is uncertainty as to who can do the job (a point also made by Dr Delacollette). A better methodology is needed. Human resources on the ground to conduct surveys are currently not available (noted by Dr Christophel). Universities should be encouraged to get involved. Health systems need to be strengthened. We also need to get more involved in training, perhaps through ACTMalaria, and more effort should be put into the social component (social science research).

### **3.3 Amazon Malaria Initiative-RAVREDA / Amazon drug resistance surveillance network (Dr Keith Carter, PAHO)**

Dr Carter presented an overview on the status of malaria and malaria partnerships in the Americas. He suggested it might serve as a model for WPRO and SEARO.

#### ***Comments and Questions***

Dr MacArthur asked if there were any concerns about the failure of artemisinin combination therapy, and whether there were any delays in parasite clearance times in the Amazon basin countries. Does RAVREDA see any warning signs? Is elimination now being considered in the Amazon Basin? Dr Carter replied that no problems have been observed as yet concerning artemisinin tolerance in this region. Dr Pascal Ringwald from WHO Headquarters was recently in PAHO DC to discuss monitoring of artemisinin tolerance protocols in very low transmission settings.

### **3.4 Kenan Institute Asia/BAAM (Dr Jim Hopkins)**

This organization has been involved in production of manuals for the newly implemented three-day course on ACT-based treatment and in therapeutic efficacy studies at several sites in Thailand, including monitoring of substandard drugs using minilabs. There were some delays in USAID approval to get minilabs into the field. The Kenan Institute has just launched a pre-elimination project in Phuket, Thailand funded by USAID.

#### ***Comments and Questions***

Migration is a key challenge in the containment strategy. The issue was raised regarding the need to set up a technical working group on migration. Dr Christophel suggested that information needs to be shared more effectively. Dr MacArthur also suggested that we take a careful approach to migrant studies and supported the idea of a technical working group. Reaching out to the private sector in Phuket is also an initiative that needs to be considered, for example, 'Healthy Tourism'. Dr Hopkins said that the private sector is interested and had actually offered to help in Phuket.

### **3.5 MEASURE Evaluation (Dr Ravi Goud and Erin Eckert)**

The talk focused on developing capacity for M&E programs. The organization is working on the M&E Mekong Malaria framework to monitor malaria in the region as well as building capacity to improve data reporting. During this meeting, the working group will focus on reaching a consensus concerning the M&E framework and indicators. It is anticipated that following this meeting, a core technical advisory group will meet over the next two months to finalize an M&E framework. Countries should be able to use this framework within their own programs.

### **3.6 MSH/SPS: Strengthening Pharmaceutical Systems (Ms Beth Yeager)**

In the past six months, MSH conducted rapid assessments of pharmaceutical management practices in both Thailand and Laos. The assessments found stock-outs, overstocks, poorly defined supply systems, inadequate storage conditions at all levels, irrational distribution, poor inventory management practices, inadequate record-keeping, exclusion of pharmaceutical management practices in supervision, and a need for capacity building in pharmaceutical management in both countries. Although many of the problems are similar, the priorities in the two countries are different. MSH is planning to respond to each country's unique needs with tailored interventions. MSH also collaborated with ACTMalaria to implement a virtual (online) forum to follow up with participants on the Pharmaceutical Management for Malaria regional course, originally conducted in April 2006 in Cambodia. The virtual forum had limited success and lessons learned will be discussed with ACTMalaria.

### ***Comments and Questions***

USP inquired whether there were systems in place in Thailand and Laos for destroying expired drugs, to which MSH responded that there were not (as noted in the findings of both assessments). It is expected that the problem of expired drugs will get worse with massive drug procurements continuing over the next several years, particularly under the GF.

A participant queried the reasons for the virtual forum's limited success as a tool for following up with training participants. Possible reasons posed by MSH and other meeting attendees included: limited technological capacity of participants and poor internet service in some areas. People agreed that follow up is important but challenging.

### **3.7 Malaria control and prevention in Cambodia (Dr Kheang Soy Ty, URC)**

The project contributed to reducing malaria morbidity and mortality. It helped increase and expand ITN/LLIN, and improve case management and public-private partnerships. The organization works in the containment area and beyond. Among the obstacles cited to the implementation of the program were the limited RDTs for screening activity and limited accessibility to some villages as well as shortages of some supplies (e.g. insecticides and nets), training materials and equipment. The situation needs attention. URC is awaiting new treatment policy from CNM before addressing training needs for private providers. It is important that all baseline surveys (household, health facilities, etc.) are in the analysis phase. No obstacles have been encountered to date. For malaria diagnosis there is an inadequate supply of RDTs, microscopes and a comprehensive containment strategy. Also pending is a strategy for migrant populations. Prevention is the key to a containment strategy. Practitioners need to take a careful look at the obstacles. These obstacles pose an additional challenge to the containment strategy. According to Dr Christophel, the national program is not yet ready for the containment plan and feel that "this project is ahead of its time". The expectations are that in January 2009 everything will be in place to roll out the containment plan. Obstacles affecting the supply chain and other key components of this pilot project need to be addressed. There was some discussion on the role of the private sector, which is thinly spread.

### **3.8 Progress report from USP (Dr Souly Phanouvong and Mr Christopher B. Raymond)**

USP works on monitoring drug quality and strengthening QC for national laboratories in Laos and Cambodia. The organization has worked to establish mini-labs in Thailand. Delays in the acquisition of the labs caused delays in implementation. Counterfeit drugs have been identified in Viet Nam, including fake Quinine.

### ***Comments and Questions***

Dr MacArthur asked about the availability of data on Yunnan Province and if there is any information on the drug quality situation there. China's FDA is responsible for this program. Support for China for drug quality monitoring will go through WPRO. The results are expected by the end of the year.

Cross-border data collection (Thailand-Cambodia) has been completed and data will be made available soon. Routine sentinel site monitoring is also back on track.

### **3.9 WHO-MMP progress (Dr Charles Delacollette)**

IR 1-1 The Capacity Building/Training WHO-MMP team has provided technical inputs in (a) ACTMalaria MMFO curriculum revision, (b) TES training sessions in China and Viet Nam, (c) Mahidol training courses on case management, (d) national IEC/BCC training sessions, (e) direct involvement in international training courses on malaria case management, Thailand, (f) revision of job descriptions for community workers and health staff and submission to national programmes.

IR 1-2 Increasing access to impregnated bed nets:

- Re-impregnation of 90,000 nets in containment Zone 1 in Cambodia completed

#### IR 2-1 Increasing use of malaria diagnostics

- Microscopy QA: slide bank complete in the Philippines, almost complete in Cambodia, validation on going  
Will support: Microscopy accreditation, run successfully in 13 countries (40% SEAR); wide recognition and expansion to AFRO and PAHO; continued WPRO input needed
- Microscopy QA manual being finalized
- RDT QA funded by FIND

#### IR 2-1 Strengthening commodity supply chain logistics

- Intervention in CAM to prevent stockouts (successful)
- Trial on cool storage methods finished in the Philippines and Cambodia; report available November; next step is wider scale implementation which is planned in Laos and Cambodia through RCC (extension of R2)

#### IR 3-1 Conducting and improving drug resistance surveillance

##### a) Standardized Mekong TES protocol completed

- TES training conducted (China and Viet Nam)
- TA recruited, including clinical monitoring
- Four country TES proposals submitted and approved by WHO Ethics Committee
- Funds made available to countries; Cambodia and Laos have started field implementation
- Currently critical issue with artesunate study drug; the concern is about quality of artesunate tablets used for TES

##### b) Laboratory assessment for PCR completed in five countries (final report available); China lab strengthening depending on report)

##### c) Sub/regional database updated (ongoing)

#### IR 3-2 Improving drug quality surveillance through sentinel sites and improving rapid response to counterfeit drugs

- Cambodia, Laos, Vietnam covered by USP; China by WPRO (proposal available, not yet started)
- Workshop on improved sampling methodology (planned for 2009); jointly with INTERPOL and World Customs Organization a new six-country operation on counterfeits started and finished (planning workshop held in Bangkok, funded jointly with WPRO Pharmaceuticals Programme – final workshop next month)

#### IR 3-3 Strengthening surveillance and Consolidation of sub-regional information

- Workshop on improved Mekong HIS indicators and survey tool organized
- Database: training held by HQ in Lao PDR; to be followed up
- Mekong Malaria Profile updated (under final review)

#### IR 3-4 Drafting M&E plans for malaria control programs and improve M&E use to guide programme management

- Support to national malaria survey Cambodia (including technical assistance)
- Conduct special studies and operational research
- Malaria prevention in pregnancy study, Cambodia
- Protocol finalized (including technical assistance); co-funding by MCH/WHO HQ programme secured; protocol in WHO ethical review process

- Non-malarial fever study: Study going well in three sites in Cambodia and two in Laos; CSR WPRO involved; 1 FT person at IPC; progress discussion meeting planned for early November

#### IR 4-1 Addressing malaria multi-drug resistance on the Cambodia-Thailand border

- Strategy development consultation in Bangkok in February
- National stakeholder planning meeting Phnom Penh
- Resource mobilization consultation Phnom Penh in June
- Related technical assistance

Products: two-year multi-country containment strategy budgeted and proposal submitted for funding.

#### IR 4-2 Malaria prevention and control strategies for vulnerable populations:

- Draft regional framework developed

#### IR 4-3 Aiding countries to obtain GF funding:

TA for Cambodia RCC (successful);<sup>3</sup> China R8 (not successful); Cambodia R8 (postponed to R9); Cambodia and Thailand R9 started

#### IR 4-4 Increasing laboratory capacity for malaria drug quality monitoring

- Assessment of new analysis tools (advanced mass spectrometry) to detect counterfeit drugs.

#### IR 4-5 Increasing public-private partnerships in malaria control

- Training of private providers on case management (completed)
- Country support to develop public-private strategy (ongoing, Laos and Cambodia)
- Regional PPM Task Force (on going)
- Documentation of PP practices (on going)

IR 4-6 Evaluation of Malachek/Malarine in the private sector project in Cambodia planned for February 2009.

#### IR 4-7 Maintaining the Mekong Malaria Programme network

- Maintenance of the MMP office
- Consolidation of the Mekong TES network
- Organized USAID partners meetings twice per year
- Coordination of partners and TA
- Facilitation of links between partners and national programmes
- Support to World Malaria Day

#### IR 5 -1 Exchange of information on best practices

- MMP website : <http://www.whothailand.org/EN/Section3/Section113.htm>
- Collaboration with ACTMal website (see below)

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<sup>3</sup> Editor's Note: To date, GFR9 proposal development in Cambodia, PR of China, Myanmar and Thailand are ongoing. R9 in Cambodia and Thailand will focus on scaling up containment interventions. R9 in Myanmar is expected to include a containment component as well.

IR5-2 Maintained Malaria Resource Center and website <http://resource.actmalaria.net/>

**Comments and Questions**

USP provided data to WHO via IMPACT, which was then used as a tool in the countries for enforcement. INTERPOL will hold a meeting in the region and will convene 11 countries to participate. USP was asked to provide training but lacks funds. Suggestions?

Dr MacArthur asked what would happen to activities which did not get completed. Is GSM the cause? Were there obstacles not mentioned in Dr Delacollette's presentation? Dr Delacollette indicated that GSM has not delayed transfer of funds to countries where TES has to be implemented. Delays in the TES starting dates stemmed from concerns about the quality of artesunate tablets to be used in China and Viet Nam. In Cambodia, TES are on going as planned. No TES have been carried out in Myanmar because of hurricane Nargis. TES in Thailand are conducted as planned.

Dr MacArthur asked if Cambodia and Laos had been using USAID funds for *in vivo* studies. On the cooler box, did the work involve the Philippines. The answer was no (Dr Christophel).

Dr MacArthur suggested that all participants post their workplans on a CD ROM to share with others. He acknowledged that that was missed from the agenda but this would be a way to let everyone exchange information online. To date, all draft FY08 work plans have been compiled and made available to USAID/RDMA for screening and feedback. When finalized they will be posted to the WHO-MMP website.

Discussions took place at the end of Day 1 between WHO and MEASURE Evaluation staff to finalize the M&E agenda workshop and discuss expected outcomes.

## **Day two: 8 October, 2008 (Chair: Dr J. Ehrenberg, MVP Regional Adviser, WPRO)**

### **4. Focus on USAID driven M&E tools and indicators**

#### **4.1 USAID/RDM-A Performance Monitoring Plan (PMP) (Dr Ravi Goud)**

The USAID PMP covers monitoring and evaluation of malaria, TB and other public health threats. This is different from the Mekong M&E framework to be addressed during the next few days. This presentation PMP serves the purpose of a monitoring tool for RDMA's office. It works with strategic objectives (SO) and intermediate results (IR). Indicators are collected every six months. The indicators are meant to monitor projects receiving USAID funds. Data is subject to quality assessments and will be determined by USAID/RDMA staff. Baselines and targets for indicators will be set as the project moves on. Reference sheets provide detailed information on each indicator. An example is contained in the handout. Currently there are a few indicators which are not linked to any particular partner. This may necessitate discussions between USAID/RDMA, MEASURE, and partners.

#### **Comments and Questions**

USAID clarified that these are USAID performance indicators and will not expect reports from any one not funded by USAID. He also cautioned not to drop these "orphan indicators". Some may be important, such as those which include parasitological variables. Other indicators can not be dropped since they are required by USAID/HQ's. Performance reports will be made public through a website maintained by the US Department of State's Foreign Assistance office. Dr MacArthur asked everyone to submit a 'success story' for the website.

Dr Patrick Kachur thought programs might get confused by USAID working with these indicators. Another participant commented on USAID targeted areas and thought it was not clear how PMP would be able to capture details on every activity; it is only a monitoring and management tool for USAID. Dr Sylvia Meek thought most indicators seemed reasonable. However, one indicator requires reporting on non-USAID funds. During the discussion it was clarified that this indicator is trying to assess the degree to which USAID funding is leveraging other financial resources. It is difficult to measure this exactly, but it is an indicator that USAID Washington finds useful for building political support.

### **5. Focus on Mekong country achievements in malaria control**

#### **5.1 Malaria control in Thailand (Dr Wichai Satimai)**

Thailand wants to reduce mortality to 0.2 per 100,000 population by 2011 and morbidity to 0.4 per 1000 by 2011. Malaria program activities remain vertically driven in endemic provinces. In other non-endemic provinces malaria control activities are either integrated at provincial level or in the process of being fully integrated. This poses a challenge to maintain expertise and quality control interventions in integrated provinces. High mortality/morbidity is recorded on the Thailand-Burmese and Thailand-Cambodia borders with a high proportion of foreign cases; 50/50 is *vivax* relative to *falciparum*, as of 2008.

Treatment is with artesunate (a three-day plus mefloquine two-day regimen) for uncomplicated *P. falciparum* infection. Prolonged parasite clearance was found in some cases such as in Yala Province. Hence, multi-drug resistant *P. falciparum* is a challenge. A high proportion of cases are in areas inhabited by foreigners or in areas of political unrest. Decentralization is a problem because it takes away specialized staff. On Round 7 of the GF, addressing migrant populations in conflict areas and affected populations in endemic areas, there is total budget of USD 24,689,670 for five years. The country is stratified into high and low transmission areas. Early diagnosis and treatment in vulnerable populations is a key component of this project. LLIN will be distributed to all high risk villages, targeting both Thailand as well as long-term migrant population groups (> six months). Prompt treatment-seeking behaviour among fever cases is to be encouraged. Monitoring of drug

resistance (*in vivo*, *in vitro*, molecular markers) will be part of the Mekong network on monitoring drug resistance.

Impact indicators: Country API not including foreigners and Country API including foreigners.

### **Comments and Questions**

Does the program differentiate autochthonous from imported cases? Is IRS available in Yala? The answer was 'yes', the program investigates imported from autochthonous cases. They also collect mosquitoes in sentinel sites. IRS is conducted in A1 areas (high risk), one or two rounds per year unless these are mosquito nets. GF Round 7 focuses on unrecorded migrant populations who have limited access to health facilities in Thailand since they are not Thai citizens. The full GFR7 proposal with a detailed description of objectives and activities is available on the GFATM Website.

### **5.2 Malaria control in Cambodia (Dr Top Samphor Narann)**

Dr Top provided an overview of the malaria situation during the last 10 years; 36% of the land mass is occupied by forests and hilly areas, 2.1 million people live in this area with over 3000 villages. Inhabitants include forest dwellers and migrants.

The incidence rate was down to two from 15/1000 population in 2007. The number of confirmed malaria cases has increased. The mortality rate went down from 8.2 to 1.6. There are seven sentinel sites for the purpose of monitoring malaria drug resistance. Two sentinel sites are in Pursat and Pailin on the Thailand-Cambodia border. Artesunate + Mefloquine clearance time has indeed increased.

Regarding GF-Round 6, there is an emphasis on halting development and preventing the spread of anti-malaria drug resistance in seven provinces along the Thailand-Cambodia border. Key components of the project include clinical management, early diagnosis (microscopy and RDT) and improvement in the referral of severe cases, expansion of the VMW network, improvement of screening in pregnancy, re-stratification of high risk villages, LLIN and re-treatment of bed nets.

Progress of Round 6: Indicators include fake drugs, drug use and diagnosis, number of RDT used, number of treatments used, number of new VMWs trained, number of ANC staff trained in the use of RDTs and malaria screening for pregnant woman; extensive training in epidemiology, QA microscopy, and VMW and monitoring on insecticide resistance. The program is involved in research and monitoring of anti-malaria drug resistance.

### **Comments and Questions**

On the number of cases in Cambodia, caution needs to be exercised as some cases are based on clinical symptoms and others on diagnosis by microscopy. This accounts for a certain level of confusion, hence the importance of improving diagnosis. Dr Sylvia Meek addressed the issue of low risk malaria. Two large scale prevalence surveys in Cambodia are providing interesting data but we need more data from the private sector. Regarding stockouts, overstocking and problems with the drug supply system, someone posed the question as to whether any of these were problems in Cambodia. The answer was affirmative.

### **5.3 Malaria Control in Myanmar (Dr Toe Aung)**

Mortality and morbidity have decreased significantly. The population at risk is 38.7 million. The number of malaria cases exceeds 548,000, of whom 200,679 are confirmed. Mortality is 9.98/100,000. There is drug resistance to chloroquine. SP resistance is high and widespread. High risk groups live in difficult to reach areas. High risk areas are located mainly around border areas. Policies, including malaria in pregnancy, are in place. Objectives of the program include intersectoral collaboration. On progress between 2005 and 2006, this has been achieved in all of the following: re-treatment of bed nets, LLIN, IRS, microscopy, RDT and ACT delivery. Monitoring efficacy of drugs in six sentinel sites was conducted in collaboration with the Department of Research and WHO. Challenges include availability of treated bed nets in the community, QA diagnosis and treatment

and expanding microscopy. There are also challenges in monitoring progress and evaluating outcomes and impacts.

### **Comments and Questions**

A participant asked what chemicals were being used in IRS and whether entomological monitoring was in place. On treatment of confirmed and probable cases, why is chloroquine used when there is resistance?

A participant asked about drug quality monitoring in the WHO/JICA site projects. Dr Aung replied he was only responsible for one province and did not know what was happening elsewhere. On drug resistance and movement of people, a participant wanted to know if there was anything known about resistance to other drugs such as artemisinin. The answer was 'yes' but no details were provided.

### **5.4 Malaria control in Laos (Dr Samlane Phompida)**

The program is the recipient of GF Rounds 1, 4, 6 and 7 support. Malaria needs to be re-stratified because it has been significantly reduced. Only 14 deaths were recorded in 2007. It remains a problem in some provinces, especially in the South. The percentage of the population protected by bed nets is relatively high. They are approaching the GF morbidity reduction target and have exceeded the GF mortality target. There is a plan to roll out LLIN through 2009 and protect 3.6 million. Success will depend on the program capacity to conduct stratification. On drug resistance, chloroquine does not work. Artemisinin and artequine work well. Coartem® is applied in most of the country. Further studies need to be done on insecticide resistance. Malaria has been much reduced but policies, strategies and intervention tools need urgent revision. There is a need to re-stratify and concentrate in high malaria endemic areas.

### **Comments and Questions**

What is the status of data and information flow on severe malaria cases? For severe malaria, injectable drugs are used. This is complemented with international training in Thailand on severe malaria cases. Treatment of malaria is free, complicated or not. The central hospital in Vientiane has not seen a malaria case in seven years.

### **5.5 Malaria Control in China: Yunnan Province and the Chinese-Burmese border (Dr Lu Ming)**

There are many cases in 21 provinces but the highest densities are found in Yunnan and the border areas with Burma and the highlands. There were 907 counties affected in 10 provinces contributing 96 per cent of the total reported number of cases. The incidence rate has dropped to less than 4/100,000, although it peaked above 4/100,000 in 2006. Anhui and Yunnan are the most affected provinces. Most malaria is *vivax* (38,441), *falciparum* (1,648 only). Endemic areas have been stratified into high transmission unstable areas and controlled areas. National reporting systems are not picking up malaria as incidence is low. Ethnic minorities in border areas in Yunnan are particularly at high risk. The incidence rate has declined in Yunnan. On malaria control on the Myanmar border, both countries are working together on a plan that includes TA by China to support implementation of the GF projects. It is important that mobile groups be considered and joint planning is conducted with Myanmar. Challenges include bilateral cooperation. GF Rounds 1, 5 and 6 were implemented in Yunnan covering 25, 47 and 12 counties respectively. Almost all indicators were met, some exceeded.

### **Comments and Questions**

Dr Meek asked: With such a low incidence, how good is the surveillance system in picking cases? Clarification on mass drug administration was requested by another participant.

### **5.6 Malaria control in Viet Nam: Important progress on key malaria indicators between 2005-2007 (Dr Nguyen Manh Hung)**

Epidemiological situation

- The number of malaria cases has dropped to 70,910
- Morbidity rate per 1000 dropped to 0.83
- Mortality rate per 100 000 dropped to 0.02
- The number of people treated with antimalarial drugs was down to 688,782 from 1,600,000 in 2005
- The percentage of parasite positive slides also dropped in 2007

Problems encountered included a) a changing environment (30.7 per cent of the total population now lives in endemic areas); and b) the coverage and quality of malaria activities is still deficient.

Proposed solutions include improving the quality of malaria epidemiological surveillance, diagnosis and treatment, and support of scientific research.

Round 3-GF

- For five years, GFR3 covered 23 highly endemic provinces with a total of USD 22,787,909
- Impact and outcome indicators compared to 2006:
  - o Some achieved, some exceeded the target (e.g. proportion of population sleeping under ITN), some fell short (e.g. proportion of parasite / 1000 population and proportion of *P. falciparum* / 1000 population)
- Project indicators compared to 2006:
  - o All met and actually exceeded (number of malaria cases recorded a 26 per cent reduction, morbidity a 27 per cent reduction, number of positive slides a 37 per cent reduction)

Round 7-GF

- Focused on high risk groups and helped enhance sustainability of the malaria control program; for five years, USD 29,977,899 covering 29 highly endemic provinces with a population of 9,459,523
- The presenter did not elaborate on the epidemiological stratification

### **Comments and Questions**

There were 70,910 cases in 2007, 16,389 of which were confirmed. Why were 688,782 treated in 2007? The answer was not clear.

### **6. Focus on technical areas where collaboration is needed**

Dr Michael MacDonald asked countries to express TC needs. The discussion focused on areas where TC would be needed in 2009 and includes access to skills from a group of experts to ensure countries in the region are successful in getting proposals approved but also on the implementation itself. Experts would be free of charge (Dr MacArthur). Other areas of TA should include migrants, surveillance, M&E and program management.

There is considerable staff attrition in some countries. Pre-elimination and public-private partnerships also need special attention. Few programs are considering the cross-border dimension and as a result. Multi-country proposals are still lacking.

Dr Keith Carter commented on integration of malaria into existing health care services and expanding microscopes rather than RDTs. Strengthen the health system is the basic message.

Dr Deyer Gopinath (WHO/Laos) addressed issues of logistics and stocks. This is relevant to quality of data on morbidity and mortality. Most technical areas are well taken care of. The restratification process is being taken care off through hiring expertise. Management of a USD 20 million grant demands a lot. These funds have to be used for TA.

Viet Nam suggested training of microscopists. Cooperation between malaria and TB practitioners is already taking place but has not been effective so far. At the community level, it has not been feasible to share microscopes. Cooperation in NTD at community level however is feasible. On public-private sector collaboration: a training grant has been implemented but this also has not been very effective.

Dr Ros Seyha (Cambodia) suggested that maintaining coverage of ITN is a TA need. Other needs include forecasting needs of nets, LLIN, strategic delivery of LLIN, retreatment of nets is not sustainable. On the containment project the question concerns TA or the migrant population and how to deal with them, malaria in pregnancy, and TA required here and GF-9.

Dr MacDonald: School health at different levels should incorporate malaria in the curriculum. Cambodia is implementing in Round 4 under school health.

## **7. Focus on next steps including FY08 perspectives**

Dr MacArthur concluded with comments on RAVREDA. He thanked Keith Carter and noted the family spirit within RAVREDA which favours open discussions. Progress has been made since last year. Malaria in pregnancy is a new issue that has entered the discussions. Vector control did not percolate to the top of the agenda during the first phase of this meeting. Other activities need to be dealt with such as those related to diagnosis, treatment and M&E. Conversations over coffee and lunch brought up interesting opportunities for exchanging information. The focus was on the Thailand-Cambodia border. The feeling is we are in a position to understand better what is happening and the group is becoming more engaged while not neglecting the rest of the region. Things are moving in the right direction. Issues pertaining to the GF were also addressed.

Unfortunately, meeting organizers did not include work plans in the agenda, these plans will help us identify links and encourage a peer review process and create a platform to improve plans. Dr MacArthur asked participants to try to work in a virtual environment using SharePoint/email to engage in discussion. Participants should give or send their plans to Dr Charles Delacollette and he will disseminate them via the MMP website. There will be a deadline for comments and then there will be approval by the partnership. Suggested dates for the next USAID MMP core partners meeting are April 28 and 29, 2009.

Dr Delacollette will propose a date for the next USAID Mekong Malaria Programme Core Partner's Meeting, probably in April 2009.<sup>4</sup>

Dr Delacollette thanked the participants for coming to Bangkok, especially representatives from the Mekong countries who came to share their achievements and concerns with USAID-funded partners. They are many strategic technical challenges in the field that need to be addressed by national agencies and in collaboration with USAID and non-USAID-funded partners. Most Mekong countries, except Myanmar, have reached or are approaching pre-elimination targets. These ambitious targets need reorientation of control programmes and also more practical multi-country approaches in which MMP can play a critical facilitating role. The next two-day meeting in the same location is expected to wrap up discussions on M&E and surveillance indicators, another challenge in light of the numerous actors and donors involved in malaria control in the GMS.

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<sup>4</sup> Editor's Note: 28-29 April 2009 are suggested dates.

## 8. Conclusions and recommendations

1. There is confusion in the terminology between 'tolerance' and 'resistance' to artemisinin. The lack of a proper model, lack of success in identifying genes (e.g. to genotype resistance) are among some of the issues which will continue to pose a challenge to a clear definition of the phenomenon. Avoid using both terms as interchangeable in the same text and stick with tolerance for now.
2. Participants at the launch of the BMGF-supported and WHO-led containment project in Phnom Penh, 17-18 December 2008, agreed to consistently use the term 'artemisinin (not ACT) resistance' rather than 'artemisinin tolerance' to malaria parasites.
3. Migrant populations merit a proper situation analysis. This recommendation was taken on board and funded as an important component in the BMGF-funded bi-country containment project proposal.
4. USAID and BMGF grant: USAID expressed a desire to have a more active involvement in the management structure of the Gates Foundation grant on malaria artemisinin containment. The grant currently describes USAID as 'observers'. This issue will need to be addressed.
5. A systematic process that has taken place to the containment initiative. Contingency funds are needed until the Gates Foundation funds come through. The total funding gap is still USD 10,750,697 after submission to BMGF and taking into account available existing funding sources.
6. Dr MacArthur commented on the delays of USAID funds (e.g. to ACT Malaria) due to GSM and asked for a clarification from WHO. This issue needs to be brought to the attention of DAF. GSM implementation has actually affected USAID funds to ACTMalaria. As of December 25, 2008 this has been resolved and did not affect TES implementation.
7. On the importance of insecticide resistance monitoring, there are reports of resistance in several countries. This issue needs to be investigated.
8. Among the key challenges is the fact that senior microscopists are now retiring in the countries. This poses a challenge to the capacity strengthening objectives of ACTMalaria. A core of trainers in the countries would benefit from these senior microscopists.
9. Dengue could be incorporated into the inter-country network for malaria control but this will require additional funds.
10. Cooperation between malaria and NTD programs at the community level was found to be feasible in Viet Nam. Efforts should be made to try elsewhere.
11. Funds for surveillance are available but there is uncertainty as to who can do the job. A good methodology is needed. Human resources to conduct surveys on the ground are currently not available. Universities should be encouraged to get involved.
12. Reaching out to the private sector is also an initiative that needs to be more actively explored (e.g. Healthy Tourism in Thailand).
13. The situation concerning expired drugs needs clarification as well as issues related to stockouts; overstocking; inadequate storage at most levels; irrational distribution among provinces, districts or health facilities; poor management practices and poor record keeping.
14. There is an inadequate supply of RDTs for malaria diagnosis, a shortage of microscopes and a need for a comprehensive containment strategy in Cambodia.
15. Because it has been significantly reduced, malaria needs to be restratified in Laos.

## ANNEX 1

### AGENDA

#### DAY 1: October 7, 2008

- 08:30 Registration of participants
- 09:00 Opening remarks
- USAID
  - WHO
- 09:15 Introduction of participants
- 09:30 Nomination of chair and rapporteur *Dr Charles Delacollette*
- 09:35 Addressing artemisinin tolerant parasites in the GMS: progress to date *Dr Eva M. Christophel*  
*Dr Charles Delacollette*
- 10:15 Clarification
- 10:30 *Coffee Break*
- 11:00 Presentations from USAID-funded partners on past 12-month achievements against FY07 planning (20 minute presentation, 10 minutes Q&A)
- ACT Malaria *Ms Cecil Hugo*
  - CDC Atlanta *Dr Stephen P. Kachur*
- 12:30 *Lunch Break (International Buffet, Ground Floor)*
- 14:00 Presentations (continued)
- PAHO *Dr Keith Carter*
  - Kenan Institute Asia/BAAM *Dr Jim Hopkins*
  - MEASURE/ Evaluation *Dr Ravi Goud/Dr Erwin Eckert*
  - MSH/SPS *Ms Beth Yeager*
  - URC *Dr K Soy Ty*
- 16:00 *Coffee Break*
- 16:30 Presentations (continued)
- USP *Dr Souly Phanouvong/*  
*Mr Christopher B. Raymond*
  - WHO *Dr Charles Delacollette*
- 17:30 Clarification
- 18:00 Closure of day 1

## ANNEX 1

### AGENDA

#### DAY 2 October 8, 2008

08:30	Wrap up of day 1	<i>Rapporteur</i>
9:00	USAID/RDMA Performance Monitoring Plan (PMP): Measurement of progress	<i>Dr Ravi Goud and Dr Chansuda Wongsrichanalai</i>
	Country presentations (15 minute presentation, 5 minutes Q /A)	
09:40	Malaria control in Thailand including implementation of R7 GFATM: Progress to date	<i>Ms Saowanit Vijaykadga</i>
10:00	<i>Group Photo and Coffee Break</i>	
10:30	Malaria control in Cambodia including implementation of R6 GFATM: Progress to date	<i>Dr Top Samphor Narann</i>
10:50	Malaria control in Myanmar including implementation of 3 diseases fund: Progress to date	<i>Dr Toe Aung</i>
11:10	Malaria control in Lao PDR including implementation of GFATM proposals: Progress to date	<i>Dr Rattanaxay Phetsouvanh</i>
11:30	Malaria control in China (Yunnan) including implementation of GFATM proposal: Progress to date	<i>Dr Lu Ming</i>
11:50	Malaria control in Viet Nam including implementation of GFATM proposals: Progress to date	<i>Dr Nguyen Manh Hung</i>
12:10	Technical areas where extra collaboration / TA is critically needed	<i>Chairperson</i>
12:30	<i>Lunch Break (International Buffet, Ground Floor)</i>	
14:00	Plenary wrap-up discussion: USAID partners potential add-on	<i>Chairperson</i>
15:00	Next steps including FY08 perspectives	
	<ul style="list-style-type: none"><li>▪ WHO-Mekong Malaria programme</li><li>▪ USAID-Asia</li></ul>	<i>Dr Charles Delacollette Dr John MacArthur</i>
	Plenary discussion	<i>Chairperson</i>
16:00	<i>Coffee Break</i>	
16:30	Closure of Meeting	

## ANNEX 2

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