### CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbreviations</td>
<td>4</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>5</td>
</tr>
<tr>
<td><strong>INTRODUCTION AND METHODS</strong></td>
<td>7</td>
</tr>
<tr>
<td>1.1 Background</td>
<td>7</td>
</tr>
<tr>
<td>1.2 Previous Evaluation of APMEN</td>
<td>8</td>
</tr>
<tr>
<td>1.3 The Current Evaluation of APMEN</td>
<td>9</td>
</tr>
<tr>
<td><strong>OVERALL ASSESSMENT of APMEN’S Relevance and Effectiveness As A Network</strong></td>
<td>13</td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>13</td>
</tr>
<tr>
<td>2.2 Network Best Practice</td>
<td>13</td>
</tr>
<tr>
<td>2.3 Support Provided by Network</td>
<td>15</td>
</tr>
<tr>
<td>2.4 Outcomes and Outputs</td>
<td>16</td>
</tr>
<tr>
<td>2.5 APMEN Structure and Administration</td>
<td>25</td>
</tr>
<tr>
<td>2.6 Awareness and Reach Of APMEN</td>
<td>26</td>
</tr>
<tr>
<td>2.7 Benefits of APMEN</td>
<td>29</td>
</tr>
<tr>
<td>2.8 Costs and Financial Sustainability of APMEN</td>
<td>31</td>
</tr>
<tr>
<td>2.9 Partnerships</td>
<td>33</td>
</tr>
<tr>
<td><strong>SUMMARY of Major Conclusions and Recommendations</strong></td>
<td>37</td>
</tr>
<tr>
<td>3.1 Summary of Findings</td>
<td>37</td>
</tr>
<tr>
<td>3.2 Recommendations</td>
<td>39</td>
</tr>
<tr>
<td><strong>ANNEXES</strong></td>
<td>43</td>
</tr>
<tr>
<td><strong>REFERENCES</strong></td>
<td>66</td>
</tr>
</tbody>
</table>

This report has been prepared by the APMEN Secretariat following a consultative process with APMEN partners and other stakeholders. The findings, interpretations and conclusions expressed in this report do not necessarily reflect the views of all APMEN partners. The designations employed and the presentation of material within this document does not imply the expression of any opinion of APMEN or its partners concerning the legal status of any country, territory, city or areas or of its authorities or concerning the delimitation of its frontiers or boundaries.

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<thead>
<tr>
<th>Abbreviation</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>APEC</td>
<td>Asia Pacific Economic Congress</td>
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<td>APLMA</td>
<td>Asia Pacific Leaders Malaria Alliance</td>
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<td>APMEN</td>
<td>Asia Pacific Malaria Elimination Network</td>
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<tr>
<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
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<tr>
<td>BMGF</td>
<td>Bill and Melinda Gates Foundation</td>
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<td>DFAT</td>
<td>Department of Foreign Affairs and Trade</td>
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<td>DFAT - AAP</td>
<td>Department of Foreign Affairs and Trade - Australian Aid Program</td>
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<tr>
<td>GHG</td>
<td>Global Health Group</td>
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<td>GMP</td>
<td>Global Malaria Program</td>
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<td>IMTR</td>
<td>Mid Term Performance Review</td>
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<td>IRS</td>
<td>Indoor Residual Spraying</td>
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<td>ITN</td>
<td>Insecticide - Treated Net</td>
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<td>IVCC</td>
<td>Innovative Vector Control Consortium</td>
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<td>LLIN</td>
<td>Long Lasting Insecticide - Treated Net</td>
</tr>
<tr>
<td>MAP</td>
<td>Malaria Atlas Program</td>
</tr>
<tr>
<td>MEG</td>
<td>Malaria Elimination Group</td>
</tr>
<tr>
<td>NMCP</td>
<td>National Malaria Control Program</td>
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<td>RBM</td>
<td>Roll Back Malaria Partnership</td>
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<tr>
<td>SEARO</td>
<td>WHO Southeast Asia Regional Office</td>
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<td>UCSF</td>
<td>University of California San Francisco</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UQ</td>
<td>University of Queensland</td>
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<td>VBDCP</td>
<td>Vector - Borne Disease Control Program</td>
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<td>VCWG</td>
<td>Vector Control Working Group</td>
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<td>VecNet</td>
<td>Vector and Ecology Control Network</td>
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<td>VxWG</td>
<td>Vivax Working Group</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WPRO</td>
<td>WHO Western Pacific Regional Office</td>
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<td>WWARN</td>
<td>Worldwide Antimalarial Resistance Network</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

This evaluation is a summary of the work of several people within and outside the Asia Pacific Malaria Elimination Network (APMEN, or the Network). Firstly, APMEN thanks the professional and incisive work of Dr Catherine Smith who provided the independent qualitative evaluation results and analysis input to this evaluation, and Ms Renata Mares who supported the conduct of many interviews.

APMEN also acknowledges the work of the APMEN Secretariat at University of Queensland, and Global Health Group (GHG) at the University of California San Francisco (UCSF), as well as the Vivax Working group (VxWG) support team at Menzies School of Health Research, Darwin, Australia, who have processed the evaluations of core activities of the Network over the last four years.

APMEN thanks all the people interviewed and those who have provided written input to this evaluation process over the last four years, and in the last intensive 12 months of data collection. Without your honest and extensive feedback and contributions the network could not fulfil its objectives nor strive to continually improve its quality to meet the goals of the Network.

APMEN acknowledges the continued support of all sponsors and donors of APMEN activities, including the major donors of the Department of Foreign Affairs and Trade - Australian Aid Program (DFAT - AAP) and the Bill and Melinda Gates Foundation (BMGF), and the in-kind contributions of the Country Partners and Partner Institutions and friends on the Network.

APMEN would like to acknowledge the photographs supplied by its Country Partners and Partner Institutions and the generosity of the network for permission to use images taken during network events and activities.
INTRODUCTION AND METHODS

1.1 BACKGROUND

The Asia Pacific Malaria Elimination Network (APMEN) was established in February 2009 at a meeting held in Brisbane, Australia, co-hosted by the Global Health Group (GHG), University of California San Francisco (UCSF), and University of Queensland (UQ) and co-funded by the Global Health Group (BMGF Grant) and Department of Foreign Affairs and Trade – Australian Aid Program (DFAT - AAP previously called AusAID, and hereafter referred to as DFAT). At this meeting, a five year work plan was developed by the participants (i.e. countries who had declared an elimination objective, and Partner Institutions). DFAT agreed to be a foundation donor to the Network and co-finance the work plan, and GHG agreed to support the Network as part of the joint-secretariat.

The work plan was developed during this first meeting into a more detailed design document, and presented to the foundation donor in May 2009 for a July 2009 start. The School of Population Health (SPH) at UQ was selected by DFAT to manage the DFAT contribution towards the APMEN for an initial two year period. The University signed a funding agreement with DFAT in November 2009 to operate the Network.

COMPOSITION OF THE NETWORK

The Network is composed of Country Partners, Partner Institutions, observers and friends of APMEN. Other key elements include the secretariat and the advisory board.

The Country Partners are representatives from the national malaria programs of eliminating countries from the Asia Pacific region. The Ministry of Health of each APMEN country nominates two representatives to act as APMEN Country Partners. All APMEN countries have made a commitment to work toward elimination or sub-national elimination.

In 2009, the 10 founding APMEN countries were: Bhutan, China, the Democratic People’s Republic of Korea, Indonesia, Malaysia, the Philippines, the Republic of Korea, the Solomon Islands, Sri Lanka and Vanuatu. Thailand joined the Network in 2011, followed by Cambodia, Nepal and Vietnam in 2012. (Note: Lao People’s Democratic Republic and Bangladesh both joined APMEN in 2014, however were not present Country Partners at the time of this evaluation.) Only Country Partners are able to vote on the final APMEN work plan and Country Partners are able to veto any proposed activity that falls within their national jurisdiction. This reflects the principle that the Network be driven by countries and work directly to support national malaria control programs.

Partner Institutions include scientific, academic and public health organizations that are actively involved in malaria and malaria elimination in the Asia Pacific. They include both public and private sector organizations. The World Health Organization (WHO) Southeast Asia Regional Office (SEARO), WHO Western Pacific Regional Office (WPRO) and the Global Malaria Program (GMP) are APMEN Partner Institutions. Partner Institutions also include other malaria networks such as the Malaria Elimination Group (MEG), ACT Malaria, and the Roll Back Malaria Partnership (RBM). Partner Institutions contribute scientific, program and other technical expertise to the Network, and actively participate in the Annual Technical and Business Meetings and in a broad range of APMEN research and training activities. Partner Institutions contribute to the development of the APMEN work plan. A list of Partner Institutions is available on the APMEN website (http://apmen.org/).

In addition, the Network includes a number of observers that may be invited by APMEN to attend meetings and to provide input into APMEN activities and strategic planning, but do not have any voting rights. Observers include representatives from scientific and other institutions in the region that are actively involved in malaria elimination, representatives from countries in the region that have already achieved malaria elimination and regional countries that are not yet committed to malaria elimination but may commence elimination activities in the future.

‘Friends of APMEN’ was a category developed by the Network in 2012 for people who were previously involved in regional malaria elimination activities who have since retired or shifted to work outside of the area of malaria elimination. Their input into the Network adds expertise and experience and encourages ongoing partnerships as malaria experts move across sectors.

The governance and financing of the Network is facilitated by a joint-secretariat based at the University of Queensland, Brisbane, Australia, and the Global Health Group, University of California, San Francisco, USA. The University of Queensland is responsible for coordinating projects and providing financial
accountability for work funded by the Australian government, while GHG coordinates work funded by the Bill and Melinda Gates Foundation. The secretariat assists in organizing APMEN activities and events, harmonizing activities across the Network and facilitating communication amongst network members. The secretariat invites new partners to join the Network at the decision of the advisory board.

The role of the advisory board is to resolve disputes within the Network and to liaise with donors and other external parties. The advisory board consists of seven voting members and five or six non-voting members. The Chair (a Country Partner); the Deputy Chair (a Country Partner); three other Country Partners; and representatives of two Partner Institutions have voting rights. Non-voting members include two WHO representatives; two representatives from the joint secretariat, and one or two donors. Advisory board members are voted-in by network partners at the Annual Technical and Business meetings.

At the end of 2013, APMEN consisted of 14 countries and more than 30 Partner Institutions. The inaugural meeting in 2009 was attended by 54 people. The fifth annual and technical meeting (APMEN V) in Bali, Indonesia in 2013 was attended by more than 160 people. The Network continues to grow and new countries and several potential partner institutions have expressed interest in joining APMEN.

The overall aim of APMEN (as described in the APMEN Establishment Support Program contract) is: to develop and sustain a network of Country Partners and Partner Institutions to work collaboratively to address the challenges of malaria elimination in the Asia Pacific region, with particular focus on the unique challenges for the region such as Plasmodium vivax (P. vivax).

The key strategic objectives are to:

1. Share information and develop expert consensus on issues relating to malaria elimination, in order to support policy and decision making at the country level.

2. Support country decision making through building the evidence base for malaria elimination, with a particular focus on P. vivax.

3. Increase expertise and capacity to carry out elimination activities through guidance, training, and sharing of experiences.

4. Provide leadership and advocacy for malaria elimination in the region by expanding international and domestic awareness, funding, and support.

5. Facilitate support for emerging priorities for malaria elimination, especially in the Asia Pacific region.

6. Develop a governance structure suitable for the Network and provide secretariat support of governance infrastructure and smooth coordination to enable efficient work of the Network.

The work plan was divided into a 6-month inception phase (July – December 2009) followed by five annual activity plans. As the funding agreement was signed in November 2009, the 2010 annual report highlighted activities undertaken during the first 14 months between November 2009 and December 2010 (Year1). Subsequent reports are December 2010 - December 2011 (Year2) and January 2011 - December 2012 (Year 3).

1.2 PREVIOUS EVALUATION OF APMEN

The Department of Foreign Affairs and Trade funded an external Midterm Performance Review (IMTR) of the UQ Secretariat in 2011. An Independent Progress Report of the Program was undertaken by an independent consultant in October – November 2011. The objectives of the evaluation were to:

- Assess UQ’s performance in providing secretariat functions under the Program against DFAT’s eight evaluation criteria (relevance, effectiveness, efficiency, impact, sustainability, gender equality, monitoring and evaluation, and analysis and learning);

- Assess the effectiveness of the existing funding mechanism for the Program; and

- Provide a list of key issues and recommendations to be addressed for any future Program.

The focus of the review was the performance of UQ, its management and operations, and the extent to which it met the quality standards established by DFAT. The evaluation did not examine APMEN activities nor address technical malaria issues.

The review noted that the Program’s partner-led design supported the aid-effectiveness principles of partnership and collaboration, promoting ownership and sustainability, and that the Program was firmly based on previous learning and the analysis of global, regional and institutional malaria elimination experiences. DFAT support for the Program was noted to be consistent with Australian government strategic goals, anticipated future engagement of the Australian government with the global and regional malaria agendas and its commitment to supporting the achievement of the WHO Millennium Development Goals.

The review noted that overall the Program contract is very well managed by UQ and that UQ meets its contractual obligations. The APMEN Secretariat is fulfilling its responsibility for managing the Network’s secretarial, clerical and administrative affairs and is playing a critical role in driving the Network and supporting it to achieve its expected outcomes.
Overview of the APMEN Network

In 2012, the APMEN Country Partners agreed in consultation with its foundation donors (DFAT and BMGF) to undertake an internal evaluation of the Network’s activities, structure and operations (Annex 1). An evaluation strategy was presented and endorsed at the APMEN IV Meeting in May 2012. The evaluation was seen as an intrinsic part of the maturing and development of the APMEN network.

The focus of this internal evaluation was to present the ways in which APMEN Partners perceive the successes and shortcomings of the Network to date, and to bring together their recommendations for the future of the Network.

APMEN Partners agreed to the following aims and purposes of the internal evaluation:

1. To document the achievements and lessons learnt by the Network
2. To support advocacy for both the Network and for regional malaria elimination
3. To develop the Network’s internal and external communication strategies
4. To improve the efficiency and effectiveness of the Network
5. To review the Network governance structure; and
6. To inform the development of the Network’s five year strategic plan

To guide this evaluation, the Network agreed to assess APMEN against the following definition of a network:

“Networking can be defined as a process framework for empowering stakeholders not only to share and apply new knowledge but also to identify and prioritise problems systematically and to participate in the development of appropriate solutions.”

A literature review of Networks, their aims and objectives and “best practices” as well as the objectives and monitoring and evaluation was performed to derive eight evaluation criteria which formed the framework of the APMEN five year plan.

1. Network Best Practice: Is the Network self-driven? Does the structure and process encourage country ownership?
2. Sustainability of the Network.

Note: Findings of this evaluation have been shared with the Network at the March 2013 fifth annual Network meeting (APMEN V) in Indonesia (see Annex 3 for detail of the review questions).
2. **Support of the Network**: Has APMEN provided support to Country Partners as they expected? What forms of support would they like to strengthen into the future?

3. **Outputs and outcomes**: What are the outputs and outcomes of APMEN, as perceived by Network partners? What supported and hindered these outputs and outcomes?

4. **Network structure and administration**: How effectively and efficiently is the Network administered? This incorporates: governance, structure and role of Board and Working Groups; lines of accountability; quality assurance measures; efficiency and effectiveness of the administration model; how governance is evolving. Note: The consultant has incorporated communications between partners under criteria 5, and external communications and advocacy in criteria 5.

5. **Network awareness and reach**: How widespread is awareness of the Network and its ‘products’? Are the present advocacy and communications strategies working as planned?

6. **Perceived benefits of the Network**: What works, what doesn’t and what could be changed to add value to Network membership?

7. **Economic sustainability**: The costs and financial sustainability of the network. Note: this report includes respondents’ perceptions of costs, sustainability and value for money only. It is not intended as a financial audit of Network spending.

8. **Partnerships**: Sharing of resources and competencies. Collaborations and jointly planned activities.

As such, the observations and recommendations presented in this document are those of respondents and APMEN Partners, rather than recommendations made by any one person nor the evaluation consultant recruited to undertake the in-depth and focus group interviews. The interim findings have been presented at the 2012 and 2013 Business meetings of APMEN, and most recently the 2013 December Advisory Board. The recommendations detailed in the report come from the respondents themselves, the evaluations undertaken of APMEN activities, the Business meeting and Board reflections on the findings and through the broad Network discussions of the APMEN 2014 - 2018 Five Year Strategic Plan.

Findings of the evaluation will assist the network to:

- Develop the next five year strategic plan (2015 – 2019)
- Document achievements of and lessons learnt from the Network mechanism and its activities
- Review/amend the governance of the Network
- Develop advocacy activities (on malaria elimination) from and for the Network
- Continue to improve communication strategies internally and externally
- Improve the efficiency and effectiveness of Network operations and activities.

The evaluation is based on mixed methodologies – using both quantitative (for input, process and output indicators) and qualitative methods for process and outcomes, measured against the key criteria of a successful network (detailed above). It was also supported by both internal APMEN evaluation processes and in-depth key informant and focus group interviews conducted by an external evaluator with social science expertise. It should be noted, that APMEN is committed to continual quality improvement. At the conclusion of each annual meetings and APMEN-hosted events, evaluations are performed and feedback is strongly considered in order to make qualitative changes to the following year’s activities.

**QUANTITATIVE METHODOLOGY**

Process and output evaluations are conducted for every APMEN-related event: namely APMEN meetings, workshops, fellowships, study tours, research grants, training activities and communication activities. The data analyzed consists of paper-based surveys collected at the end of events, email surveys or internet-based tools such as survey monkey, web diagnostics and electronic and paper-based communication surveys. These surveys are usually conducted anonymously through collection in a box at the registration desk, or de-identified forms sent via email. The data presented here has been collected since the first full year of APMEN (2010) and has previously been provided to APMEN partners and donors in the form of annual reports and is also available on the web (http://apmen.org/).

**QUALITATIVE INTERVIEWS**

An external consultant was recruited to protect respondent confidentiality and to ensure impartiality in the evaluation. In line with the principle that APMEN is a self-driven network, this part of the evaluation gave APMEN partners and key global malaria representatives the opportunity to express their own opinions and experiences of the Network and to voice their own visions for the future of the Network.

The strategy and methodologies used in the internal evaluation were presented and endorsed by the Network at the fourth annual technical and business meeting (APMEN IV) in Seoul, Republic of Korea, in May 2012. The Network agreed that two key qualitative methodologies would be used to gather the data for the evaluation: Focus Group Discussions
that were held at APMEN IV, and in-depth interviews that were carried out during the final months of 2012 and again from March to May 2013.

Invitations to participate in in-depth interviews, together with information and consent forms, were sent by email to APMEN Country Partners, Partner Institutions and to ‘global malaria actors’ including staff from other malaria networks, donors and health organisations with an active interest in and engagement with APMEN. Focus group discussions at APMEN IV were facilitated and analysed by Dr Catherine Smith in May 2012. In-depth interviews with participants in APMEN trainings were carried out by Ms Renata Mares in late 2012, and all other in-depth interviews were carried out by Dr Smith from March to May 2013. In some cases the time lag between the 2012 and the 2013 interviews is significant, since the second batch of interviews were conducted after the Malaria 2012 meeting in Sydney (November 2012) and the APMEN V annual meeting in Bali (March 2013). The consultant discussed the timing of comments made where they reveal significant changes in Network functioning. Interviews were transcribed by Ms Sarah Mak and coded and analysed by Dr Smith.

A total of 63 respondents participated in the in-depth interviews or emailed written responses to the interview questions to the evaluation consultant. In a small number of cases respondents chose to give a joint interview together with a colleague. These joint interviews are counted as one interview. In addition, a total of 21 participants joined the three focus groups discussions held at APMEN IV. Two of these focus groups were composed of a total of 14 Partner Institutions and one focus group consisted of seven Country Partners. Some respondents participated in both the focus groups and the in-depth interviews. In total this amounts to 6 categories of interviews, namely:

1. Fellowship Program: 8 fellows, 4 home and 5 host institutions
2. GIS training: 7 interviews
3. Case studies: 2 interviews
4. Research Grants: 10 interviews
5. Focus Groups: carried out at APMEN IV, Seoul 2012 (3)
6. Key informant interviews:
   a. Country Partners: 9 interviews;
   b. Global malaria actors: 10 interviews;
   c. Other Partner Institutions: 7 interviews.

The interviews and focus groups were recorded, transcribed and coded according to the evaluation criteria that were agreed upon by the Network partners.
OVERALL ASSESSMENT OF APMEN’S RELEVANCE AND EFFECTIVENESS AS A NETWORK

2.1 INTRODUCTION

The section reviews the overall relevance and effectiveness of APMEN – as a network, compared to network best practice criteria, the quality and outcome of its work, how it communicates its role and products within the organisation with the Country Partners and Partner Institutions, and within the global malaria and health architecture.

All the respondents discussed the importance of the Network structure for the work being undertaken. This is best summarized as:

*The importance of networks in East Asia is critical ... we are part of a growing region with emerging economies. It’s increasingly less about aid and more about mutual cooperation on development issues. It’s not about aid going from a rich country to a poor country. It’s increasingly about how we collectively work together to address development issues. So the network concept is very important at this stage to bring regional players together to collectively address regional problems ... it’s really important to invest in that space (Global malaria actor, Interview May 2013).*

FINDINGS

2.2 NETWORK BEST PRACTICE

This criteria measured the following parameters:

- Why does the Network exist?
- Is the Network self-driven?
- Does the structure and process encourage country ownership?
- Does the Network add value to partners and the existing landscape?
- Is APMEN working well as a network, according to internationally accepted definition of a network

Participants described the Network as a community of practice that shared a common goal of regional malaria elimination. They noted that it served as a collegial environment in which to share experiences and acted in some way as a “clearinghouse” of ideas, concepts and materials. They welcomed the multiple points of connection that it provided in a non-hierarchical way – noting that all voices were welcomed, appreciated and respected including, for example, laboratory persons, field staff, programme managers, medical officers and other allied health professionals. There was a very strong expression from Country Partners that they do feel ownership of the Network.

Throughout the evaluation a number of phrases were commonly used to describe why APMEN exists. These were:

- A community of practice
- Sharing a common goal – regional malaria elimination
- Collegial environment, pride and motivation in work
- ‘Clearinghouse’ of concepts and methods
- Multiple points of connection – non-hierarchical
- Varied technical expertise, all voices welcome
- Ownership by Country Partners
- Provides advocacy for elimination agenda (Annex 4).

APMEN needs to continue to build upon and communicate clearly defined concepts of why the Network exists as elaborated by Country Partners, Partner Institutions and others in the global malaria landscape.

Most Country Partners did see APMEN as a self-driven network that supports countries to work collectively toward malaria elimination. The majority of Country Partners said that they felt both empowered within the Network and supported by the Network and that this sense of ownership has developed over time. However, many countries want more support from the Network to accelerate action and implementation of elimination policies.

Many Country Partners and Partner Institutions noted that the collegiality promoted through APMEN builds their confidence, motivates them in their work, and helps them feel they are part of a collective effort.

*Elimination isn’t uncharted territory. It’s good to have people thinking the same way, otherwise you feel alone (Country Partner, Focus Group APMEN IV).*

*Because of APMEN, countries ... are interested to go towards elimination. And remember that we can go towards elimination, because we have to help each other (Country Partner, Focus Group APMEN IV).*
This sense of the network is empowering when you get to be together with people with the same vision, so it makes you empowered in a sense because you think ‘ok, I’m not alone’ (Partner Institute, Focus Group APMEN IV).

What’s really hit me is seeing Country Partners gel together, their relationships and APMEN helping people to see and talk to each other, share their experiences and what they’ve been up to. Those relationships are really important. There aren’t many places where people are free to have those relationships as well as time to talk to each other (Partner institute, Interview April 2013).

Although respondents spoke positively about the unique collegial environment provided by the Network, and that all voices are valued, other respondents and Country Partners in particular wanted stronger mechanisms for the systematic identification of country priorities which included an increased role of business meetings and formats of consultative processes. Many described wanting better support for country to country dialogue which could include increased opportunities within meeting formats. Some of the global malaria actors described the need for APMEN to ensure transparency in governance and decision making processes maintained.

APMEN should review the mechanisms available to provide stronger country to country dialogue and ensure transparency in decision making for the Network.

There was a clear description from the respondents of the role of APMEN as a translation bridge between country programme managers and researchers. They discussed how this uniquely ensures the targeting of research activities to programmatic concerns and supports the effective dissemination of research findings into programme activities. This included technical updates, sharing of good practices from the field and countries, and learning about innovations in “technologies” to support malaria elimination, and in programmatic approaches to the issues that arise with implementation. One Partner Institution noted that while collaborations between researchers and policy makers is common in other infectious disease control programs, APMEN represents a rare opportunity for malaria scientists and policy makers to engage in dialogue.

There’s lots of research that goes on at different levels but the most important thing about APMEN is that it’s translational. It’s in trying to link researchers with Country Partners, Country Partners with researchers, so that knowledge gaps can be identified and translational research implemented. That’s the key element of APMEN, and that’s why I’m interested in it (Partner Institute, Interview March 2013).

However, respondents raised the desire to continue to ensure that all research directly supports countries and is generated in active dialogue with country programs. Country Partners in particular focussed on the operational issues of ensuring that all research is operational, accessible and focused on elimination.

APMEN should ensure that in the next five year plan there is a broadening of the scope of catalytic research grants and fellowships; perhaps targeting of broader range of regional partner institutions to support these activities which have broader malaria and health services expertise.

There was a clear identification of the added value APMEN does, and could more strongly make in the malaria landscape by respondents. In addition, as described above, in providing the programmatic realities to researchers in the field, they wanted a more structured knowledge sharing that is oriented toward action, and support included operational research and knowledge sharing on broader aspects of strengthening health systems and of involving other institutions and partners that are both necessary for malaria elimination. The latter was expressed by several Country Partners and global malaria actors. Additionally several interviewed in all categories of respondents discussed the need for APMEN to support countries to attract increased funding to country programs. They especially noted a role in APMEN providing advocacy support to this objective.

APMEN should become more action-oriented in the Network’s knowledge sharing, partnership building, advocacy and policy support activities and should continue to explore the feasibility and
steps required to move the Secretariat functions into regional location/s over the next five year period.

2.3 SUPPORT PROVIDED BY NETWORK

This criteria measured the quality, relevance and effectiveness of support provided by the APMEN against the following parameters:

- Has APMEN provided support to Country Partners as they expected?
- What forms of support would they like to strengthen into the future?

A large number of respondents from across the Network discussed positively how they saw APMEN supporting countries to build the evidence base for policy and that informal knowledge sharing helps countries identify which steps to take as they progress toward elimination. Many respondents from all parts of the Network saw this as one of the key perceived benefits of the Network.

Many identified that bridging science and policy is a difficult task, and many respondents from across the Network saw APMEN as a rare opportunity for researchers and program managers to come together to support elimination. One Partner Institution noted that while collaborations between researchers and policy makers is common in other infectious disease control programs, APMEN represents a rare opportunity for malaria scientists and policy makers to engage in dialogue.

My compliments to the people behind APMEN who have made the annual meetings satisfying, interactive and productive, providing some respite for country program managers (Global malaria actor, email response April 2013)

Many Country Partners and Partner Institutions could give concrete examples of work that has been implemented in country as a direct result of APMEN support.

We’ve already applied for and had grants already. APMEN has helped in our capacity building, especially in malaria mapping with new technology which has really improved, helped our reach. And we’re doing clinical trials with support from APMEN. Also helpful in making our transition to elimination is building our capacity in health information systems (Country Partner, Interview April 2013).

With APMEN we had trained one of our program officers on mapping. He has managed to build up activities. We are in the process of implementing that for malaria elimination (Country Partner, Interview April 2013).

With that information [from GIS training], I applied to GIS for other vector borne diseases. That training was useful in making sure the data I collect is standard and of course, other training was on cluster analysis which is really applicable to my work. I think that really match my work ... after the fellowship ... I trained my officers in getting right GPS coordinates of malaria, dengue etc (Fellowship recipient and country program staff, Interview 2012).

I know there’s a lot that APMEN can do, I think APMEN has already provided a lot of the things considering all the difficulty in working with 11 or 12 countries, all the things to work for in elimination. We weren’t sure we could do the elimination agenda, it was something APMEN pushed us to do. It cost a lot of money to pursue. Already we were already able to bring down malaria. It’s the lowest in 32 years and continues to go down (Country Partner, Interview April 2013).

Now we have a very good mapping of the malaria situation in [home country] using the data. Before we had the data but we did not know what to do with it. Also for vivax, we also learned new techniques from [Partner Institution] (Country Partner, Interview April 2013).

However respondents described how countries continue to face significant barriers to the implementation of elimination programs. In many cases work implemented in country as a result of APMEN support remain as isolated projects or pilot schemes. Barriers that they identified included:

- More time needed to implement ambitious policy shift: In many cases, country programs need more time to assess whether a particular policy is advantageous and practical.
- Insufficient funding and resourcing for country programs: Sometimes insufficient funding of country programs limits the ability of staff to implement policy shifts on a large scale. Some respondents described how they used APMEN training as an opportunity to leverage increased funding from other donors, so that implementation may be possible into the future.
- Health systems and other institutions need strengthening: Several Country Partners and some global malaria actors suggested that one barrier to implementation of elimination policies lies in the broader systems of their countries, including health information systems. Several Country Partners suggested that APMEN consider expanding its focus to offer countries support in developing broader institutions necessary to support elimination.
- Research does not always directly support policy: All respondents saw one of the key benefits of the Network is its potential to bridge science and policy. However many global malaria actors, some Country Partners and some
Partner Institutions said that steps need to be taken to ensure that all research supported by APMEN directly supports country programs. The respondents concurred that APMEN is well known in the regional malaria landscape, but countries also want to benefit from the expertise of non-malaria specialists, especially in light of the aforementioned challenges they are facing to reach the elimination objective. Almost all Country Partners recommended that APMEN expand awareness of the Network beyond malaria specialists by forming partnerships with regional political economic networks and a broader range of development agencies and donors operating within the region. Almost all Country Partners said that it would be advantageous for APMEN to form strong links with political economic forums such as ASEAN, APEC and Asian Summit. These respondents saw that stronger links with these political economic networks would be a means through which to reach Heads of State while also attracting new donors and mobilising the resources necessary to support elimination programs. Almost all Country Partners thought that this should be a priority area for future program development.

APMEN should strategically identify ways to engage with key political economic networks in the region. Building close ties with the newly-formed Asia Pacific Leaders Malaria Alliance (APLMA) and through other malaria and health and development partnerships should be a priority.

The Network should consider the role of strategically targeting broader health systems operational research linked partner institutions in the region.

Although many were pleased with the growth in network membership, there was a sense of caution to ensure that it does not become “too big” and the need to be strategic in its relationships. They discussed the importance of reviewing the roles and responsibilities of the APMEN Partner Institutions and clearly valued the relationships forged through the network. They described the need to manage the growth of the network and not lose the positive sense of belonging, collegiality and sharing.

APMEN should review the roles and responsibilities of Partner Institutions in the next 5 years. Governance issues such as duration of membership, eligibility for continued membership and what Partner institutions bring to the Network should be included in this review.

There was a sense of urgency expressed by many to continue to push elimination both within their country and partner organisations, as well as globally. Many felt that making the Network’s successes known globally would also assist in supporting the elimination agenda and the network’s legitimacy (see section 2.6 for linked comments and recommendations).

2.4 OUTCOMES AND OUTPUTS

This criteria measured the quality of the outputs from APMEN activities and the outcomes of these against the following parameters:

- What are the outputs and outcomes of APMEN, as perceived by Network partners?
- What supported and hindered these outputs and outcomes?
- Has APMEN achieved the outputs and outcomes of the activities/programmes undertaken in the last four years work plans?
- What have been the “member” contributions – information, financial, other in-kind – to the Network?

IN GENERAL

Participants described, sometimes with “amazement”, how much APMEN had already achieved, and how it has continued to learn and improve over the last 3 – 4 years. Participants report a strong sense of achievement in a few short years, including enhanced:

- Technical knowledge
- Regional awareness
- Strategic partnerships
- Advocacy for elimination agenda
- Sense of ownership of Network

The Network generates knowledge sharing, but many, as discussed in section 2.2, want a more concrete platform to identify country and regional priorities.
A significant number of respondents felt that APMEN has not yet reached its potential as a platform for regional knowledge exchange toward elimination. A significant number of Country Partners said that they had not yet clearly identified the shared challenges in the region, and were unclear of how to prioritise their efforts at various stages of elimination.

Many Country Partners and Partner Institutions described how the diverse composition of APMEN enables them to understand the ‘big picture’ needed to progress elimination. For example, many respondents noted that the annual meetings bring program managers, scientists and practitioners together and that this gives Network Partners the opportunity to learn about elements of elimination outside of their specialised fields. Some said that APMEN has enabled them to better understand the perspectives and priorities of their colleagues. For instance some program managers reported that APMEN made them better able to understand and respond to the needs of their technical staff, while some researchers said that APMEN made them more aware of the logistical and political dimensions of implementing an elimination program.

Many respondents valued that APMEN promotes regional collaboration and recognises and builds an understanding of regional malaria issues. However many Country Partners, some Partner Institutions and global malaria actors said that they would like annual meetings to be more oriented toward action. Additionally, many Country Partners would like to see a more structured mechanism for knowledge sharing that is aimed at the identification of priority areas for action and good practices to support joint action toward elimination.

The APMEN annual meetings should have clear aims and objectives for each meeting and sessions within, be action orientated and targeted at priority elimination agenda items.

Specific detail of activities and their outputs and outcomes
The APMEN 2009 - 2013 Strategic Plan detailed the objectives and outputs of its work (Annex 5). Over this four year period, APMEN has reviewed these objectives and specific outcomes and how it contributes towards these through the Business Meetings and out - of - meeting voting.

Necessary changes have been as such:
- Other agencies become involved in some aspects of malaria elimination
- The WHO has developed expert guidance documents and training programmes to meet needs identified in the region
- Emerging issues have arisen that needed to be addressed
- APMEN has identified the value of global malaria agencies
- APMEN and others landscaping activities and research have identified gaps in knowledge and activities in malaria elimination
- APMEN’s post - activity evaluations have identified new or different priorities and needs
- Priorities have changed in light of funding available and opportunities that have arisen.

Data used for this part of the evaluation came from several sources, namely:
- APMEN evaluations conducted at each event
- APMEN interviews and surveys conducted of each grant and fellowship awareness
- Formal training evaluations conducted in each APMEN training programme
- Feedback form the training institutions conducting training to which APMEN sponsored participant/s
- Content analysis from the interviews videotaped at Malaria 2012 by an external team.

The external evaluations were conducted by Dr Smith and Ms Mares.

2.4.1 CAPACITY STRENGTHENING

The key activities identified to meet this strategy were:
- Fellowships
- Training
- Study tours
- Technical assistance.

Many respondents from all parts of the Network indicated that APMEN contributes to the capacity building of its Country Partners, including scientists, program managers and other practitioners involved in elimination. When describing the capacity building element of APMEN, respondents from all parts of the Network most commonly referred to the fellowships program, the research grants program and APMEN training activities. Many saw the annual meetings as an opportunity for training and professional development. Many respondents also mentioned the Vivax Working Group as a highly valued source of training and mentoring.

Both Country Partners and Partner Institutions valued that APMEN recognises and supports existing expertise within the region and encourages collaborative capacity building training within the region.
As of the end of 2013, 47 applications have been received for fellowships, (5 per year and 3 in 2013/4) and 18 had been awarded and completed by fellows from 9 countries (Annex 6). Topics for the fellowships are detailed in Annex 6 and are include strategic themes of:

- Capacity development
- Surveillance and response
- P vivax case management and diagnostics
- Community participation and Advocacy.
- Vector control

In 2013, a special thematic fellowship scheme was approved by the Country Partners. Fellowships were provided by three partner institutions on specific areas of interest to APMEN membership namely:

- APMEN/Malaria Atlas Program (MAP) Thematic Fellowship Program;
- APMEN VecNet Thematic Fellowship Program and APMEN Surveillance & Response Thematic Fellowship Program (through GHG)

Respondents from all parts of the Network typically saw the fellowship program as beneficial, since it adds to staff capacity while also carrying a strong partnership building function.

We can train people, they can go to [Partner Institute], or [Partner Institute] or come across to [regional country], rather than sending them thousands of miles away ... yeah ok, you have a different atmosphere, but a lot of the time that training is available locally (Partner Institute, Focus Group APMEN IV).

Most respondents from all parts of the Network saw the fellowships, research grants and other APMEN training activities as building technical expertise necessary for future program development.

**FELLOWSHIPS**

The APMEN Fellowship Program, launched on World Malaria Day in April 2010 aims to equip the next generation of leaders and health workers from low and middle - income, malaria - endemic regions with the tools and training to guide malaria elimination in the coming critical decades. The Fellowship Program is also structured to strengthen the exchanges and lesson sharing among APMEN Country Partners and Partner Institutions. The Program, whereby fellows are nominated and endorsed by the Country Partner, supported by their host institution and placed with a Partner Institution or Country Partner for the duration of 2 - 3 months. The fellow is expected and evaluated as to whether they have provided outcomes and knowledge/skills gained from the fellowship to their country program.
Country Partners often described the fellowship program as a means through which they could establish strategic partnerships with others across the region, and for training younger staff (country program staff and researchers) who are seen as future leaders in their fields, and for overall malaria elimination efforts. The Fellowships were highly valued, both because of the skills that are gained by the fellows and through them the home country, and the branding of the network of collaborators, colleagues and organisations with which countries and partner institutions developed facilitated through this APMEN activity. The building of new relationships was discussed positively in several ways.

Fellows and their host institution noted the benefits that had already been gained from participation.

We’ve shared it with colleagues here because this is new and some may or may not have done it before. We’re thinking of applying it to other lab disease screening because it can be done for other labs and Institutions. So sharing with people here. We report this to the Ministry of Health in [home country] and let them know what I got from this Institution (Fellowship recipient and Partner Institute, Interview 2012).

Impact of my results to [home country] is that we know now in [province] high G6PD and how severe deficiency is in certain areas. The goal for having G6PD mapped out is to give out Primaquine safely; ... We have already written a report to Country Partner for APMEN in [home country] asking whether we can do more areas and districts in [province] so know more areas where to give primaquine. (Research grant recipient, Interview 2012).

In summary the benefits were listed as follows (Annex 6 for more detail):

- Professional benefits for the fellow such as promotion or increased recognition of their knowledge and skills; able to support institutional capacity development; development of a mentor and peer network; publications and further research grants;
- Personal experiences of the fellow: cross cultural and inter-professional experiences;
- Benefits of the home organisation: gaps in institutions’ knowledge and skills filled; development of collaborative networks for further work and/or research; fast track young staff professional development; assisted in development of updated norms, and standard operating procedures; further training provided in the institution; publications and further research grants;
- Host institution: development of new/stronger collaborative networks; helped advance institutions work in the malaria elimination agenda; benefit form data brought to assist in joint efforts.

Fellows also commented on the strength of a fellowship as a capacity development method.

It’s easier to learn when you’re actually seeing another person who has been doing it for a long time do it in front of you and experience the field surveys and how an experienced worker would do it. It’s faster than learning on your own. And faster if you make a mistake, they correct you immediately. So it’s so much better I underwent fellowship rather than doing it on my own (Fellowship recipient and country program staff, Interview 2012).

The fellows and their home institutions particularly noted that sometimes is was hard to reap the full benefit of the fellowship if further resources were not readily available from the home government and/or institution to utilise these knowledge and skills. All respondents provided recommendations for further strengthening of the Fellowship programme and these included (see Annex 6 for more detail):

- Ensure that there is an appropriate timeframe for the fellowship
- Provide support to fellows after the fellowship – especially in similar fields of interest
- If fellowship develops some skills perhaps an applied operational research grant can then be applied for to expand the operationalization of the knowledge and skills for the country
- Ensure clear transparent and readily accessible guidelines available on the fellowship programme and selection processes
- Review of the candidacy and selection processes for improved match
- Increase focus on surveillance and response in the programme.

The APMEN Fellowships remain a highly regarded activity of the Network. Maintaining the focus on value, not only for the individual but also for their home organisation, ensuring realistic work plans for time and budget available, and ensuring that the activities resultant from the work plan proposed is one that is more likely to be supported upon return and will be important ways of improving the programme. Clear transparent guidelines and processes should continue to be openly accessible.
STUDY TOURS

The study tours were originally envisaged to be a stand-alone activity to allow mutual learning from peers on core elimination challenges for implementation. The total budget available as well as the person-time and opportunity costs for host countries and Country Partners meant that the majority of the study tours were directly linked to the APMEN annual meetings, and all but one was open to all participants at the annual meetings.

The themes of the study tours are decided by the host country and usually reflect something that they would like to focus upon and some suggestions about the operations and outcomes. Often the study sites are in hard-to-reach areas, which is by the nature of elimination efforts often where the “problems” and challenges occur.

Usually the organisation of the study tour programme and activities is managed by the host country and provincial programme managers, with discussions held with the Secretariat. The preparation of briefings and technical materials is managed by the host country.

The themes have been:

- Sri Lanka: Sustaining Motivation At Low Endemicity Levels
- Malaysia: Migrant Workers
- South Korea: Border Movement And Challenges
- Indonesia: Vector Control Working Group Study Tour Of Coastal Vector Control (Larviciding) Activities

The one major exception has been the Aceh study tour, where a major preliminary joint tour was held to develop the programme, based upon a request from the Country Partner.

Overall these are well attended and generally people find them interesting. The respondents rated most highly the tours with well defined study objectives, prepared field sites, and significant levels of interactions with local staff to discuss the key implementation issues linked. The study tour to Aceh was ranked as the best to date, although more opportunities to share the findings and experience with all APMEN countries was requested. Some respondents would appreciate having a group visit their country on a study tour, on a targeted issue of their concern as part of peer-to-peer learning and review.

APMEN continue to strengthen the quality of the study tours ensuring well defined objectives, well prepared locations, time for technical discussions and for interactions with the local implementers are provided.

TRAINING

Many Country Partners and Partner Institutions could give concrete examples of the ways in which they have integrated knowledge and skills gained through APMEN training into their ongoing work.

I’m working at [country program name] as a monitoring officer, but they put me as mapping officer too in geography technical program. This program is very important. In terms of here in [home country], we didn’t have this GIS first of all. So now in [home country] this officer [name] came and shows us how to do GIS. It’s very important. And we ran this program as surveillance system, it’s working (GIS Training participant and country program staff, Interview 2012).

Several training participants said that APMEN supported training was their first formal training in what was otherwise a largely self-taught field. Many valued the opportunity to expand their knowledge and skills in a practical and supportive context. Many participants in APMEN training activities went on to facilitate formal training for the staff at their home Institutions.

GIS training (November 2011 in Shanghai, China)

Geographical Information Systems (GIS) training is seen as a vehicle to promote cooperation and exchange of scientific knowledge relating to malaria elimination between APMEN Country Partners. In total 37 participants (nominated by the Country Partner representatives) attended the training, 13 of whom were female.

In general, most respondents highly valued the technical skills gained through the GIS training, and found the training experience itself enjoyable and interesting. For many this was the first formal GIS training in an area which they had taught themselves as it was a skill required in their work. The majority stated that they could specifically mention one or two specific new skills that they gained through the training that they had incorporated into their ongoing work. However, most had some difficulty incorporating this training into their ongoing work, either because other systems were already in place in
country or because internet-reliant technology is not always a viable option in all APMEN countries. Several respondents requested more training/support in implementing or adapting GIS methods into the existing policy environment. There were limited outcomes in terms of ongoing collaborations or communications between participants in the training. But ongoing, informal mentoring between trainer and many participants continues and is highly valued by respondents.

OTHER MODES OF CAPACITY BUILDING

In addition to the research grant supporting focussed research against one of the agreed APMEN themes, a series of additional capacity building activities and outcomes have been achieved. These were detailed by respondents to surveys and interviews as:

- Facilitation of laboratory procedures through SOPs development and/or strengthening, sharing of SOPs;
- Data analysis support including sample collection phase,
- Facilitation of collaboration between institutions and of data sharing

This support was provided in a range of ways including through face to face activities, study site and partner institute visits, teleconferences, development of procedural guides for laboratory methods, establishment of a consensus genotyping protocol, email and Skype.

After 12 months of negotiation, the APMEN will co-sponsor the WPRO/SEARO Elimination Training Course developed by WHO to be held in The Philippines in February 2014.

2.4.2 EVIDENCE GENERATION AND SYNTHESIS TO HELP IMPROVE PROGRAMMATIC EFFORTS TO ELIMINATE MALARIA

RESEARCH GRANTS

During the 2009 APMEN meeting, the Network recognised the need for a comprehensive strategy focused on *P. vivax* to support elimination efforts in the region. Although many of the leaders of the National Malaria Control Programs presented evidence of the successful reduction in the number of reported *P. falciparum* cases, an increasing proportion of *P. vivax* malaria cases was reported from almost all countries and was undermining the goals of malaria elimination.

The increasing proportion of *P. vivax* is attributed to a number of factors. *P. vivax* forms dormant liver stages (hypnozoites) capable of causing relapsing infections weeks to months after the initial infection. In addition the parasite can cause low density parasitaemias making it hard to detect in a patients' blood. Furthermore once infected *P. vivax* is more likely to generate gametocytes, the stages responsible for onward transmission to Anopheles vectors prior and this often happens prior to therapeutic intervention. The Vivax Working Group (henceforth called the “Working Group”) was created to address these key challenges of controlling and eliminating *P. vivax* malaria. The ultimate aim of the Working Group is to extend the gains made against falciparum malaria to include *P. vivax* malaria. A major focus of their work has been the development and support of the Vivax catalytic Research grant scheme (Annex 7).

At the 2010 APMEN meeting in Colombo the Working Group had a two day workshop to review the current challenges of *P. vivax* elimination. Five priorities areas were identified:

1. Optimizing the treatment of blood stage *P. vivax* infection
2. Understanding relapse and achieving radical cure
3. Risks, prevalence and diagnosis of G6PD deficiency
4. Diagnostics for case management and population surveillance
5. Public health monitoring and evaluation.

The group further refined the themes to three that were felt to be able to have a more direct impact in policy development in the region and they have remained their primary focus since then. They are:

1. Surveillance
2. Diagnostics
3. Treatment.

Several grant and fellowship recipients valued that APMEN supported technical capacity on regional issues such as *P. vivax* and glucose-6-phosphate-dehydrogenase (G6PD) and gave support to regional organisations that are not well funded by other channels.

I’m glad to hear there are APMEN countries doing studies on Primaquine. This isn’t a priority of some other agencies. A week ago, there were two representatives from international agencies that came over and for them, they said there’s no need to develop a G6PD kit because number of malaria cases are going down. But I said in order to look at elimination you need to get rid of all of them. So I’m happy to hear that APMEN is looking at issues that aren’t seen as important to other agencies (Research grant recipient, Interview 2012).

$50 000 can do a huge amount. We do not see the small grants project as being for big research agendas, and that’s hard for us, because $50 000 grants are not big news research papers, and therefore it doesn’t give us a lot of kudos from a research perspective. But I think it gives very good capacity building for the country’s research programs, and also it encourages more translational research and in that sense I think it’s very very good value for money (Partner Institute, Interview March 2013).
There were significant differences in the ways in which the respondents experienced the application process. Most said that the application process was straightforward and comparable to other international grant applications. Most said that Menzies/the secretariat offered high levels of support on the grant writing process and that (where applicable) the Vivax Working Group offered good technical feedback to help to develop research ideas. However others experienced delays in the administering of contracts or funding and some found the application process to have too many components.

Almost all participants reported delays at some stage of the research project. Some experienced delays in the administering of contracts, many underestimated the time needed to gain ethics approval, and some encountered unexpected challenges during data collection. In some cases these delays became a significant setback for the research, especially when data collection needed to occur at a particular time of year or funding needed to be released in a particular period to coincide with the budgetary guidelines of the home institute. In other cases researchers were able to postpone the start date of the project or adapt the project during the data collection phase to work around the obstacles they faced.

Some but not all of these research grants have lead to tangible outputs such as publications or presentations. Others have lead to ongoing collaborations between APMEN affiliated organisations. One respondent suggested a special edition of Malaria Journal be dedicated to publishing the findings of APMEN research grants, which would also support advocacy for the network.

Several respondents requested longer duration for the research and/or follow up funding to carry out more complex research. Although this is not the purpose of these grants – this need for funding of such research needs to be highlighted.

The findings of some research grants have been presented at APMEN meetings and at international conferences, adding to knowledge exchange while also promoting the awareness of the Network in other malaria forum. However since only a very small number of research grant recipients have presented work at conferences or published their findings, this knowledge exchange remains limited to restricted networks, a point noted by some Country Partners and some global malaria actors.

After three years we need to see some preliminary outputs from the vivax and vector working groups on operational research that was funded by APMEN (Global malaria actor, email response April 2013).

This is being planned for at APMEN VI – and responses to the presentations will be evaluated as part of the APMEN VI evaluation.

The structure, management, funding levels and support provided to any research grant scheme in the next 5 years plans should review the in-depth findings of the evaluation. This includes maintaining the mentoring, partnership and networking outcomes of the grant programme.

Funding should remain available for research grants to provide catalytic research opportunities in the areas of P. vivax, as well as operational issues faced in elimination in areas of surveillance and response, vector control and implementation issues. Recipients of research grants should be managed as alumni of the Network, and used to further disseminate both the products of the Network to assist in the regional elimination agenda as well as knowledge of the APMEN itself.

THEMATIC WORKSHOPS

There were several thematic workshops held over the last 4 years by APMEN – including 4 hosted by the Vivax Working Group (Annex 9), advocacy (2013), and community participation (2012).

Overall the ratings of all of these thematic workshops indicate satisfaction to high levels of satisfaction with the workshop aims and objectives, format, location and agenda. A recurring theme, as also noted in the annual meetings, was the desire for more networking time.

In the Vivax hosted meetings, overall the participants agreed that the workshops provided an excellent scientific input. Most participants concurred in reporting that the research presentations from APMEN fellows and the panel discussions on surveillance and elimination of antimalarial resistance were very interesting and helpful. Some participants noted that the Vivax Working Group meeting was a space for valuable interactions between researchers that allowed the establishment of new collaboration against...
malaria, particularly, collaboration focused on *P. vivax* and glucose - 6 - phosphate - dehydrogenase deficiency (G6PD deficiency). However some participants felt the high scientific level of some presentations, such as technical details and specifications, went above the level of relevance for a lot of participants of the meeting. There was also a request for more time for presentations from national malaria programmes.

In the thematic workshops embedded into the Vector Control Working Group (VCWG) meetings, the participants regularly noted the that they are able to contribute in these sessions by providing their own personal experience in vector control, community participation, environmental management, disposal of bed nets and implementation of strategies against malaria in a context with scarce resources. In general, respondents believe that all people who are involved in vector control in APMEN Country Partners and partner institutions should be invited to the VCWG meeting, including programme managers, deputy managers, information officers and funding agencies. They appreciated technical inputs from specialist groups within vector control in the region, including VecNet and MAP, and requested more of these sessions and better planned workshops for the future.

All APMEN workshops need to ensure a balance between technical content and country programmatic needs. Formats of meetings should ensure time is provided for country programme management inputs and discussions.

**ANNUAL MEETINGS**

Every year the annual meetings are rated well, with all respondents rating agreed to highly agree that the content, programme, location and activities were appropriate and valuable and that the meeting was an excellent opportunity to share valuable information and knowledge. Although increasing time continues to be allocated to un-programmed free time for interaction between “peers”, participants still rate more space to interact with malaria elimination experts, scientists and veterans of the field highly. They wanted short, sharp and focussed presentations that helped advance the discussions of elimination challenges, with a balance between implementation and research and not to lose focus on these challenges, including *P. vivax*, in the programme. Many felt that the 2013 programme was the best to date as it addressed many of these needs. They appreciated the separation of the business part of the Network (the Business meeting) from the main programme.

Respondents discuss how the annual meetings helped to develop a professional network and to ensure the uptake of best practices against malaria. They also expressed a desire to see more of the APMEN products and outcomes being displayed and discussed at the meetings, now that the Network has become more mature. Some Global health partners expressed a desire for the development of the meeting programme to be shared more amongst members. Many respondents requested sharing of the draft programme before the meeting.

What I would like to get out of it [annual meetings] is for example to sit down with colleagues, share ideas, come up with a plan and get some money, and to get money we need a very specific technical plan, and you don’t do that via email, you get that by sitting down with colleagues and brainstorming about what we can do, how can we do this, and who do we take this too? (Country Partner, Focus Group APMEN IV).

That the improvements made in the programme for the APMEN annual meetings continue to be evaluated to ensure that the meeting content and objectives remain country led, and support peer- to- peer learning and sharing.

**LANDSCAPING AND OTHER KNOWLEDGE PRODUCTS**

Many respondents to surveys by APMEN noted that they would like to get more information about the background, challenges (socio-political and technological context), successes and failures of malaria elimination programmes in all APMEN Country Partners and partner institutions.

The APMEN has developed several products to meet such expressed needs. These include:

- The APMEN country matrices
- The APMEN Atlas
- The Case studies (in conjunction with WHO and Malaria Elimination group, MEG)
- Literature reviews on various vector control methods used and/or suitable for the APMEN region, *P. vivax* research, mobility and malaria, community participation and malaria, field entomology training programmes

These components are: original submission with Country Partner representative and home institution sign - off of relevance, original screening and requests for more detail if required, selection panel process (this may require some more details or modifications like budget, sample size, sampling methods clarified), approval pending ethical clearance, payment in tranches according to milestones, progress reporting, and of project reporting.
Comments on the advocacy work were noted in the qualitative evaluation component:

*In the first meetings I wouldn’t have thought that in 2013 all of these elimination targets would be government plans – and they really are expressed by government. I think really APMEN has contextualised the elimination discussion in an important way* (Global malaria actor, Interview April 2013).

*APMEN helped establish malaria elimination agenda in [home country], APMEN has been one for pushing the malaria agenda within the ministries. We’ve been very supported and would like to see APMEN playing a bigger role* (Country Partner, Interview April 2013).

APMEN has produced products such as:

- 2 policy briefing notes for circulation to senior ministerial and government managers and policy makers, once timed to support the malaria 2012 activities;
- Summary country matrices “on a page” for every APMEN country;
- A training workshop for country teams – first one held in late 2013 – assisting them to build advocacy skills, tools, partnership plans and action plans;
- Tools and approaches shared for advocating with local communities for sustaining elimination developed at the Community Participation workshop;
- A paper (submitted for peer review publication based on a presentation at the workshop) on lessons learnt for successful advocacy in disease control elimination settings;
- Active participation in blogs, twitter feeds and use of the APMEN website to advocate for regional elimination challenges and needs (more discussion under Section 2.6).

Evaluations of all APMEN workshops were positive. The majority of the participants felt that they had learnt new skills to assist them in the process. The evaluation of the communications products has found that although people talked about them being useful anecdotally, we had low response rate to a formal survey sent.

A follow-up of the Advocacy workshop is being formally held at APMEN VI and each country team (China, Indonesia, Thailand, Philippines and Sri Lanka and Malaysia) will be discussing the implementation of their plan, lessons learnt and role of the workshop in their development. The no-cost extension of the APMEN budget meant that the original design of this activity, of 5-person teams for each country, and three sets of these workshops were not able to be undertaken and...
is planned for 2014/15. Feedback from APMEN VI will assist in fine-tuning future workshops. Some countries have already requested in-country workshops be held.

**That APMEN continue to develop advocacy skills and tools for the countries to advocate at various levels within the countries’ political, technical and community structures.**

### 2.5 APMEN STRUCTURE AND ADMINISTRATION

This criteria measured the effectiveness and efficiency of the structure and administration of APMEN. This incorporates: governance, structure and role of Board and Working Groups; lines of accountability; quality assurance measures; efficiency and effectiveness of the administration model; how governance is evolving. The evaluation was used the following parameters:

- How effectively and efficiently is the Network administered?
- Representation; Defined minimum level of operational inputs at all levels of membership

Almost all respondents in the in-depth interviews and focus groups said that governance processes are clear, and few had concrete suggestions for changes. Many suggested that governance should be reviewed periodically, but without listing specific concerns. Most Country Partners said that governance processes work to support country ownership, and that this has become more evident over time.

Most Country Partners reported that the governance processes ensured that Country Partners had decision-making power, particularly at the annual meetings and through representation on the Board. In addition, some global malaria actors said that they have observed APMEN to become increasingly country-driven over time.

*Countries are very active around decision making for the Network ... what I saw in Bali [APMEN V] months ago, there were countries discussing how to advocate resources ... Active participation is a good sign to indicate ownership of the Network* (Global malaria actor, Interview April 2013).

A small number of global malaria actors questioned whether governance processes in fact reflect true decision making processes within the Network. One of these concerns centred on a query as to whether sufficient mechanisms are in place to check for potential conflicts of interest amongst Network partners. This concern was voiced by only One Country Partner – one of the newer members.

Several global malaria actors suggested that governance processes remain simple and transparent as the Network grows. Some respondents, including Country Partners suggested that if changes are made to governance, it will be important to ensure that countries remain central to the Network and that governance supports rather than impedes progress of the Network.

Most respondents said that the Secretariat generally functions well, but that the Secretariat is under-resourced and that this is becoming increasingly clear as the Network expands. This echoes the concerns also raised at the Midterm Independent Review of the UQ Secretariat, where budget re-prioritization by the Country Partners freed up another salaried position for communications and advocacy work, and the outsourcing of the vector control working group secretariat functions to ACTMalaria. Recognition of the importance of secretariat function and “right sizing” is also demonstrated in the new funding mechanism from Bill and Melinda Gates Foundation to the GHG for their part of the APMEN Joint secretariat activities.

Most Country Partners and Partner Institutions said that Secretariat was a valuable source of guidance and assistance, promptly responding to emails, assisting Partners with difficulties and directing Partners to others within the Network. Some Partner Institutions said that expectations from the Secretariat were sometimes unclear, but that communication has improved over time and that difficulties can usually be resolved through email. The Secretariat was noted by many respondents (all categories) as a vital source of support to administer the Network, organise meetings and events and bring Partners together. Most respondents from all parts of the Network said that they found the Secretariat approachable and that their interactions with Secretariat staff were usually positive. However a few respondents expressed concern that APMEN was starting to be seen as a donor, and a minority of GHG partners felt that the Secretariat may drive the agenda.

Many respondents suggested that the Secretariat would benefit from adding new capacity. Many respondents from all parts of the Network suggested adding an advocacy expert to the Secretariat. Country Partners in particular emphasised advocacy as a priority area for future work to be carried out by the Secretariat. One global malaria actor suggested that additional Secretariat staff could be recruited from the Asian Development Bank or similar peak regional institution to help to embed to the Network within the regional political architecture. A small number of Country Partners suggested adding an expert in policy development or health systems strengthening to the Secretariat to enhance these functions of the Network.
making processes transparent and receive feedback on the Networks’ value and role in the complex malaria landscape.

That the Network seek support from a network governance expert to assist in identifying areas requiring review, change or strengthening in response to the evaluation findings.

2.6 AWARENESS AND REACH OF APMEN

This criteria measured the levels of awareness of APMEN and its activities and products within the Country Partner organisations, partner institutions, regional and global malaria partners and more broadly. It measures this using the following 2 parameters:

- How widespread is awareness of the Network and its ‘products’?
- Are the present advocacy and communications strategies working as planned?

Most respondents from all parts of the Network reported that APMEN has successfully established elimination as a regional agenda in the Asia Pacific, so that the Network is now well

That orientation of all new Country Partners, Partner Institutions and representatives of those groups be undertaken before/at each Annual meeting to ensure full understanding of the governance and communication structures. An orientation package may need to be more formally developed.

The next strategic plan needs to review the Secretariat capacity in line with activities, governance, communications, and monitoring and evaluation/reporting requirements and fund raising and management - in size, efficiency and competencies – to maintain the effectiveness and quality of its support to the Network.

That the Network through the Secretariat and the Board increase the communications and engagement with global health partners to ensure the Network’s objectives are clear, decision
known amongst malaria specialists throughout the region. The growing awareness of APMEN within the region is also evidenced through rapid growth of the Network and through substantially increased attendance at annual meetings. Very few respondents suggested that APMEN should focus on improving Network awareness within the regional malaria community, though several Country Partners reported that APMEN is not always well known within internal country structures.

Likewise, very few Country Partners expressed interest in raising awareness of the Network at the global level, although opinions differed as to the extent to which APMEN is known at the global level. Some respondents saw that APMEN has increased awareness of *P. vivax* and other Asia Pacific malaria issues at the global level. Some other global malaria actors, however, suggested that APMEN is not well known outside the immediate network of people actively participating in the Network. The key concern Country Partners expressed concerning Network awareness is not the promotion of the Network amongst malaria specialists regionally or globally, but the need to attract support from Heads of State, donors and other non-malaria specialists that offer funding or resources necessary to support the implementation of elimination programs.

Almost all Country Partners recommended that APMEN expand awareness of the Network beyond malaria specialists by forming partnerships with regional political economic networks and a broader range of development agencies and donors operating within the region. Almost all Country Partners said that it would be advantageous for APMEN to form strong links with political economic forum such as ASEAN, APEC and Asian Summit. These respondents saw that stronger links with these political economic networks would be a means through which to reach Heads of State while also attracting new donors and mobilising the resources necessary to support elimination programs. Almost all Country Partners thought that this should be a priority area for future program development.

The major finding in the qualitative evaluation was the importance all Network partners placed in the face-to-face meetings, especially the annual meetings for communication, awareness raising of the network and within the regional and global partners. This face-to-face meeting is highly valued, and many see the opportunity for informal dialogue at meetings and workshops as a key perceived benefit of the Network. A large number of respondents from all parts of the Network noted that the structure and ethos of APMEN encourages informal dialogue and the exchange of ideas in a way not always encouraged in other forum. Almost all respondents said that the annual meetings were enjoyable and productive opportunities for informal knowledge exchange and partnership building. Several respondents described annual meetings as empowering.

However, many Country Partners and many Partner Institutions noted that annual meetings are insufficient to maintain the continuity of the Network throughout the year. Communication between Network partners is inconsistent and relies on face-to-face meetings. The opportunity and real costs attached to annual meetings were often discussed by the respondents in the focus group and in-depth interviews, and ways to decrease the costs to the APMEN core budget were discussed including more cost sharing, reduction in the size of the meeting (although this may erode the positive values ascribed to the meetings) and locations of the meetings.

Despite the comments that other communications channels were not meeting the needs of awareness raising in the Network countries and region, very few respondents had suggestions as to how communications could be improved. The APMEN Secretariat has held regular communications, linked evaluation surveys and responded to the recommendations made on use of social media channel and emails. Several APMEN training activities have attempted to establish online discussion forums to encourage ongoing dialogue between training participants. Participation in these online discussions however was minimal, if any. Respondents reported that they chose not to participate in these means of online communication due to inconsistent internet access, lack of time, lack of interest or since low participation rates meant that they perceived them to be of little benefit. Respondents generally suggested that Skype and other online means of communication were not desirable. Respondents themselves saw this lack of good communication solutions to the dilemma as problematic. Almost no respondents mentioned the APMEN newsletters that are regularly circulated by the Secretariat.

The Communications survey in 2011/2 found that over 80% of participants at APMEN III stated that had previously visited the APMEN website. The top three reasons for visiting the site were:

1. Information and documents for APMEN annual meetings.
2. Information on APMEN Fellowship program and
3. News and articles about APMEN.

Of the people that used the website, the majority of them found it easy to find appropriate information. Of the participants that used social networking to follow APMEN, Facebook proved to be the most popular, followed by LinkedIn and Twitter. 70% of participants found the number of emails sent by APMEN to be appropriate and did not indicate that any more or less be sent in the future.
We need to push the economic leaders, national leaders and regional organisations that manage economic development, because malaria elimination cannot be achieved without economic development (Country Partner, Interview April 2013).

The Country Partners saw that effective partnerships with global malaria actors are necessary to mobilise funding and support for country programs. Some Country Partners and global malaria actors also thought that APMEN could better benefit from the expertise of others in the malaria landscape and outside this landscape.

I’d like to see APMEN two years from now move toward a multisectoral partnership. To use the resources at its disposal to bring out best in different partners across different sectors and keep elimination in the Asia Pacific steaming ahead (Global malaria actor, Interview April 2013).

Global malaria actors stated that improved communication strategies are necessary to demonstrate the benefit of the Network and the value add of the Network to the regional health infrastructure.

APMEN must work with partners collaboratively to communicate the elimination agenda and its needs to senior regional partners and organisation such as ASEAN, Heads of State and others. The collaboration with APLMA will be a critical one in moving forward.

The findings of some research grants have been presented at APMEN meetings and at international conferences, adding to knowledge exchange while also promoting the awareness of the Network in other malaria forum. However since only a very small number of research grant recipients have presented work at conferences or published their findings, this knowledge exchange remains limited to restricted networks, a point noted by some Country Partners and some global malaria actors.

After three years we need to see some preliminary outputs from the Vivax and Vector Working Groups on operational research that was funded by APMEN (Global malaria actor, email response April 2013).

The APMEN V and VI meetings have been designed to showcase these achievements which have taken the 2 - 3 years from their inception to have results able to be shared with the Network. An evaluation of the outcomes of these activities will be included in the annual reports to the network. Increased communication with global health partners has been increased in the last 2 years with more frequent
visits, direct communications with the representatives, and attendance, when invited at their major regional activities. This continued to remain a priority and may need specific budget attached to the strategies in the next five year plan. It also is a two-way process, and ways to encourage continued open dialogue and communication need to be discussed.

A small task force on APMEN communications should be developed to review the findings of the evaluation regarding communications and assist in developing a more details plan for the next five years. This should include budget and staffing implications and report back to the Network by the end of 2014.

The next five year strategic plan needs to be clear on the aims, objectives and outcomes of the Network activities, and be shared with all partners as soon as it is ratified. The consultation processes to develop the Plan including the evaluation have allowed the feedback to be included in its development.

2.7 BENEFITS OF APMEN

This criteria sought to understand the value add that countries and organisations derive from APMEN membership, especially to help them address the evolving field of malaria elimination. The parameters used were:

- What works, what doesn’t and what could be changed to add value to Network membership?
- Perceived ability to and speed of response to changes in the regional elimination agenda.

One of the overall findings of the evaluation is that all Country Partners, most global malaria actors and most Partner Institutions expressed confidence that APMEN has become steadily more successful in its operations since 2009. All respondents were highly aware that the regional landscape for malaria elimination is currently undergoing significant changes and that APMEN’s role needs to be clearly defined within that landscape and communicated.

Respondents from across the Network consistently reported that a key aim and perceived benefit of APMEN is bridging science and policy in ways that support countries to achieve elimination. Respondents noted that this potential lies in the diverse composition of the Network, which includes partners as wide ranging as countries, research institutes, implementing NGOs, training NGOs, bilateral donors, multilateral donors, foundations, UN agencies, innovators, industry and other malaria networks. Most respondents saw APMEN’s mixture of research scientists, practitioners and policy makers as an important value added of the Network and one that supports the evidence base for policy. Respondents from all parts of the Network valued this combination of expertise.

I don’t think there’s anything like APMEN. I mean normally, because APMEN takes on a bit of a political role. It brings all these countries advocating together. They have highly technical people there. They have funders, program managers - an interesting mix. I don’t think there’s a forum quite like that (Partner Institute, Interview March 2013).

While respondents from all parts of the Network valued the range of expertise within the Network, this also acts as a major challenge facing APMEN. One of the clear findings of this evaluation is that the core functions of APMEN are often obscured by the differing agendas and interests of the large number of parties that make up the Network and by the broad scope of activities that are supported by APMEN. Here differences between Country Partners and Partner Institutions become pronounced. As described above, Country Partners were more likely to emphasise the advocacy and policy support functions of APMEN.

Most Country Partners defined APMEN in terms of the role it has played in establishing elimination as a regional agenda shared by countries across the region and supported by malaria researchers and other practitioners. Most Country Partners explicitly mentioned APMEN’s regional focus as a central feature of the Network, describing it as a mechanism for facilitating dialogue and partnerships across the region. Finally most Country Partners valued the Network as a source of technical expertise that develops the evidence base for policy.

Most respondents from all parts of the Network stated that the Network has the potential to act as a key player within the changes that are occurring in the malaria elimination landscape. Most expressed urgency that the Network responds actively to these changes to enable the Network to grow. All thought that changes were needed if APMEN is to grow its role in the region. They strongly discussed the important role APMEN plays, and should continue to play in a stronger way, of being a national, regional and international
advocate for elimination and the malaria issues within the region linked to elimination and that the composition of the Network, and its structure provides legitimacy to this cause. Several grant and fellowship recipients valued that APMEN supported technical capacity on regional issues such as \textit{P. vivax} and G6PD and gave support to regional organisations that are not well funded by other channels.

Many Country Partners and Partner Institutions described how the diverse composition of APMEN enables them to understand the ‘big picture’ needed to progress elimination. Finally most Country Partners valued the Network as a source of technical expertise that develops the evidence base for policy. Some global malaria actors see APMEN in ways that are quite consistent with Country Partners – as an advocacy tool that supports countries in accelerating the elimination agenda. However other global malaria actors see research as APMEN’s primary function. While some expressed concern that APMEN not be driven by research, other global malaria actors perceived APMEN’s central function as being to support operational research that identifies and addresses knowledge gaps. Some of these respondents however, questioned the Network’s role in engaging with government.

Several Country Partners described the Network as shifting from a source of capacity building training to a collaborative effort by countries in the region committed to malaria elimination.

\textit{I think now our role with APMEN is more towards partnership ... Before I believed we were looking for more technical support and assistance, costing and interacting on top of building our capacity. APMEN has been very helpful in helping us build our capacity. Now we are moving towards a new relationship, towards a partnership in research and elimination activities} (Country Partner, Interview April 2013).

There remained a concern, mainly amongst the global malaria actors, that the Network needs to be clear about its role and focus in the landscape. Best summed up in the following cautionary quote:

\textit{We don’t want to overcomplicate the regional architecture for health. It comes back to a question of mandate. Should this fit in more clearly within other structures in the region? It goes back to identifying the purpose. How does its purpose relate to those of ASEAN plus or WHO? Or is it ok standing alone? That’s a question that needs to be worked through} (Global malaria actor, Interview May 2013).

Recommendations from the majority of the respondents are summarised below:

- **Maintaining the positive aspects of the network and how it functions:**
  - Maintain and strengthen its self-driven, network structure.
  - Manage the Network carefully as it expands.
  - Maintain its collegial atmosphere and the informal dialogue and partnerships this generates.
  - Improve communication between Network partners outside of face-to-face meetings.
2.8 COSTS AND FINANCIAL SUSTAINABILITY OF APMEN

This criteria measured the costs and financial sustainability of the network.

OVERALL FUNDING

Australia (DFAT) is providing funding of $A 6.1 million over four years (Dec 2009 - Dec 2013) to support the APMEN. The first agreement with UQ was valued at $3 million over 2 years (with the option to provide a second grant at the end of this one). A second agreement was signed in July 2012 for the period 1 August 2012 to 31 December 2013 valued at $2.725 million. A no-cost extension was provided until June 20, 2014. (Annex 10)

DFAT funds are provided to UQ to carry out both secretariat activities and implementation activities (e.g. administering fellowships and research grants). DFAT’s funding for APMEN was to ensure its establishment, with the view to the network securing more sustainable funding beyond the period of the initial contract.

The BMGF provided approximately $US150,000 per annum to APMEN through its broader support to the global elimination agenda through GHG.

The Independent review of the UQ Secretariat in 2012 found that the financial management arrangements and audits undertaken of the UQ Secretariat showed good practices. Although the findings of the review are shared at annual business meetings and at Board meetings, some Country Partner respondents were not aware of these facts, and wanted to be reassured about the quality of financial management of the Network. This is another communication issue that needs to be addressed.

LEVERAGED FUNDING

Over the period of the evaluation, leveraged funding (in cash and in-kind) runs at a 25+% of the total annual expenditure. Between 2011 and 2013 the Country Partners, Partner Institutions, friends of APMEN, and others who have engaged in activities of APMEN have contributed the value of $ $A1.62 million (Annex 10 & 11).

In addition, it should be noted that the in-kind support provided by individuals and their institutions to support the mentoring, peer review, technical presentations, hosting of fellows and grantees, training and network management provide extremely important value - add to each dollar invested by the donors to APMEN.

The APMEN takes into account the list of recommendations provided in Section 2.7 above to increase the reach and awareness of the Network in the next five year strategic plan. Adequately resourcing plan, including financial, human resources and roles of members and partners need to be clearly accounted and sought.
SUSTAINABILITY

Respondents interviewed noted the need to broaden funding, not only to sustain existing activities and expand the role, but also to become less “vulnerable” to donor dependency and the potential for becoming donor driven.

Most respondents from all parts of the Network said that APMEN needs to continue its relationship with current donors while also attracting more funding with a broader donor base. Respondents from all parts of the Network saw current funding as insufficient, particularly in the light of rapid Network expansion. This is evidenced, for example, in the increasing size and cost of annual meetings. Many respondents also noted that the Secretariat is under-resourced given Network growth. In focus groups at APMEN IV, many Country Partners and Partner Institutions felt at risk of becoming donor dependent. However in interviews conducted in 2013 few respondents expressed a concern at becoming donor dependent. Rather in 2013, a large number of respondents from throughout the Network recognised that the regional malaria landscape is undergoing changes, and expressed urgency that APMEN be active in capitalising on these changes and securing emerging forms of funding.

At APMEN IV in May 2012, many Country Partners and Partner Institutions felt that improved advocacy strategies were needed to demonstrate the benefits of the Network to countries and donors in order to attract funding. We’re quiet! We’re not moving up in the scene where people are encouraged to put money in us. I think donors would only want to do it for those that they see as winners, and we’re not seen as winners yet (Country Partner, Focus groups APMEN IV).

I think what doesn’t work is we are not able to get more donors to come in to support the costs. And, well I think the first move [is] to get a professional advocate. This is the biggest challenge (Country Partner, Focus Groups APMEN IV).

However after Malaria 2012 in November 2012, Country Partners were more confident that APMEN was becoming visible to donors and Heads of State.

After Malaria 2012 and involvement of AusAID in Australia, has opened up views to policy makers, who are now looking at APMEN as a support group for malaria elimination (Country Partners, Interview April 2013).

Country Partners and some global malaria actors are now concerned that APMEN raise its profile, engage with a wider range of actors beyond malaria specialists and clarify its role and benefits in order to attract a broader donor base.

A body like APMEN could come out to be the biggest advocate for elimination and to put in this agenda into the economic forums that attended by the Prime Ministers and delegates of the countries. The Asia Pacific Economic Congress not only has the Heads of State of the region but also the Heads of State of other countries. This could also be important for the funds toward malaria elimination (Country Partner, Interview April 2013).

Most Country Partners and many global malaria actors suggested recruiting donors from within the region. Many Country Partners suggested that stronger awareness of the Network within ASEAN, APEC and other political networks would likely bring new donors while also strengthening links between APMEN and Heads of State. Japan, China and Korea were frequently mentioned as potential donors. However the choice of donor may be contentious, as in Focus Groups at APMEN IV there was considerable debate regarding which donors would be most beneficial for the Network. This suggests that new donors should be selected strategically, since many partners see donors not only as a source of funding but also as a tool for political leverage.

Similarly, several global malaria actors also suggested that APMEN be strategic in looking for new donors. These respondents suggested that, at this point in time, APMEN ought to reassess and clarify its core functions. They suggested that improved external communications would attract donors and open funding channels.

The first thing is to clarify the purpose and added value and to use that to communicate with and influence funders (Global malaria actor, Interview May 2013).

A small number of respondents suggested that the Network consider increased self-funding, especially for attendance at annual meetings. A small number of respondents also suggested the board consider new funding models, including private sector funding. A small number of global malaria actors suggested that a traditional donor-recipient funding model is not congruent with the country-driven concept underpinning the Network, so that the Network must consider how to diversify its funding base.

Several Country Partners were concerned to find new ways of delivering better value for money in Network activities. Some suggestions include reducing costs of meetings, ensuring that all partners contribute to as well as benefiting from the Network and ensuring that research and training activities are in direct support of country programs. In April 2013, almost all Country Partners interviewed recommended that the Board choose new donors strategically to suit the changing landscape of malaria elimination, indicating a growing sense of empowerment and participation in decision making amongst Country Partners.
The network needs to continue strong financial management and share the results of audits and independent reviews with the Network when available.

The efficiency of the Network activities should continue to be evaluated to ensure more value for the investments made by donors, partners and in-kind contributions.

Diversification of funding sources and increased levels of resourcing are required for the Network and should continue to be a priority for the sustainability of the Network. These activities should be aware of the global malaria landscape and seek to avoid competitiveness with other partners. Support should be sought for specialist advocacy and fundraising activities for APMEN to assist in financing the network.

2.9 PARTNERSHIPS

This criteria measured the types of and levels of sharing of resources and competencies within the Network and in the global malaria landscape.

Respondents from all parts of the Network saw that APMEN generates partnerships through the fellowships and research grants programs, through the Vivax and Vector Working Groups, through training activities and through the annual technical and business meetings. Most respondents from all parts of the Network saw partnership building as a key perceived benefit of the Network, and some respondents said that they joined APMEN primarily for this reason.

There are many different partnerships and different levels of partnerships generated. There are constant conversations between Country Partners and they meet in a safe environment to share ideas. Very importantly at lunch or teatime. More formally during presentations, study tours. I think that information sharing can lead to greater partnerships (Partner Institute, Interview April 2013).

Both Partner Institutions and Country Partners appreciated that the structure of APMEN encourages partnerships within the region.

We challenged [home country] to fight malaria. We are fighting it among our country, but not only can [country] fight alone. We need to among the region, because the problem is not just in [home country] it is the whole region. As members we have been more informed, trying to change to the system (Country Partner, Interview April 2013).

The other thing is the Asia Pacific – we are working in a local area, expanding our area – working with [Pacific nations] also broadens our thinking and the way of doing things. This in itself is a lot of benefits that APMEN give us (Country Partner, Focus Groups APMEN IV).

While most respondents greatly valued the partnerships built through the Network, it was noted by the independent evaluation consultant that these partnerships are usually informal rather than formal, between individuals rather than institutions, and are often formed on an ad hoc basis. While many see APMEN as a forum for generating partnerships, many of the partnerships formed through APMEN more closely resemble knowledge sharing than collaborative action. Although most respondents feel this is adequate and an important function of the Network, some respondents would like more active and collaborative partnerships that enable joint action toward elimination. Although informal partnerships are highly valued, many global malaria actors, some Partner Institutions and some Country Partners said that APMEN ought to shift to build more active and collaborative partnerships between countries and between the Network and other global malaria actors. Some Country Partners said that they would like APMEN to help facilitate formal collaborations between Network partners that can better enable joint action.

Several Country Partners said that more than clarifying the role of the Network in relation to other institutions that APMEN should aim to work collaboratively with others in order to benefit from the expertise that exists within other networks.

APMEN should collaborate with other networks and organisations to push the APMEN agenda, push the agenda to the working institutions of the country (Country Partner, Interview April 2013).

A lot of the other networks in the region have a lot of expertise that APMEN could facilitate and sharing (Country Partner, Interview April 2013).

Many Country Partners thought that APMEN advocacy strategies should highlight the importance and shared benefits of working collaboratively toward elimination, while also benefiting the agenda from stronger collective action.
Several global malaria actors described successful partnerships as being mutually beneficial and as efficiently sharing competencies between partners with a common goal.

To have an effective partnership there must be value for all parties, beyond what they are doing. They need a common plan; there we have advanced well (Global malaria actor, Interview April 2013).

Many global malaria actors stressed that a successful partnership fulfils these functions in a way that does not duplicate structures or create inefficiencies in the administering of programs. There was a particular call amongst the range of global malaria actors for APMEN to continue to support the mandate of other regional malaria actors in partnerships.

Some specific suggestions made by global malaria actors to improve the relationship between APMEN and the WHO included carrying out joint activities with the WHO, co-financing WHO technical support to work with Country Partners, and stronger engagement of WHO in APMEN strategic and operational planning processes.

While Country Partners were concerned with developing more productive interactions with WHO and other malaria networks, they spent much more time discussing ways to develop linkages with Asia Pacific political economic networks, especially ASEAN. Many respondents saw that a more active engagement with these political economic networks would support advocacy, attract funding and consequently help consolidate the shift to elimination. Almost all respondents suggested that APMEN needs to intensify its advocacy and many suggested the Network expand advocacy efforts to include political economic networks and political leaders in addition to other malaria networks. Country Partners were particularly concerned at aiming advocacy at Heads of State and at peak regional political economic bodies such as ASEAN and APEC.
Expertise should be brought into the Network to support these partnerships and this could be innovatively sourced through partnerships with ADB and WHO for example.

APMEN should continue to work in active partnership with WHO and seek to find more ways to support this partnership.

APMEN should focus on supporting partnerships with organisations, groups and agencies that focus on high level political leadership of the region, for e.g. ASEAN, APLMA and others.
**SUMMARY OF MAJOR CONCLUSIONS AND RECOMMENDATIONS**

Firstly, it is important to say that feedback from the internal evaluation was overwhelmingly positive and showed that most respondents perceive the Network to be highly beneficial. Most respondents had concrete suggestions for future changes for the Network and most said that the Network needs to adapt to the changing context of malaria elimination in the region. Given that most respondents see that the Network currently functions well, most respondents said that the Network should endeavour to preserve much of what characterises APMEN as it prepares for the next phase.

The key perceived benefits and attributes of the Network respondents commonly wanted to carry into the future include:

- Collegiality and inclusiveness – to continue
- Collaborative work environment – to continue and develop
- Network self-driven – to continue and develop a bridge between research and policy – to continue, but ensure operational research with increased support for implementation
- Capacity building for country program staff and researchers – to continue, but ensure research in direct support of countries
- Regional knowledge sharing – to be enhanced, more structured
- Elimination as a regional agenda – retain focus and highlight
- APMEN as an advocacy tool – to be greatly enhanced

Almost all respondents were confident that APMEN was about to expand and strengthen to take on a more substantial role within malaria elimination in the Asia Pacific. It was evident that respondents were highly cognizant of the fact that the broader political economic context of malaria elimination is currently changing and that respondents wanted APMEN to stay ahead of and capitalise on those changes. The suggestions respondents made for future changes in APMEN should be taken in that context.

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**3.1 SUMMARY OF FINDINGS**

The evaluation found that the majority of respondents from across the Network valued that APMEN has a collegial forum that has established elimination as a regional agenda and supported partners in their respective work toward elimination. Respondents from across the Network found that APMEN is highly beneficial in a number of ways, including by supporting the evidence base for policy; by supporting capacity building training for countries; by generating knowledge sharing on critical regional malaria issues; by facilitating partnerships across the region; and as an advocacy tool for the elimination agenda.

In concluding this evaluation report, it is important to note that most respondents gave highly positive feedback on their experiences with APMEN to date. Almost all Country Partners and Partner Institutions reported that their country programs or home institutions had already actualised many of the perceived benefits of the Network. In particular, many respondents reported that APMEN has succeeded in:

1. Setting elimination as the regional agenda.
2. Establishing itself as a collegial, country-led network that values and supports regional expertise.
3. Building the evidence base required for elimination policy, with a focus on issues most relevant to the Asia Pacific.
4. Supporting capacity building and professional development of researchers, practitioners and policy makers across the region.
5. Facilitating informal partnerships between Network partners.

However, respondents from across the Network commonly reported that APMEN underperforms in the following areas:

1. Insufficient support to translate research and dialogue into action.
2. Insufficient engagement with Heads of State, donors and other regional political actors necessary to mobilise resources needed to implement elimination programs.
3. Ineffective internal and external communications strategies limit the partnership building and knowledge sharing functions of the Network; increase reliance on mentors and face-to-face meetings; and fail to sufficiently clarify the aims and functions of the Network, which are already obscured by its diverse composition.

One key finding that cuts across all eight evaluation criteria is the need for the Network to become more action-oriented. This was shown in the recommendations made by many Country Partners that the Network develop more systematic knowledge sharing aimed at identifying priority areas for
collaborative action; that the Network more actively engage with a broader range of health and development organisations and political actors in the region; and that advocacy strategies be intensified to attract funders and political support for elimination.

Another crosscutting finding that was apparent to the consultant was the need to improve communications. Many respondents from all parts of the Network discussed the need to improve advocacy strategies and the need to better communicate the aims and value added of the Network to global malaria actors, donors, Heads of State and non-malaria specialists with the potential to support the elimination agenda. However it was also apparent that communications between Network partners are in need of review. This was evidenced by feedback from respondents throughout the evaluation, but is particularly apparent in the heavy reliance on face-to-face meetings and mentors to keep informed of Network activities. Limited communications between Network partners hinder the knowledge sharing and partnership building functions of the Network. This has impacts on the economic efficiency of the Network, given the high costs involved in face-to-face meetings. Although this seems important, very few respondents described improved communications between Partners as an urgent priority area for future work.

Importantly, respondents from across the Network recognised that the regional malaria landscape has changed significantly since the establishment of APMEN in 2009. Country Partners were particularly concerned that the Network enhances its effectiveness by responding actively to these changes. The timing of most of the evaluation interviews in the months following Malaria 2012 has almost certainly influenced the findings in this area.

Network partners recommended the following areas be prioritised into the future:

1. Intensify and expand advocacy within the region – to attract funding to APMEN and to country programs and help consolidate shift to elimination within country programs.
2. Build more active partnerships – to actively engage with WHO and political economic networks to benefit from the expertise of others, including non-malaria specialists.
3. Strengthen support for implementation – especially by more systematic knowledge sharing that is focused on helping countries to identify priorities and mobilise resources to act on this knowledge; and also by great support for the development of policy and health institutions.
4. Attract broader funding base – appropriate to expanding network size and to respond to changing malaria landscape and emerging funding opportunities.

As these changes are made however, respondents wished to preserve many of the valued characteristics of the Network. In particular respondents highly valued: the collegial and inclusive atmosphere of the network; the self-driven structure of the Network; the capacity building functions of the Network; the informal knowledge sharing and partnership functions of the Network; and the role the Network plays in building the evidence base for elimination. It is noteworthy that even as the Network faces significant challenges that the majority of respondents were confident that the role APMEN plays within regional elimination efforts will continue to grow into the future.

There are 12 main points from the review overall.

1. APMEN acts as a collegial forum in which the regional elimination agenda has developed and is being progressed. Many envision that APMEN will play a key role alongside others in the emerging malaria landscape, if it becomes more visible, active and responsive.
2. The diverse composition of APMEN is seen as a core strength and value added, but this leads to fragmented ways of perceiving the Network.
3. The self-driven structure of the Network is valued, but country ownership should continue to strengthen.
4. APMEN supports country programs, but significant barriers to implementation remain within the countries that the Network should find tools, support and advocacy to assist them in addressing.
5. The Network generates knowledge sharing, but many want a more concrete platform to identify country and regional priorities. Products and activities completed during this first four years and the foundation months are rated well, although the depth of awareness of these products within the Country Partners needs to be deeper.
6. APMEN builds capacity of country program staff and researchers across the region.
7. Governance processes are clear and support country ownership, but should be kept simple and transparent.
8. Secretariat usually functions well, but is under-resourced and may face challenges as the Network expands.
9. Communication between Network partners is inconsistent and relies on face-to-face meetings.
10. The Network has failed to clarify its core aims and functions to many global malaria actors and more effort must be focussed upon this need. APMEN is well known in the regional malaria landscape, but countries also want to benefit from the expertise of non-malaria specialists.
11. Respondents from all parts of the Network want to increase and diversify funding. It has successfully increased the funding base in size and sources over the last three years and has increased efforts to seek funding form within the region and globally.

12. APMEN facilitates partnerships, but on an informal, ad hoc basis. Broadening and strengthening these partnerships will be important in the next five years, especially as the global malaria landscape and the global and regional health and development landscapes evolve. Some want to build more active and collaborative partnerships with global malaria actors and other networks.

However the evaluation found that the Network faces a number of significant challenges. These challenges include: that the diverse composition of the Network obscures the aims, functions and value added of the Network; that the Network has failed to clarify and communicate its value added to many global malaria actors; that communication within the Network relies heavily on face - to - face meetings; and that more effort is required to translate research and training into action.

Respondents made recommendations for changes to be made to ensure that APMEN can become more visible, more action - oriented, attract new donors and continue to play a key role within malaria elimination in the Asia Pacific. These recommendations have formed a strong base upon which the next five year strategic plan is being developed.

3.2 RECOMMENDATIONS

CRITERIA 1 NETWORK BEST PRACTICE.

1. APMEN needs to continue to build upon and communicate clearly defined concepts of why the Network exists as elaborated by Country Partners, partner institutions and other sin the global malaria landscape

2. APMEN should review the mechanisms available to provide stronger country - to - country dialogue and ensure transparency in decision making for the Network.

3. APMEN should become more action - oriented in the Network’s knowledge sharing, partnership building, advocacy and policy support activities.

4. APMEN should ensure that in the next five year plan there is a broadening of the scope of catalytic research grants and fellowships; perhaps targeting of broader range of regional partner institutions to support these activities which have broader malaria and health services expertise

5. APMEN should continue to explore the feasibility and steps required to move the Secretariat functions into regional location/s over the next five year period.

CRITERIA 2 SUPPORT PROVIDED BY THE NETWORK

1. APMEN should strategically identify ways to engage with key political economic networks in the region. Building close ties with the newly formed APLMA and through other malaria and health and development partnerships should be a priority.

2. The Network should consider the role of strategically targeting broader health systems operational research linked partner institutions in the region.

3. APMEN should review the roles and responsibilities of Partner Institutions in the next five years. Governance issues such as duration of membership, eligibility for continued membership and what Partner institutions bring to the Network should be included in this review.

CRITERIA 3 OUTCOMES AND OUTPUTS

1. The APMEN annual meeting should have clear aims and objectives for each meeting and sessions within, be action orientated and targeted at priority elimination agenda items.

2. The Fellowships remain a highly regarded activity of the Network. Maintaining the focus on value not only for the individual but also for their home organisation, ensuring realistic work plans for time and budget available, and ensuring that the activities resultant from this work plan proposed is one that is more likely to be supported upon return will be important ways of improving the programme. Clear transparent guidelines and processes should continue to be openly accessible.

3. APMEN continue to strengthen the quality of the study tours ensuring well defined objectives, well prepared locations, time for technical discussions and for interactions with the local implementers are provided.

4. The structure, management, funding levels and support provided to any research grant scheme in the next five year plans should review the in - depth findings of the evaluation. This includes maintaining the mentoring, partnership and networking outcomes of the grant programme.

5. Funding should remain available for research grants to provide catalytic research opportunities in the areas of P. vivax, as well as operational issues faced in elimination in areas of surveillance and response, vector control and implementation issues.

6. Recipients of research grants should be managed as alumni of the Network, and used to further disseminate both the products of the Network to assist in the regional elimination agenda as well as knowledge of the APMEN itself.
3. That the Network through the Secretariat and the Board increase the communications and engagement with global health partners to ensure that the Network’s objectives are clear, decision making processes transparent and receive feedback on the networks value and role in the complex malaria landscape.

4. That the Network seek support from a network governance expert to assist in identifying areas requiring review, change or strengthening in response to the evaluation findings.

CRITERIA 5 AWARENESS AND REACH OF APMEN

1. APMEN must work with partners collaboratively to communicate the elimination agenda and its needs to senior regional partners and organisation such as ASEAN, Heads of State and others. The collaboration with APLMA will be a critical one in moving forward.

2. A small task force on APMEN communications should be developed to review the findings of the evaluation regarding communications and assist in developing a more details plan for the next five years. This should include budget and staffing implications and report back to the Network by the end of 2014.

3. The next five year strategic plan needs to be clear on the aims, objectives and outcomes of the Network activities, and be shared with all partners as soon as it is ratified.
The consultation processes to develop the Plan including the evaluation have allowed the feedback to be included in its development.

**CRITERIA 6 BENEFITS OF THE APMEN**

1. The APMEN takes into account the list of recommendations below to increase the reach and awareness of the Network in the next five year strategic plan. Adequate resourcing, including financial, human resources and roles of members and partners need to be clearly accounted and sought.

   • Maintaining the positive aspects of the Network and how it functions:
     - Maintain and strengthen its self-driven, network structure.
     - Manage the Network carefully as it expands.
     - Maintain its collegial atmosphere and the informal dialogue and partnerships this generates.
     - Improve communication between Network partners outside of face-to-face meetings.
     - Ensure the Network stays country-driven and all activities support countries.
     - Maintain and continue to manage current governance processes.

   • Working from and for evidence based practice:
     - Continue to develop the evidence base for policy and support for comparative and collaborative research and training. Continue to build the capacity of country program staff and researchers.
     - Continue to support the Vivax Working Group, the research grants program and the fellowships program.

   • Maintain focus on elimination in Asia Pacific region and the implementation challenges faced
     - Maintain its focus on malaria issues most relevant to the Asia Pacific.
     - Strengthen support for implementation and country program development.
     - Become more action-oriented. Strengthen support for implementation by, e.g., developing more systematic knowledge sharing aimed at the identification of priority areas for action.

   • Strengthen aspects of the Network operations
     - Better clarify and communicate the aims and value added of APMEN.

   • Increase funding and diversify its donor base.
   • Respond actively to the changing regional and global malaria landscape.
   • Intensify advocacy of the elimination agenda to attract donors.

2. Expand awareness of the Network to regional political economic networks to mobilise funding and political support for country programs.

**CRITERIA 7 COSTS AND FINANCIAL SUSTAINABILITY OF APMEN**

1. The network needs to continue strong financial management and shared the results of audits and independent reviews with the Network when available.

2. The efficiency of the Network activities should continue to be evaluated to ensure more value for the investments made by donors, partners and in-kind contributions.

3. Diversification of funding sources and increased levels of resourcing are required for the Network and should continue to be a priority for the sustainability of the Network. These activities should be aware of the global malaria landscape and seek to avoid competitiveness with other partners.

4. Support should be sought for specialist advocacy and fund raising activities for the APMEN to assist in the fundraising for the network.

**CRITERIA 8 PARTNERSHIPS**

1. APMEN should focus on supporting partnerships with organisations, groups and agencies that focus on high level political leadership of the region, e.g. ASEAN, APLMA and others.

2. Expertise should be brought into the Network to support this partnerships and this could be innovatively sourced through partnerships with ADB and WHO for example.

3. APMEN should continue to work in active partnership with WHO and seek to find more ways to support this partnership.
### ANNEX 1: APMEN (Internal) Evaluation Framework

<table>
<thead>
<tr>
<th>Variable of interest</th>
<th>Questions</th>
<th>Method</th>
<th>Administration of this aspect of the evaluation</th>
<th>Proposed use of findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Network best practice</strong></td>
<td>Why does the Network exist? Is APMEN working well as a network, according to internationally accepted definition of a network Focus of structure and activities Strategic and operational sense of purpose Alignment with global and regional priorities and plans Have solutions to problems been identified that go beyond what members would do on their own/form their mandates?</td>
<td>Define elements of an operational network Critical success factors for a network: resources, adaptive efficiency, willingness to co-operate, institutional “legitimacy”</td>
<td>Internal Focus group and in - depth interviews (external facilitator with experience in FGD &amp; IDI) at APMEN IV meeting Research institution partners: Country Partner groups – original partners; new partners</td>
<td>Governance, structure changes; guidance for longer term strategic plan;</td>
</tr>
<tr>
<td><strong>2. Support of the network</strong></td>
<td>Has APMEN provided support to Country Partners as they expected: When the network was formed? OR when they joined the Network Their present expectations Their vision for the future</td>
<td>In - depth interview with Country Partners Use of information/skills gained through network activities and resultant outcomes (way I did my work, links with others, active collaboration, share with other colleagues)</td>
<td>External In - depth interviews</td>
<td>Triangulate with findings from network best practice Screening of annual plans Development of strategic plan (and therefore funding strategies) Assignment of roles and responsibilities to Secretariat and working groups review</td>
</tr>
<tr>
<td><strong>3. Outputs and outcomes</strong></td>
<td>Has APMEN achieved the outputs and outcomes of the activities/programmes undertaken in the last 3 years work plans? “Members” contribution – information, financial, other in - kind to network Are activities linked to purpose of Network?</td>
<td>Quality and quantity of outputs and outcomes Sharing of information (accessibility, relevance, clarity, reliability, usefulness, best thing, suggestions for improvement) Capacity building Advocacy Information and innovation</td>
<td>Internal Review of all monitoring and activities based evaluation activities External: Follow up of fellows and of training/workshop attendees (and their country programme manager) – what changes have they made since their involvement (quality of work, approaches, sources of advice, effectiveness of work, efficiency of work, engagement of others) What helped them make these changes What challenges What more needed to reach the individual and the country’s needs/vision of this capacity and its use</td>
<td>Documentation of achievements Lessons learnt Planning for future activities Review approaches to these specific activities. Provide advice to providers. Providers. Feedback to providers to improve the quality of their work. Assist APMEN chose the “best resources” for these</td>
</tr>
<tr>
<td>4. Network structure and administration</td>
<td>How effectively and efficiently is the Network administered?</td>
<td>Identify strengths &amp; weaknesses in the way the Networks are run: Structure and role of Board and Working groups Lines of accountability Quality assurance measures Efficiency and effectiveness of the administration model How is it evolving</td>
<td>Internal with External facilitator: Interviews and Secretariat Review Board review Triangulate with answers form 1 and 3</td>
<td>Governance, structure changes; guidance for longer term strategic plan; Assignment of roles and responsibilities to Secretariat and working groups review</td>
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<tr>
<td>5. Network awareness</td>
<td>How widespread is awareness of the Network and its “products”</td>
<td>Are the present advocacy and communications strategies working as planned? What can improve reach / influence – within countries; within regional and global partners</td>
<td>Survey monkey to key international stakeholders Also link to KDIs Each country programme manager to undertake simple survey within the programme</td>
<td>Review advocacy and communications strategy – by Network to stakeholders; By Country Partners and institutions to their staff and networks</td>
</tr>
<tr>
<td>6. Perceived benefits of the network</td>
<td>What works, what doesn’t and what else could be added Adding value to Network membership Ability to and speed of response to changes in the regional elimination agenda</td>
<td>Focus group interviews: Country Partners Working group members Institutional members Malaria development partners</td>
<td>Internal with external facilitator FGD at APMEN IV</td>
<td>Governance, structure changes; guidance for longer term strategic plan; Assignment of roles and responsibilities to Secretariat and working groups review</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Rating (1 - 6)</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevance</td>
<td>5</td>
<td>The Program is strongly relevant to AusAID’s strategic goals and program design is underpinned by aid - effectiveness principles.</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>5</td>
<td>The Secretariat is critical in driving the APMEN agenda and supporting the achievement of its outcomes.</td>
</tr>
<tr>
<td>Efficiency</td>
<td>5</td>
<td>The Secretariat delivers good value for money. Robust Program management systems are in place and contractual obligations are met.</td>
</tr>
<tr>
<td>Sustainability</td>
<td>3</td>
<td>It is unlikely that sufficient funds will have been identified to sustain APMEN on conclusion of the AusAID program of support.</td>
</tr>
<tr>
<td>Gender Equality</td>
<td>6</td>
<td>Sound effort has been made to mainstream gender equality and all contractual obligations are met.</td>
</tr>
<tr>
<td>Monitoring &amp; Evaluation</td>
<td>3</td>
<td>The Program shares APMEN’S objectives and this presents a challenge for AusAID to ensure the quality of the outcomes that it funds and for APMEN to demonstrate that the resources provided are used efficiently and effectively in accordance with its objectives, that the outputs meet agreed quality standards and ultimately that the investment made is having impact.</td>
</tr>
<tr>
<td>Analysis &amp; Learning</td>
<td>6</td>
<td>Program design is firmly based on previous learning and analysis.</td>
</tr>
</tbody>
</table>

Rating scale: 6 = very high, 1 = very low quality. Below 4 is less than satisfactory.

RECOMMENDATIONS

In accordance with the ToR for the evaluation a number of recommendations for future programs are made:

Recommendation 1: The next phase of the Program should have its own objectives against which progress can be monitored and evaluated and these should be made explicit in the next funding agreement.

Recommendation 2: The contribution of APMEN to supporting Country Partner strategies should be evaluated by the Network as part of its monitoring and evaluation framework. DFAT may wish to support this activity with funds in the current Program budget that are identified for APMEN review.

Recommendation 3: The Secretariat should encourage APMEN to identify specific activities to secure future funding during the next annual planning cycle.

Recommendation 4: The GHG financial contribution to APMEN should be made explicit and the Country Partner and Partner Institution ‘in - kind’ contributions should be quantified to enable APMEN to identify true operating costs.

Recommendation 5: In order to meet the timescales of the APMEN annual planning cycle, DFAT will need to have notified the APMEN Board about further funding arrangements by December 2011 if gaps in implementation are to be avoided after July 2012.

Recommendation 6: The Secretariat workload should be reviewed by APMEN and funding for additional staff identified from other sources. Alternatively the review should determine how the existing workload can be better distributed across the Network.

Recommendation 7: The Secretariat should encourage APMEN to review its risk management matrix as part of the annual planning cycle.

Recommendation 8: A risk management matrix specific to the Program, rather than to APMEN itself, should be developed as part of the next Funding Agreement.

Recommendation 9: A comprehensive review of APMEN should include an evaluation of the level of stakeholder ownership as this is critical for determining the likely sustainability of Program outcomes.

Recommendation 10: The role of the Secretariat in building Network Program management capacity should be assessed and articulated in the design of future programs.

Recommendation 11: A mechanism for including Secretariat support in the design of new activities should be identified.

Recommendation 12: APMENs strategy for gradually decreasing its dependence on DFAT support, and the specific activities it will undertake to achieve this, should be agreed to and clearly described in the design of future programs.
Recommendation 13: Annual reports should present gender disaggregated data where appropriate.

Recommendation 14: DFAT and the Secretariat propose to APMEN that it undertakes an impact assessment that will provide critical data to allow both APMEN and DFAT to evaluate impact.

Recommendation 15: The contractual monitoring and evaluation requirements need to be clarified and the contract amended accordingly. This should be addressed when the new contract amendment (for the costed extension) is prepared.

Recommendation 16: The arrangements for evaluating the Program on conclusion of the current contract should be agreed by APMEN and DFAT.

Recommendation 17: Arrangements for monitoring and evaluation of future Programs should be explicitly stated in the relevant documentation using consistent terminology.

Recommendation 18: APMEN should determine a mechanism for evaluating the performance of the Network itself.

Recommendation 19: Consideration should be given to agreeing a Memorandum of Understanding between APMEN and DFAT as a mechanism for establishing monitoring and evaluation arrangements.

Recommendation 20: The lessons learnt, as identified by Stakeholders during the review, should be reflected in the design of the future program.
ANNEX 3: Review Questions of the Strategic Assessment of Asia - Pacific Malaria Elimination Network, undertaken in mid 2013, funded by DFAT

The review should consider the overarching goal of APMEN and DFAT’s objectives, and assess against outcomes and impacts of APMEN activities, as opposed to outputs and processes. The following priority evaluation questions should be considered:

Outcome 1: Provide recommendations to inform and future investments that aim to foster dissemination of best practice in malaria elimination in the Asia Pacific and translation of evidence to malaria policy and programs in the region; and

1. Relevance
   a. Are the current APMEN program goals and objectives relevant to DFAT’s strategic directions and priorities within the health sector?
   b. Will APMEN in its current form have relevance in the future?
   c. Are there (or will there be) any viable alternatives that could replace some or all of the role of the APMEN in the future?
   d. What are the unmet needs that APMEN (or alternative) could reasonably meet?
   e. Is the current APMEN model the best way to meet the needs of DFAT?
   f. What would be the best mechanism for DFAT to support to meet these needs?

Outcome 2: Assess the performance of the current APMEN, including lessons learnt, in relation to the network’s current goal and objectives, outputs, processes and management.

2. Effectiveness:
   a. What is the current model? How does APMEN connect country program managers and researchers?
   b. How has APMEN performed against its stated goal and against DFAT’s objectives? Have there been any unexpected outcomes?
   c. How do APMEN outputs contribute to DFAT objectives for the Program?
   d. How do APMEN outputs build partner country capacity to develop and implement policies and programs for malaria elimination?
   e. Is there evidence of behaviour changes amongst partners and beneficiaries consistent with what the initiative intends to achieve?
   f. What is the true level of regional ownership of APMEN?
   g. How successful has collaboration with WHO been, and has APMEN value added to the work of WHO as originally planned?

3. Efficiency and value for money
   a. Has the implementation of the APMEN made effective use of time and resources to achieve the outcomes?
   b. Do the outcomes of the APMEN represent value for money? If so, how?
   c. Are the current resource allocations by key activity area appropriate?
   d. Have subcontracting arrangements, including with the Menzies School of Health Research, proved to be efficient and effective?
   e. What are the risks to achievement of the APMEN objectives? Have the risks been managed appropriately?

4. Impact
   a. What are the benefits and impact of APMEN activities in the work of country programs, and can these be articulated with specific examples?

5. Sustainability
   a. How sustainable is APMEN (secretariat and network) beyond DFAT funding?
   b. What benefits are believed to be sustainable beyond the life of APMEN?

6. Gender Equality
   a. Has APMEN facilitated and/or implemented relevant gender policies for the network?

7. Monitoring and Evaluation
   a. Does evidence exist to show that objectives of the APMEN Establishment Support Program are being achieved?

8. Analysis & Learning
   a. How well has learning from implementation been integrated into the APMEN?
   b. What are the lessons that need to be harnessed in any future investment of this kind?
ANNEX 4: Description of the role and value of APMEN, according to the range of respondent groups interviewed

<table>
<thead>
<tr>
<th>Country Partners</th>
<th>Partner Institutions</th>
<th>Global malaria actors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• An advocacy tool</td>
<td>• A bridge between science and policy</td>
<td>• A Network of countries</td>
</tr>
<tr>
<td>• A Network of countries in the region</td>
<td>• An opportunity to reach policy makers</td>
<td>• An advocacy tool</td>
</tr>
<tr>
<td>• A source of capacity building training</td>
<td>• A ‘community of practice’</td>
<td>• A technical advisory network</td>
</tr>
<tr>
<td>• Support for evidence base for policy</td>
<td>• A source of support for vivax and other regional malaria issues</td>
<td>• A network of researchers</td>
</tr>
<tr>
<td>• A platform for regional dialogue</td>
<td>• Capacity building training</td>
<td>• A training institute</td>
</tr>
<tr>
<td>• A mechanism for forming partnerships</td>
<td>• A mechanism for forming collaborative research partnerships</td>
<td>• Priorities of APMEN unclear to many global malaria actors</td>
</tr>
</tbody>
</table>
### ANNEX 5: Objectives of the APMEN 2009 - 2013 Strategic Plan

| Objective 1: Share information and develop expert consensus on issues relating to malaria elimination, in order to support policy and decision making at the country level. Outcomes are | • Increased opportunities for sharing of quality information that is relevant to malaria elimination at national, regional and broader international levels.  
• Expert consensus documents provide guidance in areas previously lacking clarity.  
• Country strategic and operational plans reflect learnings.  
• Countries feel well-supported and benefit from information exchange opportunities provided through APMEN. |
|---|---|
| Objective 2: Support country decision making through building of the evidence base for malaria elimination, with a particular focus on Plasmodium vivax. Outcomes are | • Previously undocumented case studies are made available through work of APMEN.  
• Operational research projects are supported or catalysed by APMEN  
• Evidence broadly disseminated through a range of strategies suitable for the various target audiences (scientific, programmatic, policy, international agencies).  
• Findings are formally cited by others.  
• Elimination research priorities reflected in country strategic/medium to long term planning.  
• Alignment of country elimination activities and policies with current findings. |
| Objective 3: Increase expertise and capacity to carry out elimination activities through guidance, training, and sharing of experiences. Outcomes are | • APMEN Fellows Program is provided to fill identified gaps in training/professional development.  
• APMEN developed/supported training modules are provided within the Region to fill identified gaps in training/professional development.  
• Expertise available through APMEN, and in collaboration with WHO, serves as a resource for country needs in technical assistance and support.  
• Countries feel they have benefited from the expertise and training opportunities provided through APMEN. |
| Objective 4: Provide leadership and advocacy for malaria elimination in the region by expanding international and domestic awareness, funding, and support. Outcomes are | • Increased awareness among global institutions regarding challenges of elimination in the Asia Pacific.  
• Increased support among global institutions regarding challenges of P. Vivax control in Asia Pacific Region.  
• Increase in support to elimination by leadership, including Ministries of Health and governments. |
| Objective 5: Facilitate support for emerging priorities for malaria elimination especially in the Asia Pacific Region. Outcomes are | • Emerging priorities are identified.  
• Work plan reflects emerging priorities.  
• Funding sought and available for new issues. |
| Objective 6: Provide develop a governance structure suitable for the network and provide Secretariat support of governance infrastructure and smooth coordination and to enable efficient work of Network. Outcomes are | • Clear, transparent structure, Guiding Principles and processes are in place and operational according to defined needs of the members and funding partners.  
• Clear understanding of funding flows and processes by all APMEN and potential funding agencies.  
• Activities are funded and function efficiently, effectively, accountably and according to standards defined by APMEN (ethical, gender, accessibility).  
• New funds leveraged to support APMEN activities. |
ANNEX 6: Applications for and Topics of the APMEN Fellowship Program, 2010 - 2014

**Apmen Fellowship Program**

- **P. vivax case management and diagnostics:**
  - Develop new generation of G6PD sequencing, detect rare G6PD variants in Ratanakiri and G6PD screening survey on non-Khmer population eastern Cambodia;
  - The establishment of Enzyme-linked immunosorbent assay (ELISA) based high-throughput serological methods including modelling data analysis and interpretation;
  - The Genotyping for *P. vivax* isolates as a tool for monitoring parasite population and transmission,
  - *P. vivax* genotyping.

- **Community participation and Advocacy:**
  - Community Action Groups and Behavioural Change Communication in malaria elimination.

- **Vector control:**
  - Anopheline taxonomy and mapping of species to correlate vector distribution and disease incidence;
  - Vector incrimination and sibling species identification within the same mosquito species and blood meal analysis to determine human blood index (HBI);
  - Testing a new Pyrethroid insecticide resistance diagnostic method and genotyping/genetic mapping techniques;
  - Vector control and intervention methods used with *An. dirus*;

- **Capacity development:**
  - Design a local malaria management training course for current field officers or new recruits within the VBDCP - Solomon Islands.

- **Surveillance and response:**
  - Application of Geographical Information System in malaria elimination in Sarawak, Malaysia;
  - *P. vivax* genotyping for molecular monitoring in identifying imported cases from local transmission;
  - Spatial epidemiology of malaria incidence in endemic provinces along the International borders of Thailand;
  - Developing a new national malaria risk map.

<table>
<thead>
<tr>
<th>Respondent group</th>
<th>Brief</th>
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<tbody>
<tr>
<td><strong>Fellow : Personal and professional benefits</strong></td>
<td></td>
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</tbody>
</table>
| 1.1 Post - APMEN fellowship Roles | - post fellowship some have been promoted and some continue same position but with added technical knowledge  
- such knowledge is passed on to staff in home organization  
- capacity building when fellow goes home  
- added skills and knowledge benefit personal and professional development of fellow  
- fellowship experience attending to appropriate knowledge gaps in home country |
| 1.2 Fellowship experience: | - knowledge and skill gained on both personal and professional level  
- cultural exposure  
- exposure to technologies not available in home institution  
- mentorship which might not exist in home institution (lack of funding, professor’s time, technical expertise, etc) |
Home organization Advancement:

1.1 Activities and technical advances
- skill and knowledge gap filled and/or attended to
- develop malaria elimination focused program
- collaborate with host institution (papers, programs, etc.)
- further training of staff, locals, to attend to more efficient Malaria elimination program
- bring technical skills otherwise unavailable in home country
- fast track the knowledge and skill learning for new/future young scientist otherwise unable to start own research study (personal/home institution)
- all fellows have managed to return to home institution and make small or substantial developments in home institution (training, technical capacity building, advocating through presentations, preparing research manuscripts)
- technical skill and knowledge transfer address appropriate country knowledge gap
- implementing skills and knowledge gained within fellowship
- continue research collaboration for publication and malaria elimination advancement

1.2 Training and capacity building
- address policy and standards where changes are required for new procedures (national plans or lab work focused)
- knowledge share among staff and national malaria elimination efforts
- those with little benefit have been dealing with national malaria program/health department re-vamping

1.3 Existing challenges
- majority find difficulties in having resources provided from their local government; in order to make some of the program changes national standards more research needed, and for that more resources needed

Benefits derived from partnerships by host institution

Fellow and home institution
- partnership in capacity building with PI with a focus on similar research activities
- publication and research efforts which benefit both institution
- advancing research in Malaria elimination efforts through added project funding
- not all home institutions have established formal partnerships
- most are keeping research/program development collaboration efforts
- few are informal interactions with host mentors
- results include: publications, training syllabus development, GIS mapping which is new to some areas, etc.

Host organization
- advancing local research work, topics which people might not have time for at host institution
- benefit from Fellows samples, brought from home
- collaboration on papers and projects
- standardize malaria elimination method within APMEN Country Partners
- assist with host organisation’s malaria efforts

TABLE OF RECOMMENDATIONS FOR IMPROVEMENTS FOR THE FELLOWSHIP PROGRAMME

<table>
<thead>
<tr>
<th>Respondent group</th>
<th>Brief</th>
</tr>
</thead>
</table>
| Fellow perspectives | - Time frame: post-fellowship time frame of fellowship should be established based on work load  
- Post fellowship communications: newsletter and website is well used and established. There should be a community space where technical information can be shared among like focused research efforts (registered account other than google group) |
| Home Institutions | - Sustainability: Research grant as follow up to the fellowship is a great way to continue work which has been started and is lacking sustainability when brought back to home country; Lack of financial support is listed to be the most common cause of a stall in research efforts (APMEN RG could help with this)  
- Focus: An increase in malaria surveillance is highly important for proper control (future considerations), malaria elimination efforts aren’t enough in some areas  
- Selection: Some suggested having more insight into how the fellowship selection process were conducted |
| Host institutions | - Timeframe: Arrange duration linked to work load for the fellows  
- Externalities: Time was also disturbed with visa issues, outside of control of APMEN and host country  
- Selection: some questioned the selection process and whether fellows were placed properly |
### Projects Addressing Improved Surveillance of P. Vivax

<table>
<thead>
<tr>
<th>Projects</th>
<th>Prevalence Surveys</th>
<th>Genetic Diversity</th>
<th>G6PD Populations</th>
<th>Detecting hotspots of transmission</th>
<th>Qualitative studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Improving the accuracy of <em>P. vivax</em> case reporting using molecular methods*</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Population screening for G - 6 - PD deficiency in China using an enzyme assay on filter paper dried bloodspots</td>
<td></td>
<td></td>
<td>✔</td>
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<tr>
<td>China</td>
<td>Sero - epidemiological analysis for monitoring malaria elimination in China</td>
<td>✔</td>
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</tr>
<tr>
<td>China</td>
<td>Target malaria elimination intervention in China using spatial - temporal distribution analysis</td>
<td>✔</td>
<td></td>
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</tr>
<tr>
<td>Republic of Korea</td>
<td>Evaluation of sensitivity and specificity of RDTs using microscopy and PCR in vivax malaria detection*</td>
<td>✔</td>
<td>✔</td>
<td></td>
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<tr>
<td>Indonesia</td>
<td>Genetic diversity of <em>P. vivax</em> in Indonesia</td>
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<tr>
<td>Indonesia</td>
<td>Survey of G6PDd variants on Sumba Island and development of PCR primers for each</td>
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<td>Indonesia</td>
<td>Prevalence of G6PD Deficient Individuals in Bangka Island</td>
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<tr>
<td>Indonesia</td>
<td>Spatial analysis of the incidence of G6PD mutations in Plasmodium vivax malaria infection in South Central Timor (SCT), East Nusa Tenggara (ENT) Province, Indonesia, 2013</td>
<td></td>
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<tr>
<td>Indonesia</td>
<td>Community survey on knowledge, attitude and practice of malaria intervention (diagnosis &amp; treatment) for vivax malaria in Indonesia</td>
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### Summary of Activities

<table>
<thead>
<tr>
<th>Country</th>
<th>Activity</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Sri Lanka</td>
<td>Dynamics of <em>Plasmodium vivax</em> parasite populations during malaria elimination efforts in Sri Lanka, with low transmission and unstable malaria</td>
<td>✔️</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Assessing the prevalence of malaria parasites in displaced populations who have returned or resettled in the post conflict districts of Kilinochichi, Mullaitivu and Mannar in Sri Lanka</td>
<td>✔️ ✔️ ✔️</td>
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<tr>
<td>Malaysia</td>
<td>Study of Drug sensitivity profile and Molecular Genotyping of <em>Plasmodium vivax</em> isolates in Sabah, Malaysia</td>
<td>✔️</td>
</tr>
<tr>
<td>Bhutan</td>
<td>Molecular Assessment of <em>P. vivax</em> transmission dynamics in Bhutan</td>
<td>✔️</td>
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<tr>
<td>Bhutan</td>
<td>Malaria elimination in <em>P. vivax</em> using mobile technology for disease mapping and early diagnosis</td>
<td>✔️ ✔️ ✔️</td>
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<tr>
<td>Philippines</td>
<td>A prevalence study of Glucose - 6 - Phosphate Dehydrogenase deficiency and operational issues in applying the test in resource poor areas in the Philippines*</td>
<td>✔️</td>
</tr>
</tbody>
</table>

*see also ‘Projects Addressing Improved Diagnostics of *P. vivax*’ section

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**Prof Gao Qi** (Jiangsu Institute of Parasitic Diseases, Wuxi, Jiangsu, People’s Republic of China) conducted a study entitled **Improving the accuracy of *P. vivax* case reporting using molecular methods**. One component of this study assessed diagnostic tools for *P. vivax*. A second component involved genotyping 161 *P. vivax* isolates sourced from central China and imported cases. The genotyping data demonstrated unstable transmission dynamics in central China, with frequent outbreaks presenting a risk to resurgence. Parasite gene flow was moderate between Anhui and the recently malaria-free Jiangsu Province, demanding dedicated surveillance in Jiangsu to prevent the re-introduction of malaria. The seven markers used provided little resolution between the central Chinese and imported cases demonstrating the need for extra markers to identify imported cases in this region **Status**: Study is complete and a manuscript in preparation.

**Dr Zhou** (Jiangsu Institute of Parasitic Disease, Wuxi, Jiangsu, People’s Republic of China) conducted a study entitled **Population screening for G - 6 - P - D deficiency in China using an enzyme assay on filter paper dried blood spots**. In this project, 10,000 individuals in Central and Southern China were screened for G6PD deficiency. The study set out to identify the G6PD status in defined ethnic populations in central and southern China and assess hospital based malaria incidence rates. Respective data are essential for successful radical cure campaigns supporting malaria elimination. **Status**: Study ongoing.

**Dr Cao** (Jiangsu Institute of Parasitic Diseases, Wuxi, Jiangsu, People’s Republic of China) is conducting a study entitled **Sero-epidemiological analysis for monitoring malaria elimination in China**. The specific objectives of this project are to establish new laboratory based methods to identify populations with prior malaria exposure in Jiangsu and Hainan. The resulting data are being mapped and compared to results from standard detection methods. This new approach may support standard surveillance methods to identify potential reservoirs of infection that can be specifically targeted in the course of malaria elimination projects. **Status**: Study completed, a manuscript is in preparation.

**Dr Shui - Sen Zhou** (National Institute of Parasitic Diseases, Chinese Center for Disease Control and Prevention, Shanghai, People’s Republic of China) conducted a study on the **Target malaria elimination intervention in China using spatial-temporal distribution analysis**. A national database was assembled based on the Annual Parasite Index (API) records between 2001 and 2010. Annual incidence rates are being mapped and predictive incidence inferred. Although malaria incidence has been declining since 2006, closer scrutiny of API in selected high transmission provinces is being undertaken as part of vigilance for resurgence and sporadic outbreaks. The findings will be used to monitor and evaluate the impact of elimination activities. **Status**: Study ongoing.

**Dr Jung Yeon Kim** (Korea National Institute of Health, Korea CDC, Republic of Korea) conducted a project on the **Evaluation of sensitivity and specificity of RDTs using microscopy and PCR in vivax malaria detection**. In the course of this project the team undertook diagnostic and parasite surveillance studies. The diagnostic study is detailed in section 6.2. The parasite surveillance involved genotyping 50 *P. vivax* isolates including 47 local Korean isolates and 3 suspected imported cases at 9 markers. High diversity was observed in the Korean population, possibly fuelled by imported cases. Moderate resolution was observed between the local and imported cases demonstrating the potential utility of genotyping to confirm imported cases in South Korea. For host surveillance, the team documented the prevalence of G6PD deficiency among all patients recruited. The results...
Dr Hutagalung (University of Gadjia Mada, Yogyakarta, Indonesia) conducted a Spatial analysis of the incidence of G6PD mutations in Plasmodium vivax malaria infection in South central Timor (SCT), East Nusa Tenggara (ENT) Province, Indonesia. A total of 555 patients from 5 districts in ENT province were assessed for G6PD deficiency, anaemia and malaria. Malaria prevalence was low (<2%), but G6PD deficiency was moderately high (17.3%). Patients with malaria and G6PD deficiency are currently being mapped, to inform decisions on the benefit of radical cure versus the risks of primaquine induced hemolysis. Status: Study complete but analysis in progress.

Dr Satyaghraha (Eijkman Institute for Molecular Biology, Jakarta, Indonesia) is conducting a study on the Prevalence of G6PD Deficient Individuals in Bangka Island in order to assess G6PD enzyme activity and the prevalence of malaria in 1500 individuals. Participants with low G6PD activity are being assessed for new G6PD variants. The study is documenting populations at risk of malaria and the likely risks of deploying radical cure. Status: Study ongoing.

Dr Winasti (Eijkman Institute for Molecular Biology, Jakarta, Indonesia) has conducted a study entitled A survey of G6PDd variants on Sumba Island and development of PCR primers for each. This study aims to document the prevalence of G6PD deficiency in Sumba and the presence of any novel G6PD variants. 5.9% of individuals were G6PD deficient, those with G6PDd were further analysed for enzymatic activity, and a novel G6PD variant was discovered. The study has implications for defining at-risk populations who may be exposed to high dose primaquine regimens. Status: Manuscripts are in preparation. Oral presentations have been given at the following meetings:

- 13th FAOBMB Congress 25 - 29 November 2012, Bangkok, Thailand
- DxG Advisory Workshop, 4 - 5 October, 2012, Bangkok, Thailand
- Advances in Plasmodium vivax Malaria research, 29 - 30 May, 2013, Barcelona, Spain

Dr Noviyanti (Eijkman Institute for Molecular Biology, Jakarta, Indonesia) is studying the Genetic diversity of P. vivax in Indonesia on Bangka and Sumba Islands. A cross sectional survey of 1500 patients was tested and 75 (5%) patients found to be positive. Molecular analysis of the positive cases is being used to inform the transmission dynamics of malaria within the affected population. The study aims to assess whether infection in these two islands originate from a common reservoir. The findings will help inform suitable strategies to reduce transmission. Status: A manuscript is in preparation for publication. Preliminary results were presented at the Vivax Meeting in Barcelona in May 2013.
PROJECTS ADDRESSING IMPROVED DIAGNOSTICS OF P. VIVAX

<table>
<thead>
<tr>
<th>Funded Projects</th>
<th>Rapid Diagnostic Tests</th>
<th>LAMP</th>
<th>G6PDd</th>
<th>Novel Variants</th>
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</thead>
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<tr>
<td>Philippines</td>
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<tr>
<td>A prevalence study of Glucose - 6 - Phosphate Dehydrogenase deficiency and operational issues in applying the test in resource poor areas in the Philippines*</td>
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<td>China</td>
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<tr>
<td>Improving the accuracy of P. vivax case reporting using molecular methods*</td>
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<tr>
<td>Republic of Korea</td>
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<tr>
<td>Evaluation of sensitivity and specificity of RDTs using microscopy and PCR in vivax malaria detection*</td>
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<tr>
<td>Cambodia</td>
<td></td>
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<tr>
<td>Glucose 6 phosphate enzyme activity dynamics and G6PD qualitative test performance in G6PD deficient Cambodian patients undergoing weekly primaquine for acute uncomplicated vivax malaria</td>
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<td>✔</td>
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</tbody>
</table>

*see also ‘Surveillance Section’.

Dr Ekwati (Eijkman Institute for Molecular Biology, Jakarta, Indonesia), conducted a Community survey on knowledge, attitude and practice of malaria intervention (diagnosis & treatment) for vivax malaria in Indonesia. In ten randomly selected villages 743 respondents were interviewed, of whom 87% had reasonable knowledge about malaria its cause and symptoms, with the majority of respondents aware that untreated malaria could be dangerous and life-threatening. Staff at five primary health centres (PHCs) were also questioned. Two PHCs relied solely on clinical diagnosis, and in those with microscopy service only half had received formal training. Artemisinin combination therapy (ACT) was available for all malaria patients. The study presents key knowledge gaps of the local population and caretakers and highlights that knowledge about malaria and its diagnosis and management could be improved. Status: Study ongoing.

Dr Randeniya (Department of Zoology, Faculty of Science, University of Colombo, Sri Lanka) assessed the Dynamics of Plasmodium vivax parasite populations during malaria elimination efforts in Sri Lanka, with low transmission and unstable malaria to assess the impact of ongoing malaria interventions on the stability of local transmission and risks of imported malaria. In addition, the diversity of the P. vivax circumsporozoite surface protein gene was assessed to examine its suitability as a vaccine candidate. A total of 60 clinical P. vivax isolates were genotyped at the Pvcspp gene as well as the APMEN markers. The Pvcspp study demonstrated high diversity and several sequences unique to Sri Lanka, with implications for vaccine development. Status: The Pvcspp results have been published6. Genotyping of the APMEN markers is underway.

Dr Galappathy (National Anti Malaria Campaign Headquarters) has conducted a project entitled Assessing the prevalence of malaria parasites in displaced populations who have returned or resettled in the post conflict districts of Killinochchi, Mullaithivu and Mannar in Sri Lanka. Between 2011 and 2012 a total of 7000 participants were enrolled and tested for malaria with microscopy and rapid diagnostic tests. The G6PD activity of all participants was evaluated. No cases of malaria were documented by any of the test methods applied, the overall prevalence of G6PD deficiency within the study population was 2.9%. The study emphasises the degree to which Sri Lanka is nearing elimination. Status: Research complete and report submitted to APMEN.

Dr Abdullah (Institute for Medical Research, Jalan Pahang, Kuala Lumpur, Malaysia) conducted a Study of Drug sensitivity profile and Molecular Genotyping of Plasmodium vivax isolates in Sabah, Malaysia. The drug sensitivity study proposed to use ex vivo methods to assess the efficacy of chloroquine in P. vivax isolates in Sabah. The aim of the genotyping study was to assess the impact of ongoing interventions on the stability of P. vivax transmission in Sabah. Using genotyping data from 97 samples, the study demonstrated unstable transmission with frequent outbreaks possibly resulting from imported cases. Status: Study complete and results published7.

Dr Wangchuk (Department of Public Health, Public Health Laboratory (PHL), Ministry of Health, Bhutan), is conducting a Molecular Assessment of *P. vivax* transmission dynamics in Bhutan. The study aims to genotype the pre-treatment and any recurrent *P. vivax* infections detected during a clinical trial (see below). The aim is to distinguish new infection from relapses and define the local relapse patterns in Bhutan. The data will also inform the degree to which new malaria cases are imported or locally acquired. **Status:** Study ongoing.

Dr Tobgay (Vector Borne Disease Control Programme) is conducting a study on Malaria elimination in Bhutan using mobile technology for disease mapping and early diagnosis. Aim of this study is to develop web based and mobile technology surveillance tools for case detection and monitoring for the national malaria elimination program. The study is complemented by a cost-effectiveness evaluation and feasibility study that may facilitate the translation of these approaches to other sites. **Status:** Study ongoing.

Dr Espino conducted A prevalence study of Glucose-6-Phosphate Dehydrogenase deficiency and operational issues in applying the test in resource poor areas in the Philippines (see also ‘diagnostics’ section). The team enrolled students at local high schools and found 15.1% of 621 participants to be G6PD deficient. This high rate of g6PD deficient individuals may have implications for the deployment of radical cure of vivax malaria in the area. **Status:** Study complete and a manuscript in preparation.

Dr Gao Qi (Jiangsu Institute of Parasitic Diseases, Wuxi, Jiangsu, People’s Republic of China) conducted a study entitled Improving the accuracy of *P. vivax* case reporting using molecular methods. A novel DNA test (LAMP) was assessed for its ability to diagnose malaria; it had good sensitivity and specificity. The study is helping to develop robust sensitive vivax diagnostic tools for field settings and detection of asymptomatic parasitaemias. **Status:** Study complete and results published.

Dr Jung Yeon Kim (Division of Malaria and Parasitic Diseases, National Institute of Health, South Korea) conducted an ‘Evaluation of *P. vivax* Diagnostic Methods and Assessment of G6PD Prevalence and *P. vivax* Population Structure in Korea’. 253 patients with malaria were enrolled in the study, which assessed four RDTs and compared them to the gold standards of nested-PCR and microscopy. The results are informing better the choice of suitable rapid diagnostics. **Status:** Study complete and results published.

Dr Kim (Institute Pasteur du Cambodge, Phnom Penh, Cambodia) looked at Glucose 6 phosphate enzyme activity dynamics and G6PD qualitative test performance in G6PD deficient Cambodian patients undergoing weekly primaquine for acute uncomplicated vivax malaria. The study is assessing the performance of the G6PD NAPD spot test over time at presentation to clinic with malaria and during the subsequent clinical recovery from vivax malaria. Its objectives are to determine whether the performance of the fluorescent test changes in febrile patients. The study has implications for the predictive value of testing G6PD activity and identifying patients at risk of haemolysis. **Status:** Study ongoing.
ANNEX 8: APMEN Annual Meetings

Annual Meetings of APMEN, 2009 - 2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Attendees</th>
<th>Female Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
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<td>96</td>
<td>32</td>
</tr>
<tr>
<td>2013</td>
<td>167</td>
<td>60</td>
</tr>
</tbody>
</table>

Total Attendees: 339
Female Attendees: 116
Over the past four years the APMEN through the Vivax Working Group has focused on generating the knowledge, tools and in-country technical expertise to support National Malaria Control Programs in reducing the burden of malaria especially linked to *P. vivax*. To achieve this, APMEN has pursued a four stage strategy to build in-country capacity, share operational experience and inform national malaria control programme activities and policies. This strategy has been developed over the first 4 years through consultation and collaboration with the Country Partners and partner institutions.

Stage one focused on **Identifying the Key Knowledge Gaps** impeding the elimination of *P. vivax*. Through a series of systematic literature reviews, meetings and workshops the Working Group documented the available knowledge on operational research, the treatment of infection (both blood stage and radical cure of *P. vivax*), methods for identifying patients with Glucose-6-phosphate dehydrogenase deficiency (G6PDd), and surveillance strategies for assessing the burden of *P. vivax*, identify reservoirs of infection and quantifying parasite diversity.

Stage two involved **Building Consensus** to generate common agendas for developing projects and partnerships to address the key gaps identified in stage one. Workshops and meetings provided fora to draw upon the operational experiences of National Malaria Control Programs and the skills and expertise of Partner Institutions. Through these workshops the Working Group refined its focus and in 2011 three priority themes were agreed upon: **Surveillance, Diagnostics and Therapeutics**.

Stage three focused on **Generating the Evidence**, in which the Working Group assisted and funded National Malaria Control Programs and partners to develop projects to build national research and technical skills, supporting projects most likely to contribute to the evidence needed to influence policy change. The latter constitutes the fourth phase of the Working Group strategy.

**SYSTEMATIC LITERATURE REVIEWS**

Trends in malaria research in Asian Pacific countries

The first literature review was conducted to assess the spectrum of malaria-related research in the region over the last two decades. The MEDLINE database was searched through PubMed from January 1990 to December 2009 for all biomedical and malaria-specific literature in the member countries. In subsequent discussions, the Country Partners expressed concern that the decrease could reflect a decline in national expertise and support for malaria research particularly that of clinical trials. The Group concluded that operational research should be encouraged to increase activities that would inform clinically related activities.

2. **Primaquine radical cure of *Plasmodium vivax***

The evidence for the antirelapse efficacy of primaquine *P. vivax* was investigated using a reference library of antimalarial clinical trials generated by the WorldWide Antimalarial Resistance Network (WWARN). All clinical trials published since 1950 involving the use of primaquine regimens for the radical cure of *P. vivax* were identified. The conclusions of the review are that low dose regimens retain adequate efficacy in some areas, but this is not uniform. Higher dose primaquine regimens appear to offer significant benefits in efficacy but this need to be confirmed in a range of endemic settings and in high-risk patients groups such as young children and partially deficient females.

3. **Review of key knowledge gaps in glucose-6-phosphate dehydrogenase deficiency detection with regard to the safe clinical deployment of 8-aminoquinoline treatment regimens**

The diagnosis and management of G6PDd is a crucial aspect in the current phases of *P. vivax* control and elimination. In May 2012 the Working Group convened a workshop in Incheon, Korea bringing together National Malaria Control Programs, researchers and industry representatives to review key knowledge gaps in G6PDd. Participants at the workshop concluded that National Malaria Control Program faced two key challenges in diagnosing and managing G6PDd:

- The use of genetic tests is limited by cost and the diverse nature of G6PD variants.
- A number of enzyme activity assays can diagnose G6PDd, but they require a cold chain, specialized equipment and laboratory skills. These assays, mainly applied in clinical trials, are impractical for use during delivery of care in areas with limited resources where most malaria patients live.

4. **Defining Drug Resistant *Plasmodium vivax**: A systematic review of the literature**

Up to date information on antimalarial efficacy is essential to inform rational *vivax* treatment policy. Whereas clinical trials for *P. falciparum* are generally standardised, defining antimalarial efficacy against *P. vivax* is significantly more difficult. A systematic search of Medline, Web of Science, Embase and the Cochrane Database of Systematic Reviews was undertaken to identify *P. vivax* clinical trials published in English between January 1960 and July 2013. The review concludes that information on emerging chloroquine...
resistance is likely to be missing or overlooked in many areas. Enhanced monitoring and better surveillance tools are needed to quantify the level of resistance and identify alternative treatment options.

Critical to the success of the Working Group is a common decision-making process that seeks the participation of all members. Consensus building through exchanging ideas and experience contributes to better planning, improved implementation of projects and fostering continued collaboration. Effective communication between members is an essential component of consensus building. This is carried out through regular discussion between partners, coordination of activities and sharing of methodologies and experience. The Working Group has facilitated this process through the following activities:

- Annual workshops and Business Meetings
- Site visits to discuss local issues and priorities
- Regular liaison with Working Group representatives to assess progress, challenges, and emerging regional priorities
- Opportunistic meetings at major international conferences. The Working Group has endeavoured to help stakeholders attend important meetings.

Through these activities, the Working Group has maintained close communication and dialogue between its members and other members of APMEN. Discussion between the members resulted in the formulation of the key knowledge gaps and research themes towards *P. vivax* elimination. Presentations and meetings provided an opportunity for members to interact with experts and develop research proposals. The next phase will include the discussion of the results and their translation into policy.

The workshops and key meetings convened by the Working Group are outlined below.

**Plasmodium Vivax Genotyping Workshops – 2011 and 2012**

The first round of research projects funded by the Working Group generated a large number of applications by Country Partner research groups wanting to genotype their local *P. vivax* parasite populations. China, Indonesia, Malaysia, the Republic of Korea, Sri Lanka and Bhutan were each recipients of Small Grant Projects with a *P. vivax* genotyping component. The rationale for the workshop was to provide a forum for Country Partners to review ways in which they could work closer together with a common agenda. Genotyping allows us to compare parasites to see how different they are from one another. For example, parasite genotyping is used routinely in clinical drug surveillance to determine whether the parasites present in an infection before treatment are the same as those in recurrent infections, and therefore whether the recurrence was likely to have resulted from a true drug failure or a new infection.
Threat of Antimalarial Resistance to the Elimination of Malaria Workshop (2nd - 3rd March 2013); Bali, Indonesia

The emergence and spread of antimalarial resistance is a major threat to the elimination of malaria. Patients treated with antimalarials to which the *Plasmodium* strain has reduced susceptibility have a prolonged course of illness, the severity of disease increases and may eventually result in death if effective antimalarials are given in a timely fashion.

The global strategy for the treatment of malaria dependent upon Artemisinin Combination Therapy (ACT) and thus the rise in Artemisinin Resistance in the Greater Mekong Region, poses a huge threat to the elimination of malaria. Drug resistance in *P. vivax*, although less severe than in *P. falciparum*, is becoming an increasing public health threat. There are similarities in the challenges faced in detecting *Pf* Artemisinin Resistance (ArtRes) and *Pv* Chloroquine Resistance (CQR), particularly difficulty in defining the patients harboring drug resistant parasites and the lack of molecular markers of resistance. The Workshop had the following objectives:

- Review the clinical and public health consequences of drug resistance
- Promote the importance of monitoring antimalarial drug resistance, using standardised methods and sharing results from different locations
- Gather regional perspectives on approaches to surveillance of artemisinin resistant *P. falciparum* and review alternative strategies for its treatment, containment and elimination.
- Discuss ways of improved monitoring and coordination of chloroquine - resistant *P. vivax* surveillance.

Planning a multicentre primaquine trial workshop (26th to 28th September, 2011) in Jiangsu, China

The Country Partners recognised the need for a multicentre clinical study of primaquine regimens, which would be open to all APMEN countries for participation. These trials would be an opportunity to build clinical trials capacity. Given the diversity amongst the Working Group regarding treatment protocols, prevalence, capacity and country policies, it was decided that a workshop would be convened to consider these challenges and try to generate consensus in providing evidence across the network. The objective of the workshop was for representatives from Country Partners and Partner Institutions to discuss issues regarding multicentre primaquine trials and develop consensus protocols. During the workshop, the delegates discussed how a more practical and safe primaquine treatment regimen could be developed and deployed. It was agreed that until alternative drugs are available, the focus would be on optimising the use of primaquine; this was likely to require evaluation of shorter high - dose primaquine dosing and complementary strategies to improve adherence such as directly observed therapies. There was enthusiastic discussion on the nature of a study design that would be acceptable across all APMEN countries.

Glucose - 6 - Phosphate Dehydrogenase Deficiency Detection Workshop (6th May 2012) in Incheon, Korea

Primaquine treatment has potential to induce severe haemolysis in G6PD - deficient individuals and this is a key obstacle to deploying antirelapse therapy widely in all APMEN countries. Improvement in the diagnosis and management of G6PD deficiency is essential to ensuring the confidence to prescribe a treatment with possible major adverse outcome. The workshop aimed to review the key knowledge gaps in G6PD deficiency with regard to the safe clinical deployment of 8 - aminooquinoline treatment regimens and to assess the tests available for evaluating an individual’s G6PD activity status.
### ANNEX 10: Australian Government’s Planned Contribution to APMEN 2009 - 2013

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<th>APMEN Cost Centre - Foundation</th>
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<th>Yr 3 - 2012</th>
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<td>Secretariat functions</td>
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<td><strong>Management total</strong></td>
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ANNEX 11: APMEN Funding

Figure 1. Financial contributions to APMEN, various sources, 2011 - 2013

Figure 2. Percentage contributions to APMEN, various sources, 2011 - 2013
ANNEX 12. Examples of amplification of the fellowship investment for broader capacity building and partnerships

Box 1. Example of amplification of fellowship

This fellowship recipient said that the APMEN fellowship gave them new skills and knowledge and the confidence to negotiate with the Ministry to roll out the vector mapping activities in the country to support better vector control planning and stratification. The fellowship has allowed the country to undertake insecticide resistance mapping, which they were not able to do beforehand despite wanting to. This fellowship recipient has used the skills and knowledge gained through the fellowship to build the capacity of others by providing training to medical technicians and sanitation officers on basic mosquito collection techniques. This has allowed vector surveillance to be performed as part of the country’s malaria monitoring and elimination activities. The fellow has implemented training on integrated vector management for sanitation officers. The Ministry asked the fellow to perform this duty recognising the capacity gained through the APMEN fellowship, and since this training was long required. The respondent applied for a research grant to extend the skills gained during the fellowship. The maps and skills gained by the fellow are also being used for filariasis activities in the country.

Example 1:

Example 2:
Vector control has been a thematic focus of APMEN since 2009. Although vector control has long been a central focus of malaria control programs globally, at the inaugural APMEN meeting it was noted that many countries did not have specific vector control strategy for elimination but were continuing established strategies such as IRS and the use of ITNs or LLINs. Since these strategies were developed for high burden settings, many countries expressed concern that current vector control strategies may no longer be appropriate in an elimination context.

In addition, the Asia Pacific contains particular shared challenges that highlight the need for innovative approaches to vector control. The Asia Pacific has 19 dominant vector species, compared with seven in sub-Saharan Africa and nine in the Americas. The region includes many outdoor biting and outdoor resting vectors, including vectors that breed in forests, small ponds and other outdoor sites that are difficult to reach through traditional vector control tools. In addition, Country Partners informally reported a lack of entomological expertise and vector control capacity within their countries. Some said that the decentralization of health services tended to produce gaps in entomological capacity. Many NMCPs informally reported that they were carrying out vector control without formal training and without sufficient knowledge of the vectors they were seeking to target. Although most countries enjoyed reductions in malaria due to enhanced vector control in the 2000s, a lack of knowledge related to vectors was preventing countries from developing targeted strategies to strengthen vector control in an elimination setting.

Although in 2009 there was a sense that innovative approaches to vector control were needed for elimination, the specific challenges facing countries were not yet clearly identified. Since there was a lack of clarity around the issues the Vector Control Working Group undertook a series of landscaping activities to assess the existing programmes and capacity in countries and to identify the critical challenges countries faced. These initial landscaping activities included a survey on vectors and vector control strategies across partner countries that identified entomological capacity, program capacity and the human and financial resourcing of vector control activities. The Vector Control Working Group carried out a literature review on the evidence base for the use of larviciding and personal repellents in an elimination environment and a review of past vector control field manuals to identify any relevant strategies and training materials useful for the present situation. Country Partners contributed data on their present vector control strategies to the APMEN matrices, a user-friendly tool to allow countries to easily access and compare the strategies being used by others in the region.

The Vector Control Working group discussed the results of these landscaping activities and determined that many countries were not using control methods appropriate for the habitats and behaviours of the dominant vectors they were seeking to control. The reviews confirmed that several countries were working from inaccurate or incomplete evidence relating to vectors and many had acute shortages of field entomological staff and little or no training opportunities for staff in vector identification or taxonomy. This analysis helped the APMEN identify priority activities for the Network.

APMEN supported a series of literature reviews on environmental management in an elimination setting, and the potential application of larviciding in an elimination context, which were undertaken by UQ international Masters of Public health students under supervision by members of the Working Group. The literature reviews found that there is a limited understanding of the potential uses of larviciding in an elimination context, and in the Asia Pacific region.

Funding was provided to support the Armed Forces Research Institute of Medical Sciences (AFRIMS) in Thailand, to produce the pocketbook of Malaria Vectors in Asia Pacific Countries. Support was provided at no cost by the Country Partners to AFRIMS to the development of this resource. This booklet includes photographs, details on the distribution, bionomics and medical importance of 26 species of malaria vectors in the Asia Pacific. This was the first ever edition of a book like this for the Asia Pacific region. The booklet aimed to increase capacity in the identification of species for field workers in malaria control programs, who rarely have access to entomological training.

In addition, a number of capacity building training activities have focused on vector control, including a fellowship on vector taxonomy carried out by Majhalia Torno. Funding of eight people to attend the National Integrated Vector Management (IVM) course in Kuala Lumpur, Malaysia; study tours with a focus on vector control, and in 2013 launched a Thematic Vector and Ecology Control Network (VecNet) fellowship, co-sponsored by the VecNet which is based at the University of Notre Dame, USA.

While vector control remains an ongoing theme of APMEN, the Working Group has faced the challenge of prioritizing an agenda of activities, and having a consistent membership of the Working Group (due to mobility of vector control staff within health departments). The reviews and surveys undertaken have assisted the Network to develop a targeted programme of work for the next five years, and strategic partnerships with groups like VecNet, IVCC, and others, as well as APMEN representation on the RBM vector control working group has strengthened the capacity of the APMEN to play a stronger role in this agenda in the region.
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