

## Mid-Term Review of the Australia China Papua New Guinea Pilot Cooperation on Malaria Control

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## Executive Summary

### Background

The *Australia – China - Papua New Guinea Pilot Cooperation on Malaria Control Project* (the trilateral project) commenced in January 2016. The Project was designed for a three-year period (2016 to 2018), with a funding allocation of AUD 4 million and in-kind contributions (staff, facilities, equipment) from all three governments. The trilateral project purpose is

*To contribute to reducing malaria morbidity and mortality in PNG, through effective cooperation.*

The trilateral project has two objectives which are expected to be achieved at the end of the pilot period (currently December 2018):

- *To increase the quality of malaria diagnosis in the Papua New Guinea health services*
- *To pilot effective cooperation between Australia, China and Papua New Guinea*

The trilateral project is a unique cooperation between Australia, China and Papua New Guinea, supported by a subsidiary agreement between the three countries. Beyond the trilateral nature of the project, a partnership approach underpins project implementation and governance.

The purpose of this Mid Term Review (MTR) is to verify the technical outcomes, review the trilateral cooperation arrangement which underpins this project, and make technical, cooperation and management recommendations for the remaining time of the project (to December 2018), as well as for potential ongoing or broader partnerships between the countries.

### Findings

The MTR team found considerable evidence that the trilateral project is making good progress against its first objective and has contributed to improving individual, organisational and systemic capacity for malaria diagnosis in PNG. It has utilised an approach to capacity building which draws upon good practice models, in turn supporting ownership and engagement. Notwithstanding the need to address some improvements in training, the project has developed an effective development approach. It utilises adaptive management, improving and expanding its work towards increased outcomes.

The review found that some areas such as communications and outcomes focused monitoring and evaluation could be strengthened. Some improvement could be made to reporting and analysis related to gender and social inclusion.

The trilateral project has made considerable progress against its second objective. There is a strongly shared view that the project has engendered shared ownership, mutual respect and a high degree of cooperation within PNG and between PNG, Chinese and Australian counterparts. The Asia Pacific Malaria Elimination Network has identified the Project as a 'knowledge brokering' model that could be replicated regionally to advance malaria elimination. The government representatives for PNG and Australia expressed strong support for some further development from the trilateral project. The Chinese government representatives provided warm endorsement of the trilateral project as an example of what Australia and China were able to do together to support countries such as PNG achieve the SDGs.

## *Analysis*

The review found the project to be relevant to the health security concerns of PNG and very relevant to the development cooperation interests of the three governments.

The project has been effective in developing a successful model of trilateral development cooperation. In a country where Australia and China are the largest donors, the trilateral project has demonstrated the additional value made possible when these two donors work together in partnership with the PNG government. There would be merit in further application of this model.

The project has been good value for money because it has shown considerable progress towards meeting both its major objectives while responsibly managing the resources available to it. Further, it has leveraged additional outcomes and activities, beyond those in the original work plan, still within its allocated resources. However, the particular program approach has required the three development partners to shift beyond a simple donor or implementation role to actively engage with each other. Going forward, each partner will need to decide if this approach continues to be of sufficient value.

Project sustainability requires attention to two areas. Over the current life of the project, further development of activities is required to ensure current gains are sustained. Given the short time frame available this likely requires extension of this project to a second stage.

In addition, there would be merit in further research and documentation of the project model and its lessons (as summarised below) in order that it is fully understood and able to be replicated.

## *Lessons learned*

- Establishing effective trilateral projects takes time, in particular time for building relationships, exploring and understanding shared and individual objectives and expectations, and establishing ways of working which engender respect and shared power between the partners.
- Establishing the right working model for the trilateral project is critical to engendering ownership by all development partners and implementing bodies. Shared and individual ownership is a powerful incentive to maintain cooperation and engagement.
- A formal partnership approach underpinned by principles and corresponding implementation mechanisms supports effective trilateral engagement. Trilateral projects bring diversity and complexity, a partnership approach provides a framework within which to value and utilise this diversity and manage the complexity.
- A trilateral project requires strong and proactive project management, ideally located in the operating context with support from corresponding mechanisms in the partner countries.
- There is much to be learned from the program management approach in the trilateral project.
- Communication and systems for learning are essential if a pilot project is to influence policy and new programs.
- Starting with a modest and clear focus provides a good basis for exploring trilateral cooperation. It provides a tangible and comprehensible focus for both governance and implementation arrangements. It enables program management to balance attention between project implementation and supporting effective cooperation.

- Project contexts change. It is essential that projects have monitoring of outcomes and objectives alongside accountability for outputs and activities, in order to test the project logic and 'fit' within changing contexts.
- In dynamic contexts (particularly for trilateral projects where there are three different partners contexts to consider), senior management and leadership need assistance with analysis and reflection, including views from external perspectives, in order to understand ways in which the project ought to adapt and evolve.
- External experience supports the trilateral approach to capacity development. Significantly, the trilateral project experience has found that having three different partners from different cultural backgrounds can contribute to varied approaches to capacity development, increasing the opportunity for learning.

### *Conclusions and recommendations*

The trilateral project has created a cooperative arrangement that it is unique. Drawing together the expertise and experience of two of the largest donors in the Pacific region, grounded by a strong and independent National government, the cooperation approach has created a set of relationships and systems that have considerable potential. The value in this pilot will be in seeing some of that potential realised in further improvement of the current project and in taking up available opportunities to extend cooperation between the three countries.

### *Recommendations for the current phase of trilateral project*

- 1) For the remaining life of the trilateral project, the project approach should be further developed with more attention to:**
  - a. Outcomes focused monitoring and evaluation,**
  - b. Increased attention to risk management and long-term sustainability of achievements.**
  - c. Continued attention to gender and social inclusion in both project implementation and project monitoring and evaluation.**
- 2) For the remaining life of the trilateral project, improvements should be considered for the training (*detailed recommendations are made in the body of the report*).**
- 3) The current trilateral project should be extended - to at least June 2019 - to provide continuity of relationships and governance arrangements, as a basis for managing a new design process.**

### *Recommendations beyond the trilateral project*

- 4) The three partner Governments should consider a new project of cooperation that remains a collaboration between the three countries, retains the important features of the trilateral project model and approach, but gives fresh attention to context and emerging opportunities.**
- 5) If the three partner governments decide to proceed with a further program of cooperation, a new design should be commissioned. Any new activity should retain a focus on health security, given this is an area of shared priority between the three partner governments. The design should be undertaken by the development partners, with**

**technical support as required. A new design ought to be undertaken in two parts - development of an options paper and then a full design document.**

*Recommendations for the development cooperation model*

- 6) The partner governments should consider detailed research and documentation of the development cooperation model they have created, in order that the lessons and the overall example can be shared widely in the aid community.**
- 7) Australia, PNG and China should use the relationships and systems established through the trilateral project to explore other collaboration in PNG and the region. This might include processes of dialogue, research and learning, joint representation, economic co-operation and other areas. The intent would be to explore how the respect and mutuality engendered in the trilateral project could provide a basis for other cooperation.**

## Acronyms

|         |  |
|---------|--|
| ACT     | Artemisinin-based combination therapy  |
| ADFMIDI | Australian Defence Force Malaria and Infectious Disease Institute (formerly Australian Army Malaria Institute) |
| AL      | Artemether-Lumefantrine  |
| APMEN   | Asia Pacific Malaria Elimination Network   |
| AUD     | Australian Dollars   |
| CDC     | Centre of Disease Control and Prevention   |
| CPHL    | Central Public Health Laboratory (PNG)   |
| DFAT    | Australian Government Department of Foreign Affairs and Trade  |
| DFID    | Department for International Development (UK)  |
| DNPM    | Department of National Planning and Monitoring (PNG)   |
| EHP     | Eastern Highlands Province   |
| EQA     | External Quality Assurance   |
| ECAMM   | External Competency Assessment for Malaria Microscopists   |
| GIS     | Geographic Information Systems   |
| GoA     | Government of Australia  |
| GoPRC   | Government of People's Republic of China   |
| GoPNG   | Government of Papua New Guinea   |
| GPS     | Global Positioning System  |
| HHISP   | Health and HIV Implementation Services Provider  |
| IMR     | (PNG) Institute of Medical Research  |
| JPWG    | Joint Project Working Group  |
| LLIN    | Long-lasting insecticidal nets   |
| MOFCOM  | Ministry of Commerce (China)   |
| MoU     | Memorandum of Understanding  |
| NDOH    | National Department of Health (PNG)  |
| NRL     | National Reference Laboratory  |
| NHC     | National Health Commission (China)   |
| NHIS    | National Health Information System   |
| NHP     | National Health Plan   |
| NMCP    | National Malaria Control Program   |
| NMSP    | National Malaria Strategic Plan 2014 – 2020 (PNG)  |
| NIPD    | National Institute of Parasitic Disease (China)  |
| NZAID   | New Zealand Agency for International Development   |
| OR      | Operational Research   |
| PCR     | Polymerase Chain Reaction  |
| PMU     | Project Management Unit  |
| PNG     | Papua New Guinea   |
| PGK     | Papua New Guinea Kina  |
| PMGH    | Port Moresby General Hospital  |
| QA      | Quality Assurance  |
| RDT     | Rapid Diagnostic Test  |
| SDG     | Sustainable Development Goals  |
| TOR     | Terms of Reference   |
| UNDP    | United Nations Development Program   |
| USAID   | United States Agency for International Development   |
| WHO     | World Health Organization  |

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## Introduction

### Overview

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The trilateral project has two objectives which are expected to be achieved at the end of the pilot period (currently December 2018):

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The trilateral project is a unique cooperation between Australia, China and Papua New Guinea, supported by a subsidiary agreement between the three countries.<sup>1</sup> Beyond the trilateral nature of the project, a partnership approach underpins project implementation and governance.

As part of the assessment process for the trilateral project, a mid-term review (MTR) was proposed in the original design. This document provides the report from that review

### Review Purpose

The terms of reference (TOR) for the MTR required assessment of technical outcomes and review of the trilateral cooperation arrangement which underpins this project. Specifically, the MTR was directed to:

- *Generate shared understanding of project progress (both technical and cooperation aspects) to date in the context of the expected outcomes*
- *Consider current project management arrangements in terms of their support for efficient and effective implementation and contribution to positive partnerships*
- *Make technical, cooperation and management recommendations for the remaining time of the project (to December 2018), and recommendations regarding potential broader partnerships between the countries.*

Given the trilateral project was developed as a pilot in response to the interests and contexts of three countries, the review also considered the context of project implementation. This was useful to understand the relevance of the trilateral project and its future potential opportunities. As directed by the TOR, the review gave additional attention to likely sustainability of project outcomes and how this could be enhanced.

Finally, the review sought to identify lessons and highlight learning for the development partners.

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<sup>1</sup> Trilateral Development Cooperation Subsidiary Arrangement between the Government of Australia and the Government of the People's Republic of China and the Government of Papua New Guinea relating to the Australia China Papua New Guinea Pilot Trilateral Development Cooperation Project on malaria control, October 2015.



## Approach and Methodology

The MTR was underpinned by a critical theory methodological approach.<sup>2</sup> In line with this approach, the review was undertaken by a team that reflected of the strengths and various perspectives of the development partners. The team included:

- *Professor Francis Hombhanje - Professor of Health Research and Vice President of Divine Word University.*
- *Professor Guo Yan - Professor, School of Public Health, Peking University*
- *Ms Raha Roggero - Executive Officer in the Health Policy Branch of the Department of Foreign Affairs and Trade, Australia.*
- *Dr Linda Kelly – independent consultant.*

The MTR utilised the respective strengths and knowledge available from this team, with team members taking responsibility for areas of inquiry and for ensuring current country knowledge and policy information underpinned the MTR. All team members participated in an ongoing and systematic analysis of data throughout and at the end of the data collection process.

The MTR had multiple methods of data collection:

- *Review of project documentation and reports, including monitoring and assessment reports and documents that detail the operations and implementation of the trilateral project (see Annex One).*
- *Assessment of trilateral project activities including training and technical approaches, in line with international good practice.*
- *Survey of a random sample of trainees to explore their experience and the outcomes of the training (see Annex Two)*
- *Interviews and group discussions with key stakeholders (see Annex Three for a list of people consulted) including:*
  - *people expected to benefit from project activities such as trainees*
  - *people implementing activities, including technical partners and technical leads*
  - *people responsible for the policy and program arrangements within which this project takes place*
  - *people responsible for aid policy coordination in each of the three partner countries*
- *Observation, particularly of the technical applications which the project supports, in both central and decentralised locations in PNG.*
- *Comparison with similar projects and arrangements in other locations to identify likely challenges or opportunities for this project.*

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<sup>2</sup> A critical theory approach to social inquiry is characterised by triangulation of both data collection and analysis, looking to draw from multiple sources and perspectives to gain a rich understanding of the project. A critical social inquiry aims to make sense of the project within its context, understanding the interaction between the many participants in that context and what the project itself is able to achieve. Finally, a critical social inquiry focuses on understanding the project over time, looking to see how it has been shaped and involved and examining what might be the opportunities and challenges for its further progress into the future. (<https://plato.stanford.edu/entries/critical-theory/>)

Interviews and group discussions were conducted confidentially, with an agreement that statements by individuals and specific organisations would not be identified in the MTR report.

The MTR team developed a wide range of questions based on the review terms of reference. These were applied systematically throughout the data collection process and used as the frame for the ongoing analysis of the data. These areas of inquiry are outlined in the Annex Four, as part of the full evaluation plan for the MTR.

#### *MTR limitations*

The MTR team was limited to five days in Port Moresby and then observing a small number of operational sites outside of Port Moresby. In addition, the team had a short time to meet with stakeholders in Australia and China. It was not possible to talk to all stakeholders nor consider all trilateral project activities and operations.

The MTR was undertaken at a point in time. While attention was given to the context of the trilateral project and how this affected project achievements, there are limits to what the review can predict about how that context will change and develop into the future.

The review conclusions and recommendations should be considered with these limitations in mind.

## Background

### *The Australia – China - Papua New Guinea Pilot Cooperation on Malaria Control Project*

The original concept of a trilateral project, addressing malaria control in Papua New Guinea (PNG), was developed through informal discussions between institutions in PNG and China, facilitated by Australia.<sup>3</sup> Over time these institutions identified areas of mutual interest and opportunity and, on this basis, presented a formal request to the respective governments for project assistance.

The original project intention was clear – *contribute to reducing malaria morbidity and mortality in PNG through effective cooperation*. The project was developed at a time when malaria prevalence was decreasing in PNG. The Government of PNG identified that improvement in malaria diagnosis, including malaria microscopy was required to work towards elimination of malaria. A focus on strengthening malaria diagnosis (drawing from the strengths and experience of China in malaria elimination and the those of Australia in program management and technical cooperation) was expected to make a significant contribution to a larger countrywide effort. It was also an opportunity for the three countries to explore how to work effectively together, in anticipation of further cooperation efforts.

The project was designed as a small pilot and therefore the implementing partners in PNG were initially limited to two institutions. The Central Public Health Laboratory (CPHL) in PNG was identified as a relevant organisation, working to improve malaria diagnosis and other areas of public health. However it was also an institution which was under resourced and thus limited in its ability to fulfil

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<sup>3</sup> The project was developed at a time when the Australian government was seeking opportunities to operationalise a recently signed Memorandum of Understanding with the Government of China. This memorandum had identified that a likely area for cooperation between the two governments was health, particularly in the Asia-Pacific region.

its mandate as a national public reference laboratory. Contributing to its capacity, through this project, was a way to build a sustainable resource for PNG, generating benefits beyond the trilateral project.

Research into the challenges of malaria diagnosis and treatment, particularly as PNG moved to the elimination stage, was also identified as an area for further strengthening. Thus the Papua New Guinea Institute of Medical Research (PNGIMR) was included as a primary partner.

At that time China was close to having eliminated malaria domestically and had expertise to offer in technical and research areas for malaria detection and identification. Australia was able to provide technical expertise and funding for the project.<sup>4</sup> Australia also brought its expertise in program management.

A scoping study and subsequent investment design<sup>5</sup> were completed in 2015. The trilateral project commenced in 2016 (with funding for three years) with an overarching objective:

*To contribute to reducing malaria morbidity and mortality in PNG through effective cooperation.*

It included two specific objectives to be achieved by the end of the project:

- *To increase the quality of malaria diagnosis in the PNG health services*
- *To pilot effective cooperation between Australia, China and PNG*

These specific objectives represented the *shared* intent of the three partners. Each of the three partner governments also identified its *individual* objectives for this trilateral project<sup>6</sup> (See Box 1).

The project is overseen by a Joint Project Working Group (JPWG) with representatives from the PNG National Department of Health (NDOH) the PNG Department of National Planning and Monitoring (DPM), the Chinese Ministry of Commerce (MOFCOM), the Chinese Health Commission (NHC), and the Australian Department of Foreign Affairs and Trade (DFAT).

#### **Box 1. Country-specific Objectives**

##### **Government of PNG**

- *Reduce malaria burden for PNG's men, women and children*
- *Relationship-building*
- *Comparative advantage*
- *Model joint cooperation*

##### **Government of China**

- *Global health development partner*
- *Strong partnerships with PNG and Australia*
- *Transferable experience*
- *Enhance aid management knowledge*

##### **Government of Australia**

- *Leverage support to PNG's health sector*
- *Strengthen development cooperation with China*
- *Learning through doing*

Alongside CPHL and PNG IMR, the major implementing partner in China is the Shanghai based National Institute of Parasitic Diseases (NIPD), part of the Chinese Centre for Disease Control and Prevention (CDC).

<sup>4</sup> The overall budget for the project was set at AUD\$4 million for three years.

<sup>5</sup> 'Australia China Papua New Guinea Pilot Cooperation on Malaria Control', Investment Design, 2015.

<sup>6</sup> Trilateral Malaria Project Program Management Manual, *Partnership Principles* and *Objectives* sections, pgs. 9-11.

Additional technical partners in PNG and from Australia have joined the trilateral project throughout its two years of implementation. This has led to some changes in program structure and governance over time, adapting to new partners and learning from different management arrangements (Annex Five provides an overview of the current trilateral project governance model and the range of technical directors, advisers and implementing institutions). This adaptation and project evolution has become a feature of the trilateral project, allowing it to increase its scope and contribution to change.

There were four outcomes identified to be achieved by the end of the pilot trilateral project:

- 1. Key national laboratory institutions strengthened to be able to provide essential quality assurance, reference functions and operational research for malaria control.*
- 2. Continuous, systematic monitoring malaria diagnostic products and services occurs at central and provincial hospital levels.*
- 3. Operational research generates evidence of practical use to policy decisions on malaria diagnosis and treatment.*
- 4. Lessons learned from cooperation between Australia, China and PNG.*

The project was designed with a simple program logic (see Annex Seven) that focused on identified technical and capacity needs. Activities included training, advisor mentoring and assistance with specific tasks, and collaborative operational research. Some additional project outputs and activities have been designed during the life of the program, in line with the PNG National Malaria Strategic Plan (NMSP) and according to a jointly agreed set of criteria. This has allowed the project to work flexibly, responding to emerging needs.

A significant aspect of this trilateral project is a partnership approach which underpins project management. Drawing from formal partnership broker principles<sup>7</sup>, the trilateral project has established an approach to decision-making, communication and resource contributions, which emphasises mutual respect, equity and cooperation between the three partner countries. As discussed later in the findings, this partnership approach has been a significant reason for the effectiveness of the trilateral project across both its major objectives.

## Country Contexts

### *Papua New Guinea*

PNG is a diverse country with a complex decentralised health delivery system (See Box 2).

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<sup>7</sup> The Partnership Broker approach is a formalised approach to developing mutual partnerships which respect the shared and different interests of each partner. It is often contrasted with typical development and aid relationships where power and control tend to rest with the donor partner. The approach is characterised by several principles which include valuing diversity, equity, openness, mutual benefit and courage. For more details see Tennyson, R. (2005) 'The Brokering Guidebook. Navigating effective sustainable development partnerships', The International Business Leaders Forum.

The country has a strong national policy environment<sup>8</sup>, with a dedicated policy focus on malaria control.<sup>9</sup> The government is advised by a malaria technical working group chaired by the NDOH and comprising NGOs, donors and multilateral agencies.

PNG is a signatory to the *Asia-Pacific Leaders Malaria Alliance (APLMA)*. It utilises the *Regional Action Framework for Malaria Control and Elimination in the Western Pacific (2016-20)* to provide a framework for planning its country wide malaria action.

#### **Box 2. PNG Health System**

*The PNG health system currently has seven levels within which basic health services are provided, starting with level one for Port Moresby General Hospital moving down through regional, provincial and district hospitals to health centres and eventually aid posts at level seven.*

*Health posts and aid posts (many of the aid posts have been closed) serve the bulk of the rural population, providing primary health care. Health posts is a new concept framed in the National Health Plan 2010- 2020, that will replace these lower levels, although this is been slow to roll out. These new health posts will have approximately 2 to 3 health staff, in contrast to aid posts which are usually staffed with only one person with basic health education.*

*Health centres are larger in capacity and have facilities for inpatients. Some health centres, mainly those managed by churches, have diagnostic laboratories including trained malaria microscopists. Patients are referred from these centres to district hospitals where increased level of diagnostic services and x-ray facilities might be expected to be available.*

*The next level are provincial hospitals where most specialists are available and high capacity laboratory services. Beyond this are regional hospitals and Port Moresby General Hospital located in the capital.*

*The National Department of Health is responsible for provincial hospitals while the rest of the health facilities below this (district hospitals, health centres, health posts and aid posts) are the responsibility of the 22 provincial governments, through their provincial and district health services.*

In 2016, PNG, with an estimated population of approximately 7.6 million, accounted for 77% of all malaria cases in the Western Pacific region,<sup>10</sup> and nearly 95% of the PNG population live in areas at high risk for malaria, which represents a major health and economic burden for PNG.<sup>11</sup> Malaria has both short and long-term health impacts. It is particularly dangerous for pregnant women and young children. It exacerbates the health problems of people with disability and other marginalised groups. Along with other endemic diseases including tuberculosis (TB), malaria remains a significant challenge for economic and social development in PNG.

The PNG National Malaria Control Program (NMCP) has been financially supported by The Global Fund to Fight AIDS, Tuberculosis and Malaria (The Global Fund) since 2004. National distribution campaigns provided long-lasting insecticidal nets (LLIN) at the household level since 2004 and rapid diagnostic tests (RDT) and artemisinin-based combination therapy (ACT) have been scaled up at health facilities

<sup>8</sup> Relevant national policies in PNG include Vision 2050, Papua New Guinea Sustainable Development Plan, Papua New Guinea Development Strategic Plan 2010- 2030, and the Medium Term Development Plan 2016- 17. Also of relevance is the PNG National Health Plan 2011- 2020, which has established targets for malaria reduction across the country.

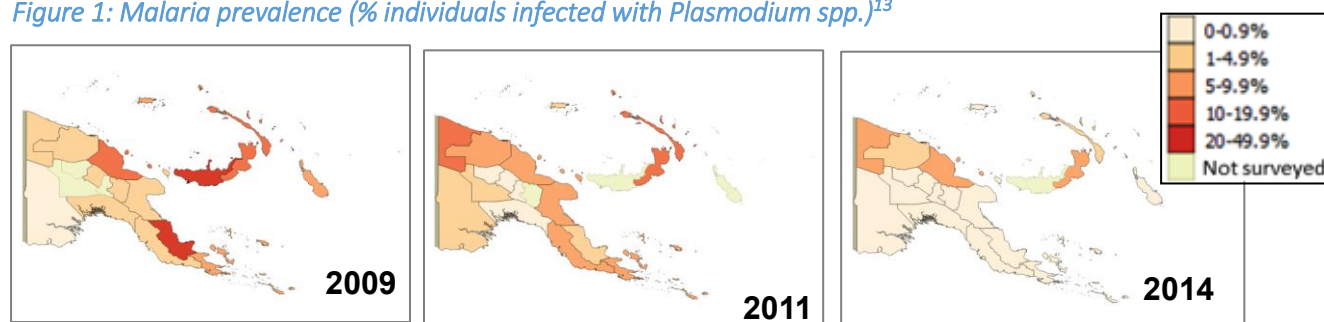
<sup>9</sup> The PNG National Malaria Strategic Plan 2014-20 (revised).

<sup>10</sup> World Health Organisation, 2016, <http://www.who.int/malaria/publications/world-malaria-report-2016/report/en/>

<sup>11</sup> PNG National Department of Health, 2017, *National Malaria Strategic Plan 2014-20*.

throughout the country since late 2011.<sup>12</sup> In selected areas of the country, home-based management of malaria programmes were implemented, and behaviour change campaigns supported the roll-out of preventative and curative interventions.

Figure 1: Malaria prevalence (% individuals infected with *Plasmodium* spp.)<sup>13</sup>



PNG has reported considerably more confirmed cases since 2012, due to an increase in diagnostic testing with RDTs. However, nationally representative household surveys indicated a drop in parasite prevalence from 12.4% to 1.8% between 2009 and 2014,<sup>14</sup> and National Health Information System (NHIS) data showed that from 2009 to 2015, malaria incidence reduced by 59% (212 to 86 per 1,000), malaria inpatients reduced by 61% (22,604 to 8,907) and malaria deaths by 69% (598 to 186).<sup>15</sup> This changing epidemiology of malaria was achieved through key interventions such as LLIN and ongoing surveillance and case management services.

Research in 2016 suggested that given these gains, malaria elimination in PNG was a likely scenario.<sup>16</sup> Recommendations at the time were for ongoing distribution of treated bed nets and attention to improving access to and compliance with diagnosis and treatment. The *National Malaria Strategic Plan 2014-18 (NMSP)* recommended that malaria diagnosis in health facilities at levels 1-4 should be through microscopy, while the lower levels would utilise RDT.<sup>17</sup> These features provided the framing for the trilateral project focus on improvement in diagnostic capacity, through capacity development of national institutions.

<sup>12</sup> Hetzel, M.W., et al., *Progress in mosquito net coverage in Papua New Guinea* Malaria Journal, 2014. **13**: p. 242. Pulford, J., et al., *Malaria case management in Papua New Guinea following the introduction of a revised treatment protocol*. Malar J, 2013. **12**(1): p. 433.

<sup>13</sup> PNG Institute of Medical Research; national malaria indicator surveys

<sup>14</sup> There is no updated prevalence data available beyond 2014. PNG IMR conducted the most recent national household survey in early 2017.

<sup>15</sup> PNG National Department of Health, 2017, *National Malaria Strategic Plan 2014-20*.

<sup>16</sup> Carmichael, H., Mola, G., Amos, L., Wemin, J., Majumdar, P. & Matheson, D. (2015) 'The Mid Term Review and Joint Assessment of the Papua New Guinea National Health Plan 2011-2020'.

<sup>17</sup> Rapid diagnostic tests (RDT) provide a fast and relatively simple procedure for malaria detection. While they do not provide important information about the malaria species, condition and count as can be observed through microscopic diagnosis, in remote health facilities and aid posts they remain the only method of clinical diagnosis available to nurses and health workers. The PNG NMSP promotes the use of RDTs for malaria diagnosis for health posts and aid posts across the country. In practice, RDTs are used across the health system, even in large hospital settings, where pathology can take some days to confirm a microscopy result.



A more recent study indicates however, that there has been a dramatic resurgence of malaria prevalence across PNG.<sup>18</sup> Initial analysis<sup>19</sup> suggests this resurgence has coincided with a sharp decline in donor and government funding for malaria control. PNG's health sector budget allocation for 2017 was approximately PGK 1.2 million<sup>20</sup>, 47% lower than the original 2015 budget. GoPNG Treasury figures indicate a 47% cut in the malaria control budget over the same time. These reductions impacted NDOH's procurement and supply of malaria commodities and PNG was unable to meet its co-financing commitments to the Global Fund for the procurement of malaria commodities in 2016.<sup>21</sup> Of PGK 108,000 allocated to NDOH's malaria control activities in 2017, only PGK 30,000 was disbursed from January to June. GoPNG submitted a Global Fund Program Continuation Request in March 2017 to seek a three-year extension to the current malaria grant, valued at USD 23 million for 2018-2020: this comprises a 30% reduction in funding compared to the current grant (USD 43m over four years 2014-2017) to maintain LLIN coverage.

Malaria elimination by 2030 is therefore less likely than when the NMSP was developed. The most recent review calls for an intensive focus on malaria control, *"inclusive of sufficient funding for vector control, diagnosis, treatment, behaviour change campaigns and operational research"*.<sup>22</sup>

### China

China is emerging as a major development donor. China has publicly outlined its intention to support achievement of the Sustainable Development Goals (SDG) in the Pacific. It is expanding its aid partnership with PNG<sup>23</sup>, with the recent announcement of three new MoUs between the two countries.<sup>24</sup>

China has worked in trilateral arrangements with a small number of other donors including UNDP, DFID and NZAID. It has only two health focused trilateral projects, the trilateral malaria project with Australia and PNG, and a trilateral project with DFID. External commentators suggest that China has sought to collaborate with other donors and international organisations in trilateral arrangements and other programs, largely to learn how to improve its aid management and performance.<sup>25</sup> One of the stated objectives for China for the trilateral project is to enhance its aid management knowledge.

Until recently, the Ministry of Commerce (MOFCOM) in China was responsible for oversight of all international aid and engagement. In March 2018, the Chinese government announced the

<sup>18</sup> Hetzel, M. W., et al (2018) "Papua New Guinea Malaria Indicators Survey 2016-2017: Malaria Prevention, Infection and Treatment", Papua New Guinea Institute of Medical Research, March. *Draft report*

<sup>19</sup> Kurumop, S., et al (2016) 'Report on the Papua New Guinea National Malaria Control Program: Health Facility Surveys 2010-2016', PNG Institute of Medical Research, December.

<sup>20</sup> PNG Treasury, Table 1, Volume 2A, National Budget 2016 budget; Supplementary Budget 2017

<sup>21</sup> In 2016, PGK 7 million was spent on procurement of malaria drugs and RDTs instead of the allocated PGK 12 million per year.

<sup>22</sup> Hetzel, M. W., et al (2018) "Papua New Guinea Malaria Indicators Survey 2016-2017: Malaria Prevention, Infection and Treatment", Papua New Guinea Institute of Medical Research, March. *Draft report, pg. 3.*

<sup>23</sup> Between 2006- 2016, Chinese aid to PNG is estimated at US \$632.46 million (source). Australia was the only larger donor across this time frame.

<sup>24</sup> [http://www.globalconstructionreview.com/news/china-build-papua-new-guineas-first-national-road-/?utm\\_source=Devpolicy&utm\\_campaign=ea3afa2832-RSS\\_EMAIL\\_CAMPAIGN&utm\\_medium=email&utm\\_term=0\\_082b498f84-ea3afa2832-227684066](http://www.globalconstructionreview.com/news/china-build-papua-new-guineas-first-national-road-/?utm_source=Devpolicy&utm_campaign=ea3afa2832-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_082b498f84-ea3afa2832-227684066)

<sup>25</sup> Zhang, D. (2017) 'Demystifying China's trilateral aid cooperation', Pacific review, Vol 30, Issue 5.

establishment of a new agency for international development, responsible for policy development for foreign aid.<sup>26</sup> Under this new arrangement MOFCOM retains responsibility for the trilateral project work with DFAT and other donors.

Following a decrease of malaria morbidity between 2006–09, the Ministry of Health in China issued the *Chinese Malaria Elimination Action Plan (2010–2020)*.<sup>27</sup> The plan anticipated malaria elimination in China would be achieved by 2020. In 2014, only 56 indigenous cases were reported, compared to over 24 million cases in the early 1970s.<sup>28</sup> In 2016, there were only 3 cases of local malaria, indicating China has effectively eliminated malaria.<sup>29</sup>

The *Chinese Malaria Elimination Action Plan* identifies the value for China in contributing to global malaria eradication.

*China has a responsibility to aid the control and elimination of malaria in other endemic countries, which in turn will consolidate the achievement of malaria elimination in China and contribute to global malaria eradication.*<sup>30</sup>

In line with this and its overall mandate, the major technical implementing partner for the trilateral project in China, the NIPD, aims to work both domestically and internationally. It has a wide program of work that includes international partnerships and specialised training and support for partner countries in the global south<sup>31</sup> (see Box 3.)

### Box 3. NIPD international program

NIPD partnerships include WHO Collaborating Centre for Malaria, Schistosomiasis and Filariasis and cooperation programs with the United States, Australia, Japan, Britain, Thailand, South Korea, Canada. In the last ten years, NIPD has signed Memorandums of Understanding (MOU) for long-term bi- or multi-lateral cooperation with partners such as the WHO/TDR, Swiss Tropical and Public Health Institute, London School of Tropical Medicine and Hygiene, Duke Global Health Institute, Ifakara Health Institute, Blue Nile National Institute for Communicable Diseases, the National Center for Parasitology, Entomology and Malaria Control, Cambodia. (Chinese Centre for Disease Control and Prevention, National Institute for Parasitic Diseases 'Introduction to the National Centre for Parasitic Diseases')

The institution offers specialised training as part of its commitment to south-south cooperation. NIPD has organized 16 international training programs in the past ten years, supported by Chinese Ministry of Health, Chinese Ministry of Commerce and the WHO, in the fields of parasitic disease immunology, diagnostic technology, remote sensing/geographic information systems, data management, estimation for the burden of disease, parasites reference laboratory establishment, malaria microscopy training capacity, etc. Over 60413 participants attended the courses, from Korea, Malaysia, Philippines, Pakistan, Ecuador, Laos, Nepal, Sri Lanka, Indonesia, Vietnam, Ghana, Kenya, Mauritius, Namibia, Sierra Leone, Seychelles, Uganda, Malawi, Antigua-Barbuda and Grenada, Cambodia, Myanmar, India, Egypt, Madagascar, Guinea.

<sup>26</sup> <https://www.reuters.com/article/us-china-parliament-aid/china-says-new-agency-will-improve-foreign-aid-coordination-idUSKCN1GP02J>

<sup>27</sup> Ministry of Health in China. Chinese malaria elimination action plan (2010–2020). <http://www.nhfpc.gov.cn/jki/s5873/201005/f84f1c4b0f32420990d23b65a88e2d87.shtml>

<sup>28</sup> Zhang L, Zhou SS, Feng J, Fang W, Xia ZG. Malaria situation in the People's Republic of China in 2014. *Zhongguo Ji Sheng Chon Xue Yu Ji Sheng Chong Bing Za Zhi* 2015; **33**: 319–26

<sup>29</sup> Speech by Prof. Jianping Song, Guangzhou University of Chinese Medicine, 5/09/2017

<sup>30</sup> Chen, J & Xiao, N. (2016) 'Chinese action towards global malaria eradication', the Lancet Vol 388 September 3.

<sup>31</sup> Chinese Centre for Disease Control and Prevention, National Institute for Parasitic Diseases 'Introduction to the National Centre for Parasitic Diseases'.



## Australia

Australia has a strong interest in health security, including malaria control and elimination in the Asia-Pacific region. Australia's Foreign Policy White Paper recognises the importance of good health and strong and resilient health systems to support productive societies and economic growth. It supports global cooperation to guard against global health risks.<sup>32</sup> The DFAT *Health for Development Strategy 2015-2020*<sup>33</sup> supports strengthening country level health systems and regional health security. In October 2017, Australia announced a new Indo-Pacific Health Security Initiative<sup>34</sup>, committing AU\$300 million to address regional health security threats including malaria and TB. Australia contributes to the Global Fund to support action against HIV/ AIDS, TB and malaria. Australia supports the Asia-Pacific Leaders Malaria Alliance. The Australian government invests substantially in research on tropical diseases including malaria.

Australia and PNG have enjoyed a long-term relationship based on diplomatic, social and historical ties. Australia has been the largest international donor to PNG, although in recent years both countries have sought a more mature relationship, as regional partners cooperating around common challenges.<sup>35</sup>

The new DFAT health strategy underpinning its work in PNG supports improvement of prevention, detection and response to emerging and existing high burden diseases such as malaria. Australia also manages complementary programs in PNG, including support for strengthening health systems.

Alongside considerable economic and trade ties with China, Australia shares an interest in effective development in the Pacific and Southeast Asia region. The Australian and Chinese governments have established an overarching MoU to cooperate to reduce poverty, advance development and promote stability in the Asia-Pacific region.<sup>36</sup> While Australia is exploring trilateral engagements with other emerging donor countries, such as Singapore and South Korea, the project with China and PNG is one of the few projects it currently implements under a trilateral development arrangement.

Australia has identified one of its objectives for the trilateral project is to strengthen its development cooperation with China, through mutual learning from project.

## Findings

### Objective one: Increase the quality of malaria diagnosis in PNG

The MTR team found considerable evidence that the trilateral project has contributed to improving capacity – individual, organisational and systemic capacity - for malaria diagnosis in PNG.

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<sup>32</sup> <https://www.fppwhitepaper.gov.au/foreign-policy-white-paper>

<sup>33</sup> <http://dfat.gov.au/about-us/publications/Pages/health-for-development-strategy-2015-2020.aspx>

<sup>34</sup> <http://indopacifichealthsecurity.dfat.gov.au/Pages/default.aspx>

<sup>35</sup> <http://dfat.gov.au/geo/papua-new-guinea/Pages/joint-declaration-for-a-new-papua-new-guinea-australia-partnership.aspx>

<sup>36</sup> Australia and China signed a Memorandum of Understanding (MoU) on development cooperation in 2013, which was then renewed in 2017. The MoU facilitates Australia and China cooperating on shared development objectives on issues of regional or global importance. The first project under the MoU was the trilateral project

*This is one of the best projects. It is flexible. It's so different from other DFAT projects. The focus is on capacity building which we need. In other cases we get money for grants but no capacity building. (PNG respondent)*

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#### *Increased individual capacities*

Individual capacity has been substantially improved through focused training and mentoring. The project has provided training for more than 300 health workers, laboratory scientists and researchers, directed at identified capacity gaps in the PNG diagnostic system (see Annex Six for a list of trainings conducted under the project). This has included training and external competency assessment for malaria microscopy. It has also included a broad range of other trainings in related fields such as microscopic maintenance and repair, external quality control at provincial level, training for supervision of provincial laboratories, and molecular diagnostic workshops. Individual interviews with trainees<sup>37</sup> indicates these trainings were well targeted and have supported individuals to develop their competencies and have increased the skilled workforce for malaria diagnosis and malaria research across the PNG health system.

*Box 4. Chinese advisors, CPHL*



*Chinese advisors presenting with CPHL counterparts on their joint work program*

As a result of the training, PNG has substantially increased its technical capacity to detect malaria through microscopy. PNG now has 21 malaria microscopists certified at either WHO Level One or WHO Level Two<sup>38</sup>, compared to only one such certified person before the project began.

The training has diversified and developed over the life of the project. For example, at the request of senior management in the implementing organisations, new and specialised trainings such as global spatial mapping, introduction for epidemiologists to the new electronic National Health Information System (E-NHIS), training in RDT lot testing, and specialised workshops for improving scientific writing, all of which develop and extend diagnostic and research skills, have been developed and delivered.

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<sup>37</sup> This included face to face interviews undertaken in PNG during the MTR field work, as well as a sample of interviews conducted by telephone (see Annex Two).

<sup>38</sup> Microscopists assessed as Level One or Level Two under the WHO external competency assessment for malaria microscopists are certified as competent to provide training and supervision to other microscopists in PNG. This increase in personal therefore creates a national core group for malaria microscopy able to perform outreach, training and supervision for lower-level facilities.

Discussion with both trainees and trainers, identified that although the training was highly valued people considered that there was room for improvement. Trainers proposed that more attention should be given to ensuring people come with suitable previous knowledge and experience. Also, that trainees are given the time and support to consolidate their skills and knowledge from one training to the next. Finally, as discussed late in this report, the return experience is critical to how readily trainees are able to practice and share their new capabilities. Individual capacity development can be considerably limited if equipment, materials and/or facilities are not available for people to implement their technical knowledge.

#### *Increased capacity of institutions*

Key institutions, CPHL, PNGIMR and NDOH are actively participating in the trilateral project, building their institutional capacities.

At CPHL this includes the development of a malaria slide bank and the establishment of Polymerase Chain Reaction (PCR) diagnosis. These activities have supported of CPHL to fulfil its function as the national reference laboratory for malaria in PNG, responsible for quality assurance of malaria diagnosis.

#### *Box 5. PNGIMR*



*Outlining the research material collected from sentinel sites, supported under the trilateral project.*

At PNGIMR, project activities have supported increased competency and experience in areas such as surveillance and the use of global positioning systems (GPS). There has been support for the ongoing operation of malaria sentinel surveillance sites. New research has commenced at those sites, designed to inform targeted malaria control measures. Respondents at PNGIMR identified that these developments were expected to contribute to the institution's increased capacity to lead research and analysis in the future.

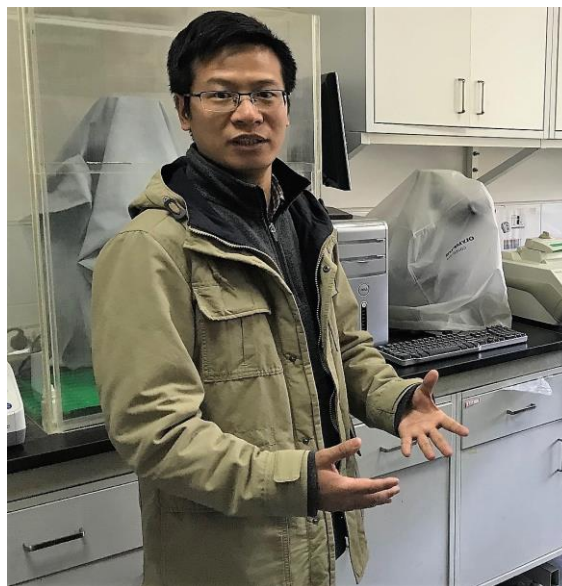
*Looking to the future we are trying to integrate needs for malaria with other areas of public health. As we build up the capacity of staff at national and subnational level we can address malaria. (PNG respondent)*

Senior institutional management have demonstrated leadership through their participation in training and other activities, sharing their skills alongside Chinese and Australian counterparts. They have identified the capacity needs for their institutions and have cooperated to identify suitable training and other relevant activities. Significantly each of the implementing institutions in PNG expressed a high sense of ownership of the project and its relevance for their work.

*This is our project. The staff are benefitting from the high technical capacity development inputs from China, but this does not do our work. In some ways this is good because then PNG people have to take the lead. (PNG respondent)*

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Box 6. Dr Junhu Chen, NIPD



*Demonstrating the equipment at NIPD available for training counterparts from around the world*

The Chinese counterparts also identified the value of the project for their individual and institutional development. NIPD identified the institutional value of being able to continue its research and staff development in the area of malaria diagnosis and treatment through collaboration in PNG.

*The project demonstrates the type of development that benefits all sides. There are currently many global challenges and no country can do everything alone. We need to work together. (Chinese respondent)*

*Working in PNG is related to the long-term vision for NIPD. It assists us to keep the expertise and experience fresh in China (Chinese respondent)*

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An important feature of sustained capacity development is the capability of an institution to adapt to new situations and solve problems based on previous experience. The trilateral project has demonstrated that it is contributing to this capability within the PNG health and research institutions.

For example, in response to an unexpected arrival in PNG of a new RDT product, CPHL and PNGIMR collaborated with Chinese counterparts to develop a system for quality testing for this new product. This information was able then to be utilised in NDOH policy and implementation directives. In another example, staff at PNGIMR identified that an ongoing barrier to their leadership of independent research was limited staff publications. Working with the Australian advisers, the senior management of PNGIMR used project resources to organise a scientific writing workshop adapted to specific PNG researcher needs.

*Originally this project was focused on improving diagnosis of malaria. But we have kept on expanding the agenda. It's now about diagnosis and treatment. Also have seen an improvement in external quality assurance. That has influence the new algorithm. So overall it's a good achievement. (PNG respondent)*

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### *Increased capacity of systems*

The project has also contributed to strengthening the PNG systems for malaria diagnosis. This includes activities such as the development of a revised diagnostic algorithm for malaria and its introduction to clinical educators across the country for them to promote through medical and nursing education courses. It also includes the project support for the extension of quality control of malaria diagnosis from provinces down to district hospitals and health centres. There has been some considerable success in this extension of quality control in provinces such as East New Britain.

*I'm going to four sites that are participating in the quality assurance program. This covers three areas TB, HIV and malaria. It's important to do on-site visits you can see the real situation. You can discuss and try to work out issues.*  
*(PNG respondent)*

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A significant change in the system capacity identified by several respondents, was the increased cooperation between different institutions as a result of their participation in the trilateral project. Senior management from NDOH, CPHL and PNGIMR identified ways in which they are now cooperating, in contrast to previous more siloed working arrangements. They also identified ways in which they are reaching out to other institutions and government departments through trilateral project support. For example, the engagement with clinical educators has opened opportunities for these educational institutions to participate in the project. Extending the connections and capacity across wider systems relevant to the trilateral project appears to be a significant step towards increasing achievement against the first project objective.

*For many years we had discussions about strengthening relationships with colleagues but very little ability to bring this together. The trilateral project provided the mechanism, provided the structure and the finances. So, relationships at higher level have been strengthened but also junior to mid-career level. (PNG respondent)*

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The increased capacity in PNGIMR for operational research is further systems change. While much of this is still underway, research which is directly applicable to government policy and to practice is an important contribution to strengthening the capability of PNG to adjust to ongoing and future health challenges, including malaria.

*For the operational research were able to bring all key stakeholders together to design this research. We are able to design research that is specific to the needs of stakeholders. I've never been involved in research like that before where the needs on the ground determine the top priorities. (PNG respondent)*

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### Contextual challenges

There are ongoing contextual challenges for project implementation in the PNG context. In line with the requirements of the TOR, the MTR explored those challenges which are most likely to impact or limit the sustainability of project achievements.

As noted, individual capacity has been strengthened, but there are some risks that this will be of limited long-term benefit if people are not supported in their return to work. Lack of equipment, lack of support from senior staff, and in some cases lack of ongoing funding for the staff positions, were all identified as problems for people following their training.

Notwithstanding improved technical capacity, the PNG implementing institutions still face considerable implementation challenges. CPHL is intended to be the major reference public health laboratory for the entire country.

Despite impressive innovation in its use of limited space and equipment and remarkable dedication by individual staff, it is considerably under resourced. Currently, several of the key staff are funded through the project and other externally funded programs. The space for laboratory work is inadequate, and equipment and supplies are insufficient. PNGIMR is likewise challenged by its facilities and equipment. While it undertakes research of national significance, PNGIMR does not have access to sufficient government funding and relies significantly on external grants.

Lack of equipment and supplies was regularly reported as a major challenge in maintaining good diagnostic practice across the PNG health system, especially in rural areas. At provincial level people reported a lack of equipment for malaria microscopic diagnosis. This included lack of microscopes and reagents. At the level of health facilities, it was reported that supplies of RDTs and malaria treatments are irregular and often unavailable for many months at a time.

*Box 7. Ms Barbara Sombara at the Town Clinic, Madang Province.*

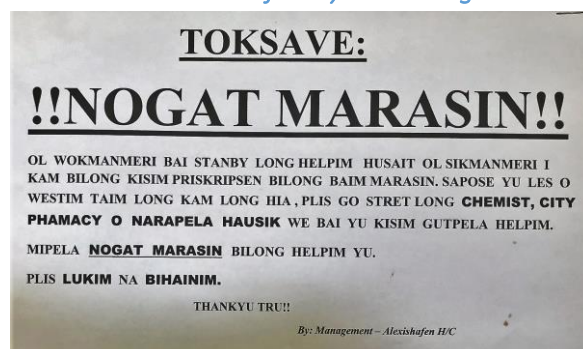


*The Town Clinic see approximately 100 patients or more each day, many of them suspected malaria cases. The single microscope, pictured here is old and poorly functioning.*

*In this health facility we have a very high prevalence of malaria. There are no RDT kits. There is no medicine. For two months we have had no supply. We can only prescribe and people have to buy it for themselves. We report both to the provincial health office and the Catholic health services. We have more than 30 cases of malaria and a sometimes 60 to 80 cases a day. (PNG respondent)*

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*Box 8. Catholic health facility in Madang.*



*The sign warns patients that there is no medicine available in this facility to treat malaria or other conditions.*

While these examples speak to a much larger problem in the PNG context<sup>39</sup>, inadequate health procurement systems were consistently identified throughout the review as a major limitation for malaria control and other wider health security. They were specifically identified as a risk to project achievements being sustained beyond the life of the project.

The current 'dual track' health management systems in PNG present further challenges. The implementing partners, NDOH, CPHL and PNGIMR are working with provincial health advisers for some project activities, but this is at a very early stage and not yet successful in overcoming the traditional divide between the two systems. As a result, the decentralisation of quality control for diagnosis is seeing very limited extension into the provincial public health systems. This wastes limited resources, undermines core messages around the importance of correct malaria diagnosis and treatment and means that some of the systems changes achieved through the project are unlikely to be sustained.

*So what are the incentives? Why would district people want to go to training and improve their laboratory skills? Particularly if they do not have equipment and nobody supports their work. (PNG respondent)*

## Objective two: Pilot effective cooperation between Australia, China and PNG

### *Partner response*

The trilateral project has made considerable progress against its second objective. Review of project documentation, together with extensive interviews and discussion, reveals a strongly shared view that the project has engendered shared ownership, mutual respect and a high degree of cooperation within PNG and between PNG, China and Australian counterparts.

<sup>39</sup> A systematic review of health procurement in 2016 (USAID (2016) 'market analysis of medicines and medical supplies in Papua New Guinea') identified considerable inefficiencies and a failure to utilise suitable suppliers.

*There has been a network of technical and relationships established. There have been some changes in the way we think about public health. There is a much stronger interest in sharing. It has spilled over into cooperation. Issue is it takes time to create relationships and mutual understanding. This is not a standard aid program. (Australian respondent)*

*The trilateral arrangement is closer to aid effectiveness principles. It has South to South exchanges. And it's all done on a level playing field. (PNG respondent)*

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All three partner governments, through their representative agencies, expressed a high level of satisfaction with the trilateral project. All had received positive reports from their on- ground representatives. All participated actively in the JPWG and senior representatives had at least a broad understanding of the project achievements and challenges.

For government representative agencies directly involved in the project, such as PNG NDOH, China NHC, and DFAT, there is a high level of satisfaction and knowledge. This includes good knowledge about the trilateral project partnership approach and program management arrangements. The JPWG appears to have facilitated this exchange. Review of the JPWG minutes reveals that the trilateral project has supported broad based policy discussion between the three countries, and some opportunity for exchange around areas of mutual interest.

For senior government representatives less directly involved in project activities or management, there is less detailed understanding. While most people have sufficient knowledge of the project technical achievements the project cooperation outcomes are less well known.

There is limited evidence that the project experience has contributed to policy influence as yet, within any of the three countries. However, this is likely related to the pilot status for the present project.

*Looking to the future .... We have to see how the evidence from this program feeds into the national health plan as it's redeveloped. (PNG respondent)*

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#### *Project model*

The trilateral project has developed its own model for development cooperation between Australia, China and PNG. The MTR observed that the model has four specific aspects that contribute to its effectiveness.

**Project leadership**, particularly that demonstrated through the JPWG underpins the focus on cooperation in the project. There is good engagement through this group by senior representatives of the three partner governments. The leaders have taken time to establish relationships. They are well informed about the project. They commit to bi-annual meetings, that follow agreed procedures and principles. This supports effective decision-making, provides the channel for transparent communication about respective government priorities and longer-term intentions, and creates opportunity for mutual learning and discussion. Significantly the leadership demonstrated through



this working group also appears to communicate a message to project implementation teams that the work is significant and valued.

*The leadership here is important, it encourages us not focus on minor management issues but to give value to the relationships. (Australian respondent)*

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**Project implementation** is characterised by high quality technical inputs and strong collegiality. Implementing institutes and individuals are connected through their various technical interests and the project partnership approach ensures that this is undertaken in a spirit of mutuality and exchange. In response to the MTR, the implementing partners, especially from PNG and China, were able to identify both what they contributed and what they had learned through the trilateral project.

The South-South cooperation between China and PNG for this project has worked well. Notwithstanding some challenges related to language and perceptions about safety, the Chinese experience of public health challenges and their approach to sharing that experience, has resonated with their PNG counterparts.

*We went to NIPD counterparts to find areas of synergy. This took a while but given it was not just about one-way capacity development there had to be opportunities for NIPD to learn from PNG. (PNG respondent)*

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Decision making at this level is undertaken jointly, with a strong respect for different perspectives and contributions. While some advisers and others have found the slower pace of decision-making and approval required by the partnership approach to be challenging, it is clear that it has contributed to significant ownership and commitment at the level of implementing institutions, especially in PNG. It has also contributed to a collegiality and cooperation between institutions, previously unknown in PNG.

*It's brought all partners together where before we were siloed. We know much more about each other (PNG respondent)*

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Chinese implementing institutions identified that while they had found the initial approach time consuming, they now recognised that the relationships and procedures established through the early processes were contributing to more efficient decision making through the life of the project.

**Project management** was identified by virtually all respondents as key to project effectiveness. Project management is undertaken by a small team located in PNG<sup>40</sup> and supported by additional resources in China<sup>41</sup>. It is responsible for supporting project implementation, meetings, communications, monitoring and evaluation, logistics and reporting. The project management team

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<sup>40</sup> In PNG the project is managed by an independent implementing agency contacted through DFAT. The project employs a full time project manager and Logistics coordinator. The project manager is also an accredited partnership broker and has more than 10 years' experience in development programming in PNG.

<sup>41</sup> In China the trilateral project receives dedicated part-time program management support in NIPD and has support for communications and information exchange through an informal group in Beijing comprised of representatives from DFAT, MOFCOM and NHC.

provide multiple services to connect, inform and oversight the many project activities and the relationships and interactions between partners.

The project management team for the trilateral project is proactive. This means that they look ahead and anticipate problems and opportunities and advise partners in advance of changes and new events. They actively try to inform and connect partners and include new stakeholders.

The project management is directed by all the development partners through the JPWG. This contrasts with more typical management teams in development aid who operate with primary accountability to the donor partner alone.

*They [the project management team] got us all together. They put us all the same page and the keep us informed. It is transparent. In other programs it is not like this. (PNG respondent)*

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Alongside these three elements of the project, respondents identified that the **project partnership approach** was critical to the effective collaboration between the three countries. In line with good partnership practice, the project principles of co-design, respectful decision making, transparent and regular communication, recognition and valuing of in-kind (non-monetary contributions, high-quality meeting arrangements, were all identified as critical elements in creating a collaborative and mutually beneficial working environment.

*At the back of our minds we know it's a partnership. So we had to provide input because otherwise we would look bad. The onus is on us to engage. And it's important how we engage. We have to uphold transparency and other values. (Australian respondent)*

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The Chinese and PNG respondents also identified that the partnership approach was more culturally appropriate and respectful. Both sets of respondents suggested that this encouraged their engagement and enthusiasm for the trilateral project and its activities. PNG respondents particularly identified that the partnership approach engendered through the trilateral project was different to much of their normal interaction with bilateral donors. They valued the respectful ways of working and the attention to processes which equalised the power relationship between them and the other partners.

*The technical advice we get through this project is different because there are buffers between us and Australia (PNG respondent)*

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The process of co-design supported through the partnership approach has ensured specific activities are relevant and achievable, because those who understand the context and related opportunities and constraints are involved from the beginning. The co-design experience is now extending to activities beyond the project, fostering extended outcomes (for example a partnership between PNGIMR and Burnet built from, but separate to, the project partnership, has recently been successful in receiving a research grant from the new DFAT Health Security Grant).

Project management operates differently under this partnership approach. For example, the project management manual gives attention to country specific objectives and the expectations each partner has of the others. It also outlines a partnership review process. It carefully specifies the anticipated roles and responsibilities across the various levels of project operation and the way in which different stakeholder groups are expected to reflect partnership principles in their technical implementation.<sup>42</sup>

Finally, reflection by some respondents suggested that the **trilateral** nature of the project was foundational to providing the space for effective collaboration. The requirements for a shared and equal process between three different partners created the need for a new way of working. The strong interest by each partner in having an effective cooperation experience supported the resourcing and attention for the project. Taken together this allowed for a different way of working than might have been achieved through bilateral arrangements.

*Maybe this could have happened in a bilateral program, but we wouldn't be where we are now without the three countries (Australian respondent)*

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These aspects of project operation and partnership approach, functioning in a trilateral arrangement, have created an effective project 'culture', enabling it to work in a flexible, adaptive and effective manner. As a result, the small pilot trilateral project appears to have built a large support base and considerable enthusiasm for further similar cooperation in PNG. There is a high degree of support for continuing either the trilateral project or other creating other opportunities for cooperation which would similarly utilise good leadership, collegial implementation and project management arrangements, and draw from partnership principles.

The project model has been recognised beyond PNG. The Asia Pacific Malaria Elimination Network (APMEN) has identified the Project as a 'knowledge brokering' model that could be replicated regionally to advance malaria elimination.

#### *International good practice*

Recent international research has identified that development problems are best addressed through contextually relevant, locally driven, adaptation and problem-solving.<sup>43</sup> This requires bringing together the right people (those understand the local context with those who have the required technical knowledge) in a flexible operating space where people can work together to solve problems, learn lessons and then adapt these to new challenges. This process is recommended as a way to build the capacity of institutions and governments in countries to construct their own development solutions to their unique national challenges.

This development approach requires leadership that authorises this flexibility and applied problem-solving. It requires a culture where people are willing to work together, particularly across different sectors and expertise. Finally it requires management that supports flexibility and responsive action.

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<sup>42</sup> Australia- China- Papua New Guinea Pilot Cooperation on Malaria Control, 'Partnership Project Management Manual', Version 1.1, May 2016.

<sup>43</sup> Andrews, M., Pritchard, L. & Woolcock, M. (2016) 'Building State Capability' OUP.

Through its multilayered model and partnership approach the trilateral project appears to provide an example of this internationally identified good practice approach. It potentially provides a small but very important example of how development practice could be further implemented in PNG and beyond.

*The trilateral project has been flexible and prepared to move funds to achieve outcomes. So we think it's more effective. It is more timely and responsive (PNG respondent)*

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#### *Support for expansion or extension of the trilateral cooperation*

The government representatives for PNG and Australia expressed strong support for some further development from the trilateral project. This potentially included extension of the current project as well as expansion to other areas of development cooperation.

The Chinese government representatives provided warm endorsement of the trilateral project as an example of what Australia and China were able to do together to support countries such as PNG achieve the SDGs.

*Moving forward we need to position ourselves for further examination of capacity needs and building the overall model for malaria elimination. The trilateral malaria project is a good mechanism to help us do this. (PNG respondent)*

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At the same time, despite this overall sense of support for future cooperation, it was difficult to get a collective view of the next steps for the project. Instead quite a disparate and varied range of ideas were presented to the MTR.

Pilot projects are meant to demonstrate new ideas and various possibilities and therefore it is not unreasonable that the various partners would have different ideas about how to move forward. However, given the changing contexts of all the countries, it is likely that not all expectations or ideas will be able to be fulfilled. There is some risk that this could damage the excellent cooperative engagement between the partners currently enjoyed by the trilateral project.

Work to develop clarity about the future of the trilateral project beyond December 2018 ought to be a priority for the JPWG. Some suggestions and recommendations are outlined later in this report.

## **Additional findings**

### *Communications*

The MTR found that project communications could be further developed. The project has worked actively, within its available resources, to communicate within PNG and to each of the partner countries. Project management systems have been developed in China to ensure issues and decisions are elevated to the correct location within government and implementing partners. Personal contacts complement written communications in PNG. Australia receives reports in line with DFAT requirements. In addition, some use is made of online media and other forms of general communication.

However there seems to be an ongoing tension between communicating the detail of the project, which is required for good learning, and having reports and communications remain concise, efficient and accessible. Working across multiple languages, cultures and experience adds to this challenge.

Suggestions were made during the MTR that the trilateral project could use more visual and audio communications to supplement (although not replace) formal reports. Also, that the trilateral project might consider increased use of mainstream media, including online services, to share not only project achievements but also analysis and lessons learned.

These additional communication features would clearly be a valuable service and would facilitate likely increased take up of project learning, however it also would require additional resourcing. If the trilateral project continues this may be an area for future consideration.

### *Gender and social inclusion*

The project has worked to try to extend activities to both men and women but reporting on and attention to these areas could be extended. Most although not all, of the training and workshop opportunities have had equal numbers of men and women. There are some training activities where the proportions are not equal, but the project reports this is only in situations where all relevant female staff for that area have already received training. Chinese and Australian advisers are a mix of men and women, contributing to a balanced gender approach across project implementation.

The positive outcomes of training for women laboratory staff was evident in the discussions at PNGIMR, where there are several women working as laboratory and technical staff. The review team was able to interview a number of female staff who have benefited from the training and who were being subsequently encouraged to further develop their skills by IMR management.

The project has tried to identify people with disability or other marginalised groups to participate in training and other activities. Reports indicate that there have been no suitably qualified people, probably because of the broader issue of people with a disability being less likely to access higher education opportunities.

The project does report on gender inclusion in activities but could give increased attention to the outcomes of these activities for women and marginalised groups. It could further develop its approach to inclusion, potentially in discussion with the disability representative organisations in PNG.

### *Project monitoring and evaluation*

Monitoring and evaluation for the project could be strengthened to support its approach to adaptation and improvement.

The trilateral project is very effective at monitoring and assessing progress around activities and outputs. Is also very effective in adapting, in a flexible way, to accommodate new activities and emerging needs. It does not have the same capacity to assess progress against overall change or long-term outcomes. It is not currently organised to analyse what adaptation is required to sustain project achievements beyond the life of the project.

Going forward, the trilateral project would be strengthened by improved monitoring and evaluation that includes monitoring against the annual work plan (activities and outputs) and monitoring against outcomes and objectives. Information from such a monitoring and evaluation framework would support the development partners, particularly at the JPWG, to think how the trilateral project should make major changes to best achieve and sustain its overall intention

#### *The national reference laboratory*

The review team noted the interest by the PNG NDOH in support for a new national reference laboratory (NRL). The proposed NRL has a comprehensive scope. The *National Reference Laboratory Management Strategic Implementation Plan 2016-2020* proposes that

*'The NRL will be the headquarters and focal point for laboratories including National Blood Service, Public Health Laboratories and Clinical Laboratories in the country. The NRL will serve as the reference laboratory, provide quality assurance to Clinical, Blood Bank and Public Health laboratories and coordinate procurement supply management issues that laboratories face.'*

The review team noted that while this capacity is clearly required in PNG, some respondents expressed reservations about the key assumption that strengthening central facilities would necessarily lead to a flow down of improvement in quality at provincial and lower levels. This would be an area to clarify further in the design of the NRL operations and governance arrangements.

## Discussion

### Relevance<sup>44</sup>

The trilateral project focus on malaria diagnosis was a relevant and appropriate beginning point for this development cooperation. The focus was in line with Chinese expertise. It was directly aligned with PNG government policy and priorities. It built on previous Australian support and expertise in program management. The project was designed as a targeted but relevant contribution, that given the trends at that time, could be expected to assist in further decline in malaria prevalence.

The project brought together credible PNG institutions that were well positioned to take up the project activities. It initially focused at national level in order that relationships and activities were highly visible to all stakeholders.

The contained and modest outputs and outcomes proposed for the project gave a clear focus to early project implementation. As a pilot for both technical and development cooperation, it was important that the project activities not overwhelm the establishment of working relationships and procedures. This was relevant and appropriate at the time.

With the changing context in PNG, especially the rise in malaria prevalence and the significant concern about inadequate equipment and supplies for malaria diagnosis and treatment, the relevance of the trilateral project contribution to malaria control and elimination has lessened. As noted in the findings, respondents were interested in improving its relevance in light of the changing

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<sup>44</sup> The analysis and discussion of the findings is presented through the frame of the OECD development assistance criteria for program evaluations.

context. Suggestions included expanding the project in various ways including extending engagements and activities below the provincial level to have a greater focus at district and community levels; giving attention to procurement and HR systems through additional project activities; and strengthening the public health focus underpinning the project through the establishment of a national reference laboratory. The MTR conclusion is that given the support for the project and its high-quality reputation, work to improve its relevance, possibly extension of current activities and or additional activity areas for the life of the project, would be of value.

As outlined in the findings, the project approach has been highly valued by all partners and appears to be very relevant to effective development cooperation between PNG, Australia and China. The MTR concludes that this approach should be retained for any ongoing or extended work of this project. In addition the MTR concludes that the development approach created through this pilot should be considered for other trilateral projects between the three governments.

### Effectiveness

The project has been effective in pursuing its first objective. It has contributed to capacity development at an individual, institutional and systems level in a way that respondents identified as significant and in line with their capacity needs. It has utilised an approach to this capacity building which draws upon good practice models<sup>45</sup>, in turn supporting ownership and engagement. Notwithstanding the need to address some improvements in training, the project has developed an effective capacity development approach.

However as discussed below, the sustainability of this improved diagnostic and research capacity will likely require the project to expand beyond its current activities. In line with the projects approach to adaptation and change, the MTR concludes that for the remaining life of the project, attention should be given to expanding project activities to in a way that will sustain project achievements. This is likely to require increased monitoring against outcomes and examination of risks and challenges in the current PNG context for malaria.

The project has been effective in developing a successful model of trilateral development cooperation. In a country where Australia and China are the largest donors, the trilateral project has demonstrated the additional value made possible when these two donors work together in partnership with the PNG government. The project model demonstrates many elements of what is considered good international change practice. Indications are that this model of cooperation has supported a shift in thinking and behaviour among all stakeholders. It appears to have generated a way of working which is of particular value to the PNG government and project implementers, and one which has generated considerable enthusiasm for further cooperation.

The MTR concludes that the pilot has largely fulfilled its intention. Moving forward, particularly beyond the life of this project, the model ought to be fully documented and researched in order that

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<sup>45</sup> Working at multiple levels (individual, institutional and systems capacity development), engaging senior management in selecting, shaping and leading the development activities, framing the capacity development as a mutual exercise where all partners can identify their learning, supporting adaptation and fostering problem-solving, are all features of internationally recognised good quality capacity development. (Baser, H. & Morgan, P. (2008) 'Capacity, Change and Performance. A study report', European Centre for Development Policy Management, Discussion Paper 59B)



the development partners are able to utilise learning from the experience and potentially replicate the model in other development cooperation efforts.

## Efficiency

Project efficiency has been one area where quite different views were received from various respondents. Some respondents identified that establishing the trilateral project had consumed some considerable time, but that this early work has enabled more efficient processes of decision-making and adaptation during project implementation. Other respondents were concerned that project management arrangements continue to be disproportionately high particularly given the additional support for communication located in China. It was not entirely clear to the MTR if respondents were concerned with the percentage of program budget utilised for program management, or the issue is with the different type of engagement required by a partnership approach, where the three development partners are required to shift beyond a simple donor or implementation role to actively engage with each other, co-designing, exchanging learning, looking for opportunities for wider collaboration and so on.

The MTR notes that the project budget does show a high percentage of spending for program management although this has decreased across the life of the project to date. Further, the MTR notes that projects implemented in PNG do typically have high management costs related to challenges with geography, travel, security and other factors, and in light of this for a small project the trilateral project has reasonable ratios<sup>46</sup>. The MTR also notes that small pilot projects require increased attention to project management and to project communication precisely because they are designed as opportunities for demonstration and lessons learned. For this project in particular, taking the time to build relationships has been critical to the effective trilateral project cooperation described above.

The MTR concludes that given these factors, the project has been good value for money because it has shown considerable progress towards meeting both its major objectives while responsibly managing the resources available to it. Further, it has leveraged additional outcomes and activities, beyond those in the original work plan, still within its allocated resources.

Going forward however the efficiency of the project will be dependent upon the value being sought by the development partners. If the development partners decide to extend this project with its current development cooperation approach, it will require ongoing commitment to a more engaged approach by those partners. If partners are prepared to invest in this approach and cooperate with the different requirements, then the project is likely to be able to increase its efficiency, focusing less on multiple communications and specialised support to each partner and more on facilitating joint learning, cooperation and outcomes. The requirement for development partners to continue to participate in non-traditional ways however would continue.

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<sup>46</sup> An in-house study undertaken by the project to compare its management costs with those of other health projects managed under the DFAT PNG Health Implementing Service Provider indicates that the trilateral project ratios of management costs to activity costs is roughly mid-range within the whole portfolio of activities.



## Sustainability

Project sustainability has two considerations. The first is sustainability of the capacity to support malaria diagnosis and control. The second is sustainability of the development cooperation model emerging from the project experience.

The original project design focused mainly on how the trilateral project should begin (who to work with and on what activities) and less about how it would sustain its achievements.<sup>47</sup> In addition, the MTR found that while partners are interested in how to achieve long-term outcomes for the trilateral project they have different views about what those outcomes should be and how the project could be expanded or extended in line with those views.

The MTR concludes that there are two areas requiring attention. Sustainability of current achievements needs attention for the remaining life of the program. In particular this requires the JPWG and implementing partners to examine the implementation context, monitor progress towards outcomes within the context, and develop some additional activities to address the risks and challenges most likely to undermine sustained program outcomes.

Given the project has only a short time to run under its current timeframe, this activity toward sustainability is likely to be limited. The MTR concludes that this builds the case for extending this project, provided that extension is underpinned by further contextual analysis, and an informed redesign of project activities.

Any redesign could also address the second area requiring attention. As part of that redesign process options for longer term outcomes could be fully explored and their feasibility examined in some detail. This would assist in supporting partners to explore their different ideas and have the opportunity to consult with each other to develop agreement on priorities and directions.

In regard to sustaining the model of development cooperation, there would be merit in further research and documentation of the project model in order that it is fully understood and able to be replicated (contribution to this documentation is offered in the lessons learned section following this discussion). Sustaining the value of this pilot cooperation model could then be pursued either through extension of this project (subject to the suggestions noted above) and/or replication of the model in other development cooperation opportunities between the three countries.

## Impact

It is premature to examine the impact of the trilateral project at a mid-term review. However the project does appear to be on track towards effective outcomes. As discussed above, the overall impact is likely to be dependent upon the decisions made by partners to sustain both the focus and approach beyond the life of this current project.

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<sup>47</sup> In practice the project does give attention to sustainability of specific inputs and activities but is not orientated in a systematic way to consider the longer-term sustainability. Normally in a project design there would be considerable attention given to sustainability and monitoring and evaluation. In particular, there would be monitoring against objectives and long-term intentions alongside monitoring of activities and outputs. These elements enable a project to be implemented while maintaining a focus on the longer term.

## Lessons learned

There are several lessons learned from this pilot trilateral project:

- Establishing effective trilateral projects takes time, in particular time for building relationships, exploring and understanding shared and individual objectives and expectations, and establishing ways of working which engender respect and shared power between the partners. This is not an experience unique to this trilateral project.<sup>48</sup>
- Establishing the right working model for the trilateral project is critical to engendering ownership by all development partners and implementing bodies. Shared and individual ownership is a powerful incentive to maintain cooperation and engagement.
- A formal partnership approach underpinned by principles and corresponding implementation mechanisms supports effective trilateral engagement. Trilateral projects bring diversity and complexity, a partnership approach provides a framework within which to value and utilise this diversity and manage the complexity.
- A trilateral project requires strong and proactive project management, ideally located in the operating context with support from corresponding mechanisms in the partner countries. Again this is not an experience unique to this trilateral project.<sup>49</sup> There is much to be learned from the program management approach in the trilateral project. A systematic approach to this learning ought to be constructed, in particular for the Chinese counterparts, given the specific interest expressed in this area by China from the project beginning.
- Communication and systems for learning are essential if a pilot project is to influence policy and new programs. The trilateral project has developed considerable technical experience and development knowledge. This is likely to be of minimal impact unless the systems for take up and use of that information are fostered in each of the partner organisations.
- Starting with a modest and clear focus provides a good basis for exploring trilateral cooperation. It provides a tangible and comprehensible focus for both governance and implementation arrangements. It enables program management to balance attention between project implementation and supporting effective cooperation.
- Project contexts change. It is essential that projects have monitoring of outcomes and objectives alongside accountability for outputs and activities, in order to test the project logic and 'fit' within changing contexts.
- In dynamic contexts (particularly for trilateral projects where there are three different partners contexts to consider), senior management and leadership need assistance with analysis and reflection, including views from external perspectives, in order to understand ways in which the project ought to adapt and evolve.
- External experience supports the trilateral approach to capacity development. Effective capacity development is multilayered with attention to capacity of individuals, institutions and systems. Capacity development needs to engage institutional leadership and ought to be conducted in a way that ensures mutual learning. Significantly, the trilateral project experience has found that having three different partners from different cultural

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<sup>48</sup> A recent review of DFID's cooperation with China found that trilateral engagement requires realistic timeframes, strong coordination and intensive work to support good communication (Keeley, J. (2017) 'Review of DFID's Trilateral Cooperation with China', DFID, October).

<sup>49</sup> The DFID review identified a similar finding.

backgrounds can contribute to varied approaches to capacity development, increasing the opportunity for learning.

## Conclusions

The trilateral project has been a highly effective pilot program. A number of important factors have come together to support progress against both its major objectives.

The trilateral project has created a cooperative arrangement that is unique. Drawing together the expertise and experience of two of the largest donors in the Pacific region, grounded by a strong and independent National government, the cooperation approach has created a set of relationships and systems that have considerable potential. The value in this pilot will be in seeing some of that potential realised in further activities going forward.

The project faces several challenges in its present form. The context into which the trilateral project was designed has now shifted. While the project continues to achieve well against its outputs, the logical connection between those outputs and its intended outcomes and overall development intention has been weakened. If the trilateral project is to continue beyond its current life, some more attention needs to be given to an updated analysis of the context and the technical lessons learned in the project to date. An opportunity to redesign and extend the project would provide the scope and mandate for it to develop a wider and renewed approach to address some of those challenges.

There are opportunities emerging in all three country contexts to consider extending the project towards ongoing, and more comprehensive, attention to malaria control and diagnosis and/or extending the project model in other ways.

Australia has identified health security as a high priority and is looking for international and national opportunities to cooperate with other countries for effective action. This is expected to include research and technical partnerships alongside support for innovative activities and bilateral programs.

The Chinese government is demonstrating a renewed focus on international cooperation through its new international development agency. It is expected that China will continue to be a major donor in the Indo-Pacific area and therefore finding ways where it and Australia can work together in the region, where there are shared interests, can contribute to more effective development outcomes for both donors.

The context in PNG has introduced additional challenges but PNG's commitment to regional plans to eliminate malaria provides a strong policy environment to move ahead. PNG's growing relationship with China potentially provides incentive for more coordinated and integrated development cooperation.

Given these opportunities, the MTR team offer the following recommendations and suggestions.

## Recommendations<sup>50</sup>

### *The current trilateral project*

1. The MTR recommends that for the remaining life of the trilateral project, the project approach should be further developed through:
  - Outcomes focused monitoring and evaluation,
  - Increased attention to risk management and long-term sustainability of achievements.
  - Continued attention to gender and social inclusion in both project implementation and project monitoring and evaluation.
2. The MTR recommends that for the remaining life of the trilateral project, improvements are considered for the training offered through the project, including:
  - Retain the current good practice that sees institutional leadership engaged in planning and implementing training.
  - Work with all partners to adapt future training and prepare trainees, in order to get the best possible outcomes. This might include longer training opportunities for some participants; having more of the training based in PNG; having an increased range of PNG senior staff adapt and deliver training; and/or other adaptations.
  - Ensure that potential trainees have the capacity, resources and learning arrangements to make the best possible use of new information on their return to their workplace.
  - Design and implement a post training survey for all courses. Ensure that the results of this survey are analysed and communicated to all stakeholders on a regular basis.
  - On the basis of the post training survey, review criteria for selecting trainees and their institutions. Also undertake a review of training content and relevance.
  - Extend training opportunities widely in the PNG health system, as resources allow, to maximise the cohort of informed and engaged individuals and institutions. This is likely to require more PNG-based training delivery. It could potentially also lead to decentralised training delivery within PNG.
  - Consider how to extend inclusion of a diversity of trainees.
  - i. *The MTR suggests that for the remaining life of the project, some consideration is given to the development of a comprehensive communication strategy, to provide an increased range of communication practice internally, between project partners, and externally, to wider audiences.*
3. The MTR recommends that the current trilateral project should be extended - to at least June 2019 - to provide continuity of relationships and governance arrangements, as a basis for managing a new design process.

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<sup>50</sup> The MTR team has developed detailed recommendations for the current project and beyond the current life of the project, as required under the TOR for the review. In addition, where the team felt that comment ought to be made but that insufficient evidence or consultation was available from the review, it has suggested additional areas for consideration.

### *Beyond the trilateral project*

4. **Beyond the current life of the trilateral project, the MTR recommends that the three partner Governments should consider a new project of cooperation that remains a collaboration between the three countries, retains the important features of the trilateral project model and approach but gives fresh attention to context and emerging opportunities.**
5. **The MTR recommends that if the three partner governments decide to proceed with a further program of cooperation, a new design should be commissioned. Any new activity should retain a focus on health security, given this is an area of shared priority between the three partner governments. The design should be undertaken by the development partners, with technical support as required. The MTR recommends that a new design ought to be undertaken in two parts - development of an options paper and then a full design document (see Annex Eight for more detailed suggestions)**

### *The development cooperation model*

6. **Beyond the trilateral project the MTR recommends that the partner governments consider detailed research and documentation of the development cooperation model they have created, in order that lessons and the overall example can be shared widely in the aid community.**

The MTR notes that trilateral projects are one method for fostering collaboration and development cooperation to achieve shared development intentions. Learning in other locations<sup>51</sup>, suggests that effective engagement with China by either/or both Australia and PNG might could be undertaken through a wider portfolio of approaches, learning the relevant lessons from this trilateral pilot but not expecting to necessarily replicate the same model of engagement.

7. **The MTR recommends that Australia, PNG and China should use the relationships and systems established through the trilateral project to explore other collaboration in PNG and the region. This might include processes of dialogue, research and learning, joint representation, economic co-operation and other areas. The intent would be to explore how the respect and mutuality engendered in the trilateral project could provide a basis for other cooperation.**

- ii. *The MTR suggests that PNG might want to consider utilization of the model of trilateral project donor cooperation with other donors.*

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<sup>51</sup> The DFID review recommended that future engagement with China ought to be through a portfolio approach, including activities that add value to Chinese bilateral interventions, dialogue and targeted technical assistance as well as trilateral projects.

## Annex One: Documents and reports reviewed

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| <b>Project Design, Governance, and Management Documentation</b>  |
| Project Design Document  |
| Subsidiary Arrangement   |
| Project Reports: <ul style="list-style-type: none"> <li>• Six Monthly Report Jan-Jun 2016;</li> <li>• Annual Report 2016;</li> <li>• Six Monthly Report Jan-Jun 2017;</li> <li>• Annual Report 2017</li> </ul>   |
| Project Budgets (2016, 2017, 2018)   |
| Expenditure Summaries (2016, 2017)   |
| Project Workplans (2016, 2017, 2018)   |
| Partnership and Project Management Manual (original edition – new version to be uploaded shortly) and annexes  |
| China-based Coordination Schedule of Approved Rates  |
| NIPD-HHISP Exchange of Letters for China-based Coordination Activities   |
| National Reference Laboratory Advisor (2016 and 2017 Workplans and Monthly reports, other reports)   |
| External Quality Assurance Advisor (2016 and 2017 Workplans and Monthly reports, other reports)  |
| Training Participants Master sheet   |
| Capacity building approach: Strengthening training/professional development through TMP  |
| Logistics Mastersheets   |
| Project Factsheet and 2017 Newsletter  |
| Joint Project Working Group – Terms of Reference, Records of Meetings  |
| Technical Directors and Advisors (formerly Technical Leads) – <ul style="list-style-type: none"> <li>• Terms of Reference,</li> <li>• Records of Meetings,</li> <li>• Briefing Note re changed Governance Arrangements (including invitations to new Australian Technical Advisors)</li> </ul> |
| Project Oversight Officers – <ul style="list-style-type: none"> <li>• Terms of Reference,</li> <li>• Record of Meeting</li> </ul>  |
| PMU records of meetings and emails with individual partners  |
| <b>Laboratory Strengthening Project Documentation</b>  |
| Malaria Diagnostic Algorithm   |
| WHO External Competency Assessment Course Reports (4-8 July 2016; 17-21 October 2016; 5-9 June 2017; 30 Oct – 3 Nov 2017; 13-17 Nov 2017; 5-9 Feb 2018) plus pre-course Refresher training (Jan 2018)  |
| Microscopy Maintenance and Repair – Basic Training Report + 5 Advanced Training Reports  |
| Establishment of National Reference Laboratory <ul style="list-style-type: none"> <li>• National Medical Laboratory Policy;</li> <li>• Feasibility Study and attachments;</li> <li>• relevant high-level correspondence</li> </ul>   |
| Provincial Laboratory Supervisory Visit REPORTS; <ul style="list-style-type: none"> <li>• Morobe, New Ireland and Madang 2016;</li> <li>• Kokopo and New Ireland 2017.</li> </ul>  |
| Protocol for establishment of Malaria Slide Bank and RDT QA  |

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| PNG IMR Molecular Diagnostics Training (curriculum, workbook, access database of evaluation forms)  |
| NIPD Advanced Molecular Diagnostics Training (schedule, NIPD report, PNG participants report, PMU synthesis of recommendations)   |
| Quality Control for Malaria RDTs (SOPs)   |
| Therapeutic Efficacy Studies (draft protocols for CQ and PQ, and feedback from Technical Directors as per Meeting Minutes)  |
| <b>Operational Research Project Documentation</b>   |
| Operational Research Protocol and supporting design documents (Record of Design Meeting, Presentation)  |
| Sentinel Sites Reports and OR Workplans and Budget  |
| Design of non-malaria febrile illness component   |
| Design of alternative mRDTs trial   |
| Evidence-based Medicine activity reports: <ul style="list-style-type: none"> <li>• Angau,</li> <li>• Lae OICs training,</li> <li>• SMHS</li> <li>• Nurses</li> </ul>  |
| Scientific Writing Workshop (course outline, course contents, participants' first drafts, participants' next steps)   |
| Operational Research Presentations delivered by technical partners  |
| Record of Meeting and Presentations from NIPD 3 <sup>rd</sup> Symposium (June 2016)   |
| University of Guangzhou / Artepharm: Chinese MDA proposal for PNG   |
| <b>Policy / Research Documents</b>  |
| PNG Vision 2050   |
| PNG Development Plan 2010-2030  |
| PNG Medium Term Plan 2016-17 (note 2018-22 not available online)  |
| PNG National Health Plan 2011 – 2020,<br>Mid Term Review 2015<br>Strategic Priorities   |
| PNG Free Health Care Policy   |
| PNG National Malaria Strategic Plans (current 2014-20 plus previous 2014-18 and 2009-13)  |
| IMR Household Survey 2016-17  |
| IMR Health Facility Surveys 2010-16   |
| China's White Paper on Foreign Aid (2011, 2014)   |
| Academic research and other projects involving Chinese trilateral cooperation (China-UK-Tanzania malaria project; Cook Islands-China-NZ water supply project); journal articles from NIPD on global malaria eradication; from Zhang on trilateral cooperation |
| Australia's Foreign Policy White Paper (2017),<br>Development for Health Strategy,<br>DFAT Health Security Initiative   |
| DFAT-funded Review of PNG Laboratory Services (draft)   |
| <a href="#">USAID Market Analysis of Medicines and Medical Supplies in Papua New Guinea</a>   |
| DFAT review of Health and HIV Implementing Services Provide   |
| Partnership methodology – presentation summarising approach; draft article by PM and TDs  |
| <b>Training Course Evaluation Feedback</b>  |
| <b>Training Course</b>  |
| WHO External Competency Assessment of Microscopists (2016, 2017, 2018 courses)  |
| GIS/Spatial Mapping 2016 (2 staff)  |
| Basic Malaria Microscopy 2016   |

|   |
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| Advanced Malaria Microscopy 2017 (2 staff)    |
| Lae OICs Training                             |
| PNG IMR Molecular Diagnostics Training (2017) |
| E-NHIS training (2017)                        |
| NIPD GIS/Spatial Mapping Training (2017)      |
| NIPD Molecular Diagnostics Training (2017)    |
| SMHS Clinicians Training (2017)               |
| SMHS Nurses Training (2017)                   |
| Scientific Writing Workshop (2017)            |
| Malaria Refresher training (2018)             |



## Annex Two: Survey of a sample of training participants: summary of responses

### Methodology

#### Sample selection

A sample of 35 trainees were identified by randomly selecting a minimum 10% sample of each training course, selecting every 10<sup>th</sup> participant. For courses with less than 10 participants, the final name on the list of participants was selected unless that last participant was a Port Moresby based Central Public Health Laboratory or PNG Institute of Medical Research staff member; in that case, in order to obtain a broader based sample, the next to last participant was selected. In the event, there were 34 individuals in the sample as one person was selected twice from two course lists.

#### Contact method and results

- e-mail** In the first instance an email outlining the purpose of the survey and attaching a questionnaire was sent to 26 participants for whom there was an email address.  
 3 of these emails were returned undeliverable; in one case the email recorded had a typo  
 Several email addresses turned out to be for the lab supervisor (for instance) not that of the participant.  
 Even once a correct email address had been got, email correspondence was sometimes difficult –for instance, one person was very keen to reply by email and the questionnaire was sent several times, but never received according to a number of text message exchanges.
- Phone:** Where there was no email address, each participant was called at least once. When contact was made, the participant was asked either for an email address where the questionnaire could be sent, or if they preferred they were interviewed over the phone.  
 At least one attempt was made to contact by phone those who did not respond to the email by the deadline.  
 One phone number was for a person with a similar name to the participant who turned out to be a psychiatrist who had not attended any malaria training  
 Several numbers were no longer in service or unreachable.  
 One person turned out not to have attended the course that she was listed for due to sickness, but a colleague had attended in her place. That colleague was out on site with no mobile coverage for two weeks, so unable to be contacted.

### Response rate

After the rounds of emails and phone calls there was a total of 15 completed questionnaires – a response rate overall of about 44%.

As might be expected, the response rate achieved was slightly lower (38%) for participants in the 2016 courses compared to the 2017/18 courses.

### Summary of responses

The completed questionnaires were from participants on the following courses

| Course/training/event              | Number of completed questionnaires |
|------------------------------------|------------------------------------|
| Symposium Shanghai                 | 1                                  |
| PNG IMR Malaria Colloquium Malaria | 1                                  |

|   |   |
|---|---|
| Microscopy Refresher Training by Chinese EQA Advisor  | 1 |
| ECAMM   | 1 |
| Refresher ECAMM   |   |
| Microscope Maintenance and repair   | 1 |
| Decentralised mRDTs   | 1 |
| Molecular Diagnostics w/  | 1 |
| Strengthening compliance to test and treat protocols for OICs from Lae urban health centres | 2 |
| Strengthening Malaria Diagnosis and Treatment for Nursing and Midwifery Educators           | 3 |
| Methods & Application of Spatial Epidemiology in Vector-Borne Tropical Diseases             | 1 |
| Methods & Application of Biology of Malaria   | 1 |

A summary of responses and comments:

All participants reported finding the training (or event attended) of **good quality**. For instance, presenters were good and very approachable.

All participants reported finding the **training useful for their work**. For instance individuals reported:

- increased knowledge of diagnostic and treatment protocols
- increased confidence in their knowledge when speaking to health centres
- Some had done more than one course and reported that their skill level had increased e.g. being assessed as level 4 after one course and assessed at level 2 or 1 after the later course.
- increased knowledge of up to date protocols and best practice has enhanced the training of nurses and midwives who would be the new front line against malaria in provincial and rural health centres
- increased knowledge of the less common parasite species that they do not often see in his area
- Increased ability to use the analytical software to analyse data
- 

Many reported that it had **changed their practices**. For instance individuals reported:

- that their lab was now doing/planning research using PCR techniques,
- they were now able to map data on to maps and use this data for monitoring and reporting
- they had passed on what they had learned to technicians visiting from rural health centres
- increased use of the RDT testing due their increased confidence in the test and understanding its importance
- now doing RDT in the clinic. Previously the samples were sent elsewhere for diagnosis and they only treated, but now they are able to do both.
- One participant is setting up a local slide bank as a resource to use locally

Where applicable, participants reported that they **had received good support from their supervisors** or management to implement what they had learned.

All participants who were contacted by phone reported that they are **still working in the same institution** as when they attended the training. (This question was not specifically asked on the questionnaire where respondents were only asked about their current position.)

#### *How could the training be improved?*

It was too small a sample and response rate for real trends to be discerned. but the comments made by more than one person are:

**several participants** said the training had been **too short and felt rushed**.

- One commented that this was partly due to the fact that participants came from different backgrounds and were at different levels so **it took a while for everyone to get up to speed**.
- This was echoed in another comment that not all the doctors pitched their presentation at the right level for the audience - although someone else said that it had been pitched at the right level (on a different course), so no conclusion to be drawn
- Another commented that **more time was needed for the practical sessions**.

**Several** would like **follow up training** as a refresher and/or to increase skills and understanding

**The language barrier** with the Chinese counterparts in the Shanghai training was raised as a challenge by two people who had been to China for training.

Other comments made by individuals were:

One person commented that it was good, but theoretical and that it would be good to have **follow up support** to help them implement what they had learned in their local situation.

This was echoed by another who said that it would be good to have **more than one person from a province trained together** so that they could provide support and quality assurance from each other on return.

There was a comment that short tests or a quiz at the end of sessions or subjects would have been good to **test understanding**.

One person suggested that the training should be **taken out to the provinces** to update health workers in the field.

One person raised the **poor internet connection** which meant that participants were not able to fully participate in the sessions that required fast internet connection.

It was suggested that a **wider range or variety of microscopes** be used.

#### *Other comments*

One person commented that the **project administration was straightforward** and flexible. For instance, there was an understanding that not all the costs of field work could be known in detail in advance and the project was flexible around this as long as they reported properly with receipts etc.

## Annex Three: People consulted for the review

## PNG

|                        |   |
|------------------------|---|
| Dr Paison Dakulala,    | Deputy Secretary, NDoH  |
| Dr Sibauk Bieb,        | Executive Manager Public Health, NDoH                           |
| Ms Kimberley Kawapuro, | Office of the Deputy Secretary, NDoH                            |
| Dr Evelyn Lavu,        | Director, CPHL  |
| Mr Willie Porau,       | Laboratory Manager, CPHL  |
| Mr Ernest Velemu,      | QA Manager, CPHL  |
| Mr Francis Lelngei,    | Molecular OIC, CPHL   |
| Prof Liu Hui,          | EQA Advisor, CPHL   |
| Prof Li Jin,           | NRL Advisor, CPHL   |
| Dr Ke Dazhi            | Team Leader, China-Aided Medical Team                           |
| Ms Barbara Tiki        | Aid Coordinator, Department of National Planning and Monitoring |
| Mr Benedict David      | Minister Counsellor, Australian High Commission                 |
| Mr William Robinson    | Counselor Health and Public Policy, Australian High Commission  |
| Mr Andrew Dollimore    | First Secretary Health, Australian High Commission              |
| Ms Anna Naemon         | Senior Program Manager, Australian High Commission              |
| Mr Andrew Alderdice    | HHISP Director  |
| Ms Sarah MacCana       | Trilateral Malaria Project Manager                              |
| Ms Maryanne Manale     | Trilateral Malaria Project Coordinator                          |
| Ms Annie Dori          | Intern Trilateral Malaria Project                               |
| Mr Liu Linlin          | Economic and Commercial Counsellor, Chinese Embassy to PNG      |
| Mr Yumeng Chu          | Attache, Chinese Embassy to PNG                                 |
| Dr Leanne Robinson     | Burnet Institute/WEHI   |
| Melinda Susupo         | NDoH  |
| Ms Karen Johnson       | Laboratory Advisor (TB), CPHL                                   |
| Ms Evelyn Koruone      | CPHL  |
| Dr Mozammel Hoque      | LFA Global Fund   |
| Mr Curt Bugovlawski    | Country Representative, Population Services International PNG   |
| Ms Carrie Gheen,       | Country Representative, Population Services International PNG   |
| Mr Tim Freeman         | Project Manager, Rotarians Against Malaria                      |
| Ms Jacqueline          | Rotarians Against Malaria                                       |
| Mr. Ben Mode           | Provincial Health Advisor                                       |
| Mr Paskalis Kinakava   | Provincial Public Health Manager                                |
| Ms Carolyn Gaudi       | QA Officer, Nonga Hospital                                      |
| Ms Melissa Kaven       | MLT, Nonga Hospital   |
| Mr Apelis Ilai         | MLA, Nonga Hospital   |
| Mr Damien Tingiaero    | MLA, Nonga Hospital   |
| Miriam Tololo          | Laboratory Manager, Nonga Hospital                              |
| Dr Al Maha             | Deputy Chief Physician, Nonga Hospital                          |
| Dr Manna Ario          | Physician, Nonga Hospital                                       |
| Dr Patrick Kiromat     | Medical Director, Nonga Hospital                                |
| Dr Beryl Vetuna        | Deputy Chief of Paediatrics, Nonga Hospital                     |
| Dr Babona              | Obstetrician, St Marys Hospital                                 |
| Dr Felix               | Rural Health Specialist, St Marys Hospital                      |
| Mr. Esau Horris        | St Marys Hospital   |
| Dr Vincent Atua        | Director Medical Services, Modilon Hospital                     |
| Dr John Kiap           | Deputy Dir Medical Services, Modilon Hospital                   |
| Mr Gibson Winston      | Laboratory manager, Modilon Hospital                            |
| Mr Paul Mabong         | Acting Director Health, Madang Province                         |
| Ms Bernadette Imbosi   | Provincial Health Promotion Coordinator, Madang Province        |
| Mr Wilfred Peter       | Acting Provincial Health Authority Manager, Madang Province     |
| Mr Karoi Kamac         | Deputy Dir, Health Technical Programs, Madang province          |

|                              |  |
|------------------------------|--|
| Ms Jennifer Simon            | PFHSC, Madang province   |
| Mr Laurence Wagerlic         | Laboratory technician, Madang Province                                       |
| Dr Vitus Amugar              | Principal, Lutheran School of Nursing, Madang Province                       |
| Ms Patricia Akinawi          | Nursing and midwifery educator, Lutheran School of Nursing, Madang Province  |
| Dr Moses Laman               | Head, vector control, PNGIMR   |
| Dr Livingstone Tavul         | Head, molecular parasitology laboratory, PNGIMR                              |
| Ms Tamarah Koleala           | Scientific Officer, molecular parasitology laboratory, PNGIMR                |
| Ms Sharon Jamea              | Senior Project Manager, PNGIMR   |
| Ms Diana Timbe               | Senior Scientific Officer, PNGIMR  |
| Mr Desmond Sui               | Data Manager, PNGIMR   |
| Ms Elma Nate                 | Scientific Officer, molecular parasitology laboratory, PNGIMR                |
| Ms Lina Lorry                | Senior Microscopist, PNGIMR  |
| Mr Sesenu Sokeomau           | Microscopist, PNGIMR   |
| Mr Charles Kongs             | Microscopist, PNGIMR   |
| Ms Barbara Sombary           | MLA, Town Clinic pathology lab, Madang Province                              |
| Sr Judy Alingou              | Town clinic, Madang Province   |
| Ms Roselyn Tobe              | HEO, PNGIMR  |
| Ms Phantica Yambo            | GSO, PNGIMR  |
| Ms Gumul Yadi                | CHW, PNGIMR  |
| Ms Sandra Moringu            | CHW, PNGIMR  |
| Ms Fidelma Bagiom            | CHW, PNGIMR  |
| Ms Merian Baniwar            | MLA, Alexishafen Health Centre, Madang Province                              |
| Sr Maria Christina           | SIC, Alexishafen Health Centre, Madang Province                              |
| Dr Willie Pomat              | Acting- Director- PNGIMR   |
| Prof Nakapi Tefuarani        | Executive Dean, PNG School of Medicine and Health Sciences                   |
| Prof John Vince              | Deputy Dean, PNG School of Medicine and Health Sciences                      |
| Dr James Amini               | Chief paediatrician, PNG School of Medicine and Health Sciences              |
| Dr Lloyd Ipai                | Chief physician, PNG School of Medicine and Health Sciences                  |
| Ms Varina Lydia Iobuna       | Child health lecturer, PNG School of Medicine and Health Sciences            |
| Dr Viola Kwa                 | General pathologist and lecturer, PNG School of Medicine and Health Sciences |
| Mr Leo Makita                | National Malaria Control Program Manager                                     |
| Dr Zhang                     | Emergencies and Surveillance Officer, WHO PNG                                |
| Dr Rashid Abdur              | Malaria Focal Point, WHO   |
| Mr Martin Taylor             | DFAT advisor   |
| Dr. Maria Lorela S. Averilla | World Vision PNG   |
| Ms Michaeline Rausi          | World Vision PNG   |
| Mr Ronnie Boli               | World Vision PNG   |
| Dr Geoff Clarke              | Senior Strategic Health Advisor, APLMA                                       |

### China

|                        |   |
|------------------------|---|
| Mr Gerald Thompson     | Deputy Head of Mission, Australian Embassy                      |
| Mr Michael Sadleir     | Counsellor, Political, Australian Embassy                       |
| Ms Linna Cai           | Former Malaria Trilateral Program manager, Australian Embassy   |
| Ms Ella Kinneer        | First Secretary, Australian Embassy                             |
| Mr Niels Knudsen       | Assistant Country Director, UNDP                                |
| Mr Mark Vandenboogaard | Senior policy advisor, UNDP                                     |
| Ms Megan Birnie        | First Secretary, New Zealand Embassy                            |
| Ms Ruan Yao            | National officer, Disease control team, WHO                     |
| Ms Vannessa Shade      | Development Secretary, DfID                                     |
| Mr Miles Toder         | Development Counsellor, Embassy of the United States of America |

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|------------------|--|
| Ms Mao Xiaojing  | Deputy Executive Director, Chinese Academy of International Trade and Economic Cooperation       |
| Ms Chen Hongying | Director, Department of International Trade and Economic Cooperation, Ministry of Commerce       |
| Ms Li Luning     | Policy Officer, Department of International Trade and Economic Cooperation, Ministry of Commerce |
| Ms Shao Meng     | A/g Director, Division of Asia-Pacific Affairs, National Health Commission                       |
| Ms She Zhiwen    | Policy Officer, Division of Asia-Pacific Affairs, National Health Commission                     |
| Dr Zhou Xiaonong | Director, National Institute of Parasitic Diseases, Shanghai                                     |
| Ms Lulu Huang    | National Institute of Parasitic Diseases, Shanghai   |
| Dr Junhu Chen    | National Institute of Parasitic Diseases, Shanghai   |
| Mr Haimo Shen    | National Institute of Parasitic Diseases, Shanghai   |
| Ms Shenbo Chen   | National Institute of Parasitic Diseases, Shanghai   |
| Dr Shang Xia     | National Institute of Parasitic Diseases, Shanghai   |

### Australia

|                         |  |
|-------------------------|--|
| Ms Stephanie Williams   | Principal Health Specialist, DFAT  |
| Ms Chris Sturrock -     | Director, Health Program and Performance, Health Policy Branch, DFAT (former Counsellor, Health Programs, Australian Embassy Port Moresby) |
| Mr Peter Lindenmayer    | Director, PNG Infrastructure and Human Development Section (PNI), DFAT   |
| Mr Ben Jarvis           | Director, China Economic and Trade Section, DFAT   |
| Mr Toby Sharpe          | Policy Officer, China Economic and Trade Section, DFAT   |
| Ms Dilani Edirisuriya   | Executive Officer, PNI, DFAT   |
| Ms Jane Bastin-Sikimeti | Assistant Director, PNI, DFAT  |
| Ms Kirsten Hawke        | Director, Investment Design Section (IND) Aid Management and Performance Branch, DFAT  |
| Ms Zabeta Moutafis      | Assistant Director, IND, Aid Management and Performance Branch, DFAT   |
| Ms Casey Broughton      | Acting Director, Health Strategies Section, Health Policy Branch, DFAT   |
| Ms Angela Clare         | Assistant Director, Health and Education Funds, Global Development Branch, DFAT  |
| Ms Megan Downie         | Assistant Director, Centre for Health Security, DFAT   |
| Dr Qin Cheng            | Australian Defence Force Malaria and Infectious Disease Institute  |
| Dr Allyson Auliff       | Australian Defence Force Malaria and Infectious Disease Institute  |
| Dr Denghua Zhang        | Research Fellow, Department of Pacific Affairs, ANU  |
| Mr Steve Hogg           | Senior Policy Officer, Department of Pacific Affairs, ANU  |
| Mr Bal Kama             | PhD Candidate, College of Law, ANU   |
| Mr Sakias Tameo         | Minister and Deputy High Commissioner, PNG High Commission, Canberra   |
| Elly Lawson,            | Assistant Secretary, East Asia Branch, DFAT  |
| Mr Rengang Huang        | Minister Counsellor for Economic and Commercial Affairs, Embassy of the People's Republic of China in Australia, Canberra.                 |
| Mr Li Liang             | Economic and Commercial, Embassy of the People's Republic of China in Australia, Canberra.   |
| LTCOL Ken Lilley        | WHO ECAMM Lead Facilitator, Australian Defence Force Malaria and Infectious Disease Institute  |
| Dr Jack Richards        | Group Head, Malaria and Tropical Diseases, Burnet Institute  |
| Dr Alyssa Barry         | Laboratory Head, Population Health and Immunity Division Head, Walter and Eliza Hall Institute   |

## Annex Four: Evaluation Plan

26 March 2018

### Introduction

The Australia China Papua New Guinea Pilot cooperation on Malaria Control (the project) commenced in January 2016. The project has two high-level objectives which are expected to be achieved at the end of the pilot period (currently expected to be December 2018):

- To increase the quality of malaria diagnosis in the PNG health services
- To pilot effective cooperation between Australia, China and PNG

The project is a unique cooperation between Australia, China and PNG. Beyond the trilateral nature of the project, a partnership approach underpins project implementation and governance.

As part of the assessment process for the project, a mid-term review was proposed in the original design. This document outlines the plan for that review with attention to purpose, approach, methodology and analysis.

### Review purpose

The terms of reference for the MTR highlight the need to balance assessment of technical outcomes alongside progress of lessons learned about the cooperation approach which underpins this project. Multiple purposes are identified:

- To generate shared understanding of project progress (both technical and cooperation aspects) to date in the context of the expected outcomes
- To consider current project management arrangements in terms of their support for efficient and effective implementation and contribution to positive partnerships
- To make technical, cooperation and management recommendations for the remaining time of the project (to December 2018), and recommendations regarding potential broader partnerships between the countries.

In addition, the terms of reference direct the review to provide an opportunity for stakeholders to reflect on and learn about both technical and partnership aspects of the project.

Further reflection by the review team suggests that in addition to these purposes, the review should give attention to the context of the project implementation - assessing the context to understand what has been possible and how the project could be further developed in response to the context. This includes the context within each of the three partner countries.

While this is not an end of term evaluation nor an impact study, given the possibility of further collaboration between the three partners it also appears important that this review gives attention to the changes that have been achieved by the project and the potential for sustaining these changes beyond this project.

Finally, an initial review of project documentation suggests that there will be lessons learned relevant to this project and potentially to other areas of health and development programming for the three partner countries. The review ought to identify such lessons and highlight the potential value for the development partners.



### *Focus for recommendations*

According to the terms of reference, the review is required to develop recommendations for technical, cooperation and management areas for the remaining time of the project (to December 2018). It is also required to provide recommendations regarding potential broader partnerships between the countries beyond this time.

These recommendations will be developed with consideration to the objectives of this project, and also with regard to the specific objectives identified by each partner country for their engagement in this project. This includes attention to malaria control and prevention, health system strengthening, affective bilateral and trilateral aid cooperation, relationship building between the three countries and extended opportunities for sharing experience and expertise.

### *Review approach*

It is important for evaluations and reviews to utilise methodological approaches which are in line with the development approach underpinning the project or program which is subject to that review. For this project, the review approach therefore needs to value the multiple perspectives brought through the active participation of three different partners. It also requires an approach which focuses on learning and improvement rather than a simple static assessment of project progress.

To this end it is proposed to utilise a critical methodological approach. A critical methodology is characterised by triangulation of both data collection and analysis, looking to draw from multiple sources and perspectives to gain a rich understanding of the project. A critical approach aims to make sense of the project within its context, understanding the interaction between the many participants in that context and what the project itself is able to achieve. Finally, a critical approach focuses on understanding the project over time, looking to see how it has been shaped and involved and examining what might be the opportunities and challenges for its further progress into the future.

### *Methodology*

#### *Review team*

In line with a critical approach, the review will be undertaken by a team designed to reflect the strengths and various perspectives of the development partners. The review team includes:

- Professor Francis Hombhanje - Professor of Health Research and Vice President of Divine Word University.
- Professor Guo Yan - Professor, School of Public Health, Peking University
- Ms Raha Roggero - Executive Officer in the Health Policy Branch of the Department of Foreign Affairs and Trade, Australia.
- Dr Linda Kelly – independent consultant.

Together, this team brings a broad range of relevant skills and knowledge in specific malaria diagnosis, control and research, health programming, health systems development and health policy, health security and advanced monitoring and evaluation and program logic. In addition, the team members each bring current understanding of their respective government policies and approaches to development programming.

The review will deliberately utilise the respective strengths and areas of knowledge available from this team. In particular team members will take responsibility for specific areas of inquiry and for ensuring current knowledge and policy information is made available to the review.

In support of a critical methodological approach, all team members will participate in analysis of data and findings. All team members will contribute to the review products and reports.

#### *Data collection*

The review will utilise multiple methods of enquiry and data collection. These include:

- Review of project documentation and reports, in particular monitoring and assessment reports and documents that detail the operations and implementation of the project.
- Assessment of project activities including training and technical approaches, in line with international good practice.
- Interviews with key stakeholders including:
  - people expected to benefit from project activities such as trainees
  - people implementing activities, including technical partners and technical leads
  - people responsible for the policy and program arrangements within which this project takes place
  - people responsible for aid policy coordination in each of the three partner countries

It will be important that these stakeholders and others are provided with the opportunity to share their experience and views in some detail and supported to explain the context and rationale for their particular perspectives.

- Observation, particularly of the technical applications which project supports in both central and decentralised locations in PNG.
- Comparison with similar projects and arrangements in other locations in order to identify likely challenges or opportunities for this project.

#### *Areas of enquiry*

Based on an initial analysis of existing information the review team has constructed several questions and areas of enquiry that build upon the original key questions outlined review terms of reference.

These areas of enquiry are outlined in the following table (Table 1.). The review team will consistently utilise these areas of inquiry, adapting them as required to particular stakeholder interviews or observations.<sup>52</sup> Data would be collected against these areas in order to support a systematic analysis process.

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<sup>52</sup> Note that the possible questions for each area of enquiry are indicative only. It is not anticipated that all of these questions will be directed to every stakeholder, nor that the enquiry will be limited only to these possible questions.

| <i>Table 1. Review areas of inquiry</i> |  |  |
|---|--|--|
| <i>MTR focus</i>                        | <i>TOR areas of inquiry</i>  | <i>Possible questions for this area of inquiry</i>   |
| <b>Effectiveness:</b>                   | <p>What has changed in terms of malaria diagnosis in PNG since the project commenced?</p> <ul style="list-style-type: none"> <li>To what extent has this changed as a result of this project?</li> <li>What have been the factors which have contributed to these changes?</li> </ul> <p>What has the project delivered overall and what has this effort achieved?</p> | <p>Malaria diagnosis:</p> <ul style="list-style-type: none"> <li>What has been the change?</li> <li>How far does the change extend throughout the PNG health system?</li> <li>What is the current quality of the malaria diagnosis across the country?</li> <li>What do health information systems tell us currently about malaria diagnosis?</li> <li>Who has access to this information?</li> <li>Who uses this information?</li> <li>In what way does accessibility interact with malaria diagnosis? This includes accessibility of health services and diagnostic services for people. This also includes accessibility to appropriate equipment and resources for appropriate diagnosis.</li> </ul> <p>Training:</p> <ul style="list-style-type: none"> <li>How many of the people who have received training remain in their position currently?</li> <li>How many of the people who have received training are choosing to and are supported to implement their training?</li> <li>What ongoing quality assurance is in place to assess the work of people who have received training?</li> <li>To what extent have people who have received training been able to pass on this information to others - either formally through training of trainers or through informal sharing of knowledge?</li> <li>Did the content of the training include the right topics?</li> <li>Was the training relevant to the project objectives and context?</li> </ul> <p>Capacity development:</p> <ul style="list-style-type: none"> <li>To what extent has there been institutionalisation of acquired knowledge and learning?</li> <li>In what way have organisations or institutions established systems to maintain outcomes from training?</li> <li>In what way have organisations or institutions established systems to continue to reproduce people with the same skills in the future?</li> </ul> <p>Operational research:</p> <ul style="list-style-type: none"> <li>What has been the value of the operational research supported by the project?</li> <li>What has been the change in capacity for research?</li> </ul> |

|                   |  |  |
|-------------------|--|--|
|                   |  | <ul style="list-style-type: none"> <li>• Who initiated/ decided on the areas of research supported by project?</li> <li>• In what way have the results been communicated and utilised? In PNG? In the region? Internationally?</li> <li>• What research should be conducted in the future?</li> <li>• What capacity needs to be improved to support ongoing operational research?</li> <li>• How will operational research be supported in the future?</li> <li>• Who will manage and direct this research?</li> </ul> <p>Curriculum reform:</p> <ul style="list-style-type: none"> <li>• What is the process for ongoing curriculum reform as currently being trialled?</li> <li>• What impact is this having in the schools of nursing? School of medicine? Other institutions and universities?</li> <li>• Who will support and drive this reform going forward?</li> </ul> <p>PCR:</p> <ul style="list-style-type: none"> <li>• What has been the value of this work?</li> </ul> <p>Future:</p> <ul style="list-style-type: none"> <li>• What are the next priorities for improvement in malaria diagnosis in PNG?</li> <li>• What is the scope for influencing change in malaria diagnosis across the country given the size of Project funding/scope”?</li> </ul> <p>Wider activities</p> <ul style="list-style-type: none"> <li>• Who initiated or decided that the project should support work areas such as GIS/Spatial Mapping training?</li> <li>• What other activities have been undertaken, building on the suggestions proposed in the original design and why?</li> <li>• Have these being the right activities? What is the evidence for this?</li> </ul> <p>Gender:</p> <ul style="list-style-type: none"> <li>• What have been the differential impacts for men and women from this project?</li> <li>• What are the gender issues to be considered going forward?</li> </ul> |
| <b>Efficiency</b> | Is the trilateral partnership working to the satisfaction of all | How did this project start and why?  |

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|--|--|---|
|  | <p>three participating governments?</p> <ul style="list-style-type: none"> <li>• What factors are contributing to success?</li> <li>• What has been learned from the experience of implementing a project trilaterally in terms of project efficiency and effectiveness?</li> <li>• To what extent has each agency/institution's capacity to partner been built through this project?</li> <li>• How might the trilateral partnership for this project be strengthened?</li> </ul> | <p>What were the original incentives for the three governments (and their various implementing agencies) in agreeing to this trilateral project?</p> <p>What are the current incentives and objectives of the three governments?<br/>Does the current model still address these incentives and objectives?</p> <p>What are the current expectations by partners about the life and intention of this project?<br/>What is each partner considering for the future?</p> <p>What is the model of this trilateral arrangement?</p> <ul style="list-style-type: none"> <li>• What are the specific arrangements peculiar to this project model?</li> <li>• What are the governance arrangements peculiar to this model?</li> <li>• What is the level of commitment by the respective leaders to this trilateral arrangement?</li> <li>• Are these the most appropriate arrangements given the intentions of the project?</li> </ul> <p>What has been policy dialogue between the three countries about malaria and health beyond this project?</p> <p>What have been the respective changes in capacity and learning experienced by each of the partners?</p> <p>In the experience of the various stakeholders how does this model of trilateral cooperation compare to working in bilateral, regional or global arrangements?</p> <ul style="list-style-type: none"> <li>• What are the additional benefits?</li> <li>• What are the additional costs and challenges?</li> </ul> <p>What changes in behaviour / procedures /attitudes have been observed by each partner of the other partners, due to the implementation of this model?</p> <p>In particular what has been the experience of PNG in working through this model of trilateral partnership?</p> |
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|                               |  | <div>What capacity is required for effective trilateral collaboration?</div> <table><tr><td></td><td>Policy?</td><td>Systems?</td><td>Resources?</td><td>Attitudes and skills</td></tr><tr><td>National governments</td><td></td><td></td><td></td><td></td></tr><tr><td>Institutions</td><td></td><td></td><td></td><td></td></tr><tr><td>Technical leaders/ advisors</td><td></td><td></td><td></td><td></td></tr><tr><td>Project management</td><td></td><td></td><td></td><td></td></tr></table> <div>How were the PNG, Chinese and Australian technical leaders chosen?<br/>What additional costs or considerations were required to ensure these people suited the trilateral project?</div> <div>What counterpart does the program management unit have in PNG? What is the future for program management of this trilateral cooperation beyond reliance on an externally funded program management unit?</div> |            | Policy?              | Systems? | Resources? | Attitudes and skills | National governments |  |  |  |  | Institutions |  |  |  |  | Technical leaders/ advisors |  |  |  |  | Project management |  |  |  |  |
|                               | Policy?  | Systems?   | Resources? | Attitudes and skills |          |            |                      |                      |  |  |  |  |              |  |  |  |  |                             |  |  |  |  |                    |  |  |  |  |
| National governments          |  |  |            |                      |          |            |                      |                      |  |  |  |  |              |  |  |  |  |                             |  |  |  |  |                    |  |  |  |  |
| Institutions                  |  |  |            |                      |          |            |                      |                      |  |  |  |  |              |  |  |  |  |                             |  |  |  |  |                    |  |  |  |  |
| Technical leaders/ advisors   |  |  |            |                      |          |            |                      |                      |  |  |  |  |              |  |  |  |  |                             |  |  |  |  |                    |  |  |  |  |
| Project management            |  |  |            |                      |          |            |                      |                      |  |  |  |  |              |  |  |  |  |                             |  |  |  |  |                    |  |  |  |  |
| Sustainability and Relevance: | <div>Are the project’s efforts to strengthen technical capacity at individual and institutional levels, using a trilateral partnership approach, contributing to sustainable improvements in malaria diagnosis?</div> <ul style="list-style-type: none"><li>• If so, why and in what ways?</li><li>• What lessons might the governments of</li></ul> | <div>What capacity in individuals and institutions will be sustained beyond this project?</div> <ul style="list-style-type: none"><li>• What plans are in place within the institutions?</li><li>• What funding is available?</li><li>• What quality control systems will be in place?</li><li>• Will be demands or expectations created that will support institutional focus on the future to work</li></ul> <div>What support will be available to continue technical developments in the project?</div> <ul style="list-style-type: none"><li>• Is support available from NDoH to maintain capacity at CPHL?</li><li>• Is support available from GoPNG, or other sources, to maintain capacity at PNG IMR?</li><li>• Does GoPNG consider that it is their responsibility to sustain project outcomes?</li><li>• In what way is NDoH planning to sustain resources or capacity?</li></ul>                           |            |                      |          |            |                      |                      |  |  |  |  |              |  |  |  |  |                             |  |  |  |  |                    |  |  |  |  |

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|  | <p>Australia, China and PNG consider worthy of applying to other projects (e.g. what elements of the approaches taken may be replicable and scalable in a range of domestic and regional initiatives)?</p> <p>How can the project improve in order to best contribute to sustainability of benefits?</p> | <p>What are the implications arising from the mid-term review of the PNG health plan in relation to malaria eradication and specifically malaria diagnosis? What the intentions for addressing these issues within the current systems? What implications this has for the remainder of this project?</p> <p>What should be the future management structure of this project?</p> <p>Noting that DNPM is no longer the only partner for Australia in PNG, and that the current management arrangements are undertaken by an external contractor - what is the role for central agencies in PNG?</p> <p>What is the overall management and governance structure and how does this fit with current partner arrangements?</p> <p>What changes in policy are likely be to be sustained as a result of research or learning from this project?</p> <p>Has this project supported the three countries to work together in other ways?</p> <p>Has this project supported improved bilateral relationships between any two of the countries?</p> <p>What way is the project contributing to specific country intentions as agreed at project inception?</p> <p>In what way is the project contributing more broadly to international standards /goals?</p> <p>What are the significant challenges and opportunities in the wider context for further expansion or development of this project?</p> <p>In particular as the context of each partner is changing what opportunities open up?</p> <p>Is it possible and desirable to transfer this model of trilateral cooperation to other projects in PNG or other locations?</p> <ul style="list-style-type: none"> <li>• What are the essential elements that have to be maintained?</li> <li>• What are the areas that could be improved?</li> <li>• Other areas that could be streamlined?</li> </ul> <p>Are there other areas of the PNG health system that require support to complement the existing efforts?</p> <p>Are there logical complimentary activities that could be expanded on in a future phase?</p> |
|--|--|--|



|  |  |   |
|--|--|---|
|  |  | <p>How will the project give attention to impact over the long term? In particular how will it assess its contribution to changes in gender equality, poverty alleviation, or national goals such as SDG's?</p> <p>What is the appropriate role or positioning of a project such as this within the PNG health system? What should be the boundaries of the project within that system?</p> |
|--|--|---|

### *Analysis*

In line with a critical approach, the analysis will be an ongoing process throughout the review. The review team will consider findings on a daily basis, assessing the information gathered and how this contributes to an overall assessment for the project.

Based on an understanding of the project partnership approach, it is expected that some different views and perspectives will emerge from data. The analysis will not seek to artificially meld these differences, but rather will aim to examine why such differences have arisen and how they reflect the different interests and perspectives of partners across and within each of the three countries. This analysis is expected to lead to a rich assessment of the data which identifies the various changes and achievements of the project and how they are valued differently by the respective partners.

This analysis is also expected to lead to clearer identification of lessons learned and provide a detailed basis for recommendations about how the project should move forward.

### *Review limitations*

While this review is being undertaken in the last year of project, it is not designed to be an evaluation or impact study. The project is not complete and thus this review will not seek to make an overall assessment of the total value of the project the extent of change achieved.

The review is being undertaken at a point in time. While attention will be given to the context of the project and how this affects project achievements, there are limits to what the review can predict about how that context will change and develop into the future. This limits the detail of recommendations which the review can provide.

The review team is limited to a relatively short visit in PNG, observing a small number of operational sites outside of Port Moresby, and undertaking only a few days discussion with participants in Australia and China. Inevitably it will not be possible to talk to all stakeholders nor consider all project activities and operations.

The review conclusions and recommendations need to be considered with these limitations in mind.

### *Timing*

The review commenced in March 2018 and will be complete at the end of May 2018 with a final report to the JPWG.

### *Communication Strategy*

A clear intention for this review is to support a shared and informed assessment by partners about project progress and outcomes. To this end the review will summarise findings from each country visit into a concise report to be shared with all stakeholders at the end of each visit. The review team will welcome comments corrections and additions to the summaries.

As far as possible, the review will include photos and descriptions to ensure that all stakeholders have a clear picture of the evidence base for conclusions and findings.

A draft report will be made available by 30 April. This will be widely shared for comment, correction and addition. The final report is expected to be available by 18 May. This will be presented to the joint working group at a future date.

## Annex Five: Australia-China-Papua New Guinea Pilot Cooperation on Malaria Control Project Partnership Governance Model

### JPWG representatives

- PNG National Department of Health
- PNG Department of National Planning and Monitoring
- Chinese Ministry of Commerce
- Chinese National Health and Family Planning Commission
- Australian Department of Foreign Affairs and Trade

### Technical Directors, Advisors and Implementing Institutions

- PNG National Department of Health
- PNG Central Public Health Laboratory
- PNG Institute of Medical Research
- PNG School of Medicine and Health Sciences
- National Institute of Parasitic Diseases (China)
- Chinese Provincial Disease Control Agencies
- Burnet Institute (Australia)
- Walter & Eliza Hall Institute (Australia)
- Australian Defence Force Malaria and Infectious Disease Institute
- Australian National University



### Project Management Unit

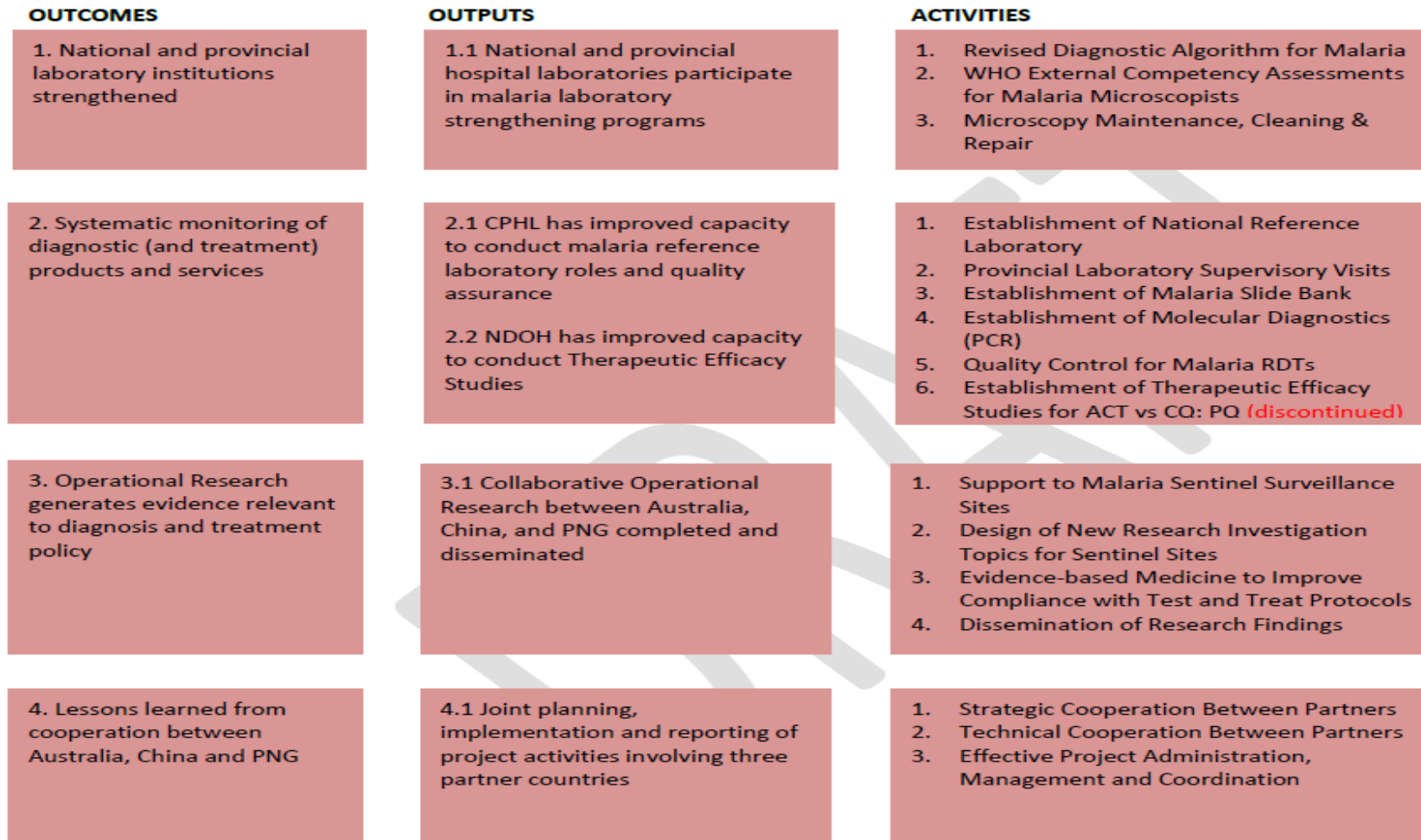
- Project Manager / Partnership Broker
- Project Coordinator (NIPD)

## Annex Six: Training delivered under Trilateral Project

| Year | Training/workshop   | Number of participants |           | Totals    |
|------|---|------------------------|-----------|-----------|
|      |   | Male                   | Female    |           |
| 2016 | Symposium Shanghai  | 3                      | 2         |           |
|      | External Competency Assessment for Malaria Microscopists                                    | 4                      | 8         |           |
|      | GIS & Spatial Mapping Training  |                        | 2         |           |
|      | PNG IMR Malaria Colloquium  |                        | 2         |           |
|      | Laboratory Officer in Charge training   | 7                      | 7         |           |
|      | Microscope Maintenance & Repair   | 7                      | 5         |           |
|      | Microscope Maintenance & Repair   | 7                      | 4         |           |
|      | External Competency Assessment for Malaria Microscopists                                    | 5                      | 7         |           |
|      | External Competency Assessment for Malaria Microscopists                                    | 5                      | 7         |           |
|      | Laboratory Supervisory visit New Ireland Province   | 2                      | 2         |           |
|      | <b>Annual total</b>   | <b>40</b>              | <b>46</b> | <b>86</b> |
| 2017 | Strengthening compliance to test and treat protocols at Angau Hospital                      | 7                      | 4         |           |
|      | Training National Core Group to implement provincial EQA programs                           | 2                      | 2         |           |
|      | Molecular Diagnostics Workshop  | 16                     | 9         |           |
|      | Malaria EQA Provincial Supervisory Visits   | 3                      | 3         |           |
|      | Malaria Microscopy Refresher Training by Chinese EQA Advisor                                | 2                      | 1         |           |
|      | Olympus Microscopy Advanced Microscopy Maintenance and Repair                               | 1                      | 1         |           |
|      | External Competency Assessment for Malaria Microscopists                                    | 6                      | 6         |           |
|      | Strengthening compliance to test and treat protocols for OICs from Lae urban health centres | 6                      | 16        |           |
|      | Strengthening Malaria Diagnosis and Treatment for Nursing and Midwifery Educators           | 7                      | 26        |           |
|      | Strengthening Malaria Diagnosis and Treatment for Clinical Educators                        | 16                     | 11        |           |
|      | Training of the E-Health Systems to the PNG Epidemiologists                                 | 8                      | 9         |           |
|      | Methods & Application of Spatial Epidemiology in Vector-Borne Tropical Diseases             | 5                      | 3         |           |
|      | Methods & Application of Biology of Malaria   | 3                      | 2         |           |
|      | External Competency Assessment for Malaria Microscopists                                    | 3                      | 3         |           |
|      | External Competency Assessment for Malaria Microscopists                                    | 3                      | 1         |           |
|      | Decentralised Malaria Rapid Diagnostic (mRDTs)  | 1                      | 1         |           |
|      | Specified scientific writing skills to lab & research scientists                            | 4                      | 5         |           |
|      | Malaria EQA Provincial Supervisory Visits   | 2                      | 2         |           |

|      |                          |     |     |     |
|------|--------------------------|-----|-----|-----|
| 2018 | Annual Total             | 95  | 105 | 200 |
|      | Refresher ECAMM Training | 12  | 1   |     |
|      | Refresher ECAMM Training | 11  | 1   |     |
|      | Annual Total to MTR      | 23  | 2   | 25  |
|      | Overall total at MTR     | 158 | 153 | 311 |

## Annex Seven: Trilateral project – summary of project logic



## Annex Eight: Proposals for project redesign

In line with the MTR recommendations, if the development partners choose to extend the trilateral project, it is recommended that there be a two stage process for a redesign, which would include an options paper and then a design process.

It is proposed that these processes would include the following.

### **The options paper could be expected to give attention to:**

- Major policies and priorities within PNG for health security where there are opportunities for cooperation between PNG and its development partners.
- Existing lessons from the trilateral project and other relevant programs and projects within PNG, that have implications for effective future health security cooperation.
- Review of the whole context of PNG, giving attention to the decentralised service delivery and governance system in the country and opportunities throughout this system.
- Wide consultation with a broad range of stakeholders in PNG.
- Consideration of the national reference laboratory as one of the options for ongoing development cooperation.<sup>53</sup>
- A broad examination of the various areas of relative expertise and experience that China is able to share with PNG related to public health. The MTR suggests that attention is given to:
  - The public health experience at provincial level in China, especially those provinces with similar geographic, climatic and social conditions to PNG.
  - The Chinese experience in community focused interventions, both those related to behaviour change and service delivery.
  - The Chinese experience in other public health clinical and research development.
- Review of the opportunities available through existing Australian contributions in PNG as part of the DFAT PNG health strategy and the Australian government Health Security Initiative.
- Australia's capacity to provide continued high quality program management.

### **The options paper should identify the various possible activities resulting from this scoping exercise. It should identify the feasible options, that is:**

- Those options that could be undertaken with current resourcing
- Those options that would best support sustained development outcomes
- Those options that would extend opportunities for mutual learning and contribute to policy development for the three partner governments.

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<sup>53</sup> This assumes that the NFL is not already been considered under other development cooperation arrangements.



**The options paper would include an initial program logic for each of the identified feasible options. This program logic would identify the likely outcomes and major assumptions as well as risks for each of the identified feasible options.**

**Based on the options paper, the partner governments would select one or more activities to be taken forward to a full design process. The detailed design would be developed including the following features:**

- clear end of term outcomes
- fully developed program logic
- fully developed outcomes focused monitoring and evaluation plan
- fully developed risk management matrix
- fully developed sustainability plan
- detailed program management systems that retain a partnership approach and the best features of the current cooperation and program management approach from the trilateral project
- governance system which supports a partnership approach and the overall intention of the proposed activity
- fully developed communication plan
- fully developed budget