Pacific Health Security Scoping Mission
19-29 March and 9-27 April, 2018

REGIONAL SYNTHESIS REPORT AND RECOMMENDATIONS

Background

1. **The Australian Government's Health Security Initiative for the Indo-Pacific region** ('the Initiative') **aims to strengthen country and regional capacity for prevention, preparedness, timely detection and response to new and emerging infectious diseases** (EID). Concurrently, existing and re-emerging infections like malaria, tuberculosis (TB) and dengue fever, childhood diarrhoea, acute respiratory infection and vaccine preventable diseases (VPD) and zoonotic infections continue to contribute significantly to the burden of disease in many Pacific Island countries (PIC), alongside an evolving non-communicable diseases (NCD) crisis that is driving rapid increases in health expenditure. The region is also experiencing a growing problem of antimicrobial resistance (AMR), including in TB (MDR-TB). The link between NCDs and infectious diseases like TB and AMR bacterial infections is increasingly recognised.

2. **An independent, high level scoping team [1] visited four Pacific countries** [2] on behalf of the Indo-Pacific Centre for Health Security (CHS), the area within Australia's Department of Foreign Affairs and Trade (DFAT) tasked with implementing the Initiative. The purpose of the country visits was to consult with senior Government officials (in the sectors dealing with, exposed to or that may contribute to the prevention, detection and response to health security risks) and health program managers to: share information about the Initiative; assess each country's health security priorities and its capacity to address them; identify options for Australian support through potential multi-country and regional activities; and, based on that, recommend areas for investment by the CHS. The team also consulted with senior health officials from these and other PICs and development partners (DP) attending the 2018 Pacific Heads of Health (HOH) Meeting on Denarau Island, Fiji on 18-19 April, 2018.[3] The team's terms of reference are attached (Annex 1).

Approach

3. **This report synthesizes the overall findings from the scoping team's consultations in Samoa, Solomon Islands, Papua New Guinea and Fiji;** it also incorporates discussions with senior health officials, regional organisations and DPs at the HOH meeting, and the findings from other recent bilateral assessments undertaken by DFAT in Kiribati, Tuvalu and Nauru. Details of findings and recommendations in each country are summarised in the individual country reports, which provide the basis for this regional report.

4. **The main focus of this report is on interventions at the multi-country and regional levels.** While some country-specific recommendations are included here, complete details and the bilateral

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[1] The team included Dr Jimmie Rodgers (Team Leader), Dr Allison Imrie (Laboratory Scientist) and Dr Rob Condon (Public Health Physician). They were accompanied by DFAT/CHS staff from Canberra (see country reports) and supported by staff from DFAT posts in each country visited.

[2] The four countries were: Samoa (22–24 March 2018); Solomon Islands (25–29 March 2018); Papua New Guinea (9–14 April 2018); and Fiji (16–20 April 2018).

[3] Countries participating in the Heads of Health meeting that met with the team included: Cook Islands, Federated States of Micronesia, Fiji, Guam, Kiribati, Marshall Islands, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

investment context can be found in the individual country reports.

5. **In the Pacific context, the team has taken an inclusive view of health security**, defined as:

> *The activities required to strengthen country and regional capacity for prevention, preparedness, detection, verification and response to acute public health events that endanger the collective health of national populations.*

While the concept of health security often focuses on new and emerging infectious diseases, we believe that this broader definition also retains an appropriate focus for Pacific countries on existing and re-emerging infections (like those examples given at paragraph 1), the links between communicable and non-communicable diseases, and the health consequences of natural disasters. Our view is that all of these issues constitute or contribute to health security threats in the Pacific.

6. **Our recommendations are therefore framed with a view to strengthening health system capacity and regional support mechanisms to address both new and existing health threats.** Strengthened capacity to comply with the International Health Regulations (IHR) will help countries to combat both emerging and endemic health problems.

Overarching Findings of Relevance to the Region

7. **All Pacific countries recognise health security as priority.** This was affirmed at the HOH meeting. A conversation on health security has begun in the Pacific region, and the team does not have concerns that this is seen as a donor-driven agenda.

8. **PNG and the Pacific are no longer shielded from emerging regional and global health threats by their location and geography.** It is now possible to travel from Asia to most countries in the Pacific within the incubation period of many infectious diseases of international public health concern. Improved direct and one-stop air links, increasing numbers of workers and visitors from Asia, and large numbers of Pacific students travelling to educational institutions outside the region mean that countries are increasingly exposed to the risk of importation of EIDs.

9. **The state of preparedness to prevent, detect, verify and respond to EIDs varies greatly between countries.** Fiji has the most 'formed' systems (including many that provide support to other countries and the region) but no country has developed full capacity to prevent, detect and respond effectively to EIDs.

10. **Many national health systems still struggle to cope with endemic infectious diseases and other health challenges – in particular, the rapidly increasing burden of NCDs.** Countries with little or no surge capacity to respond to an outbreak of an emerging or re-emerging infectious disease also have difficulty addressing their endemic health threats.

11. **The Pacific is vulnerable to the health effects of extreme weather events and other natural disasters, which are likely to increase in frequency and severity as a result of climate change and increasing climate variability.** Extreme weather events will likely have direct impact on health through physical injury and damage to or destruction of health facilities; they are commonly also associated with indirect health effects such as outbreaks of climate-sensitive infectious diseases and the results of population displacement (e.g. interruption of treatment and care for people with chronic diseases or disability, risk of sexual or gender-based violence).

Specific Challenges for Pacific Countries

12. **Many countries have outdated legal frameworks and legislation in the sectors that are relevant to health security and the IHR.** These include but are not limited to:

- Public Health Act / Environmental Health Act / Health Services Act
- Pharmacy & Poisons Act / Medicines Acts [4]
- Agriculture Act, Animal Health (Livestock) Act, Biosecurity Act
- National Disaster Management Acts

13. **Human resources and surveillance system capacity are generally insufficient to meet the requirements of the IHRs.**

a) **Human resources** – there are four key issues:

- **Inadequate numbers –** none of the countries visited had the full complement of qualified personnel they require. The shortage is particularly acute in the animal health sector, with the number of qualified veterinarians ranging one in the Solomon Islands to a maximum of three in Papua New Guinea (PNG) for providing what we regard as routine, necessary, national animal health services.
- **Incorrect mix of skills** needed – in some cases, even when the number of staff is approaching the numbers needed, the full complement of skills required is not in place.
- **Professional development pathways** at early stages. Until very recently, there was very limited opportunity for in-service technical training for staff in some key areas such as laboratory services.
- **Systems for animal health and the human-animal health interface** are often rudimentary and need to be strengthened. For example, the introduction of a zoonotic diseases module into field epidemiology training programs would enhance the interaction between sectors.

b) **Surveillance and Information Systems –** there are some good examples (e.g. the Pacific Public Health Surveillance Network; PPSHN) but there is still a long way to go before surveillance and information systems in countries and the region are capable of meeting IHR requirements. In particular, **routine compilation and analysis of data to support the conclusions in this report was often not available.** Some related issues include:

- Incomplete hospital information management systems – although electronic health information systems are planned or in place in a small number of countries, most are manual, do not support real-time reporting and cannot be analysed to inform real-time decision-making.
- Limitations of infectious disease notifications systems to inform public health response and policy
- Limited sentinel sites and poor communication networks
- Limited laboratory information systems (and most are not connected to hospital information systems)
- In most facilities, antimicrobial resistance data are not collated or analysed to inform clinical decision making and infection prevention and control (IPC) policy; where a

[4] The exception is Fiji, which has a new Medicines Products Act (2011) and a Professional Pharmacy Act (2011). However, Fiji has requested technical assistance to help with regulations, standards, guidelines, controls, drug registration, rational prescribing and private sector engagement.

laboratory information system is in place, microbiology results and/or AMR data are often not able to be entered into the system.

14. Laboratory capacity and the need for strengthening it was a common theme across all countries:

"…health security cannot be achieved without effective and functioning laboratories" … (PNG)

Key issues include:

a) Lack of clear a policy on the long-term development, roles, functions and linkages between laboratory services in the countries to guide the type and level of services to be provided and the levels of investment that may be required.

b) Tensions around different laboratory functions – clinical (diagnostic), public health, research and screening (e.g. mandatory health tests for workers entering labour mobility schemes), which are often performed in a single laboratory; animal health is generally not integrated into public health laboratory functions.

c) Weak integration and reporting channels between levels of the laboratory network in individual countries (especially in PNG). The PPHSN laboratory network, LabNet, supports better integration of public health surveillance functions between countries – i.e. at a Pacific regional level – but PNG is not currently part of this network.

d) Professional development pathways for laboratory workers, while recognised as important, are at an early stage of development.

e) Microbiology laboratories generally do not compile or analyse data on AMR and drug sensitivity proactively, i.e. to assist clinical decision-making, monitor trends and guide policy.

f) Laboratory quality management systems (LQMS), including quality assurance (QA), are generally weak.

g) Regular 'stock outs' of reagents and other essential laboratory supplies occur.

15. Infection Prevention and Control and Antimicrobial Resistance are important emerging challenges.

a) **AMR is emerging as a high public health priority in the Pacific** (as it is globally), but available data are not being analysed and the extent of AMR remains incompletely understood.

b) During and after the scoping mission, the team has also become aware of undocumented **AMR bacterial infections in hospital settings** with likely nosocomial transmission; these include carbapenem-resistant gram negative infections and **community-acquired** methicillin-resistant *Staphylococcus aureus* (MRSA) infection.

c) **Widespread multi-drug resistant TB** and occasional cases of extensively drug-resistant TB (XDR-TB) occur in PNG, with sporadic cases and occasional clusters of MDR-TB in some other PICs. Open community transmission of MDR- and XDR-TB has been documented in Daru, PNG, and the existence of latent MDR-TB infection is regarded as inevitable.

d) The **link between NCDs and infectious diseases like TB and AMR bacterial infections** is increasingly recognised. Diabetes is an important driver of AMR bacterial infections in patients with recurrent hospitalisations and multiple courses of antibiotics, and therefore also a driver of increasing expenditure on pharmaceuticals and laboratory reagents. Research in Kiribati and Marshall Islands has shown a one-third increase in risk of TB in patients with diabetes.

e) **Many countries do not have effective IPC systems**: polices / guidelines, institutional AMR Task Forces and AMR Action Plans. IPC Committees often exist, but do not meet regularly and do not have access to routinely collated data on AMR organisms in health care settings to support proactive policy setting and monitoring.

f) **Isolation facilities in countries visited are generally not fit for purpose**; some would constitute an IPC hazard to staff in the event of a patient being hospitalised with a significant infection.

g) **Artemisinin-resistant *Plasmodium falciparum*** malaria, which is established in parts of the Mekong region, has not yet been identified in the malaria affected countries of Melanesia.

16. Childhood vaccination is an important component of preparedness and IPC, but countries perform variably and sometimes poorly relative to their immunisation coverage targets.

a) In many countries, coverage with measles-containing vaccine is insufficient to provide herd immunity against resurgence of transmission. With measles vaccine coverage rates by province as low as 17%, PNG is at grave risk of an imminent nation-wide outbreak of measles; this is aggravated by population displacement due to recent earthquakes in the Highlands provinces.

b) Acute respiratory infection and diarrhoea are prominent among the causes of under-five mortality and not all countries have introduced pneumococcal conjugate or rotavirus vaccine into their childhood schedules.

c) Many Pacific countries, including PNG, are either undergoing or have completed accelerated transition from Gavi support – this leaves their immunisation programs highly vulnerable. Gavi itself recognises the risk in what it describes as 'fragile' settings and is considering alternative proposals to maintain forms of support other than vaccine procurement.

d) Fiji and Kiribati have used innovative financing mechanisms, funded by the Australian Government, to introduce or maintain new vaccines within the childhood schedule.[5]

17. Capacity at Ports of Entry is incompletely developed.

a) Airports in all countries visited by the team have medical rooms, but without clear protocols or guidelines on their use.

- Only Samoa's new terminal building has rooms for both incoming and outgoing passengers.
- Tuvalu's new airport is the only POE that seems IHR-compliant, with an air-side decontamination area and a segregated medical assessment room.
- Nadi and Port Moresby (Jackson) Airports each have a room without decontamination facilities, and with variable types of personal protective equipment (PPE) available.
- The team was not able to see the Honiara airport medical room.

b) There was no written protocol on how to deal with suspected infectious diseases patient arriving on an international flight. Each airport has its own (unwritten) plans that rely on the judgement of individuals; these are not tested regularly using drills or simulations.

[5] Under these mechanisms, the PIC locates a supplier who is able to provide vaccines at Gavi-compliant prices during the transitional financing period. The Australian aid program then provides funding for the introduction of the vaccines but on a reducing scale from year-to-year; the PIC assumes responsibility for full financing of the supported vaccines from around year 4.

c) None of the countries visited have medical rooms at their sea ports

d) Information flow to front-line workers is poor. In one instance, the team was informed that, in the absence of coordinated information-sharing from Health to other sectors, some front-line workers used internet searches to obtain information on specific international disease threats.

18. Public Health Emergency Preparedness and Response Plans (PHEPRP) **are generally not in place and, where they are, are not adequate to support multi-sectoral 'all-hazards' approaches.**

a) Some countries have developed health or quarantine sector-specific EPRPs; however, many of these date from the time of the Pacific Regional Influenza Pandemic Preparedness (PRIPP) project, which ended more than 6 years ago, and are now out of date.

b) No country has developed an 'all hazards' PHEPRP, and inter-sectoral coordination and roles are weak; ownership of Plans is often unclear or is vested strongly in the health sector.

c) Health facilities and POEs generally do not conduct drills, simulations or after-action reviews (although some are planned for the near future).

d) Civil society response mechanisms and disabled people's organisations are an important resource, especially for people whose vulnerability to emergencies and disasters may be accentuated by mobility, communication and mental health issues; however, their involvement may be overlooked in existing PHEPRPs.

19. No country has attained all the IHR Core Capacities under the IHR Monitoring Framework, and no country has undertaken a Joint External Evaluation (JEE).

a) This is confirmed by self-reported performance in the State Party Annual Reports using the IHR Monitoring Questionnaire (IHR-MQ). Performance for coordination, surveillance system, human resources, laboratory capacity and food safety is volatile; performance for POEs, zoonosis and response to chemical and radio-nuclear hazards is generally poor.

b) Fiji does the best under the IHR-MQ, but gaps were highlighted when they used the JEE tool to undertake a provisional self-assessment.

c) All countries commit to completing their annual IHR core capacity assessments, although not all are submitted annually; some have shown interest in undertaking a JEE, but without a clear understanding of the requirements or the complexity involved.

d) Federated States of Micronesia is planning a JEE over the next 12 months, while PNG is likely to undertake a JEE in 2019.

20. Coordination and emergency funding for health emergencies or other natural disasters are very variable in their effectiveness.

a) Responsibility for declaration of a health emergency varies between countries.

b) National Disaster Management Offices (NDMO) show a variable level of capability and preparedness.

c) Samoa's system is probably the best model encountered during the scoping mission (multi-sectoral engagement, level of political authority, etc.), but is untested by a major disaster or health emergency. The Solomon Islands model has been tested and subject to some degree of independently-led after-action review; appropriate authority lies at the CEO level.

d) No country has specific budgetary provisions for health emergencies or natural disasters. All have mechanisms to access funds from national government and/or international partners during and after disasters although, in some cases, this may require separate legislation to be enacted manage each individual 'event'.

Broad Recommendations

21. The team's brief was to look at options that would be amenable to multi-country and/or regional intervention. The team considered and identified a few interventions that lend themselves to these implementation modalities. We have also highlighted a small number of country-specific options, especially where they can be implemented immediately at very little cost (which we characterise as 'early wins') and may generate lessons for other countries to follow; some of these may also be suitable for funding through Australia's bilateral program. The core interventions recommended (paragraph 24) are medium-term investments that will most likely require the full duration of the Health Security initiative to implement.

22. The team was also asked to identify options that were not subject to parallel interventions or donor investment in the region. We have therefore excluded areas where other DPs or donors are active, including where that work is already funded through the Health Security initiative.

a) However, we have included some areas where we regard existing donor investments into key investment areas (i.e. those we believe are central to building the region's capacity to prevent, prepare for, identify, verify and respond effectively to emerging and endemic health security risks) as insufficient to achieve benefits at a regional level or across a broad selection of countries.[6]

b) Noting that circumstances may change, **we encourage the CHS and DFAT to remain strongly engaged in Pacific Regional Health Security** (PaHSec) **coordination mechanisms**, to share timely information with other partners about each other's areas of priority and intended investments.

23. We have not recommended the direct placement of Australian health security funds into the TB, malaria, immunisation, HIV or NCD programs in PNG or other PICs. We are cognisant that DFAT's bilateral programs and multilateral investments in PNG and the Pacific – e.g. through the global health financing instruments and the World Bank multi-donor trust fund (MDTF) for integrating donor-funded programs into national health financing systems – are significant, as is DFAT's influence on the fund Boards and the MDTF steering committee. We have framed the health system support recommended under this Initiative (for laboratories, surveillance systems, human resources and legislation; see paragraphs 24-32) so that it will also strengthen the delivery of disease- or intervention-specific programs and contribute to the effectiveness of broader health system investments. Conversely, we also expect complementary health system strengthening efforts

[6] An example of this is the multi-country health security capacity development intervention funded through SPC by *Agence Française de Développement* (AFD), which will be implemented in a small number of PICs each year over three years (2018-19 to 2020-21). The AFD project also addresses field epidemiology and infection prevention and control. It provides funding for consultant inputs for technical assistance to implement activities, but does not include institutional capacity development for PPHSN. We expect that the Australian inputs proposed at paragraphs 24-31 of the present report will be neatly designed as complementary to the French-funded inputs, but will also contribute strongly to sustainability of outcomes by also focusing on institutional capacity development for PPHSN through its host organisation, SPC. Australian support will also run for one year longer than the AFD project, allowing a managed transition from project- and consultancy-based support.

and disease specific programs to enhance each country's capacity to prepare for and respond to emerging and re-emerging infectious diseases.

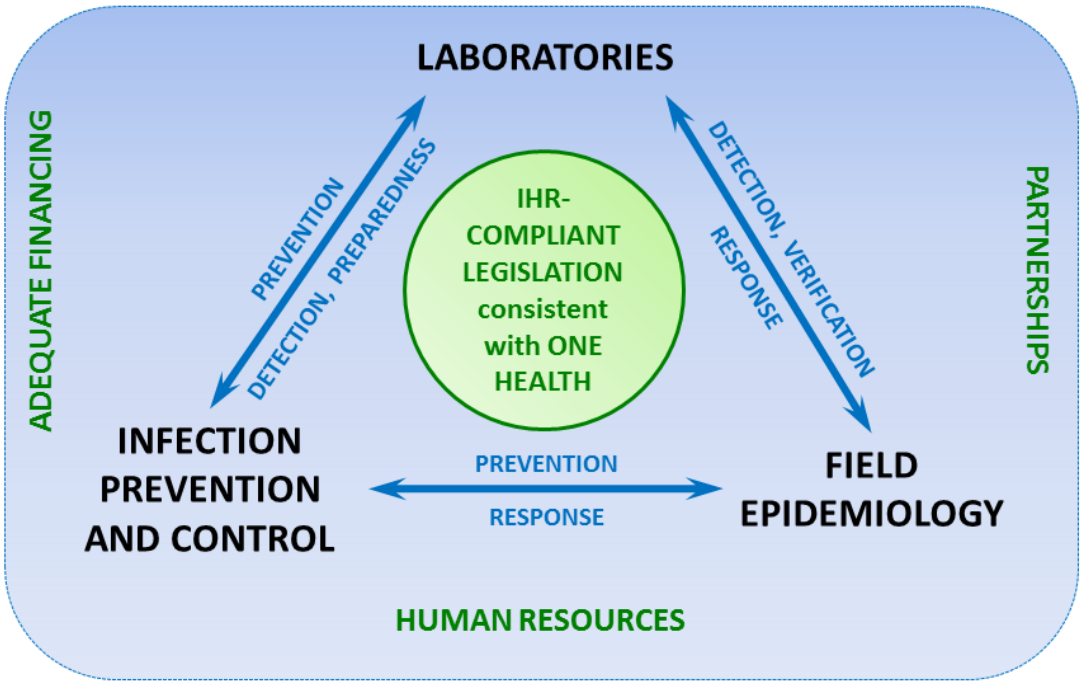
Core Investments

24. We propose a package of key investments in three related, mutually supportive technical areas that are central to improved health security in the Pacific:

- **Laboratories;**
- **Infection Prevention and Control (and hence AMR); and**
- **Field Epidemiology.**

IHR-compliant legislation would be necessary to realise the full benefits of the three thematic investments, while **human resources development**, **partnerships** and **financing** would be cross-cutting themes within these four domains.

a) The approach is summarised in the following figure:



b) We believe that strategic investments in these three mutually inclusive technical areas, the supportive area of legislation and the three cross-cutting themes across the life of the Initiative (i.e. the next four years) will build the capacity of PICs in areas that complement other inputs.

25. Within each of the three core technical themes, we have identified two time frames for implementation of recommended activities:

a) Early wins – these comprise interventions that could be implemented quickly (mostly at reasonably low cost), and some could be funded under existing bilateral programs where provision for such interventions exists.

- Where early wins fall under any of the three core investment areas, they are presented under the core investment area.

- The early wins would ideally be addressed as soon as possible; most of them are once-off, lower cost investments.
- Some of the early wins are country-specific with individual and multi-country benefit, while others are more broadly multi-country in nature.

b) **Medium- to longer-term investments** – these comprise the central, long-term investments under the Initiative, which will ensure enhanced health security capacities in the Pacific region.

- The key longer-term priorities need more substantial investment over the full period of the Initiative.
- We recommend most of the CHS investment in the Pacific be directed to this category for the full duration of the initiative.

26. **We have also identified a small number of other investments that, subject to the availability of resources, will enhance the effectiveness of the core thematic investments** – i.e. they are likely to contribute to a more comprehensive and coordinated 'preparedness and response' mechanism for health security in the Pacific or in individual countries, including by enhancing and supporting the work of individual partner governments or other DPs.

a) These additional priorities are often also 'early wins' in nature, and are **generally amenable to funding under Australia's bilateral programs**.

b) A small number are longer term, and the need for Australian support **should be monitored through the PaHSec coordination mechanism**. They need to remain on Australia's radar screen to ascertain whether they are emerging as bottlenecks to progress towards improved health security in the region, and whether appropriate support is available through other DPs or funding agencies.

Laboratory Strengthening (combination of early wins and medium- to longer-term investments)

27. **Some support for laboratory strengthening under the Initiative will address early priorities,** with either country-specific or broader regional impact.

a) **Early wins and short-term investments (country-specific benefits):**

PNG and **Solomon Islands** – TA to **review and update the National Laboratory Policy** (in PNG, to include PNGIMR and animal health in particular), which would define entry points for critical system strengthening (e.g. integration between national and sub-national levels, QA mechanisms, procurement and supply chains for reagents, reporting and integration with surveillance systems, private sector engagement,[7] etc.) and assist with developing standard operating procedures (SOP).

PNG – Support to **introduce or strengthen laboratory quality management systems** across the country, including EQA programs for malaria, TB and HIV, under the direction of CPHL, and thus implement the National Laboratory Policy.

[7] For example, private sector engagement under the laboratory policy in PNG would potentially also address questions like determining relevant services, and clear policies on which testing should be industry funded and which would be GOPNG or NAQIA responsibility.

PNG – TA to assess options for developing **laboratory information systems** that contribute to patient management and which can link to national surveillance systems and regional laboratory data management and analysis systems such as WHONET.[8]

Samoa, Solomon Islands, PNG and Fiji – TA from a hospital epidemiologist or laboratory scientist with quantitative data analysis skills to conduct a **retrospective review of antimicrobial sensitivity** of organisms cultured in the respective microbiology laboratories.

b) **Early wins and short-term investments (country specific with regional benefits):**

PNG (IMR → regional) – TA to help update the PNGIMR strategic plan, develop a multi-year business plan (core functions, regional role, governance framework) and clarify the relationship with and roles of international technical support (e.g. through the 'buttressing coalition'), a strategic advisory group (SAG) and IMR's links to the region through PPHSN LabNet.

Fiji (proposed National Reference Laboratory → regional) – TA to: facilitate the laboratory role delineation process; help develop a clear policy to guide future development of laboratory services in Fiji (including as a component of the proposed National Health Institute) and ensure the complementarity of the various human health and animal health laboratories in the country.

Fiji (proposed National Health Institute → regional) – Remain engaged with the process in Fiji to undertake a comprehensive review of surveillance and CDC mechanisms, including discussions on establishing a National Health Institute / Reference Laboratory; mobilise TA for this as requested.

28. **Most support for laboratory strengthening will address the following medium- to longer-term strategic priorities and technical capacity development**, including **developing an animal health laboratory stream within PPHSN** and LabNet:

a) Invest in and strengthen the PPHSN LabNet in partnership with the Fiji National University College of Medicine, Nursing and Health Sciences (FNU CMNHS) to develop and implement a **modular in-service Postgraduate Certificate in Laboratory Sciences** (PGCLS). The PGCLS will be accredited by FNU and jointly delivered by PPHSN LabNet and the CMNHS. This will require a long-term position to lead and coordinate the LabNet multi-country work plan to enhance laboratory capacities in PICTs.

b) Support the progression (under a multi-exit model) of the PGCLS to a **Postgraduate Diploma in Laboratory Sciences** – and, if warranted, to a Master's degree in Laboratory Sciences – for candidates needed for mid- to senior-level scientist roles.

c) Support the **PPHSN-coordinated mentorship and laboratory accreditation program** between PPHSN level 1 and 2 laboratories in the region, to prepare them for potentially seeking Australian and/or New Zealand medical laboratory accreditation. (There is also mentoring between PPHSN level 2 laboratories and level 3 reference laboratories located in Pacific Rim countries).

d) Support the establishment of **formal partnerships and linkages between LabNet, the Australian Public Health Laboratory Network** (APHLN) and the **Laboratories Emergency Animal Disease Diagnosis and Response** (LEADDR) network to address country-identified diagnostic and

[8] WHONET is free database software developed for the management and analysis of microbiology laboratory data with a special focus on the analysis of antimicrobial susceptibility test results.

surveillance priorities in human and animal health.[9] This will augment partnerships that already exist between some Pacific Islands and Australian laboratories, within a broader partnership framework that provides opportunities for: enhancement of animal health laboratory functions and their interaction with human public health laboratories (through PPHSN); training and capacity building; training attachments; staff exchanges; support development of new tests or technology in some Pacific laboratories; support QA processes for Pacific laboratories; and assist with laboratory accreditation.

e) In PNG, **core funding needs to be provided either through Australia's bilateral program (or the CHS, via the bilateral program)** to support the **PNGIMR** Deputy Director position responsible for strategy, corporate management and administration, finance and resource mobilisation.

- Filling this position will enable the Director to focus on the organisation's core business.
- It will also lead the organisation's efforts to secure sustainable long-term financing to implement IMR's core business and research priorities.
- The team is convinced that the ever-increasing risks of emerging human and zoonotic infections reaching PNG and therefore also putting other PICs at risk, coupled with an expected increasing regional role for PNGIMR, mean that the Government of PNG and DPs need to recommence serious and dedicated core financial support to strengthen the PNGIMR's capacity as a leading research, diagnostic, surveillance and reference facility for PNG and the region.
- PNGIMR's role will also be strengthened through enhanced linkage with the National Agriculture Quarantine and Inspection Authority (NAQIA) laboratory and CPHL to run tests especially for zoonoses or important animal diseases that require similar test procedures.

Surveillance Capacity and Human Resources (medium- to longer-term investments)

29. Support for surveillance capacity and human resources will address medium- to longer-term strategic priorities and technical capacity development:

a) Invest in / strengthen the PPHSN and its component network of IHR Focal Points (EpiNet) to address the key human resources capacity relating to a lack of adequate numbers of **people with the relevant applied epidemiological skills**. Ensure the inclusion of animal health, laboratories and possibly IPC and hospital epidemiology in the programs (e.g. through development of additional modules).

b) The investment in PPHSN will include support for a **long-term staff position at PPHSN over 4 years to coordinate the delivery** of the PGCFE, PGDFE and, if need be, the Masters in Field Epidemiology – the latter potentially being supported by a partnership with the Australian National University Master of Applied Epidemiology (ANU MAE) program. Specifically:

i) Support the **Post Graduate Certificate in Field Epidemiology** (PGCFE), developed jointly by the PPHSN (in partnership with and building on the early success of the Pacific Islands Health Officers Association [PIHOA] Data for Decision Making course), the ANU

[9] The exact nature of the specific relationship between individual laboratories, the associated forms of aid and the funding required would be guided by a more detailed analysis of technical needs by LabNet and the supportive Network on the Australian side, the short-, medium- and longer-term objectives of the relationship, and careful consideration of how to ensure sustainability of outcomes.

MAE program and the FNU CMNHS. The PGCFE is accredited by FNU and delivered jointly by PPHSN and FNU.

ii) Support the progression of the PGCFE for candidates that are needed for mid- to senior-level managers to the **PG Diploma** in Field Epidemiology and the **Masters** in Field Epidemiology (under a multi-exit model).

c) In PNG, support needs to be maintained for the National Department of Health's field epidemiology program (FETPNG), with additional emphasis on **increasing the enrolment of candidates from an animal health background**. To foster career advancement and portability of qualifications, alignment would be sought between the FETPNG and the FNU PGCFE.

d) Support the establishment of an **Animal Health Information System** (AHIS) as an early warning system using some of the parameters of the World Organization for Animal Health (OIE) World Animal Health Information System (WAHIS) interface – with a view to it linking to the PPHSN network and working toward a One Health information management system.

Infection Control and AMR (combination of early wins and medium- to longer-term investments)

30. Support for infection control and AMR surveillance capacity and human resources will predominantly address medium- to longer-term strategic priorities and technical capacity development.

a) Invest through PPHSN to reinvigorate the **Pacific Infection Control Network** (PICNet) through a long-term regional staff position to lead PICNet's efforts to:

i) Support PICs to develop and update each country's **IPC governance mechanisms, surveillance systems and clinical guidelines** for health care settings.

ii) Strengthen **in-country networks** of IPC practitioners, including though **technical linkages** with the Australasian College of IPC and the Australian Commission on Quality and Safety in Health Care and/or clinical institutions in Australia or New Zealand.

iii) Provide a **regional technical forum** for development and implementation of AMR plans (in-country and/or by developing models and templates to be shared through the Network).

iv) Provide **technical guidance and capacity development for each country's IPC Committee and AMR Task Force** to support implementation of the IPC policy and guidelines and strengthen IPC practices in respective countries' health care settings.

b) Support for **postgraduate training** in **IPC** for nurses through Australian or New Zealand institutions or in Fiji, e.g.

i) Explore with PPHSN PICNet and FNU the possibility of developing and providing a PGC and/or PGD in IPC.

ii) Potentially incorporate into that program the distance and flexible learning modules that are already available through the Australasian College of IPC or the Australian Commission on Quality and Safety in Health Care.

31. Isolation facilities are an aspect of institutional IPC that may be amenable to early intervention in specific countries – in particular, **Samoa, Solomon Islands, Fiji, Tuvalu and Kiribati.** Australia should consider mobilising hospital design and IPC technical assistance (TA) to assist with design work for:

a) some remodelling of the existing or proposed isolation wards (Solomon Islands, Fiji, Tuvalu);

b) operating theatre and isolation ward design (Samoa); and

c) work with hospital architects engaged through other DPs to ensure inclusion of appropriate isolation facilities where major investment in clinical facilities is envisaged (Kiribati).

IHR-Compliant Legislation (medium- to longer-term investments)

32. We consider IHR-Compliant Legal and Legislative Frameworks (public health, animal health and quarantine) as a fundamental supportive element of the proposed Initiative. We therefore propose that legislation be supported in parallel with the three core technical themes, as follows:

a) Provide dedicated long-term legal capacity through the **placement of two regionally-based IHR legal experts** over 3 years; their brief would be to revise and update all IHR relevant legislations for all PICs (or provide templates and methodologies for doing so) within 3 years.

b) The two legal experts can potentially be co-located with the Pacific Community (SPC; e.g. at the Regional Rights Resources Team [RRRT] or with the Public Health team in Nabua, Suva), the USP Law Faculty, or with the WHO Regional Office for the South Pacific (WHO-SP) in Suva.

c) Given that PNG is not a member of USP and WHO has a separate representative office for PNG, the team is of the view that the SPC/PPHSN or RRRT location might be the best option, especially as it will also provide the opportunity of still working very closely with WHO through PPHSN.

Other Early Wins

33. Early wins that potentially support the three core investment areas but do not fall specifically under a laboratory, surveillance, IPC or legislative theme are included here. All are country specific in nature. As noted above (paragraph 26), they would generally be suitable for funding under Australia's bilateral programs where that program includes a health security component and the investment would be consistent with Australia's bilateral interests.

34. Country specific early wins include:

a) **Samoa** – TA to help the Government of Samoa to complete the health component of its National Security Policy.

b) **PNG** – Identify rabies champion or focal point within NDoH and TA to ensure access to human rabies vaccine and post exposure immunoglobulin, including import permits and importation processes. This TA could also continue to work up the process for obtaining access to the OIE animal rabies vaccine pool.

c) **Fiji** – Health Security Corps placements with the MHMS disaster management unit within the Climate Change and Health section (applied epidemiologist), and with the Fiji Red Cross Society (disaster risk management and risk communication specialist)

Other Medium- to Longer-term Priorities

35. Medium- to longer-term priorities that do not fall under any of the three thematic areas of investment or the legislation theme are included here. Progress – and the possible need for

Australian intervention or support – **would be monitored through Australia's active participation in the PaHSec coordination mechanism.** Most of these priorities would be multi-country in nature.

36. *Ports of Entry*

a) Support countries in the planning / design of appropriate and properly equipped medical facilities at all international POEs (airports and seaports) to facilitate examination of suspected infected patients, with separate access that does not expose other passengers and staff to the infection.

b) Develop and implement training (or conduct multi-agency simulation exercises) on standard protocols and SOPs that would be activated in the event of emergencies and disasters.

c) WHO-SP advised the scoping team they have resources to conduct these activities. CHS should set aside some funds for this activity in the event WHO funds are inadequate.

37. *Vector Control*

There is the potential for the Initiative to support vector control through a multi-country approach by providing entomological training, vector surveys (mapping and vector typing). Potential partnerships include:

a) *Aedes* mosquitoes – via the World Mosquito Program pilot projects in selected PICs to introduce *Wolbachia* infected *Aedes aegypti* mosquitoes (presently funded through DFAT's Innovation Exchange).

b) *Anopheles* mosquitoes – potentially linking through the Asia Pacific Malaria Elimination Network Vector Working Group (APMEN-VWG) in partnership with PNGIMR's vector-borne diseases unit, Institute Pasteur in New Caledonia (including through its collaboration with PNGIMR), and Vanuatu and PPHSN.

38. *Public Health Emergency Preparedness and Response Planning*

a) Support countries to revise and update their national PHEPRPs to incorporate an 'all hazards' response plan, where these are not already in place. **This activity would be prioritised in PICs where Australia's bilateral program included a health security component;** it would be conducted **in collaboration with WHO-SP or country offices** (as WHO has a lead responsibility in this area under PaHSec) **and the World Bank** (for financing responses).

b) Support a south-south network of emergency medical teams (EMTs) that can be activated in the event of a disease outbreak or natural disasters (subject to further discussion between the Pacific and Asian scoping teams).

39. *Monitoring and assessment of IHR Core Capacities*

a) Work with WHO South Pacific to support countries to undertake their annual IHR Core capacities assessments under similar arrangements to paragraph 35.

b) Monitor the OIE approach for undertaking Performance of Veterinary Services (PVS) assessments at the regional level, which they have piloted in the Caribbean. This may potentially provide guidance to PaHSec partners for undertaking a **'Pacific regional JEE'** for those functions that need to be available at a regional level to assist countries to meet their IHR commitments, but which smaller countries would not be expected to fulfil in their own right.

c) Support the participation of the IHR Focal Point at one JEE to observe and become familiar with the full JEE process.

40. *Broader health system and health financing investments*

a) **Pharmaceutical procurement and supply management (PSM) systems** – PSM systems remain an important part of emergency preparedness and response, whether for preventive purposes (e.g. vaccines), preparedness (e.g. stocks of PPE), diagnostic confirmation (e.g. laboratory consumables) or response to an outbreak or public health emergency (e.g. specific treatments). **While we are mindful that the Australian aid program has previously invested in pharmaceutical PSM in PNG and some PICs, we recommend that the CHS maintains communication with Australia's bilateral efforts** to review and strengthen pharmaceutical information management systems and the PSM systems that rely on them.

b) **Financing for emergency preparedness and response** –

i) Work with the World Bank in the Pacific to map the costs of Public Health Emergency Preparedness and Response Plans and encourage partner governments to provide a budget allocation to respond to health emergencies and the health consequences of natural disasters.

ii) Explore options for innovative technical support for disaster management through DFAT's Innovation Exchange (e.g. use of drone-based technologies for mapping and monitoring population displacement and access to health services following natural disasters).

Resourcing and Partnerships

41. We propose that consideration be given to **channel the investments for early wins and long-term investments as follows:**

a) **Investments from the CHS to achieve early wins** *that are additional to those provided under Australia's bilateral program in each country* (paragraph 33) may be channelled and delivered through the relevant bilateral program.

b) **For PNG** – the investments be channelled through and delivered together under the proposed health security component of Australia's bilateral program.

c) **For the rest of the Pacific** – the investments targeting multi-country outcomes under the three core thematic areas and the cross-cutting legislative theme (paragraphs 27b, 28-30, 32) would be achieved through a clearly targeted, multi-country project for the duration of the health security Initiative. This aspect of the investment would be managed through a project secretariat located within the SPC Public Health Division (PHD) under the oversight of a Regional Health Security Advisory Committee (RHSAC). The Advisory Committee would comprise senior representatives from selected Pacific countries and PaHSec (with DFAT, SPC and WHO being core members from PaHSec). The investments through the project would:

i) support PPHSN and the development of its component networks – LabNet, EpiNet and PICNet – including the cross-cutting themes and priorities;

(ii) provide long-term legal expertise to be hosted by SPC but working very closely with WHO's public health legal team based in the Regional Office in Manila; this will require long-term experts for region-wide work; and

(iii) be sustained by the implementing agency's own core resources on conclusion of the project.

d) In some cases, the multi-country investments maybe supplemented by specific bilateral financing channelled through bilateral funding and/or through regional resources delivered through Australia's collaborating institutions (e.g. Australian Red Cross Society; see also paragraph 42).

42. *Collaborating Australian Institutions* would be engaged through the Initiative according to the following principles:

a) Select and support Australian Institutions and/or networks that already (or have the potential to) collaborate with Pacific institutions or Pacific regional networks in areas that would enhance preparedness and prevention, detection and response to emerging, re-emerging and endemic infections.

b) On this basis, potential partner institutions would include:

i) The Australian Public Health Laboratory Network and its links and collaboration with the PPHSN/LabNet and respective Pacific island laboratories they collaborate with and support (paragraph 28d).

ii) The Australian Laboratories Emergency Animal Disease Diagnosis and Response Network and Pacific veterinary labs.

iii) The ANU MAE program and its links with the SPC/PPHSN/EpiNet and the FNU/CMNHS (through the School of Public Health and Primary Care; paragraph 29b).

iv) The Australasian College of Infection Prevention and Control and the Australian Commission on Quality and Safety in Health Care and/or clinical institutions and their link with the PPHSN/PICNet to enhance IPC and AMR guidelines in PICs (paragraph 30b).

c) Some other possible collaboration with Australian Institutions and/or their networks would warrant further exploration during the design process. These might include:

i) The Australian Red Cross Society and its links with Pacific Red Cross Societies and Organisations (paragraph 41d).

ii) Australian institutions that are part of the buttressing coalition that support the PNGIMR (paragraph 27b)

iii) Australian and New Zealand Biosecurity agencies to explore potential collaborations and protocols for passengers transiting directly to Pacific destinations through Australian and NZ ports – i.e. to reduce the risk of transmitting potential emerging or latent infections to Pacific destinations – alongside strengthening capacity in Pacific border control, quarantine and biosecurity agencies (paragraph 36). This is a complex issue which would likely need preliminary discussions between Biosecurity Agencies of Australia, New Zealand and Pacific Island countries with direct air links to either or both countries to explore whether such arrangements might even be possible.

iv) Australian-funded partnerships for strengthening vector control (paragraph 37).

The Design Process – Alignment with the findings of the Scoping Mission

43. We are advised that the design process will be CHS-led. We recommend the **continued involvement of the scoping teams** as a technical reference and internal peer review mechanism at key stages and for specific elements of the design.

44. We estimate that, of the AUD 100 million available for this phase of the Health Security Initiative for the Indo-Pacific region, **approximately 40% might be invested in the Pacific**. Given the geographical characteristics of the Pacific, it would be prudent to implement multi-country or regional approaches to achieve outcomes in as many of the countries as possible. This will entail making some investments to support an appropriate number of long-term positions to be based strategically in regional networks that have been proven to work – in this case, the PPHSN (hosted by SPC) and the PNGIMR. Some resources would be reserved for establishing and maintaining technical partnerships and synergies with Australian institutions (e.g. Public Health Laboratory Network, LEADDR, ANU MAE program, Australasian College of IPC, the new IMR advisory and support mechanism).

45. Subject to ongoing discussion between the two scoping teams and the CHS, a **results framework** could be developed as an Annex to clarify intended outcomes from the investments in the Asian and Pacific spheres. This would be shared with the consultant developing the overall monitoring and evaluation framework for the Health Security Initiative for the Indo-Pacific region in its entirety.

Annex 1

TERMS OF REFERENCE

HIGH LEVEL SCOPING STUDY for DESIGN of MULTI COUNTRY PARTNERSHIPS PROGRAM to STRENGTHEN HEALTH SYSTEMS FOR HEALTH SECURITY

PACIFIC TEAM

This Terms of Reference (TOR) specifically addresses Australia's investments through partnerships to strengthen health systems and improve health security in the Pacific region. One of the challenges facing Australia is how to maximise the effectiveness of investments in terms of their being fit for purpose, effective at both a national and regional level (making an individual country safer as well as contributing to the region's safety) and coherent (so that each activity contributes to a whole greater than the sum of its parts). A rigorous evidence-based investigation of options and clear-sighted analysis will reduce the potential for investments to be scattered, fragmented and low-impact.

This investigation will be a DFAT-led process, managed by the Indo-Pacific Centre for Health Security (CHS). The first phase will comprise a preliminary desk study (described briefly below but to be managed under a separate TOR), and scoping study. The first phase will be followed by a more technical design process, and the development of an M&E framework (both of which are described briefly below but to be managed under separate TOR).

- **Preliminary desk study:** Collation of existing information on health security capacity in target countries; information from posts; existing health program information, provision of key documents, briefing and background papers to consultants (eg JEE reports or IHR self-assessments, relevant DFAT evaluations or quality reporting, other studies identified through literature review).

- **Scoping Study:** High-level visit to the Pacific led by a senior consultant with high-level networks of contacts and access to senior members of Government in partner countries. This study is anticipated to include visits to up to four countries. It will culminate in a report and a presentation in Canberra with a broad group of staff from different areas to be invited, presenting recommendations for investment.

- **Design Process:** This will be a more detailed exercise designed to generate activities and annual plans, based on the Scoping Study Report. The design team will consist of technical experts from relevant thematic areas, and preferably include one person from the scoping study team to enhance continuity.

- **M&E and Performance Framework:** This should be addressed by the design team and linked to the overall Health Security Initiative (HSI) Performance Framework.

A) Background

The Indo-Pacific region includes many recognised hotspots for rapidly spreading and dangerous emerging infectious diseases, 75 per cent of which originate in animals. A major disease outbreak will have severe health and economic implications for our region - costing lives, disrupting regional trade, tourism, and development. In addition, the region is experiencing growing antimicrobial resistance including in tuberculosis and malaria, which threatens to undo decades of medical advancements in treatment of these high burden diseases.

In June 2016, the Australian Government made a pre-election policy commitment to invest in regional health security to safeguard the health and development of Australia and our region. DFAT's Indo-Pacific Centre for Regional Health Security in Australia is delivering on this commitment under the Indo-Pacific Health Security Initiative (the Initiative) announced by the Foreign Minister on 8 October 2017. This Initiative contributes to the avoidance and containment of infectious disease threats with the potential to cause social and economic harms on a national, regional or global scale.

With funding of A$300 million over five years its investments will:

- Promote global and regional cooperation
- Catalyse international responses to countries' identified needs
- Apply Australia's unique strengths in health security
- Accelerate access to new and effective tools.

The Initiative builds on Australia's Health for Development Strategy, 2015-2020, which emphasises the role of strong health systems in improving health security[10]. It aligns with the direction of the Government's new White Paper in positioning Australia to take an active and ambitious role in responding to regional and global challenges. The Initiative specifically addresses Sustainable Development Goal Target 3.d: to "strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks". The indicator for this target is countries' status in relation to the International Health Regulations (IHR) capacity and health emergency preparedness index - measured by self-assessment or through a WHO-led voluntary Joint External Evaluation (JEE). A similar index has been established by the World Organization for Animal Health (OIE) to evaluate the Performance of Veterinary Services (PVS).

The Initiative aims to inform evidence-based planning, help prevent avoidable epidemics, strengthen early detection capacity, and support rapid, effective national and international outbreak responses. It does this by accelerating research on new drugs and diagnostics, expanding partnerships at the national, regional and global level to strengthen human and animal health systems, and deepening people-to-people linkages that build national and regional health security capacity. Funding for the initiative is drawn from Australia's international development assistance program and will be applied to activities eligible to be classified as Official Development Assistance.

In 2017 DFAT's Office of Development Effectiveness commissioned an evaluation of Australia's investments in combatting pandemics and emerging infectious diseases, over the previous decade, with a focus on health systems impact – in both human and animal health. Previous programs have worked bilaterally and regionally. The evaluation found the best outcomes for animal health were: the establishment of a regional disease control model for foot and mouth disease (FMD) in South East Asia; and, the establishment of a digital surveillance program (i-sikhnas) for the use of farmers in Indonesia. Attempts to use a One Health approach (linking human and animal health) presented

[10] Questions used in the H4D Strategy to identify Health System Strengthening Activities were:
- Do the interventions have cross-cutting benefits beyond a single disease?
- Do the interventions address policy and organizational constraints or strengthen relationships between the different system areas?
- Will the interventions produce permanent systemic impact beyond the term of the project?
- Are the interventions tailored to country-specific constraints and opportunities, with clearly defined roles for country institutions?

challenges in working across jurisdictions. Areas with the best results were public health issues with common ground such as rabies, avian influenza and antimicrobial resistance.

Governments in the Indo-Pacific have shown a strong interest in health security with all ten ASEAN member countries having undertaken, committed to or formally expressed interest in undergoing a JEE of their capacities to meet the legally binding International Health Regulations 2005 (IHR) requirements. Pacific leaders have also agreed to develop a new Pacific Health Security Coordination Plan (PAHSEC) to assess and develop their IHR capacities.

B) Objectives of the Assignment

To investigate the articulated needs of countries and make recommendations for targeted responses that would:

- provide a clear value add in a crowded global context
- add up to a whole greater than the sum of parts
- have a regional impact as well as a national one
- build on existing, effective DFAT programs where relevant
- have appeal to partner governments, and our own
- are evidence-based and can demonstrate development outcomes (ie health security institutions and systems improvements)
- leverage resources where possible

C) Scope of the assignment

i) The Scoping Team

The scoping team will have senior representation and are expected to operate at a strategic level, consulting and communicating with senior government officials in selected countries to promote Australia's new Health Security Initiative, identify the partner country's view of national priorities in this area, and secure the partner country's commitment to participating in potential regional multi-country and whole of region activities.

The scoping team will also meet with country representatives of multilateral organisations, senior DFAT staff at post and where relevant, non-Government and private sector organisations.

ii) The Scoping Missions

The mission will comprise a period of approximately 34 days (19 travel days and 15 other working days).
The mission will comprise the following:

- Pre-departure work: document review and finalisation of methodology and planning (estimated 2 days), and pre-departure meetings in Canberra (estimated 3 days).
- Visits to four countries (estimated 19 days, indicatively three separate trips between 18 March and end of April
- Post-visits report drafting, workshops and presentation of findings to DFAT in Canberra (estimated 10 days = 3 days for country level reports and 7 days for the final report/workshop)

iii) Consultations for each mission team

Expected Canberra consultations (individual meetings and roundtables)

- Health Policy Branch
- Indo-Pacific Centre for Health Security
- Humanitarian
- Gender, Climate Change, Disability Branches
- Relevant DFAT country desks
- Multilaterals, Banks and Funds
- NGOs & Volunteers Branch
- Scholarships
- Select whole of government partners

In-country consultations

- Meet and brief Australian High Commissioner on arrival
- Consult with High Commission/Embassy staff
- Meet with partner government Ministries – Health, Finance/Treasury, Agriculture, Planning
- Meet with in-country multilaterals (WHO, OIE, FAO, ADB, WB)
- Meet with key bilateral donors
- Meet with relevant NGOs and/or contractors

iv) Reporting

The team will be responsible for preparing and delivering a consolidated regional report drawing on findings from in-country missions and the country reports, the team's technical experience, DFAT's strategic direction, Australia's comparative advantage, and a review of the literature.

The report is likely to take the form of a rapid situation analysis supported by recommendations identifying a limited number of options for Australian multi-country, country-led, and regional investment.

The final report will be around 15-20 pages long and will be delivered before the presentation.

The scoping study report should identify partner government and other stakeholder priorities, as well as establish where health security sits in their resourcing priorities; significant political economy issues, country needs and capacities, review possible investment areas, and identify areas that require additional inputs or information.

The report should include consideration of key issues/decisions, including:

- Priority areas
- Potential partners for implementation
- Options for resourcing/leverage
- Indicative funding

v) Recommendations

Within the scoping study report, the recommendations should address the following:

a) **Options for country-led or regional interventions**: identifying evidence-based activities to strengthen health security systems to enable improved prevention, detection and response to communicable disease outbreaks; with a focus on IHR (2005) and OIE/PVS core capacities.
   - **Value for money:** 'best buy' interventions, based on evidence of impact and cost

- **Achievable and sustainable outcomes:** an assessment of time and effort required to achieve results, and of likely sustainability after program ends.
- **Potential partners:** including national government departments, multilateral organisations (see below), regional bodies, non-Government organisations, private sector organisations, other donors and academic institutions.

b) **Potential entry points for Australian co-financed health security investments** in target countries through partnerships that could include:
   - key multilateral partners including WHO, World Bank, ADB, Global Fund, Gavi, and identifying entry points in existing processes (e.g. costed JEE plan implementation, relevant regional implementation plan for health security [e.g WHO PahSEC]; financing assessment and support with World Bank); and
   - potential opportunities for collaboration and co-financing from other donors, particularly the US (USAID, USCDC), and possibly China, Korea and Japan.

D) Team composition, duration and phasing

Team composition

Up to three team members comprised of:

- Strategic Lead
- Technical specialist – epidemiologist/public health
- Technical specialist – public health/laboratory specialist

As well as:

- DFAT lead – Head, Centre for Health Security/Ambassador for Health Security/other senior DFAT officer
- DFAT Secretariat support

Duration and Phasing

Date	Activity
19 and 20 March 2018	Consultations in Canberra; pre-departure meetings (HPB, CHS, PSS, desks, etc) Draft Methodology/ approach /plan
21-29 March 2018	Field work –Samoa (22-24 March) and Solomon Islands (26-29 March)
9-20 April 2018	Field work – Papua New Guinea (9-14 April) and Fiji (15-21 April)
23-27 April	Team workshops and drafting mission aide memoire for DFAT
4 May	Report finalisation