Welcome Dinner and Cultural Show - Palm Court Conference Room

Master of Ceremonies
Professor Maxine Whittaker

Remarks by

- **Professor Dr. Nguyen Thanh Long**
  Deputy Minister of Health, Representing the Minister of Public Health, Vietnam and APMEN Co-Chair

- **Sir Richard Feachem**
  Director, Global Health Group, University of California, San Francisco, and APMEN Co-Chair

- **Dr. Richard Cibulskis**
  Coordinator for Strategy, Economics and Elimination, World Health Organization, Global Malaria Programme

- **Dr. Eva Maria Christophel**
  Team Leader - Malaria, other Vectorborne and Parasitic Diseases Unit, Division of Communicable Diseases, World Health Organization, Regional Office for the Western Pacific

**Session 1: Paving the way to regional malaria elimination in the Asia Pacific region**

**Objectives:** To set the scene for the APMEN VII meeting; the current 2030 regional elimination goal and examine ways to work with populations that current activities do not reach.

- **Chair: Dr. Jetsumon Sattabongkot Prachumsri**
  Director, Mahidol Vivax Unit Faculty of Tropical Medicine, Mahidol University and Vice-Chair of APMEN Advisory Board

- **Professor Dr. Nguyen Thanh Long**
  Deputy Minister of Health representing Nguyen Thi Kim Tien, Minister of Public Health Vietnam and APMEN Co-Chair

- **Sir Richard Feachem**
  APMEN Co-Chair, Director, Global Health Group, University of California, San Francisco

- **Dr. Ben Rolfe**
  Asia Pacific Leaders Malaria Alliance (APLMA), Executive Secretary

**Sir Richard Feachem** (APMEN VII Co-Chair, Director, Global Health Group, University of California, San Francisco, USA) welcomed the participants to the seventh Annual APMEN Business and Technical Meeting. He acknowledged the attendance of a number of special guests this year including Sumitomo, Google, and representatives from other malaria elimination networks from around the world. He thanked members from the Regional Initiative to Eliminate Malaria in Mesoamerica and the Island of Hispaniola (EMMIE) and the Elimination 8 Regional Initiative (E8) in southern Africa. Sir Richard noted that there have been many developments since convening APMEN VI in Manila. Some of these developments have been challenging, such as: 1) an overall decrease in domestic funding for malaria globally, 2) the reduction in Global Fund funding in the APMEN region, 3) the spread of artemisinin resistance, and 4) confirmed cases of *P. knowlesi* are continuing to rise.

However, along with these challenges, there has been much progress within the Asia Pacific region. For example: 1) Sri Lanka has completed another year with no local malaria transmission and is close to
reaching WHO certification in November this year 2) Bhutan is rapidly approaching elimination having only reported 19 cases in 2014, 3) progress in malaria elimination is being seen in both China and India, 4) all 17 APMEN countries have seen a decline in malaria cases and deaths, and 5) the East Asia Summit issued a declaration for a malaria free Asia Pacific by 2030. In conclusion, Sir Richard stated that it was up to the participants in this room to galvanize APMEN’s efforts to assist the region to achieve this goal.

Dr. Ben Rolfe (Executive Secretary, APLMA) focused his remarks on the foundation of the APLMA Executive Secretariat, and the development of the 2030 malaria elimination goal. He acknowledged the contribution of those in the room and strongly noted that elimination will not be achieved unless full commitment was reached within the central agencies. Dr. Rolfe stated that health ministers are under budgetary pressure and will need to commit to funding a disease that is no longer seen as a threat to their electorate. He reminded the audience that malaria is a multi-country health security threat, and needs to be a concern of the different ministries and not just the Ministry of Health. The main question now is: how can countries maintain the interest of the central agencies? Dr. Rolfe stated that as countries move closer towards elimination, the new case to be made is that resurgence is always guaranteed and that resistance will continue to be a challenge. APLMA has a key role in highlighting these risks and highlighting the region’s successes. APLMA greatly acknowledges APMEN’s role in developing the roadmap to elimination.

During the question and answer portion of session one, the question was asked: what is APMEN’s role in influencing and engaging ministries of finance and foreign affairs? Sir Richard responded stating that achieving the overall Asia Pacific goal of 2030 will require a three-pronged approach: political commitment, technical expertise, and financing APLMA has strong political influence. APMEN plays a critical technical role and should continue to do so. The area that still needs work is developing is long term financing for malaria elimination. APMEN can play a role in this area as well by advocating for stronger financial commitments within their governments and providing the technical evidence to support the region’s success. Dr. Rolfe echoed Sir Richard’s comments by stating that credibility and reassurances come from better surveillance data.

**Session 2: Country Updates**

**Objectives:** To share information on and knowledge gained from implementing an elimination strategy in Vietnam, Bangladesh and India, update on strategy and progress. To identify and discuss key elimination challenges.

**Chair:** Dr. Jetsumon Sattabongkot Prachumsri, Vice-Chair APMEN Advisory Board
- **Dr. Ngo Duc Thang**, Chief of Epidemiology Department, on behalf of Dr. Tran Thanh Duong, Director, National Institute of Malaria, Parasitology and Entomology, Vietnam
- **Professor Dr. Abul Khair Mohammad Shamsuzzaman**, Director, Disease Control and Line Director, Communicable Disease Control, Directorate General of Health Services, Bangladesh

Note: Due to unforeseen circumstances, representatives from New Country Partner India were unable to attend this meeting. A hard copy handout prepared by Dr GS Sonal and Dr NS Dharmshaktu from the National Vector Borne Disease Control Program, Ministry of Health and Family Welfare, India was distributed to meeting participants.
Dr. Ngo Duc Thang (on behalf of Dr. Tran Thanh Duong, Director, National Institute of Malariology, Parasitology and Entomology, Vietnam) presented an overview of Vietnam’s progress towards elimination, which has achieved a 90% reduction in mortality from malaria since 2000. In 2014, Vietnam confirmed 27,000 cases and is focused on planning and implementation for *P. falciparum* elimination by 2020, which will curb the spread of artemisinin resistance that has been already confirmed in 14/58 provinces. Achieving elimination will not be met without challenges, such as a reduction in national funding for malaria. An emphasis on resource mobilization, partner coordination, and cross-border collaboration, specifically with Cambodia, will help of Vietnam continue accelerating towards zero and achieve its elimination goal.

Professor Dr. Abul Khair Mohammad Shamsuzzaman (Director, Disease Control and Line Director, Communicable Disease Control, Directorate General of Health Services, Bangladesh) representative of APMEN country partner Bangladesh, provided a lively overview of Bangladesh’s progress in reducing malaria. With 58,000 cases of malaria last year, and backed by strong political commitment and good multi-sectorial collaboration for malaria, Bangladesh is aiming for elimination by 2020. Collaboration with neighbours will be critical to Bangladesh achieving this goal, as controlling malaria along the borders with India and Myanmar remains a big challenge. Bangladesh looks forward to APMEN bringing India and Bangladesh together to develop cross-border collaborations.

Session 3: Asia Pacific 2030 Elimination: What is needed to achieve this goal - Technical considerations

*Objective: To highlight the key technical challenges and current progress, with a view toward the 2030 elimination goal.*

**Chair:** Professor Gao Qi, Jiangsu Institute of Parasitic Diseases

- **Professor Ric Price**, Menzies School of Health Research, APMEN Vivax Working Group Co-Chair
- **Dr. Christina Rundi**, Chair of the APMEN Vector Control Working Group, State Director, Sabah Health Department, Ministry of Health, Malaysia
- **Mr. Lyndes Wini**, National Vector-borne Disease Control Division, Ministry of Health & Medical Services, Solomon Islands
- **Professor Archie Clements**, Director, Research School of Population Health, Australian National University

**Professor Ric Price** (Menzies School of Health Research, APMEN Vivax Working Group Co-Chair) spoke about the challenges and research priorities in eliminating *Plasmodium vivax*. First, Dr Price highlighted the burden of disease and the difficulty in quantifying the number of clinical cases. He noted the rising proportion of *P. vivax* compared to *P. falciparum* in the Asia Pacific region, and the need to improve diagnostics. Parasite surveillance, including genotyping, has the potential to identify hidden reservoirs of infection, and provide information on transmission intensity, geographical origin of infection, clonal expansion, and molecular markers of chloroquine resistance (CQR). Outside of Africa, *P. falciparum* almost invariably coexists with *P. vivax*, so elimination strategies must tackle all species simultaneously instead of separately.
He emphasized that the biggest threat to malaria elimination is drug resistance, and highlighted concerns with artemisinin resistance in *P. falciparum*, and chloroquine resistance in *P. vivax*. The example of poor chloroquine efficacy against *P. vivax* in a recent APMEN-funded study from Sabah Malaysia emphasises the point that if you don’t look for resistance, you may falsely reassure yourself that there isn’t a problem.

The predominant morbidity and mortality of *P. vivax* is related to its propensity to recur. Multiple recurrences increase the risk of death by 4%. In the next 4-5 years we will have to rely on primaquine for radical cure to prevent *P. vivax* relapse, but we need to develop better, safer and more effective regimens. Prof. Price noted several key factors that will be required for *P. vivax* elimination: better diagnostics, populations surveys to map individuals with G6PD deficiency and parasite reservoirs, early detection of drug induced haemolysis, standardized methodologies in clinical trials and analysis, and simple treatment regimens.

In the last 5-6 years, there has been intensive work on *P. vivax* within APMEN coordinated by the Vivax Working Group (VxWG). In this forum, research partners come to meetings to learn and realign research priorities to programmatic goals. There are also capacity building activities, research project grants, workshops and the creation of data sharing platforms. Dr Price concluded that:

- is more challenging to eliminate and therefore demands complementary evidence-based control strategies
- APMEN is a unique forum for National Malaria Control and Elimination Programmes (NMCPs), researchers, policy makers, WHO, funders, and is vital for the successful elimination of malaria

**Dr Christina Rundi** (Chair of the APMEN Vector Control Working Group, State Director, Sabah Health Department, Ministry of Health, Malaysia) spoke about vector control in elimination settings. Challenges for vector control in elimination settings include:

- Financial: A reduction in financing for malaria will impeded further progress and reverse current achievement at global and national level
- Capacity Building: There is a lack of entomologists; a challenge recognized by many country partners. Country Partners need strengthened human resources to maintain current coverage and interventions, and manage insecticide resistance
- Insecticide Resistance: Most data is dated, and there is no baseline data for insecticide resistance. It is also difficult to monitor since there are often insufficient number of mosquitoes
- Outdoor transmission: Outdoor sleeping and night time activities present challenges in vector control
- Residual transmission: Mosquitos change biological behaviour, especially the feeding site and where they rest after they feed.

After touching on the role of IRS, Dr. Rundi noted the lack of coordination between private and public sector in the manufacturing and distribution of ITNS and within the health system and management of malaria. She noted that the number of available and effective insecticides for malaria is decreasing (only 12 insecticides are currently recommended by WHO for IRS). There is also the challenge of secondary vectors that are mostly zoophilic. They are thought to be unimportant in transmission, but they have potential to augment or extend transmission. Finally, hybrid “Super mosquitos” are resistant to insecticide treated bed nets and resistant to current insecticides, creating a challenge to vector control.

Dr. Rundi highlighted current strategies and a way forward. First, we need to identify areas in which we need to move forward to not only achieve elimination, but to also sustain elimination. In terms of capacity building, there is the integrated vector management course, facilitated by the Ministry of Health Malaysia,
which has been active since 2011. Country partners need to recognize what is needed after the training for participants to sensitize people at their level and to carry out an implementation plan. There is also a 2-week intensive training by WHO on “Malaria Entomology and Vector Control” for those involved in vector management. Finally, there is the APMEN Vector Pocket Guide which aids people in recognizing species in their country. This guide is an output of the APMEN Vector Control Working Group.

Dr. Rundi also mentioned policies and tools that are helpful in vector control efforts including:

- The [Global Plan for Insecticide Resistance Management](#)
- The Pacific Malaria Drug Resistance Monitoring Network, established in 2011 to expand and support national malaria drug resistance monitoring activities in the Pacific; suggestion
- IR Mapper - an interactive map for visualizing data from insecticide susceptibility and resistance mechanisms tests
- VecNet- a simplified interface to model impacts of intervention for malaria control and elimination. By feeding the interface some data, one can use the transmission simulator to see what happens if a certain intervention is used

Dr. Rundi ended by underscoring the importance of research and innovation. She said it was imperative to develop alternative insecticides, look at proper housing where there is still indoor transmission, and find ways to better monitor insecticide resistance (e.g.: biochemical tests in places where WHO test method cannot be conducted) and research resistance detection using molecular techniques especially on detection of knock down resistance.

**Mr. Lyndes Wini** (National Vector-borne Disease Control Division, Ministry of Health & Medical Services, Solomon Islands) gave an overview of targeting and mapping malaria in Solomon Islands. Solomon Islands have about 500,000 people and have around 25,000 confirmed malaria case. *P. falciparum* is the dominant species, although *P. vivax* is becoming an issue. The country aims to eliminate malaria by 2035, though Mr. Wini noted they will have to realign to achieve the Asia Pacific 2030 goal. Mr. Wini introduced mapping by noting how programs need to make informed decisions about where to target interventions to achieve elimination with limited resources.

There are 3 main components to Spatial Decision Support Systems (SDSS): baseline spatial data; expert knowledge; and routine data collection methods. The output includes graphical maps, tabular reports, statistical and spatial analysis (all to support targeting of responses). SDSS provides province-specific applications and identifies areas of IRS and ITN distribution.

Mr. Wini noted the challenges: baseline spatial data (2009) is outdated; expert knowledge often disappears with local brain drain (people trained in this system have moved out and reduced the capacity to use this tool); and routine data collection-has been difficult because of geographical access. He also noted reductions in funding support can be difficult. He ended by saying the next step includes adopting a sustainable GIS platform.

**Professor Archie Clements** (Director, Research School of Population Health, Australian National University) added to Mr. Wini’s presentation by expanding on the SDSS. The scope of the presentation included; static mapping for targeting and stratification, dynamic mapping for resource mobilization and logistics, and surveillance-responses (SDSS). Considerations for stratification mapping include the ideal resolution and spatial scale, which depends on stage of elimination and whether this differs for different areas of a country, the desired frequency of re-stratification, what administrative structures exist for resource mobilization (to which stratification should be aligned), existing systems for information management, and the capacity and requirements for investment in human resources. Professor Clements noted that all presentations from country partners had included maps—usually at province or district, but suggested we should also be looking at micro stratification and operational stratification. SDSS are information management systems that have a mapping component, usually based on GIS. They should be dynamic, providing information in near real-time and can often involve analytical components. Surveillance is just one element that can be supported by a SDSS—they can also be sued for resource mobilization for routine activities and more active interventions. Professor Clements noted a pilot SDSS in four sub districts of Bhutan. He ended by noting that while small scale qualitative assessments have been used, there is a
need to do a large scale quantitative assessment for this approach. Refinements to SDSS could include integration with risk mapping and improvement of usability.

**Session 4: Asia Pacific 2030 Elimination: What is needed to achieve this goal - Financial considerations**

**Objective:** To highlight the financial considerations and current efforts, with a view toward the 2030 elimination goal.

**Chair:** Dr. Risintha Premaratne, Director, Anti-Malaria Campaign, Ministry of Health, Sri Lanka

- **Mr. Bill Parr**, Director of Operations and Regional Lead - Regional Finance for Malaria, Asian Development Bank, APLMA Task Force on Innovative Financing
- **Dr. Gawrie N.L. Galappaththy**, Team Leader, Emergency Response to Artemisinin Resistance (ERAR) and other Vector Borne & Parasitic Diseases, WHO, Vietnam
- **Ms. Rima Shretta**, Deputy Lead for Finance and Policy, Malaria Elimination Initiative, UCSF Global Health Group

**Mr Bill Parr** (Director of Operations and Regional Lead - Regional Finance for Malaria, Asian Development Bank, APLMA Task Force on Innovative Financing) gave an overview of the recommendations of the APLMA Task Force, which convened in May 2014 after having commissioned eight papers on financing for malaria control and elimination. The five recommendations centered upon:

- Commit to goal of regional malaria elimination by 2030.
- Increase financing to strengthen and support aggressive, evidence based response to artemisinin resistance and insecticide resistance
- Establish “health security” fund that focus is on malaria but then could be expanded to include H1N1, or SARS, for example
  - Support regional coordination and build national capacity
  - Borders and forested areas – need to increase private sector participation (financing and also in delivery of interventions)

In November 2014 at the 9th East Asia Summit in Myanmar, leaders committed to the regional elimination goal, and submitted to task force to come up with plan to achieve the goal which would include the recommendations of the task force. APLMA has briefly interacted with the African Leaders Malaria Alliance (ALMA), a similar structure in Africa, in particular around the ALMA scorecard and the in-development APLMA scorecard.

**Dr. Gawrie N.L. Galappaththy** (Team Leader, Emergency Response to Artemisinin Resistance (ERAR) and other Vector Borne & Parasitic Diseases, WHO, Vietnam) gave a presentation on the cost of eliminating *P. falciparum* resistant parasites, which entailed a description of the feasibility study *P. falciparum* elimination in the Greater Mekong Sub region. The study showed that now is the right time to reach elimination, because national and international political will is at the highest levels in history, and we need to build on experience and use the tools that are available. Not all tools are perfect, but some are still useful. Costing estimations range from 3.2 to 3.9 billion over 15 years, or $1.8 to $2.2 per capita per year. These estimations must be further refined through country costing. This work was built on WHO gap analysis and expansion to 2030. The absorption capacity of a country’s national program must also be considered.
The last presentation was by **Ms. Rima Shretta** (Ms. Rima Shretta, Deputy Lead for Finance and Policy, Malaria Elimination Initiative, UCSF Global Health Group), who gave an overview of Asia Pacific costs of elimination and financing prospects. Official Development Aid (ODA) for malaria has increased up, but decreased funding of the proportion for eliminating countries. She described the sources of malaria funding control vs. elimination and the impact of the Global Fund New Funding Model on malaria eliminating countries. There have been decreases in Global Fund funding across many countries (e.g. Sri Lanka, India, Solomon Islands and Vanuatu, Bhutan).

A high level projection for elimination has been conducted, which shows a cost of $9.4 billion for elimination from 2014 to 2030 in the region. She described the main challenges: funding gap; short term costs of elimination that are high; $675M needed for research and development (R&D) in next 10 years; artemisinin resistance and insecticide resistance; withdrawal of funding for diseases that are no longer a threat: potential for resurgence. However, opportunities include lives saved, cases averted, external benefits, technology development and big data, robust R&D, urbanization trends, regional coordination/cooperation, and economic growth. The question was asked of how countries are preparing their response for the decline in funding that may occur as their malaria morbidity draws down. Two countries reported that this is a problem and they are not prepared. One suggestion was to pool funds at a regional level, which would also allow for cross-border work.

**Session 5: Asia Pacific 2030 Elimination: Operational considerations**

**Objective:** To highlight the operational considerations and current experience.

**Chair:** Ms. Marvi Rebueno, Pilipinas Shell Foundation, Inc., Philippines

- **Dr. Risinha Premaratne**, Director Anti-Malaria Campaign, Ministry of Health, Sri Lanka
- **Dr. Rose Nani bt Mudin**, Head of Vector Borne Disease Sector, Ministry of Health, Malaysia

**Dr Risinha Premaratne** (Director Anti Malaria Campaign, Ministry of Health, Sri Lanka) presented an overview of the operational challenges for Sri Lanka. The main operational challenge today is for Sri Lanka to manage imported malaria. He noted that in 2012 there were 70 cases with the majority coming from neighboring India. The importance of good communication and relationships with a variety of government organisations is critical in managing imported malaria. Strategies employed included building linkages with UNHCR, working directly with asylum seekers with malaria and staying on message to test treat and track, mobile malaria clinics and strengthening the skills for diagnosis and treatment within the regions.

The other challenge is to acknowledge and manage the risk of malaria resurgence. Sri Lanka has a high receptivity with suitable temperature and humidity, breeding places and vectors such as An. culicifacies species that is an efficient, endophilic, endophagus, anthropophage and intensely domestic species. Sri Lanka is also highly vulnerable due to migration namely development projects with no malaria impact assessment. And possible delays in detection and treatment of cases and the unstable, seasonal, focal, low transmission rural plain ecotype malaria, which is prone to explosive epidemics.

Dr Risinha noted in conclusion that one of the advocacy challenges is how to main the focus on malaria as a “rare disease event of a forgotten disease” and the existence of dengue.
Dr Rose Nani bt Mudin (Head of Vector Borne Disease Sector, Ministry of Health Malaysia) presented an overview of Malaysia’s success from over 8,808 cases in 2000, down to 606 indigenous cases in 2014. The importance of accurate data is critical to Malaysia’s success to operationally managing malaria in the various locations. Key decision making is undertaken based on the malaria stratification undertaken in the 2008 and the subsequent web based (real time) surveillance system in place which includes malaria as a notifiable disease and all cases being documented in a national malaria case registry. Collection of comprehensive data strengthens the efforts enabling case investigation and follow-up of cases, full investigation on malaria deaths and targeted vector control activities of spraying and ITN’s. She described the quality approach to various malaria activities including quality assurance and control of microscopy.

Dr Rose outlined the operational challenge of \textit{P. knowlesi} in light of its increasing diagnosis (2011 from 885 to 2014 to 2586 cases). In conclusion she noted the importance of intersectional collaboration within the Malaysian applied centralized system whereby the National Technical Meetings for Vector Borne Disease involves representatives from all states and includes a variety of team members such as epidemiological officer, entomologist, health education officer, environmental health officer and clinicians.

She outlined the importance of key relationships such as those between district health office who liaise with local companies (such as plantation and logging) to conduct fever screening and health education sessions. Questions posed included how to continue to mobilize community workers skills and capacity and how do you keep institutional memory with decreasing cases?

### Session 6: APMEN Scientific World Café: As the Asia Pacific region moves towards elimination, scientific challenges and questions arise

**Objective:** To highlight current research findings and future challenges and obstacles that may impact 2030 goal

- \textit{P. knowlesi} – Professor Balbir Singh, Director of the Malaria Research Centre, University Malaysia Sarawak
- \textit{P. vivax} – Professor Ric Price, Professor of Global Health, Menzies School of Health Research / Professor of Tropical Medicine at the Centre of Tropical Medicine University of Oxford.
- New drugs in the fight against Artemisinin resistance – Dr. Stephan Duparc, Chief Medical Officer, R&D / Medical, Medicines for Malaria Venture
- Malaria vectors – Dr. Dan Strickman, Senior Program Officer, Vector Control Global Health Program, Bill & Melinda Gates Foundation
- Parasitic host biology – Emerging findings from ICEMR – Professor Ivo Mueller, Laboratory Head, Division of Infection and Immunity, Walter and Eliza Hall Institute of Medical Research, Dr. Jetsumon Sattabongkot Prachumsri, Deputy Dean for Research / Director MVRU Mahidol University, Faculty of Tropical Medicine, Mahidol Vivax Research Unit (MVRU), Center of Excellence for Malaria, Thailand
- Bringing malaria elimination to your mobile phone – Dr. Adam Bennett, Programmatic Lead, Malaria Elimination Initiative, UCSF Global Health Group, Ms. Allie Lieber, Program Manager Google Inc. (Earth Engine), Professor Roly Gosling, Lead, Malaria Elimination Initiative, UCSF Global Health Group.

### Partner Institutions Meeting

**Google Earth Engine Mapping Tool Informational Session**
**Vivax Working Group Dinner Meeting**

**Table 1: Plasmodium knowlesi**

Professor Balbir Singh (Director of the Malaria Research Centre, University Malaysia Sarawak) is the world’s leading researcher on the malaria species, *Plasmodium knowlesi* (*P. knowlesi*). Prof Singh used the APMEN Scientific Café session to describe the really “immeasurable” incidence of *P. knowlesi*, commonly known as “monkey malaria”.

Malaria was thought to be caused by four species of Plasmodium, until the simian malaria parasite, *P. knowlesi* was discovered 11 years ago to be a significant cause of human malaria in Sarawak, Malaysian Borneo. Since then cases have been reported throughout Southeast Asia and also from the Nicobar and Anadaman Islands of India. The number and proportion of cases due to *P. knowlesi* have been increasing over the past 5 years and *P. knowlesi* malaria accounted for 68% of all hospital admissions for malaria in Malaysian Borneo in 2013. *P. knowlesi* is an ancient parasite that has been under-diagnosed by microscopy because the early rings forms resemble those of *P. falciparum* and all the other blood stages stages are similar to *P. malariae*.

Currently available rapid diagnostic tests (RDTs) are neither sensitive nor specific for the detection of *P. knowlesi* malaria. In contrast to the morphologically similar *P. malariae* and *P. knowlesi* malaria, *P. knowlesi* multiplies every 24 hrs in the blood and has the potential to cause fatal infections with very high parasitaemia. Forest dwelling mosquitoes of the Anopheles leucosphyrus group are the main vectors of *P. knowlesi*malaria and long-tailed and pig-tailed macaques are the reservoir hosts. Provision of insecticide impregnated bed nets and residual spraying of houses will have limited success against a vector that feeds and rests outdoors. Nevertheless these measures together with personal protection methods will be required to prevent this parasite from becoming a human malaria parasite.

**Table 2: Plasmodium vivax**

Prof Ric Price (Professor of Global Health, Menzies School of Health Research / Professor of Tropical Medicine at the Centre of Tropical Medicine University of Oxford) and Dr Kamala Ley-Thriemer, (Menzies School of Health Research Darwin) presented an overview of the current issues and challenges around *P. vivax* malaria, highlighting recent work in the three thematic areas of surveillance, diagnostics and treatment.

The main issues identified in the theme of surveillance are new methods to monitor the movement of parasites within and across borders, to develop effective strategies for early detection of malaria outbreaks and novel approaches for locating reservoirs of infection and to identify molecular markers of chloroquine resistant *P. vivax*.
In the diagnostic area the greatest challenge is the need for cheap and reliable Point of Care (PoC) tests for G6PD as well as a better understanding on the geographical distribution of G6PD deficiency and its variants.

In the therapeutics area the two main priorities are to understand the extent of chloroquine resistant *P. vivax* malaria and develop better ways to deliver safe and efficacious radical cure. A common theme in all discussions were the challenges of radical cure and the question whether G6PD testing is always required; since reliable affordable point of care (POC) tests are currently not yet widely available. Some participants reported that in their countries patients are treated with primaquine without prior testing and that they feel it is a good approach, others emphasized the need for testing to make sure treatment is safe. The negative effect of repeated *P. vivax* episodes when not treating with primaquine where highlighted and need to be balanced against the risk of treating. The current WHO antimalarial treatment guidelines, which have just been published, provide a well balanced view on this difficult subject [http://www.who.int/malaria/publications/atoz/9789241549127/en/](http://www.who.int/malaria/publications/atoz/9789241549127/en/).

### Table 3: New drugs in the fight against artemisinin resistance

Dr Stephan Duparc, Chief Medical Officer, R&D / Medical, Medicines for Malaria Venture presented an overview of MMV’s portfolio, highlighting the new antimalarial drugs in clinical development. These include medicines for children and relapsing malaria, and drugs to support the elimination/eradication agenda. He cautioned that although some might be ready for market within the next 3-5 years, others will take much longer.

The most advanced is OZ439, a non-artemisinin-based endoperoxide, which has the potential to be a single-dose cure that maintains antiparasite activity for up to 1 week. It is currently in phase IIb trials and expected to be submitted to the FDA for approval in 2018.

In collaboration with Sanofi, MMV is currently trialling a combination of OZ439 with piperaquine to define the correct doses of these drugs for the treatment of acute *P. falciparum* malaria. In addition, *in vitro/ex vivo* testing suggest that OZ439 is efficacious against strains with Kelch 13 mutations that lead to artemisinin resistance. If all goes according to plan, a new combination therapy with OZ439 could be available within the next 3 years.

Other medicines mentioned in the presentation included:

- KAE609: a fast-acting compound with a long half-life that could also form part of a single exposure radical cure (SERCaP). KAE609 in combination is not expected to reach the market before 2020.
- KAF156: a compound with a long half-life that could be used in combination with a fast-acting partner for the treatment of acute malaria (SERCaP). The interesting characteristic of KAF156 is its activity *in vitro* against liver schizonts, suggesting a role, in combination with another long half-life compound, for chemoprophylaxis.
- DSM265: a compound with a long half-life that could be used in combination with a fast-acting partner for the treatment of acute malaria (SERCaP) or, because of its potential for causal and post-treatment prophylaxis, it could be used in combination with another long half-life compound for chemoprophylaxis.
- MMV048: a compound with a long half-life that could be used in combination with a fast-acting partner for the treatment of acute malaria (SERCaP) or, because of it could also be used in a combination with another long half-life compound for chemoprophylaxis.
- Discussions regarding triple combinations included (i) artemether-lumefantrine plus amodiaquine in countries where either artemether-lumefantrine or amodiaquine-артесunate is first-line therapy
and (ii) dihydroartemisinin-piperaquine plus mefloquine in countries where either
dihydroartemisinin-piperaquine or mefloquine/artesunate is first-line therapy.

- Key discussion topics:
- The funding gap for studies needed following stringent regulatory agency registration to achieve
  local regulatory registrations and countries acceptance
- Single-dose cure: can we wait for a (potential) new-new drug combination?
- Single-dose cure: is resistance in Asia enough to preclude its development for Africa?
- Urgency for triple combinations (minimum 2 years or more in development)

### Table 4: Malaria vectors

Dr. Dan Strickman (Senior Program Officer, Vector Control Global Health Program, Bill & Melinda Gates Foundation) gave an overview was given on the entomological context and background in the Asia Pacific Region. The region has many vectors, in part because there have been good taxonomists. There are many complexes of species and some species are faster in throwing off new species, which means they probably also go extinct very easily. Other challenges include mobile populations, rural housing that is conducive to transmission, drug resistance. These populations are flexible and will adapt to climate change, agricultural practices, urbanization. Also there are geographies, through sea level rise and fall that have a high level of geo-diversity which translates to highly receptive areas. Positive aspects of the region include the fact that major vectors are restricted to forests (limits the problem), human capital: training high, good medical care, good entomological knowledge, insecticide resistance not a problem here, new tools on the way, malaria is decreasing yet dengue keeps vector control on the agenda.

Identification of species does matter as it leads to development of interventions – we need to know species and abundance which leads to a better estimate of risk of malaria, and more efficient larval source management. A quantitative threat of transmission would be better for entomology. Measurement of EIR and how many vectors are present is still challenging. IVM can be confusing to non-entomologists as it is defined in many different ways. IVM is doing a program of work in response to data, with combined tools that synergize with each other to hit upon the different life stages of the Anopheles. Risk assessment, control, and sustainment are the important parts of IVM.

Vector Control includes tools beyond IRS and LLINs. New tools to consider are attractive toxic sugar baits (females and males); coils; better and easier to use spatial repellants; quality and good application of fogging, aerial application of larvicides and adulticides, and ground application of larvicides.

Note the presentation was Dan Stickman’s personal opinion and not a scholarly review.

### Table 5: Parasitic host biology – Emerging findings from ICEMR

Professor Ivo Mueller (Laboratory Head, Division of Infection and Immunity, Walter and Eliza Hall Institute of Medical Research) and Dr. Jetsumon Sattabongkot Prachumsri (Deputy Dean for Research / Director MVRU Mahidol University, Faculty of Tropical Medicine, Mahidol Vivax Research Unit (MVRU), Center of Excellence for Malaria, Thailand) presented findings from two large studies in Solomon Islands and along the Thai/Myanmar border, which demonstrated that both *P. falciparum* and *P. vivax* symptomatic and submicroscopic infections are very common in low-transmission
settings, and thus are very important for elimination. Asymptomatic and submicroscopic infections transmit malaria, especially *P. vivax* malaria; therefore, elimination strategies must consider these. Participants engaged with active questions, and a common theme found across several groups was an exploration of how these findings can provide evidence for targeted Mass Drug Administration as an elimination strategy.

Table 6: Bringing malaria elimination to your mobile phone

Dr. Adam Bennett (Programmatic Lead, Malaria Elimination Initiative, UCSF Global Health Group), Ms. Allie Lieber (Program Manager Google Inc. (Earth Engine) and Professor Roly Gosling (Lead, Malaria Elimination Initiative, UCSF Global Health Group) gave a presentation of an online platform in development. The platform will help national malaria control programs predict where malaria is likely to be transmitted using data on Google Earth Engine on Google Earth. The presentation showed the various features of the platform, information that could be garnered and the level of detail that could be provided.

Participants were keen to see how and when this could be used by their programs. Common queries from participants included, data, how do you get it, how often is it updated, how can this help us in our work and can we link in village / provincial / district boundaries to the maps? Participants were excited to hear that data is updated as soon as it is made available by satellite and that this would help in reactive case detection and allocating resources. It was acknowledged that there are limitations with some data; especially in relation to accessing accurate data, working on aggregate data or missing data and that adding in the village / provincial / district (whatever is most relevant to each country) would be valuable.

Thursday 26 March

Day Theme: Working with communities at risk of malaria in elimination settings

*Objective: To identify and examine approaches of working with populations at risk, successes and limitations*

*Chair: Professor Maxine Whittaker, Co-Coordinator of APMEN Secretariat, Professor of International and Tropical Health School of Public Health, University of Queensland*

*Session 7: Understanding and defining communities at risk of malaria*

*Chair: Mr. Rinzin Namgay, Vector-borne Disease Control Programme, Bhutan*

- **Ms. Cara Smith Gueye**, Program Manager, Regional Initiatives, Malaria Elimination Initiative, UCSF Global Health Group and APMEN Joint Secretariat
- **Dr. Sara Canavati**, Clinical Tropical Medicine Research, Mahidol-Oxford Tropical Medicine Research Unit, Faculty of Tropical Medicine, Mahidol University, Thailand, and **Mr. Siv Sovannroth**, National Malaria Control Program, Cambodia
- **Dr. Arantxa Roca-Feltre**, Asia Technical Director, Malaria Consortium
Ms. Cara Smith Gueye (Program Manager, Regional Initiatives, Malaria Elimination Initiative, UCSF Global Health Group and APMEN Joint Secretariat) presented findings from an APMEN survey on populations at higher risk of malaria. The survey was created to gather the information already known by APMEN Country Partners regarding the populations that are most at risk and their characteristics, access to malaria prevention, diagnosis and treatment, and the challenges in addressing their needs. Eleven of 16 countries (Note: this survey was performed before the addition of country partner India) responded to the survey. Three broad categories of risk were found in the survey results, including occupational risk factors, mobility or movement from high transmission geographies, and low socio-economic status or political instability or conflict, which drive displacement and movement in and around high transmission areas. The actions taken by national programs across the categories of health information campaigns, prevention, diagnosis and treatment, and surveillance and tracking were summarized. Challenges for programs include lack of reliable surveillance data, lack of evidence on what preventative action and IEC strategies are most effective with these populations and how best to measure impact. In sum, programs know who is at risk and the challenges faced, and some strategies are in place, but sharing of tools and approaches across countries are needed.

Dr Sara Canavati (Clinical Tropical Medicine Research, Mahidol-Oxford Tropical Medicine Research Unit, Faculty of Tropical Medicine, and Mahidol University, Thailand) presented a recent study that examined the relationships between human population movement and health in Cambodia. In the case of malaria, those links are crucial in relation to the elimination of malaria and to the spread of drug resistant parasites in the Greater Mekong sub-Region (GMS) and beyond. The mobile and migrant populations (MMP) who are involved in forest related activities are both at high risk of being infected with malaria and at risk of receiving late and sub-standard treatment due to poor access to health services. In Cambodia, in 2012, the National Malaria Control Programme (NMCP) identified, as a key objective, the development of a specific strategy for MMPs in order to address these challenges.

To assist in the development of the strategy, a review of existing literature on current gaps on effectively targeting mobile and cross-border populations for malaria control was conducted. Two stakeholder workshops were conducted to collect information on previous, ongoing and planned research and operations related to MMPs and malaria. A working group composed of government and non-government bodies working with MMPs was set up to develop a national strategy to target MMP. The presentation gave an overview of the Population Movement Framework (PMF). Previously human population movement (HPM) has been described using various spatial and temporal dimensions both in the context of the spread of anti-malarial drug resistance, and in the context of malaria elimination. Previous classifications in Cambodia and the GMS aimed at categorizing MMPs through an operational lens using various criteria.

Dr Sara Canavati outlined a refined PMF to address the needs of the NMCP of Cambodia along space and time dimensions which was populated with activities conducted by population in or near forested area. Based on this, MMP activity profiles and related indices were defined: a vulnerability index, an exposure index, an access index, and a summary malaria risk index.

Dr. Arantxa Roca-Feltre (Asia Technical Director, Malaria Consortium) presentation focused on using Respondent Driven Sampling (RDS) techniques in a study of Cambodian migrant and mobile
populations. The study unlike most other studies that utilize respondent driving sampling methods was able to collect data from two separate networks and from two different years (2013 and 2014). Which revealed that some indicators are not stable at specific sites from year-to-year?

Whist overall knowledge on malaria was high, there was a decrease from 2013 to 2014 in knowledge, across most topics (vectors, symptoms, prevention practices) among individuals from one of the two sites - Sala Krau. The decrease in knowledge corresponded to a decrease in exposure to health messages in surveyed populations.

The study examined not only exposure to health messages but identified the modes of exposure. These differed in the two locations with many individuals from Sala Krao highlighting mass media as their mode of exposure to health messages and those from Pang Rolim identified both mass media as well as various interpersonal communication activities such as outreach, and facility based training.

Dr. Arantxa Roca-Felttrer and the study team suggested that in future studies not just the exposure to health messages be determined but the intensity and duration of these exposures be determined. The study noted that whilst access to health messages and one’s knowledge of malaria varied by village, it is important to note that an overwhelming majority of individuals from both villages reported sleeping under a net on the previous night. Dr. Arantxa Roca-Felttrer concerning noted that many individuals were using untreated mosquito nets and that there was a low percentage of ownership of insecticide treated net across both villages and years (30.3%-51.7%), indicating a need to increase access or uptake of ITNs by this mobile and migrant population, and to explore the reasons for use of untreated nets in more depth.

There was also a noted differences in type of shelters used by migrants from 2013 to 2014 which she suggested is possibly linked to employment benefits in the plantation sector and that more information is needed on where migrant and mobile individuals sleep and what type of protection they have against malaria and how the knowledge and behaviors of plantation owners may influence accommodation. The study was the first step in better understanding the specific needs of a unique population that is often hard to reach but shares a disproportionate burden of disease.

Session 8: Engaging populations at risk of malaria
Chair: Mr. Albino Bobogare, National Malaria Control Program, Solomon Islands

- Mr. Mohammad Shafique, Malaria Consortium
- Dr. Adam Bennett, Assistant Professor of Epidemiology and Biostatistics, and Programmatic Lead, Malaria Elimination Initiative, UCSF Global Health Group

Mr. Muhammad Shafique (Malaria Consortium) introduced the concept of positive deviance (PD) to the Malaria Consortium is currently using PD in Greater Mekong Sub region countries Thailand and Cambodia for malaria and Myanmar for Dengue and Malaria. Mr Shafique outlined a case study on Kyun Su Island in Myanmar and used an example of a female rubber tapper who works in a rubber farm for 15 years but has never had malaria. The positive behaviours for sharing with others were that she always wears a long-sleeved shirt, long trousers and rubber boots when she works in the rubber farm, and covers her head and face with a cloth during rubber tapping to avoid mosquito bite. When at home, she always sleeps under the LLIN and burns coil when cooking/watching TV and lastly whenever gets sick, she always contacts the volunteer for blood test.

He followed this with an analysis of the approach and concluded by saying that PD uses storytelling, existing volunteers and health system structures so has no increase in costs and has been seen to revitalization existing health structures. At is
core PD involves local partnerships and requires facilitation skills. PD could be extended to other health problems and used in many countries.

Dr. Adam Bennett (Assistant Professor of Epidemiology and Biostatistics, and Programmatic Lead, Malaria Elimination Initiative, UCSF Global Health Group) outlined how identifying social networks may assist in engaging populations at risk drawing from the research into social network of high-risk groups engaging in a high-risk behavior such as in the case of HIV. He noted that often transmission is clustered demographically rather than geographically, with certain populations being at high risk. Interventions targeted by geography will therefore not always be successful.

To gain access to these networks, sampling approaches such as snowball sampling, whereby individuals help to recruit similar individuals may be used and this access to a groups network in turn can facilitate individuals being screened and treated or provided with other tailored interventions such as insecticide treated bed nets or repellents. The use of social networks may prove useful in malaria elimination settings where high risk hidden populations live in low transmission settings. He described two other sampling methods; respondent-driven sampling (RDS) a combination of snowball sampling with a mathematical model and time-location sampling (TLS) which uses the fact that specific groups are known to congregate at specific locations during certain times.

Dr. Bennett then outlined venue-based and social networks interventions as potential strategies for reaching known risk groups. He focused on peer-driven interventions whereby individuals help refer their peers or social contacts to a particular intervention. He concluded by suggesting that social networking interventions for malaria elimination potentially may assist in identifying undiagnosed or asymptomatic infections, improve understanding of whether/how malaria clusters in networks, speed up delivery of prevention to those at greatest risk, improve targeted surveillance and response activities and finally strengthen community participation in malaria elimination.

Session 9: Bringing services to populations at risk

Chair: Dr. G.D. Thakur, Director, National Malaria Program, Department of Health Services, Ministry of Health and Population, Nepal and Dr. Prakash Ghimire, National Professional Officer-Malaria WHO Country Office, Nepal

- Dr Leonard Ortega, Regional Adviser, Malaria, Department of Communicable Diseases, World Health Organisation (WHO), Regional Office for South-East Asia, India
- Ms. Nimol Khim, Research Assistant, Institut Pasteur, Cambodia
- Dr. Kheang Soy Ty, Regional Director, University Research
- Ms. Abigail Pratt, Technical Advisor, Cambodia, Population Services International

Dr. Leonard Ortega (World Health Organization Southeast Asia Regional Office, WHO SEARO) provided an overview of lessons learned from border work in the Greater Mekong Sub region. He first defined borders and mobile or migrant populations (MMPs), describing the population at risk as static, mobile, and migrant populations. WHO will soon have a toolkit available on service delivery for MMPs. The main areas to focus on include:

- Elimination of PF national or subnational
- Anticipatory action, not just responsive (this requires involvement with other sectors)
- Key strategies for target MMP populations
- Test treat track
- Cross border
Ms. Nimol Khim (Research Assistant, Institut Pasteur, Cambodia) described the mobile PCR labor in Cambodia. There is a need for a faster tool that detects parasites in low density infections, which is why a mobile PCR laboratory was developed. 98% of results available in less than 24 hours, meaning that treatment will occur between 24-48 hours. The cost of the mobile PCR lab was discussed and of interest to participants.

Dr. Kheang Soy Ty (Regional Director/Chief of Party CAP-Malaria) described the twin cities program in the GMS, where there are activities targeting the cross-border MMPs in Cambodia and Thailand (district working with district). The role of the local authority is important, whereby provincial level working group for elimination and a district working group is formed, as the activities mostly occur at the district level. Activities include: capacity building, joint World Malaria Day events, field visits between sites, development of bilingual BCC materials, and mapping of health facilities in border areas. Lessons learned include the importance of local ownership, addressing language barriers and migrant behaviors, targeting MMP at pre-departure and arrival, and engaging providers and businesses.

Ms. Abigail Pratt (Technical Advisor, Cambodia, Population Services International) described the interventions in plantations of Cambodia, where 45 plantations are enrolled in the program, which may cover up to 80,000 migrants. Data on early detection and treatment, passive case detection, quality assurance is collected and sent to the national level. Overall the work has not found the level of malaria infections that was expected. Lessons learned include:

- Need for improved coordination with the NMCP at subnational levels.
- Use DHIS2 data to measure quality
- Relationship building with plantation owners
- Feedback loop with data
- Use new types of technologies

Participants shared the experience of mining corporations not seeing many malaria cases in their clinics in different environments, which may lead to possible diversion of resources to education or other priorities. Advocacy and messaging to the private sector is needed.

Session 10: Breakout Groups: Ensuring healthy populations for malaria freedom in the Asia Pacific region
Objective: To defining gaps and solutions. How can APMEN countries and partners take action to identify, engage, access and predict populations at risk?

Chair: Dr. Sanchai Chasombat, Deputy Director, Bureau of Vector-Borne Diseases, Ministry of Health, Thailand

Four to six groups formed. Each group discusses one of the following questions:
1) Do we know enough about successful ways to:
   - Identify populations at risk?
   - Engage populations at risk?
   - Reach and access reach populations at risk?
   - Predict future populations at risk?
Next, all groups will answer the following questions:
2) What is needed now to implement activities to reach populations at risk?
3) What are the next steps for you and for APMEN?

Chair: Dr. Rose Nani bt Mudin, Head of Vector Borne Disease Sector, Ministry of Health, Malaysia

- Dr. Richard Cibulskis, Strategy, Economics and Elimination, World Health Organization, Global Malaria Programme
- Professor Maxine Whittaker, Co-Coordinator of APMEN Secretariat, Professor of International and Tropical Health, School of Public Health, University of Queensland

With three new global plans to improve health and accelerate progress towards elimination, APMEN7 provided an opportunity to hear feedback from country partners on what the global plans mean for their country, and how these will be operationalized.

Dr Richard Cibulskis (Coordinator for Strategy, Economics and Elimination, World Health Organization, Global Malaria Programme) presented an overview of the Global Technical Strategy (GTS), which the WHO is developing and will launch later this year. The GTS provides technical guidance for eliminating malaria in 35 countries by 2030, which will include all APMEN countries.

Professor Maxine Whittaker (Co-Coordinator of APMEN Secretariat, Professor of International and Tropical Health, School of Public Health, University of Queensland) provided an overview of the Global Malaria Action Plan2 (GMAP2), which the Roll Back Malaria Partnership is developing and will launch later this year, as well as the Sustainable Development Goals (SDGs), which build upon the Millennium Development Goals (MDGs) that expire this year.

Friday 27 March

Session 12: Malaria freedom in other regions: regional elimination approaches

Chair: Dr. Diana Measham, Senior Program Officer, Malaria and Neglected Infectious Diseases, Bill & Melinda Gates Foundation

- Dr. Norma Padilla, Regional Coordinator, Population Services International (PSI) / Pan American Social Marketing Association (PASMO), Elimination of Malaria in Mesoamerica and the island of Hispaniola (EMMIE) Regional Malaria Initiative, Guatemala
- Ms. Kudzai Makomva, Director, Elimination 8 (E8) Secretariat, Namibia

APMEN 7 provided a unique opportunity to bring together representatives for other regional initiatives for elimination. Leaders from the Elimination of Malaria in Mesoamerica and the island of Hispaniola (EMMIE) and the Elimination Eight (E8) Regional Initiative for southern Africa actively participated in the APMEN meeting and shared an overview of their region’s country collaborations for elimination.

Norma Padilla (Elimination of Malaria in Mesoamerica and the island of Hispaniola (EMMIE) Regional Malaria Initiative ) representing the EMMIE initiative, shared information on EMMIE’s effort to eliminate malaria in 10 countries in Latin America and the Caribbean by 2020. Launched in 2013 with support from the Global Fund, EMMIE received a three-year Cash on Delivery grant, which provides pay-outs to countries who achieve specific targets for reducing cases and continuing progress towards elimination. With only 24,000 cases last year across all ten countries, malaria in the region is incredibly low. While the size of the Global Fund regional grant is relatively small (only $10million over 3 years), this financial support should be catalytic in pushing countries to get to zero by 2020.
Ms. Kudzai Makomva, (Director, Elimination 8 (E8) Secretariat) representing the E8 initiative, described how the E8 is supporting southern Africa’s goals to eliminate malaria in Swaziland, South Africa, Botswana and Namibia by 2020, by bringing them together with their northern neighbors Angola, Mozambique, Zambia and Zimbabwe. The E8 was formed in 2009 to address the regional issue of parasite movement in southern Africa, as well as the ‘sources’ and ‘sinks’ of malaria transmission.

Ms. Kudzai Makomva, E8

Participants were very engaged in this session, with several excellent questions surrounding issues and challenges that are shared across all three regions, including securing and maintaining political commitment for elimination, and financial sustainability to achieve the goals. Participants also discussed the pros and cons of the innovative nature of the EMMIE grant from the Global Fund, and establishing and managing a regional malaria database in southern Africa.

Session 13: Consultation on the APLMA 2030 Elimination Roadmap

Dr. Ben Rolfe, Asia Pacific Leaders Malaria Alliance (APLMA), Executive Secretary

Panellists:
- Dr. Sanchai Chasombat Deputy Director, Bureau of Vector-Borne Diseases, Ministry of Health, Thailand,
- Dr. Risintha Premaratne Director Anti-Malaria Campaign, Ministry of Health, Sri Lanka,
- Mr. Bill Parr, Director of Operations and Regional Lead - Regional Finance for Malaria, Asian Development Bank, APLMA Task Force on Innovative Financing,
- Dr. Ngo Duc Thang Chief of Epidemiology Department, on behalf of Dr. Tran Thanh Duong, Director, National Institute of Malariology, Parasitology and Entomology, Vietnam,
- Dr. Eva Maria Christophel World Health Organization, WPRO
- Professor Gao Qi APMEN Surveillance and Response Working Group Chair

In support of achieving the goal to eliminate malaria in the Asia Pacific by 2030, the Asia Pacific Malaria Leaders Alliance (APLMA) is developing a roadmap for all countries in the region. The roadmap will set priorities for elimination in the region, address the needs of the region, build support at national levels and provide a regional voice to malaria leaders. Dr. Rolfe stated that his wish is for ‘APMEN and APLMA to become coterminous”, and that the objectives of this session were to engage APMEN country partners in the roadmap development process. To this end, five panelists were invited to discuss how APLMA can help APMEN countries accelerate progress towards elimination.

Session 14: Business Meeting

Chair: Dr. Jetsumon Sattabongkot Prachumsri, Vice-Chair APMEN Advisory Board
- Dr. Jetsumon Sattabongkot Prachumsri, Vice-Chair APMEN Advisory Board member
- Dr. Effie Espino APMEN Partner Institution representative
- Professor Ric Price, Vivax Working Group,
- Dr. Christina Rundi and Dr. MRSS Bandara, APMEN Vector Control Working Group,
- Dr. Roly Gosling, APMEN Surveillance and Response Working Group Co-Chair,
- Guest presentations:
- Dr. Norma Padilla, Elimination of Malaria in Mesoamerica and the island of Hispaniola (EMMIE) Regional Malaria Initiative (Guatemala)
- Hon. Minister Dr. Richard Kamwi, Elimination 8 Ambassador, Former Minister of Health and Social Services, Namibia and former Chair of the Elimination Eight (E8) Ministerial Committee
Session 15: Closing session

Dr. Ngo Duc Thang, Chief of Epidemiology Department, on behalf of Dr. Tran Thanh Duong, Director, National Institute of Malariology, Parasitology and Entomology, Vietnam

Sir Richard Feachem, UCSF Global Health Group and APMEN Co-Chair

Dr. Leonard Ortega, Regional Adviser, Malaria, Department of Communicable Diseases, World Health Organisation (WHO), Regional Office for South-East Asia, India

Ngo Duc Thang (Chief of Epidemiology Department, on behalf of Dr. Tran Thanh Duong, Director, National Institute of Malariology, Parasitology and Entomology, Vietnam) thanked the organizers of the APMEN VII meeting and all the participants. He noted that the Vietnamese representatives were honored to have participants from 5 continents gather here to find a way to eliminate malaria. The region has made great progress in malaria elimination, but there are still challenges, so he noted that APMEN must continue to develop malaria elimination tools, including those that can help reach people at high risk. He also noted the need to secure financing to fund effective implementation of these strategies. He underscored that we must overcome operational challenges to reach sufficient coverage. It is not a small task, but we should be ready to take on these challenges. He recalled that last year, we as APMEN members congratulated Sri Lanka. This year, Bhutan is very close to elimination. He likened elimination to a train—we fuel the train and make sure it is going in the right direction. Dr. Thang emphasized that he looked forward to working together to maintain this momentum, continue the elimination conversation, and continue to make each other stronger.

Sir Richard Feachem (UCSF Global Health Group and APMEN Co-Chair) gave thanks to Vietnam for hosting meeting and for giving us such a wonderful experience in their country. Finally, he thanked all the participants—the partner institutions and 17 members of APMEN. He emphasized that it is the hard work and commitment of country partners and partner institutions that makes APMEN the success that it is.

Dr. Leonard Ortega (World Health Organization, SEARO) sincerely thanked Vietnam and the APMEN Secretariat for a successful meeting. He thanked the partners who came all the way from Southern Africa and Central America to share regional lessons. He noted participants are honored and inspired by the participation of E8 ambassador, Honorable Minister Kamwi. He also underscored how the meeting provided a platform for very successful networking. He noted that the organization of this meeting was excellent—covering technical, operational and financial elements of malaria elimination. He noted that WHO stands with country partners in reaching their elimination goals. He also shared that WHO will be launching an elimination strategy in the GMS and will be doing a side event at WHO World Health Assembly. WHO will also be rolling out the Global Technical Strategy and will support countries to update their national strategy. WHO is also working to update the field manual for malaria elimination and has been working with the APLMA Secretariat in developing roadmap and scorecard.

Session 16 Study Tour to Thăng Bình District Health Center and Bình Tu Commune Health Station, Quảng Nam Province, Vietnam

Continuing the focus on learning from others, 31 participants undertook an informative study tour to Thang Binh District Health Center (DHC) and Binh Nguyen Commune Health Station in Quảng Nam province,
Vietnam, under the guidance of Dr Van Nguyen Van from the Center for Malaria and Goitre Control of Quang Nam Province. The aim of the study tour was to increase understandings of the health system in Vietnam, and view first-hand an example of malaria case management in an elimination setting.