



**NEW ZEALAND
FOREIGN AFFAIRS & TRADE
Aid Programme**

Evaluation of the Strengthening Pacific Health Laboratory Systems Activity

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Glossary of Acronyms

Acronym	Description
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ARF	Activity Results Framework
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DAC	Developmental Assistance Criteria
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DFAT	Department of Foreign Affairs and Trade (Australia)
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DipMLSc	PPTC Diploma of Medical Laboratory Science
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FNU	Fiji National University
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GFA	Grant Funding Arrangement (New Zealand Aid Programme)
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IDG	International Development Group (MFAT)
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KEQ	Key Evaluation Question
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LQMS	Laboratory Quality Management Systems
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MFAT	Ministry of Foreign Affairs and Trade
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ODA	Official Development Assistance (New Zealand Aid Programme)
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PIC	Pacific Island Country
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PIHOA	Pacific Island Health Officers Association
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POLHN	Pacific Open Learning Health Network
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PPTC	Pacific Paramedical Training Centre
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REQA	Regional External Quality Assurance
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SPC	Secretariat of the Pacific Community
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STTA	Short-Term Training Award (MFAT)
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UFE	Utilisation focused evaluation
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WHO	World Health Organization
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1. Executive Summary

1.1. Purpose

This report presents the findings of an independent evaluation of New Zealand's support for laboratory strengthening in the Pacific (i.e., the Strengthening Pacific Health Laboratory Systems Activity 2012-2015 or the Activity). The evaluation assessed the extent to which PPTC support during the current Grant Funding Arrangement (GFA) has strengthened participating laboratories. It also assessed regional factors, drawing on the findings, to identify how MFAT might support the strengthening of Pacific laboratories in the future.

1.2. Background and context

MFAT has provided support to strengthen Pacific health laboratory systems since 1981. The current GFA began in 2012 and ends in December 2015. Since 2012, three main programmes have contributed to the overarching goal that:

'Pacific Island Countries [PICs] provide quality medical laboratory services that are appropriate, affordable and sustainable to support diagnostic health services and its delivery'.

The three programmes are:

1. Implementing a Regional External Quality Assurance (REQA) Programme.
2. Delivering Training for Pacific laboratory staff (i.e., this spans a range of activities including teaching support for POLHN distance learners, administration of four week speciality discipline courses in Wellington, some New Zealand-based short term laboratory attachments, and delivery of specialty and REQ/LQMS related in-country and regional training sessions).
3. Supporting a Laboratory Quality Management Systems (LQMS) Programme.

1.3. Objectives of the evaluation

This evaluation provides information that will assist MFAT to review its current engagement with PPTC, and to make decisions on its support for strengthening Pacific health laboratories in the future.

There were four stated evaluation objectives:

1. Assess the relevance of laboratory strengthening and how it is contributing to country development needs and priorities and how it is aligned with other health services and priorities
2. Assess the outputs, outcomes, or changes brought about by the work delivered through the programme compared with the resources used (value for money)
3. Assess the likelihood of long term benefits of the Activity delivered through the PPTC beyond the current funding

4. Determine any issues, gaps and actions to be considered in future initiatives.

1.4. Methodology

Pacific health laboratory support through the Activity was examined against six criteria: relevance, effectiveness, impact, efficiency/value for money, sustainability and cross-cutting issues.¹

During the evaluation planning phase, evaluative rubrics were developed to:

- show the links between evaluation questions, evaluative criteria and evidence sources
- make transparent the standards of performance² for each of the DAC criteria against which the Activity was assessed.

A range of information including literature review, interview data, document review (including Activity monitoring and financial reports) was analysed against the evaluation questions and standards and an evaluative assessment made for each criterion.

Fifty-six Activity stakeholders were interviewed between February and March 2015 including face-to-face interviews undertaken in Tonga, the Cook Islands, Samoa (during in-country visits) and in New Zealand. Telephone interviews were completed with stakeholders in Kiribati and the Marshall Islands.

Vanuatu was initially intended as a country of focus, however scheduled Vanuatu interviews were cancelled as a result of Cyclone Pam.

1.5. Key findings

How well has the Activity delivered its intended outputs and outcomes as articulated under the current GFA?

This section provides an evaluative assessment of the Activity for each criterion, with summary findings and overall performance ratings.

Criteria	Rating	Findings
Relevance	Fully achieved	<ul style="list-style-type: none">• Overall, the Activity design aligned well to strategic PIC health system needs, including nationally identified needs for laboratory strengthening in PICs.• The REQA, LQMS and training programmes were highly valued by PICs and provide a

¹ Definitions of these criteria were based on Developmental Assistance Committee (DAC) definitions of these terms, with minor adaptations.

² The standards for the purposes of this evaluation are 'Fully achieved', 'Mostly achieved', 'Minimally achieved' and 'Not achieved'.

Criteria	Rating	Findings
		<p>good fit with in-country aspirations for laboratory capacity building.</p> <ul style="list-style-type: none"> PICs preferred PPTC to other providers, and appreciated the flexible and relational approach tailored to Pacific contexts. The Activity reflects current New Zealand Official Development Assistance (ODA) priorities of sexual and maternal health, specialised treatment services and non-communicable diseases (NCDs).
Effectiveness	Mostly achieved	<ul style="list-style-type: none"> The Activity is on track with good progress achieved against most agreed GFA outputs and short-term outcome indicators and targets. Together, the three programmes are making a valued contribution to workforce development, improved capacity and quality standards across participating PICs. REQA results and participation have improved. PPTC training is in high demand and LQMS flexibility was valued by PICs. In-country challenges had limited the effectiveness of programmes in some countries with mixed evidence on PPTC's responsiveness to unique needs and challenges in some PICs; however, the PPTC were considering ways to address a number of those challenges in future.
Impact	Mostly achieved	<ul style="list-style-type: none"> Positive changes in laboratory strengthening have been achieved through all Activity programmes, in particular government endorsement and student uptake of the DipMLSc and increased compliance among the five focus countries with World Health Organization (WHO) quality standards. In Tonga, coherence with other donors and in-country commitment had augmented Activity impact, with significant strengthening achieved, and positive service impacts reported by clinicians. Focusing programme resources more strongly towards specific needs identified by different PICs may further enhance impact.

Criteria	Rating	Findings
		<ul style="list-style-type: none"> The Activity focus at the laboratory level has not lessened the systemic challenges, such as levels of commitment and resource allocation in-country, to quality assurance outcomes being achieved.
Efficiency / value for money	Mostly achieved	<ul style="list-style-type: none"> Overall the Activity was implemented efficiently, and costs were modest given the resource input (in relation to the reach of programmes to multiple countries and laboratories, working to broad outcomes). Some minor improvements are possible, such as increased transparency of how resources are targeted at the country level and strengthening of Activity financial reporting. Increased targeting of Activity resources to need (LQMS) and programme participation (REQA) could enable some efficiencies. PIC stakeholders suggested that participating laboratories would have been worse off without the Activity. In Tonga and the Cook Islands they highlighted the value of the support in reducing human and health costs in PICs, particularly in relation to NCDs.
Sustainability	Mostly achieved	<ul style="list-style-type: none"> The Activity contributed to workforce development and progress in quality management systems that is likely to continue beyond the GFA. In-country factors had potential to undermine results and in-country champions and ongoing system level commitment are needed. Many laboratories need support beyond the current Activity. Lack of institutional sustainability, namely the the vulnerability of PPTC to external funding streams, presents a risk to sustainability of Activity outcomes in the longer term.
Cross-cutting issues	Minimally achieved	<ul style="list-style-type: none"> The Activity did not explicitly target cross-cutting issues although it would have made some contribution to human rights, gender and environment issues.

To what extent is the current Activity well-designed to meet regional laboratory needs and MFAT Health Development goals in the Pacific in future?

Strengthening laboratory services is very relevant to current and emerging health development needs in the Pacific region. In particular, early detection, diagnosis and ongoing management of NCDs requires effective diagnostic laboratory services.

Support for laboratory strengthening is well aligned to MFAT priorities for the ODA programme and the wider emphasis on sexual and reproductive health, specialised treatment services and reducing the prevalence and morbidity of NCDs.

There are indications that the current level of regional support for strengthening laboratory services is unlikely to continue into the future with predicted changes to priorities and reduced funding from other key organisations involved in laboratory strengthening such as DFAT and WHO.

Sustainable gains are possible through a regional approach with a continued focus on workforce development and quality assurance, supplemented by bilateral investment. The changing landscape of support across the Pacific indicates that different approaches may be more effective and it is an appropriate time for MFAT to review how it targets its support of laboratory services from 2016 onwards.

1.6. Recommendations

The following recommendations inform MFAT and the PPTC on areas for consolidation and improvement regarding the design and implementation of the current Activity. The recommendations will also inform MFAT decisions regarding any future funding beyond the current GFA.

Activity funding recommendations for MFAT

In relation to the Activity, it is recommended that:

1. Noting the unique position, approach and strengths of the PPTC to provide effective technical support for workforce and quality capacity development in PIC laboratories, MFAT continue its funding support for the Strengthening Pacific Laboratories Activity.
2. This support include continued funding for the LQMS and REQA programmes, but with increased flexibility and targeting of programmes to provide more services to countries that require more support.
3. The provision of in-country training through the Activity is increased.

Activity operational recommendations for PPTC

In relation to the REQA programme, it is recommended that the PPTC:

4. Re-emphasise through in-country training the importance of systematic use of REQA results.
5. Consider strengthening current processes for provision of REQA reports directly to hospital and or Ministry management.

In relation to the LQMS programme, it is recommended that the PPTC:

6. Prioritise the number and length of LQMS visits to target high needs laboratories.
7. Increase collaborative upfront engagement with MFAT and other partners for any LQMS projects at the country level on essential pre-conditions for effectiveness.
8. Provide more 'train the trainer' approaches in LQMS training, working with more advanced laboratory staff and laboratory quality managers.
9. Consider supporting more progressive laboratories like Tonga to host training with staff from other PICs.
10. Consider providing in-country training support in the area of personnel management.
11. Consider strengthening current processes for provision of LQMS reports directly to hospital and or Ministry management in-country.

In relation to teaching and training activities, it is recommended that the PPTC:

12. Consider for centre based courses the needs of individuals for tiered training (with eg. introductory/intermediate/advanced levels) – as well as practical attachments to laboratories to supplement the theoretical training to better align with distinct groups of student needs.
13. Provide two week hands-on supervised laboratory attachments for more recent graduates in PIC laboratories targeted at staff working in that area in the laboratory afterwards, and after speciality courses, to augment advanced courses.
14. Consider more formal pre- and post-tests for all specialty training courses to better demonstrate student learning outcomes.
15. Develop a strategy for maintaining contact with all training graduates funded through the Activity to monitor post-training and career pathways to assess relevance and impact of training delivered.

16. Increase in-house DipMLSc support to students, such as by facilitating better access to areas for bench work, and increased supervision. Also increase external supervision and assessment provided by PPTC. For example, expansion of the programme to include one week of practical training and an assessment for each module. Ideally, gaining this experience in another laboratory in the Pacific, such as Fiji or Tonga, which are better equipped, would provide good exposure and learning for the students, albeit would increase the cost of the programme.
17. Consider adding a cytology module to the DipMLSc, which would support laboratories in PICs to conduct testing to prevent and diagnose cervical cancer.

In relation to the Activity, it is recommended that the PPTC:

18. Seek to work with MFAT to consolidate the current Activity monitoring and evaluation framework, in particular to ensure outcome indicators capture all programme activity, are SMART, are reported at the country level, and that assumptions and limitations relating to outcomes indicators are identified.

Future funding recommendations for MFAT

In determining any future support, MFAT should consider:

19. Increasing the level of investment in laboratory capacity development to a level where sustainable gains will be able to be made across the Pacific, or target a lower level of support to selected countries identified as more likely to benefit from increased investment and fewer activities while noting the effectiveness of the current Activity, emerging Pacific health needs, and indications of future donor support.
20. Supporting the DipMLSc course while noting the demand for and relevance of the DipMLSc course for sustainable Pacific laboratory workforce development.
21. Investing in developing, establishing and maintaining a post-graduate three-year pathology programme specifically for Pacific medical practitioners.
22. Building on other clinical exchange mechanisms supported in Pacific health development and supporting the establishment of a system for enabling PIC laboratory staff to obtain supervised clinical experience in another laboratory, preferably in the Pacific but alternatively in New Zealand.
23. Noting the efficiency currently achieved through regional mechanisms and maintaining support through the regional health programme and channelling it through a single agency or consortium to provide a Pacific nexus or hub of laboratory expertise and capacity development, with satellite organisations sub-contracted to provide services as necessary (Note this support would need to have specific laboratory and pathology expertise).

24. Giving responsibility to any future lead regional activity provider to lead the development of a regional laboratory plan, including workforce development, to set the priorities for activities for the next five years.
25. Requesting proposals through a contestable tendering process for a regional provider to manage the full investment once priority activities and services are identified.
26. Ensuring increased flexibility to target use of any future funding to emerging needs and use of a mix of regional, multi-country and bilateral approaches where appropriate to ensure the best value for money.

2. Background

This report presents the findings of an independent evaluation of New Zealand's Aid Programme support for medical health laboratories in the Pacific, delivered through the Strengthening Pacific Health Laboratory Systems Activity 2012-2015 (the Activity).

2.1. Context

Efficient and reliable health laboratory services are critical and integral components for clinical and public health functions within health systems. In 2010, the WHO estimated that 70 percent of health decisions involve laboratory results.

While there is considerable variation in the ability of Pacific Island Countries (PICs) to offer comprehensive and high quality laboratory tests, overall laboratory infrastructure, health laboratory workforce capacity and capability and laboratory services in the region generally require significant quality improvement (Clark, 2014a).

Strengthening laboratories in the Pacific is dependent on adequate funding from external donors (Secretariat of Pacific Communities (SPC), 2013b).

2.2. New Zealand support for Pacific laboratories through the PPTC

Since 1981, the New Zealand Aid Programme has funded the PPTC, a not-for-profit organisation located at Wellington Hospital, to provide PIC health laboratory strengthening.

Under the current GFA (2012-2015), the PPTC provides training and capacity development assistance for clinical laboratory and blood transfusion services across the Pacific as well as in countries in South East Asia. The Activity comprises three main programmes that aim to contribute to an overarching goal of "Improving capacity and standards of health laboratories in the Pacific", namely:

1. Implementing a REQA Programme under which known specimens are sent to participating laboratories to test; the PPTC then independently provides scores and feedback on the results.
2. Delivery of Training³ and courses for PIC laboratory staff (i.e., this spans a range of activities including support for POLHN distance learners, development and administration of four week speciality discipline⁴ courses in Wellington, some New Zealand-based short term laboratory attachments, and delivery of specialty in-country/regional training sessions including some in relation to REQA and LQMS).

³ The GFA training budget was allocated (approximate proportions provided by PPTC for 2014) across distance learning (28%), centre based courses (28%), in-country specialty courses (19%) and training related to REQA/LQMS (25%).

⁴ PPTC specialty courses cover a range of disciplines including Haematology, Transfusion Science, Clinical Biochemistry, Medical Microbiology, Laboratory Safety and Infectious Diseases, Phlebotomy, Laboratory Quality Management, Cytology and Histology.

3. Supporting an LQMS Programme that helps countries to operationalise the WHO Asia-Pacific Strategy for Strengthening Health Laboratory Services, and includes annual laboratory audits and in-country staff training.

The direct costs of Wellington-based specialty courses and the DipMLSc are not funded under the GFA: specialty courses are funded through student fees and the DipMLSc is funded by WHO.

2.3. Evaluation purpose and objectives

This is a summative evaluation designed to determine the effectiveness of the Activity in meeting the stated outcomes for 2012–2015, to identify learnings, and to assess the need (and scope of that need) for similar support in the Pacific beyond the current funded period. A summative evaluation is appropriate as New Zealand Aid Programme support to the the PPTC is longstanding, and the current PPTC delivery is stabilised. Overall, this evaluation will inform MFAT decisions on whether to continue or modify funding to support laboratory strengthening in the future.

There were four stated evaluation objectives⁵:

1. Assess the relevance of laboratory strengthening and how it is contributing to country development needs and priorities and how it is aligned with other health services and priorities
2. Assess the outputs, outcomes, or changes brought about by the work delivered through the programme compared with the resources used (value for money)
3. Assess the likelihood of long term benefits of the Activity delivered through the PPTC beyond the current funding, and
4. Determine any issues, gaps and actions to be considered in future initiatives.

The key evaluation questions, detailed sub-questions, the evaluation framework and detailed methodology are provided in Appendix 8.2.

2.4. Scope

The evaluation focuses on PIC laboratory support for all participating countries during the period between January 2013 and December 2014, with particular reference to Tonga, Samoa, the Cook Islands, the Marshall Islands and Kiribati. Vanuatu was initially intended as a country of focus; however, scheduled Vanuatu interviews were cancelled as a result of Cyclone Pam, which limited available data for country-level analysis.

This evaluation also considers the PPTC's delivery of the DipMLSc and three four-week speciality courses, where relevant. This is because during the evaluation process it was apparent that both of these, while not funded through the current GFA, are significant and included in the Activity Implementation, Monitoring and Evaluation Framework.

⁵ MFAT Evaluation Contract for Services, p.3.

2.5. Methodology

The methodological approach was based around a rubric developed during the initial phase of the evaluation. The rubric described levels or 'standards' of performance for the six criteria to be considered in this evaluation: relevance, effectiveness, impact, efficiency/value for money, sustainability, and cross-cutting issues. Information from relevant literature, interviews, documentation and administrative data was analysed against the standards of performance, and an evaluative assessment produced for each criterion that is expressed using traffic light indicators as shown below.

Fully achieved	Mostly achieved	Minimally achieved	Not achieved
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Fifty-six stakeholders were interviewed (face-to-face or by telephone) in New Zealand and in the Pacific during February and March 2015. Fieldwork was conducted in Tonga, Samoa and the Cook Islands from 16 February until 27 March.

There were some limitations of this evaluation. Some of the key issues included that, ideally, the development of an evaluative rubric is developed collaboratively with key stakeholders during scoping of the evaluation. For this evaluation, such an approach was not possible given budget and time constraints, and the location of key stakeholders in the Pacific. Also, planned phone interviews with Vanuatu stakeholders were cancelled as a result of Cyclone Pam and the team had problems accessing some stakeholders in Kiribati and Marshall Islands. WHO and SPC representatives were also unable to be contacted.⁶

In addition, the data available through Activity financial and monitoring reports to some extent limited assessment of impact and value for money in this evaluation. This is discussed in those sections respectively and the relevant evaluative assessments therefore drew heavily on information reported by stakeholders.

2.6. Structure of the report

The report findings are in two parts.

1. Part A evaluates the extent to which the Activity has been relevant, effective, its impact, sustainability and efficiency/value for money for 2012-2014 for participating PIC health laboratories. Evaluation performance ratings are identified for each DAC criterion sub-section. Key findings are indicated throughout the margins in red.
2. Part B identifies options for how New Zealand might support Pacific health laboratories in the future.

The evaluation conclusions, lessons learned and recommendations are provided in subsequent sections.

⁶ This was a lesser issue as the evaluation team had collected technical advice on the Activity from those stakeholders for a previous report (Clark, 2014c), and that advice informed the present evaluation.

3. Findings

The assessment findings of the Activity against the evaluation questions are reported against the six identified criteria, namely: relevance, effectiveness, impact, efficiency/value for money, sustainability and cross-cutting issues. The evaluation questions are available in section 8.2.1.

For each criterion, the section first provides a criterion definition and a traffic light indicator of performance (see section 8.2.2). Following this is the detailed discussion of findings on which evaluation conclusions and performance ratings are based.

Fully achieved
Mostly achieved
Minimally achieved
Not achieved

Part A: How well has the PPTC Activity delivered its intended outputs and outcomes as articulated under the current GFA?

3.1. Relevance

Relevance was defined as “the extent to which development interventions are suited to the priorities and policies of the target group, partner and donor”.⁷ Specifically, this criteria was considered in terms of relevance to stated PIC health system needs, to the needs of participating health laboratories, and finally to current MFAT ODA sector priorities.

3.1.1. Activity design aligns well with strategic health system needs in PICs

High quality health laboratory services are integral to health systems and outcomes for people in PICs and, as such, are fundamental for human development, workforce participation and productivity. Both strategically and practically, the Activity design, with its focus on workforce development and quality improvement, appears highly relevant to identified policy needs in the countries of focus.

Analysis of national strategic health policies in participating PICs highlighted clear links between the quality of national laboratory services and the health systems in those countries. For example:

- Tonga has recognised the “central role that laboratory services play in supporting the clinical and public health service” and noted that the “laboratory service is a critical component of the health system, influencing efficiency and effectiveness of both clinical and public health functions including surveillance, diagnosis, prevention, treatment, research and health promotion” (Ministry of Health, 2015).

PICs reported human health and system cost benefits through the Activity

Laboratory strengthening aligns well with strategic PIC health priorities

⁷ Evaluation Policy for the New Zealand Aid Programme, June 2014, accessed at: <http://www.aid.govt.nz/sites/default/files/Evaluation%20Policy.pdf>

- Laboratory strengthening is also a key priority for Samoa's National Health Service where clinical and diagnostic supportive health services, are identified as a key objective of strengthening clinical care (Ministry of Health, 2008).
- In the Cook Islands, provision of quality laboratory services is identified as a key need to address the prevalence of NCDs and risk factors that are placing increasing pressure on the health system, including human, pharmaceutical and laboratory resources (Te Marae Ora, 2012).
- A lack of qualified staff, particularly in laboratory services, is identified as a significant challenge in Kiribati in terms of addressing key issues of maternal and child morbidity and mortality, communicable diseases, and NCDs, as well as "strengthening all the pillars of the health system" and "strengthening the capacity of the laboratory so that it can provide timely diagnostic responses" for communicable diseases (Department of Health, 2012).
- In the Marshall Islands, links are made between key health system needs in NCDs including cervical cancer, and the need for improved diagnostics to reduce the percentage of unsatisfactory PAP smears, a review of laboratory procedures and equipment and laboratory staff training (Ministry of Health and Environment, 2000).

3.1.2. Activity design is well aligned to current PIC health laboratory needs

Activity design aligns with PIC laboratory needs

Fieldwork and interviews substantiated the relevance of the Activity design for participating PIC laboratories, particularly its triple focus on developing laboratory workforce, capacity and standards. The PPTC programmes (and in-country training in particular), have enabled laboratories to address current in-country health priorities. For example, it was generally recognised that the underperformance of the two laboratories in Samoa impacts significantly on the quality of clinical care, both in hospital and in the community. In Samoa there is no training currently available in-country, which creates a heavy need for training delivery which the Activity provides.

Cook Islands laboratory workforce development was similarly important in the context of increasing demands on laboratory services to address NCDs, and because it is difficult for most staff to leave Rarotonga for extended training.

In Kiribati, targeted laboratory assistance around skills and standards was highlighted as important for the country to address high disease and mortality rates in priority areas, such as NCDs and infectious diseases. Stakeholders reported similar needs around workforce capability and quality assurance in the Marshall Islands' laboratories.

“Development of laboratory human resources is singularly the most important job.” (Hospital management, Marshall Islands)

By comparison, the Activity appeared less critical in Tonga, given the considerable laboratory strengthening achieved over the past two years boosted by Department of Foreign Affairs and Trade (DFAT) support⁸, which included the employment of a specialist pathologist to lead quality improvement.

3.1.3. REQA was highly relevant to development aspirations of PIC laboratories
REQA was highly relevant to development motivations of PIC laboratories

REQA is an affordable and important element for diagnostic quality assurance in PICs

REQA delivers an essential element of quality assurance for Pacific laboratories. In 2013, 45 laboratories participated; 54 participated in 2014. The primary output of REQA for participating laboratories that submit their survey results is a report which gives the ‘correct’ answers determined by a referee laboratory and feedback that has an educational component.

Laboratory staff consulted as part of the evaluation consistently emphasised the usefulness of REQA as an external check on the quality of their laboratory work, for staff learning and improvement, and for benchmarking their performance⁹ over time. For example, in Tonga, the REQA results feed into team discussions to identify corrective actions, with results trends displayed on wall charts in the laboratory. Also, the provision of stock culture through REQA was considered an essential input into the laboratory’s microbiology operations. In the Marshall Islands, the REQA programme was regarded as “singularly important” to diagnostic results for hospital clinicians, without which the laboratories would be operating a “blind effort”. The specimens and questions received from PPTC provide continuing education and “keep the spirit of proficiency testing going”.

Laboratory managers also highlighted the lack of financially viable alternatives to meet this need. In Samoa, laboratory staff were keen to broaden the scope of REQA to include blood films, and they highlighted the value of the feedback for staff in acknowledging success and aiding improvement.

3.1.4. PPTC centre-based training was mostly relevant to PIC laboratory staff learning needs

PPTC specialty courses are funded by student fees and not funded through the GFA. They are advertised widely and made available to

⁸ This was a DFAT response to a situational analysis (WHO, 2013) highlighting critical issues affecting the quality of health service in Tonga including for NCD prevention and control.

⁹ It was noted that PICs find it difficult to achieve 100 percent because often their results were affected by in-country factors, such as the equipment used or short supplies of specific reagents.

applicants throughout the Pacific. The courses provide Wellington-based training for PIC laboratory staff to gain foundational medical laboratory science knowledge, refresh knowledge in specialty disciplines and, on occasions, gain exposure to New Zealand laboratory practice. Most laboratory staff who had accessed speciality courses had valued them highly although some feedback was mixed on whether the level or content had been right for their individual needs. For example, in the Cook Islands, the feedback on the specialty courses was positive with former students valuing the content which they found well designed for the Pacific context. Wider health stakeholders consulted saw exposure to laboratory academics and practices overseas as important for strengthening staff capability and enhancing the quality of services, particularly with rapid international technological developments. Similarly, Kiribati hospital management reported that the courses were meeting a local need, particularly as most of the laboratory staff are school leavers and do not have basic laboratory training.

"If PPTC is done away with, there will not be this kind of opportunity available, and laboratory training would markedly decrease."
(Hospital management, Kiribati)

Selection of staff for training is however largely dependent on decisions by laboratory management in-country. The PPTC specialty programmes have had poor uptake from Samoa in recent years, with only two staff members having completed these courses. While staff and management valued the courses, they have been unable to attract financial support to attend. To some extent, relevance might be established by the ability to attract scholarships (for example, MFAT STTA covers travel, accommodation and expenses) and support (the host country is required to cover fees) to attend them. Numbers attending in 2014 reduced to 14 from 22 the previous year, reportedly due to the inability of students to obtain scholarships and support. The impact of this decline is discussed more fully in the Effectiveness section.

**PPTC
specialty
training is
highly valued
by PIC
laboratory
staff**

3.1.5. *The DipMLSc (POLHN) provides a fundamental training platform for the PIC laboratory workforce*

The DipMLSc, funded by WHO, is delivered by distance learning and is free of charge.¹⁰ It provides an introduction to medical laboratory technology for unqualified staff and those who are graduates of general science degrees. The DipMLSc is now recognised by most PICs as the foundation training requirement for medical laboratory work:

"The DipMLSc has provided a laboratory professional development programme that ... is a foundational qualification

¹⁰ While not funded through the GFA, it is noteworthy as it was considered highly relevant for PICs, especially where there are no in-country alternatives for foundation training for laboratory workers.

for RMI medical laboratory technicians.” (Secretary of Health, Ministry of Health, Republic of Marshall Islands, June 2014)

The relevance of the DipMLSc is reflected in high and increasing uptake for the qualification in recent years with 29 students enrolled in 2014, increasing to 59 in 2015.¹¹

The diploma is recognised by the Cook Islands Ministry of Health and staff are encouraged to undertake the qualification. It has largely superseded the locally developed training certificate for all new laboratory workers, and a computer room above the laboratory is available to staff for study. In-country learning meets the need for Cooks laboratory workers to work and study on the job.

“PPTC POLHN fills a gap and builds a foundation for new staff ... We would like to see this continue especially for staff with families, who cannot leave overseas for long-term training.”
(Laboratory staff, Cook Islands)

In Samoa, access to the diploma is even more critical with the recently passed Allied Health Professions Act 2014, which requires all medical laboratory technicians and scientists, along with a range of other allied health professions, to be registered. It is not yet fully enacted but the proposed compulsory qualification for scientists will be the completion of a medical laboratory science degree and technicians either a science degree or the PPTC DipMLSc.

3.1.6. The flexible approach of LQMS was considered very relevant to diverse PIC needs

**PICs
appreciate
LQMS
flexibility to
address
ad-hoc
laboratory
issues**

It is difficult for PIC laboratories to achieve compliance to international standards for medical laboratories (ISO15189). As part of a five year strategy, the PPTC developed an audit tool, adapted from the WHO minimum standards model, to measure progress towards meeting the Pacific laboratory standards. This tool was used to measure progress in improving health laboratory standards during country visits. The PPTC prioritised its LQMS support to the five focus countries¹² based on factors such as geographical location, past interactive professional relationships, baseline assessments, and relevance to the New Zealand Aid Programme. LQMS work undertaken by PPTC was considered central to stakeholders’ quality improvement goals. LQMS provides PPTC with an opportunity for in-country training, support for DipMLSc students and provides advice on current problems and issues experienced by staff.

Most laboratory staff considered the audits very relevant, and appreciated the ad-hoc in-country training, and the flexible and hands-

¹¹ The evaluators were informed by a WHO POLHN co-ordinator that the significant increase was due to the belief that 2015 is the last intake that will be funded.

¹² Samoa, Tonga, Kiribati, the Cook Islands, and Vanuatu.

on laboratory trouble-shooting assistance provided during in-country visits. Staff reported that they valued PPTC responsiveness to country-specific learning requests, both during and after visits.

“LQMS audits elaborate procedures and summarise policies of all the activities centred on giving a quality result, the ultimate goal of laboratory testing. It focuses understanding of the laboratory and clinicians as key clients as a whole but also directs the entire laboratory to quality results and diagnosis.” (Hospital management, Marshall Islands)

PICs appreciate LQMS has delivered tangible benefits for PIC laboratories

The LQMS has tangible benefits for participating countries. For example, laboratory staff in Tonga noted the relevance of PPTC LQMS for their process improvements on laboratory control mechanisms such as documentation, manuals and Standard Operating Procedures (SOPs). In the Cook Islands, the PPTC’s informal advice was considered critical in the selection of a new supplier and equipment for the Cook Islands laboratory. The PPTC had recommended an IT system upgrade to reduce errors of manual entry reporting into the hospital system, and to provide laboratory statistics to support required surveillance work for identification and reporting around NCD prevention. Samoan staff greatly appreciated the in-country visits of PPTC which were particularly important for providing supervision and support for LQMS diploma modules, given the difficulties experienced by students in obtaining in-country supervision.

Historical support by PPTC to the Marshall Islands laboratories was considered critical by laboratory stakeholders, prior to which, much of the testing undertaken was through “do it yourself” procedures and kits (e.g. multistix or automated complete blood count (CBC)) by low skilled staff, and often with poor quality results. A Marshall Islands stakeholder reported that laboratory staff appreciated the approach of PPTC in tailoring the LQMS programme to local needs:

“One shirt does not fit everyone; one LQMS does not fit every laboratory.” (Health Director, Marshall Islands)

3.1.7. PICs valued the PPTC’s understanding of Pacific ways and laboratory contexts

PIC laboratories appreciate the PPTC approach tailored to Pacific contexts

The PPTC has a long history of established relationships and institutional knowledge about the laboratories throughout the Pacific. The PPTC understanding of Pacific contexts, the tailoring of its programmes to those contexts and its approach to work was reported as relevant. Stakeholders appreciated the relational approach of PPTC staff, the informal support PPTC provides to laboratories, and, for example, PPTC understanding of the factors impacting on REQA and LQMS results in the Pacific.

In Tonga, the quality assurance training and advice undertaken in-country was valued because it was seen as reflecting the reality of the

Tonga laboratory context, namely relevant to the manual processes and non-automated equipment that the laboratory is using.

A laboratory staff member in Samoa had completed an attachment in New Zealand through the Institutional Linkage Programme (ILP). Although reported as beneficial, the laboratory technician felt that many of the skills learnt there were not applicable when back in their home country where the type of equipment they had used is not available.

"I'd really rather do something with PPTC, it's more helpful." (Laboratory staff, Samoa)

While mentioned in the preamble of the Activity documentation, the availability of 'on-call' informal advice and support to Pacific laboratories is not specified as a formal output of the PPTC programme. Yet the frequency and responsiveness of the PPTC to requests for technical support by email from participating PICs, both in follow up to training and LQMS, was evident. While the level of support was unable to be quantified for the two years of the Activity, the availability of this support was clearly significant for laboratory staff in PICs.

"Having PPTC there to contact for advice...and having a personal relationship with them...knowing they will always help. They understand "the Pacific Way" and they adopt that approach which is very important to us." (Laboratory staff, Cook Islands)

Similarly, a Marshall Islands' stakeholder considered PPTC-based quality assistance more relevant than the United States laboratory quality standards in their local context.

The evaluators sighted 12 letters of support for the Activity from Pacific Governments and stakeholders.¹³ These included such statements as:

"In my own personal opinion, there has not been any other technical partner in the area of medical laboratory science, within the region, which has managed to provide user-friendly, customized support in the medical laboratory field of service for Tonga in the past, except PPTC." (CEO, Ministry of Health)

"The PPTC is unique in the services it provides to Pacific laboratories which are relevant and context-appropriate, particularly with reference to its diverse spectrum of technical expertise and consultation in the Medical

¹³ Letters of support from the Marshall Islands, Tonga, Pacific Island Health Officers Association (PIHOA), Federated States of Micronesia, Bhutan, Palau, Government of Niue, Vanuatu, Kiribati, Solomon Islands, and American Samoa.

laboratory Sciences." (Executive Director, Pacific Island Health Officers Association (PIHOA))

"PPTC's commitment and assistance to Vanuatu in the strengthening of the fundamental foundations of Primary Health is essential to ensure that the ultimate health outcomes are sustainable." (Director General of Health, Vanuatu)

3.1.8. Alignment with MFAT health sector development priorities

The Activity appears to align well with the current and near future New Zealand ODA health sector priorities (namely sexual and reproductive health, specialised treatment services, and NCDs). How the PPTC fits with each of these three areas is outlined below.

Sexual and reproductive health, including maternal and child health, has been a prominent part of the PPTC scope of work on STIs and blood borne viruses like Hepatitis B and C and HIV/AIDS. These areas are targeted through core capacity development on microbiology and basic bench-top and RDT-based diagnostics, and also through consultancy training work (under SPC and/or WHO). In addition, the PPTC provides assistance with blood transfusion technology, where access to a safe blood supply is a key element of safe childbirth services. Support for quality cervical cytology testing is also important as non-operative management of early stage malignancy becomes more possible and more cost-effective.

Specialised treatment services are equally reliant on quality bloodwork, particularly in relation to microbiology (eg. for diagnosis of surgical and perioperative infections and monitoring their response to treatment), and biochemistry (for medical monitoring of many NCDs and addressing perioperative metabolic disturbance) services. In addition, safe blood transfusion is essential to the management of trauma, major surgery and some medical conditions. Basic and advanced haematology is also highly relevant to blood dyscrasias and malignancies.

NCDs are a major emerging area on the public health landscape and will have a major impact on health budgets. Early diagnosis and treatment and better clinical monitoring and management can have a significant bearing on health system costs. The PPTC's background training and the work on metabolic indicators place the country level laboratory at the centre of this work. It spans important areas such as monitoring progression of advanced diseases and guiding the introduction of secondary prevention strategies, and also in quality assurance for point-of-care testing and for monitoring of people in hospital with complications.

Systemic barriers can limit the relevance of LQMS

3.1.9. Barriers to Activity Relevance

There appear to be country and institutional level barriers to the relevance of the Activity, namely the extent to which governments are responding in a way that complements PPTC laboratory strengthening efforts. The PPTC signed MOUs with the five principal countries accommodated in its LQMS programme. Tonga was a noteworthy champion for laboratory strengthening, having completed a National Health Laboratory Policy (2013 – 2023) that is linked to the Ministry of Health Corporate Plan, the Government’s Strategic Development Framework and the WHO Asia – Pacific Strategy. While national health strategies of other participating PICs had stated similar intent, at the time of the evaluation, Tonga was the only country to have achieved this milestone.

There are other challenges at the laboratory level. There was, for example, mixed feedback from laboratory managers and staff regarding the clarity and focus of some LQMS visits and how the visits aimed to address the needs of their laboratories. While PPTC aim to involve laboratory managers, laboratory quality officers and section heads in the visits, staff absenteeism at times poses challenges for all laboratory staff being well informed. In Samoa, for example, the laboratory staff seemed unclear as to who drives the agenda for LQMS.

In Tonga, there was arguably reduced relevance of LQMS at the time of the evaluation given that it has reached relatively high compliance against the WHO standards. The laboratory pathologist considered that the PPTC could not contribute much more in this area, due to the need for strong local leadership to see that LQMS is comprehensively implemented. This view differed from that of PPTC which reflected a more cautious long-term view of the laboratory’s needs.

3.2. Effectiveness

Effectiveness was defined as “whether and to what extent development interventions have achieved the desired results (outputs and outcomes¹⁴) or these are expected to be achieved, taking their relative importance into account”.¹⁵

3.2.1. *REQA participation is increasing and systematic use of results would strengthen effectiveness*

Participation in REQA is increasing:

Fully achieved
Mostly achieved
Minimally achieved
Not achieved

¹⁴ The effectiveness section discuss short term outcomes in the Results Framework, while medium and long term outcomes are discussed in the ‘Impact’ section.

¹⁵ MFAT Evaluation Policy for the New Zealand Aid Programme, June 2014.

- The Activity output target of maintaining a baseline of 41 REQA-participating laboratories was exceeded (54 registered laboratories participated in 2014).
- The proportion of surveys completed by October 2014 was 88 percent, up 11 percent from the previous year.
- The number of laboratories participating fully (that is, completing all programmes dispatched to them) increased from 22 (49 percent) in 2013 to 38 (70 percent) in 2014.
- The number of laboratories that had a participation rate of 90 percent or greater for the year totalled 45 out of 54 (83 percent) in 2014 compared to 25 in 2013 (55 percent).

Overall, Pacific REQA marks have continued to improve, especially for Microbiology and Serology. For example, In 2014, 108 returned surveys gained a top grade of 100 percent (out of the 586 who returned to the PPTC from a total of 656). This suggests laboratory quality education is making a contribution. While haematology and biochemistry continued to show weak performance across the board, the PPTC signalled its intention to address this through increased in-country training in future (PPTC, 2014).

Non-participation in REQA is an ongoing issue

Non-participation (11 percent in 2014) is however an ongoing challenge for the PPTC and can be a direct result of instrument unavailability due to malfunction, exhausted reagent supplies, deterioration of REQA material due to delays in transit, or misplacement of REQA material once received by a laboratory or due to staff attitudinal issues (PPTC report, 2013). The PPTC were frustrated by non-participation from some countries which it saw as wasteful of resources. At the time of the evaluation was considering withdrawing the service from selected PICs, and was working with a courier broker to try and resolve the problems.

New Zealand based courses are most effective when targeted to individuals with in-country follow-up

Among laboratories visited as part of the evaluation, there were different processes for using and acting on the results, and this is an important factor for the effectiveness of this programme. REQA was reported as effective for enhancing the performance of laboratory staff, more so where results were being systematically followed up through laboratory leadership and supervision with both acknowledgement of success and corrective actions discussed. In Tonga, the laboratory has implemented an effective process of analysing the results through team discussions, identification of corrective action and displaying results trends on wall charts in the laboratory. This compares with Samoa, where REQA effectiveness has been limited by less effective ways specifically discussing results and design corrective action.

3.2.2. PPTC Centre-based specialty courses are sought after but difficult to access

Overall, former students of the PPTC-based courses in Wellington valued the breadth and depth of training, and highly valued exposure to overseas laboratory practice during, albeit short, post-course laboratory

visits. Students reported positive feedback through post-course evaluations indicating the courses were well received and students had benefited from the learning (PPTC, 2013; PPTC, 2014).

Cooks Islands and Kiribati stakeholders reported that the courses were effective 'refreshers', that prevent routine thinking (where staff were focused in one area of the laboratory for extended periods) and completing the courses increased their confidence at work. It was generally reported that courses could be extended by a fortnight for students to have hands-on, laboratory exposure guided by laboratory scientists to consolidate theoretical learning and gain experience in another laboratory, providing exposure to and an understanding of effective quality services. The PPTC had added two weeks of practice in the Wellington laboratory for a Samoan student who was inexperienced in the area into which he was being deployed, and this highly increased the value of the training for them.

Having said this, former students also reported that training effectiveness is reduced if not followed up by practice in the specific discipline, when the student returns to their laboratory. The PPTC (2014) also identified that course follow-up would ideally include:

- students being able to put new skills into routine practices on their return
- opportunity to pass skills on to colleagues
- ability to continue learning started through the course.

Several former students reported having had unmet learning needs when the content had either been too difficult, too similar to previous courses (if attending the same course twice or too close to completing their initial degree) or not difficult enough. The PPTC has also signalled focusing the courses at an advanced level as a future possibility (PPTC, 2014). According to the PPTC, however, this development will reduce the spectrum of courses currently offered each year unless it is able to expand its accommodation and increase its educational human resource capacity.

However
access
barriers cause
low uptake

Since 2013, specialty courses in Wellington have not been funded through the GFA but rely on student fees to meet the costs. The uptake of PPTC centre-based courses over the two years has been low overall, as outlined in Table 1 (below).

Table 1: Reach of PPTC centre-based courses by numbers of students and countries represented, 2013 and 2014

	2013	2014
Number of courses	5	4

Number of students	21	14
Number of countries represented	7	8

The number of students who received New Zealand Aid Programme STTA scholarships to attend were even lower with 8 and 2 in the two years respectively. In 2013, additional courses were cancelled due to administrative delays with scholarships¹⁶, and visa application processes in Vanuatu.

The key barrier to these courses being fully effective was the difficulty laboratory workers in the Pacific have had in accessing them. Enthusiasm for the courses was high from PIC laboratory staff, and also from MFAT to support students through scholarships. Yet staff in Samoa, Kiribati and the Cook Islands reported difficulty obtaining financial sponsorship to attend. Barriers related to organisational administrative requirements, and lack of understanding of the scholarship application process or timing in relationship with PPTC course advertisements. In Samoa, some staff had actively sought a course in a specific laboratory area where the team had inadequate skills and had been unable to obtain sponsorship. Another staff member had funded themselves and found the course extremely useful. In the Cook Islands, course access had been limited by a mismatch of timing between the hospital administration funding round, PPTC course advertisements, and New Zealand High Commission scholarship application process timeframes. Tonga, however, was able to gain maximum benefit from the courses, due to sponsorship from DFAT.

Numbers of qualified laboratory staff are increasing

3.2.3. *The DipMLSc is well recognised and increased supervision would enhance effectiveness*

Total numbers of laboratory staff in PICs holding the DipMLSc qualification increased overall from 52 in 2012 to 62 in 2014. In 2013 the PPTC expanded the scope of the Diploma with the addition of an LQMS module. Moreover, in response to feedback on how to further increase the credibility of the qualification, PPTC introduced examinations for the two parts¹⁷, which students must pass to be awarded the Diploma (PPTC, 2013).

Demand for the course has increased markedly in recent years, as evidenced by increasing numbers of registrations. PPTC was unable to meet demand for this training for 2013 – 14, partly due to decreased

¹⁶ MFAT changed its provider from TTT to the Skills Organisation in 2013.

¹⁷ Part 1 of the DipMLSc covers Laboratory Technology, Haematology and Biochemistry, while Part 2 covers Microbiology, Transfusion Science, and LQMS.

WHO funding which prioritised registered students into the course. In response to this, PPTC offered students who were unsuccessful in accessing the course, a free introductory “Laboratory Technology” module as an alternative means of professional development.

The DipMLSc is very effective for PIC workforce development. Positive student outcomes were enhanced when students had the requisite in-country study support, such as effective supervision and guidance and access to relevant practical work. Feedback from former graduates was positive regarding the ongoing value of the course materials as a laboratory reference that they draw on after they have completed the course.

In-country supervision is important for DipMLSc student success

As a distance learning programme, and while the PPTC offers all students distance support, learning success depends significantly on the quality of in-country student supervision. This varied across the five focus countries. In Tonga, all students are supported with two hours a week study time and access to good supervision and relevant bench work. In contrast, some DipMLSc students in Samoa reported challenges in understanding some of the material that they needed to complete after hours. They also reported that they had difficulty completing the practical modules due to lack of equipment and difficulty accessing relevant experience. In Kiribati and the Marshall Islands students needed extra support to complete modules, yet stakeholders highlighted the importance of the diploma and wanted it continued. A Marshall Islands stakeholder thought increased in-country support from the PPTC’s staff, as well as adding cytology to the DipMLSc curriculum, would enhance its effectiveness.

3.2.4. *LQMS is highly valued although in-country factors are pivotal to its effectiveness*

LQMS has delivered tangible benefits for some PIC laboratories

The PPTC increased the number of LQMS visits they conducted across the five focus countries to 16 in 2014 (up from nine in 2013). It also made nine visits to five other countries in 2014 as part of Special Project funding in that year. The PPTC used REQA and LQMS results to target the focus of their LQMS visits to the needs of different PICs. Samoa, Vanuatu and Tonga, and Kiribati were considered by the PPTC at the commencement of the LQMS to have equal priority. While Tonga has made significant progress and the PPTC considered that continuing consolidation and training is still required. As discussed previously, the resident Pathologist Dr Buadruomo held a different view, namely that the laboratory had reached a level of independence that requires less support from PPTC in future. PPTC reported that The Cook Islands have had a solid quality management platform for several years and as such warranted only one surveillance visit each year.

Laboratory staff reported many tangible benefits of the LQMS. For example, they valued the flexible way that the PPTC provided general trouble-shooting and practical advice during the LQMS visits, and the

mentoring of diploma students especially on the topic of quality assurance.

Specific examples included that, in Samoa, the LQMS has led to new health and safety procedures with a safety officer appointed, and implementation of regular staff meetings to open lines of communication. It was noted that for one particular test, their results were consistently lower than the control. During one visit, PPTC staff set up a process for staff to experiment with different testing methods which resulted in a change of procedure that produced more consistent and reliable results. Staff have appreciated the opportunity to resolve specific queries and receive supervision for diploma modules. Staff have changed procedures following discussions during visits, including changing a testing procedure to run a machine once a day instead of twice a day.

Other benefits included that:

- in Kiribati, the on-site, hands-on LQMS training was considered the most effective approach to meet laboratory staff learning needs.
- as a consequence of the PPTC introduction of LQMS in the Marshall Islands Majuro laboratory, there are now senior staff designated for quality performance, procurement and safety.

However, there are multiple in-country systemic challenges that have limited the effectiveness of LQMS. These are well-documented (PPTC, 2013, PPTC, 2014) and included lack of quality culture and champions, inadequate resourcing and infrastructure, and weak human resources and capacity. The prevalence of these challenges was strongly corroborated by one in-country clinician who highlighted factors such as a lack of laboratory champions, human resources, staff incentives, organisational culture, and staff attitudes as well as resource and infrastructure inadequacies.

These factors may explain why some Tongan and Samoan laboratory staff reported that they had experienced a lack of clarity on the purpose of the visits and their required level of involvement. Tongan stakeholders suggested that supervision of LQMS visits by laboratory managers may assist with addressing any challenging staff attitudes (a reported barrier to laboratory improvements requiring change). In Samoa LQMS appeared less effective despite clear need. While staff appreciated the assistance with their studies and their work, overall the LQMS training appeared opportunistic. Specific barriers to effectiveness included the reluctance of some staff to express their needs in front of others and under-resourcing in the laboratory, which affected staff attendance at training sessions and staff receiving timely follow up reports.

Potential for better targeting of LQMS to country-level needs

Fully achieved
Mostly achieved
Minimally achieved
Not achieved

3.3. Impact

Impact was defined as “the positive and negative changes produced by the development intervention, directly or indirectly, intended or unintended”.¹⁸

The Activity Results Diagram developed in 2012 (Appendix 8.1) specifies the following medium- and long-term outcomes being sought:

- Medium-term outcome: ‘Increased quality practices of health laboratories in the Pacific’.
- Long-term outcome: ‘Improve capacity and standards of health laboratories in the Pacific’.

Guided by these outcomes, this section focuses on evidence¹⁹ of changes produced by the Activity, with a focus on laboratory *capacity* and *capability* (i.e., staff skills and range of diagnostic testing able to be undertaken) and laboratory *quality standards* (i.e., overall laboratory functioning and quality).

3.3.1. **Positive changes for laboratory capacity and capability through workforce development**

Activity monitoring reports (PPTC, 2013; PPTC, 2014) suggest good progress towards the target indicators for medium- and long-term outcomes for the PPTC Activity, particularly for workforce development, which is key to sustainable health development.

The PPTC has increased the recognition of the DipMLSc in laboratories throughout the Pacific. The Diploma is now recognised by most countries as the minimum qualification for working as a medical laboratory technician in the Pacific and has formal recognition from WHO, SPC and PIHOA, and the United States Affiliated Pacific Islands (USAPI). It also attracts credits for prior learning arrangements in place with tertiary education providers throughout New Zealand and the Pacific (PPTC, 2014). In 2014 formal Memoranda of Understanding (MOUs) for training were in place in the Cooks, Kiribati, Tonga, Samoa and Vanuatu; negotiations were underway with the Marshall Islands.

As discussed in sections 3.1.5. and 3.2.3., recognition of training is reflected in the increasing number of laboratory staff enrolling in and completing the Diploma, with the qualification in high demand.

PICs have endorsed the DipMLSc as a requirement for Pacific laboratories

¹⁸ MFAT Evaluation Policy for the New Zealand Aid Programme, June 2014.

¹⁹ The available evidence draws heavily on PPTC monitoring data (2013, 2014) and key informant interviews. Therefore the focus of this report is the contribution of the Activity to PIC change. Assessment of attribution is not possible because this evaluation draws heavily on stakeholder perceptions and because there are complex factors beyond the control of the Activity that also heavily affect laboratory capacity and standards in PIC health systems.

Completions will, over time, improve the skill base among PIC laboratory staff.²⁰ This is important because, of the three laboratories visited, approximately 18 out of 58 technicians were trainee technicians (as school leavers or general science graduates). Interviews with laboratory staff indicated strong management demand for the Diploma, as well as unmet student demand for centred-based speciality discipline training by PPTC. As one stakeholder noted, the value for health professionals in seeing what is being done overseas can provide motivation and a line of sight for what can be achieved.

"You have to have been there, you have to see it, so you have the vision". (Clinician, Tonga)

One limitation in assessing the impact of centre-based courses for participating PIC laboratory staff is the nature and extent of evidence of student learning outcomes. The PPTC undertakes verbal enquiry at the outset of each specialty course to assess the knowledge and skill levels, particularly for newer/less skilled staff. They also request that students complete course evaluations. More formal pre- and post-tests could be employed to systematically quantify student learning gained through centred-based courses.

In the Marshall Islands, professional development of laboratory staff skills was suggested by one stakeholder as the "single most important job" for the Activity. In both that country and in Kiribati, where centre-based training was perceived by stakeholders as less likely to be effective, in-country training was reportedly making a difference in two ways:

1. Learning was improving staff confidence in their work. For example, during its 2014 visit, the PPTC undertook verbal tests and awarded 'Certificates of Good Standing' for laboratory staff who had developed (but not completed Diploma modules).
2. Increased staff confidence has led to greater levels of communication both between laboratory staff and between staff and hospital clinicians.

Complementing the training, the REQA programme has provided staff in over 40 participating laboratories with regular learning opportunities specific to a range of key diagnostic tests. As discussed in section 3.2.1, the number of laboratories participating has increased as have the scores. In essence, this indicates that this programme has increased the capacity of PIC laboratories to perform a broader range of diagnostic tests, and in some areas to a higher quality standard.

In the Cook Islands, REQA was considered by the laboratory manager and hospital management as a key contributor to the laboratory having

²⁰ It would be useful to assess this more accurately through a PIC laboratory workforce survey in future.

lifted its standards. It allowed it to monitor performance, compare results over time, and use the feedback for quality improvement. In turn, this had provided staff assurance and had lifted morale. This service was highly valued by the LQM who worked independently and saw it as a vital 'check' on their own work.

"This external QA keeps us on track [...] We are dealing with lives so mistakes are costly." (Laboratory Quality Manager, Cook Islands)

3.3.2. Increased quality and standards in the five focus countries

Activity monitoring reports (PPTC, 2013; PPTC, 2014) suggested good progress towards the outcomes of increased quality standards among PIC health laboratories. PPTC staff communicate with clinicians as part of their in-country LQMS visits and reported that there was positive feedback on laboratory improvements in selected countries (PPTC, 2013; PPTC, 2014). This is reinforced by independent data such as compliance rates. For example, between 2013 and 2014, noteworthy improvements in percentage compliance rates to WHO Standards for health laboratories were noted in each focus PIC:

1. Vanuatu increased from 10% to 45% compliance.
2. Samoa from 20% to 40% compliance.
3. Kiribati from 50% to 65% compliance.
4. Tonga from 60% to 80% compliance.
5. Cook Islands from 60% to 80% compliance (PPTC, 2014).

The PPTC reported the drivers of compliance improvement as:

- larger numbers of staff with increased medical science knowledge
- awareness of what diagnostic test results mean (particularly unusual test results)
- more day-to-day accuracy of results
- better documentation of processes
- a higher degree of service being provided to other health professionals using laboratory services.

Quality System Essentials in these countries were maintained across the period, with notable improvements in Tonga in workforce development, and in the Cook Islands in terms of turnaround times (PPTC, 2014). Tonga, Samoa, the Cook Islands and Kiribati have appointed Laboratory Quality Managers to lead improvement efforts in-country (including the establishment of formal feedback cycles). Tonga instituted formal

laboratory client survey mechanisms by 2014. Samoa established a feedback mechanism to field public complaints, which has been an important step towards improving the laboratory service levels.

Health stakeholders consulted provided in-country perspectives on what these positive changes mean for PICs. In Kiribati, hospital management highlighted positive changes in microbiology results and reported that local medical practitioners have had greater confidence in results compared with one or two years ago. This was important as it impacts significantly on treatment choices.

Tonga is a good example of the extent of impact possible through the Activity where donor coherence has enhanced impact. The Tonga laboratory has been significantly strengthened over the past two years. This success is built on the PPTC's contribution to change in that country for over 17 years, including an LQMS foundation built between 1998 and 2003. In addition, in-country commitment from hospital and Ministry of Health management, as well as the leveraging of additional DFAT and SPC resources has been significant. Most notably, the DFAT support enabled the employment of a specialist pathologist who has provided leadership to address issues identified by WHO in 2013, and introduced numerous administrative and procedural changes. Consultant Pathologist Dr Buadromo's influence in the Tongan laboratory with executive management and clinical management teams, has had a major impact in attaining recognition of the laboratory and addressing historical quality issues that were previously a barrier to sustained Activity impact.

"[Before these improvements] hospital clinicians were working through the night [without getting results], now results are done by morning. Young doctors used to find it difficult to get quick action from the laboratory. Now they can phone up and get the results almost immediately; this is a new thing." (Hospital administration, Tonga)

3.3.3. Challenges for Activity contribution to positive laboratory change are largely systemic

On the weight of the evidence discussed in both this and section 3.2, the PPTC is contributing to improved capacity, quality and standards of laboratories in the Pacific.

Nevertheless, the Activity operates in a complex environment. Challenges to the Activity's effectiveness and subsequently the overall impact for PICs exist. Persistent in-country challenges have been identified in Activity monitoring by PPTC (2013; 2014) and were substantiated by stakeholders during this evaluation's fieldwork (see also barriers to effectiveness in section 3.2.). Key challenges included:

- poor laboratory human resource management practices
- low laboratory staff engagement or recalcitrant staff attitudes

Some challenges to laboratory impact in a complex system

- lack of laboratory systems prioritisation by government administration
- inefficient hospital management (e.g., procurement) processes.

Other challenges reported by stakeholders included infrastructure configuration (for example, multiple laboratories operating in the Cook Islands and in the Marshall Islands where there is limited human and financial resources to sustain this) and workforce issues (for example, in Samoa, a new Laboratory Manager has been recently appointed but a standalone Laboratory Quality Officer has yet to be appointed).

A reported limitation for laboratory level impact was the extent to which in-country administration engaged in and actively prioritised resources for laboratory strengthening at a strategic level. At the present time, Tonga is the only focus country to have completed a national health laboratory policy. As one stakeholder in that country explained “there is an aspiration to do better” and this planning provides a “platform for what we want to achieve”. Yet even with the improvements in Tonga, systemic barriers were reported such as the need to focus on leadership “because if we don’t we are going to fall back”, “people wearing too many hats”, cultural issues relating to hierarchy, respect, reluctance to talk or the link not being made between slow procurement of laboratory supplies, laboratory functioning and ultimately human health outcomes:

“Procurement is a problem. People don’t see it as a matter of life and death. People accept it” (Clinician, Tonga)

Marshall Islands’ stakeholders expressed a desire for PPTC to work more closely with the health administration in that country by taking a stronger laboratory strengthening advocacy role. PPTC are addressing this to some extent through their contact with hospital administration and clinicians during LQMS visits and their work with WHO, which until recently was targeting laboratory strengthening through PIC Health Ministries.

The complex intractable factors outlined above are beyond the control of the Activity yet can be barriers to Activity success, and they make it difficult to quantify the extent of impact on country level change. Outcomes indicators in the Activity Results Framework (ARF), such as REQA test results and WHO Standards compliance are perhaps better measures of country level laboratory performance, rather than the Activity performance per se. In-country stakeholders, however, reported that REQA test results cannot be assumed to reflect laboratory performance either. Results fluctuate not only due to laboratory testing accuracy, but also due to the availability, quality and management of equipment, supplies, and human resource. Tongan laboratory stakeholders reported that for this reason they will rarely meet the 100 percent REQA target. Ideally, these limitations and assumptions relating to the Activity outcomes and their monitoring indicators would be clearly articulated in the ARF.

Fully achieved
Mostly achieved
Minimally achieved
Not achieved

3.4. Efficiency/value for money

MFAT defines efficiency as “a measure of how economically resources/inputs are converted into results; in other words, the extent to which the cost of a development intervention can be justified by its results, taking alternatives into account”.²¹

Value for money, for the purposes of this report, is defined as whether the development outcomes achieved were overall all worth it for the resources expended; taking into consideration factors of economy, efficiency, effectiveness and equity.²²

To do apply these definitions, this report focuses on:

- the efficiency and economy of the Activity costs²³ overall, and
- the costs of the three Activity programmes in relation to their value outlined in the ‘Effectiveness’ and ‘Impact’ sections.

3.4.1. *Activity costs are modest for the broad geographical reach and the breadth of outcomes sought*

The PPTC provides the Activity programmes to multiple countries across the Pacific and South East Asia region and seeks broad outcomes. This broad reach is delivered by three FTE medical laboratory scientists and two part-time administrative staff.

The Activity costs²⁴ for 2014 (see Appendix 8.4.4–8.4.7) appear modest given the breath of the Activity across multiple countries. For example, the REQA programme had a reach of 26 countries, and a total of 54 laboratories registered. In 2014, the costs per registered laboratory totalled approximately NZ\$2,131 with a cost of approximately NZ\$196 for each returned survey. The LQMS and LQMS Special Project assisted 10 countries, with an approximate cost of each laboratory visit of approximately NZ\$11,043 and NZ\$17,631 respectively. In-country training was delivered to four countries and indirect teaching and training from New Zealand to 23²⁵.

In addition to delivery across the specified programmes, the PPTC provided considerable additional assistance to participating laboratories.

²¹ MFAT Evaluation Policy for the New Zealand Aid Programme, June 2014.

²² See ‘Value for Money’, http://betterevaluation.org/evaluation-options/value_for_money.

²³ At the evaluators’ request, PPTC supplied financial data to a greater level of detail than financial reporting to MFAT. This allowed additional analysis of income sources, and direct costs with overheads breakdown for different aspects of its laboratory strengthening work. Two limitations are that the data does not align exactly with the three Activity programmes, and the data was provided for 2014 (Actual) and 2015 (forecast) only.

²⁴ PPTC costs data reported refers to direct costs, namely materials, labour and expenses specific to the delivery of programmes. Other costs, such as depreciation or administrative expenses, are difficult to assign to a specific programme, and therefore are considered indirect costs or overheads.

²⁵ The GFA teaching and training budget spans costs related to a broad spectrum of activities, therefore it is not meaningful to divide the direct costs by either country or specific training event.

For example, in the five months between October 2014 and February 2015, the PPTC staff in Wellington responded to 75 enquires for assistance from across the Pacific (see Appendix 8.4.1).

The mix of services that the PPTC provides through this Activity is unique in the Pacific context and therefore there are no alternative programmes against which to compare the Activity costs.²⁶ Stakeholders consulted for this evaluation generally did not share views on the cost effectiveness of this Activity or particular programmes.²⁷ However numerous evaluation participants did report that they valued the PPTC's Pacific context awareness and historical relationships, and several specifically reported a preference for PPTC to alternative providers. The effectiveness value of these stakeholder preferences would need to be taken into account in assessing the costs of any alternative training and quality management programmes.

With the REQA programme specifically, several stakeholders noted that there are few (if any) cost-viable alternatives for PICs: the PPTC also reported that many laboratories do not participate in alternative REQA programmes (PPTC, 2013; PPTC, 2014). The PPTC accesses the Royal College of Pathologists of Australasia which donates biochemistry material and result data as part of REQA . In-country informants in the countries visited highlighted that the availability of this material at no cost was a significant factor in maintaining the supply of these materials.

This evaluation, including interviews with in-country stakeholders and document review, did not identify any evidence of wastage or mis-use of Activity resources.

3.4.2. Targeting of activity resources to specific country needs could increase Activity efficiency

Activity operates efficiently with potential for further targeting

Table 2 (below) shows the 2014 allocations of GFA funding reported by the PPTC across the programmes. Approximately 60 percent of the funding was directed at LQMS (including the Special Project²⁸), delivered to ten countries. The remaining funding is fairly evenly spread across REQA and the range of training activity, which assists approximately 25 countries.

²⁶ It is possible that other external quality assurance programmes, similar to REQA and LQMS are operating through New Zealand health administrations, or other regional donor organisations such as WHO and SPC. This international analysis would be interesting however the data was not available for the current evaluation.

²⁷ The one exception was the pathologist's views regarding LQMS in Tonga, as discussed in previous sections.

²⁸ Delivered to Marshall Islands, Tuvalu, Christmas Islands, Nauru and Niue.

Table 2. Activity programme funding by proportion of total GFA funding, 2014

Activity programme	Proportion of GFA funding (%)
REQA	21.7
LQMS	33.3
LQMS Special Project	26.6
Training	18.3

Given this breadth of Activity programmes, it is essential that priorities are set to manage the PPTC's reported constant demand for the services from PICs. This is especially important given that international travel costs²⁹ for programmes constituted a relatively high proportion of direct costs for each (i.e., 14.6 percent for REQA; 31.3 percent for LQMS; 18.4 percent for in-country training). Overall, however, travel costs appear reasonable given the small number of specialist staff and the extent and value of in-country work delivered directly in laboratories through the Activity programmes.

The PPTC reported that it sets its country priorities for each respective programme drawing on REQA and LQMS results and the step-wise framework that guides the LQMS programme. The ARF provides some guidance in terms of target countries and planned outputs, for example, the number of LQMS visits for the focus countries. Having said this, greater transparency in Activity reporting in terms how diverse country need and equity was addressed, particularly in relation to REQA and training, would help to assess the most efficient use of a limited resource that requires significant in-country presence.

As discussed in section 3.1, more efficient use of resources in some areas may maximise the Activity and the positive outcomes being delivered across the Pacific. In Tonga for example, the laboratory is functioning relatively highly. Therefore, it is possible that country may not need so many LQMS visits (see also section 3.3.3.). On the other hand, additional support from DFAT has enabled significant use of PPTC centre-based courses (not GFA funded) and it is difficult to quantify the extent to which Tonga's improvement is due to this high uptake. The Samoa laboratory has significant unmet need and PPTC with its expertise would be well-placed to provide additional technical assistance to support the new manager. Increasing the number of LQMS visits and providing extra support to DipMLSc students may well result in significant benefit to this country.

²⁹ Figures used included reported direct costs for international and domestic connection airfares, international accommodation, per diems and other costs. See also Appendix 8.4.

3.4.3. Targeting of resources to most effective programmes may increase Activity efficiency

Targeting the Activity funding to programmes that appear to be more effective for different countries, may provide potential to increase Activity value for money. The proportional costs of the programmes under the Activity are outlined in Table 2 (above).

As discussed, 54 laboratories are registered in the REQA programme. In 2014 the 586 returned surveys cost approximately \$196 each. There is some ongoing non-participation with results not being sent back (11 percent of surveys sent [n=70 out of 656] in 2014). Given the courier costs associated with this programme in one year alone (NZ\$15,619 in 2014), targeting REQA to those laboratories that participate fully would prevent any waste of resources. Savings could be re-invested in other programmes.

In economic terms, the requirement for students to pay the direct costs of centre-based courses which are not funded under the GFA should maximise efficiency by ensuring that only those who value the course to the level of the cost of around NZ\$5,000 will participate. The reliance on student and scholarship funding for the Wellington courses has reduced the numbers accessing these programmes, due to both in-country management decisions and scholarship administration factors. For example, both the Cook Islands and Samoa reported a need for better access to PPTC Wellington-based training to match needs, citing funding as an issue. Additionally, this form of training may be less viable for PICs such as Kiribati and the Marshall Islands which appear to have higher laboratory staff turnover compared with Tonga, Samoa and the Cook Islands.

By comparison, uptake of the DipMLSc (not funded under GFA) is high and increasing, reflecting, in part, the fact that laboratory staff are able to access it at no cost and without having to leave their laboratory or country. Based on PPTC financial data, the DipMLSc cost per student in 2014 was approximately NZ\$1200 per student per year. Given the benefits discussed in previous sections and the wide reach through PICs, this suggests value for money. Increased funding from WHO however, from which the programme is totally funded, is not secure.

3.4.4. PIC stakeholders highlighted the value of the investment as lower health and human costs

In-country stakeholders reported the impact of the PPTC programmes for improving PIC laboratory workforce development and quality standards, with benefits for clinicians and patients. Without the Activity, stakeholders considered that overall laboratory services in PICs would be worse (see also section 3.1.8.). Health system informants emphasised the value of the laboratory strengthening improvements in terms of reducing human and health costs in PIC health systems, particularly in relation to NCDs. A hospital clinician iterated the importance of quality assurance and reliable diagnostic testing by noting

that some years ago there were cases of misdiagnosis with unnecessary and unfortunate downstream effects. In one case, following laboratory results, an unnecessary operation was performed with costs for the patient, their family and community, and to the health system. A second test determined through an overseas reference laboratory later determined the initial test had been a false positive.

In Samoa, a laboratory technician who completed a PPTC specialty course in Wellington in 2014 specifically referred to the financial benefit this had brought to Samoa as they are now able to carry out the tests in the laboratory (previously these were sent to Auckland). This dependence increases the cost of the service considerably, reduces the budget available to strengthen in-country laboratory services and counteracts the overall goal to reduce dependence on Auckland laboratories. Increasing, updating and maintaining equipment as well as upskilling staff would have significant financial advantages in reducing this dependence and in-house testing would not only reduce the costs but also increase timeliness of results.

"Before training we sent a lot of films overseas on a Friday afternoon, now we hardly ever do" (Laboratory worker, Samoa)

In the Cook Islands, informants consistently highlighted the key role of the laboratory services for wider health services, and increasing pressure on those services with the need to reduce NCDs, prevention and treatment of STIs and management of mosquito-borne disease outbreaks. NCDs are a top priority and as a senior official noted, for this reason, accuracy of diagnostic results is not only critical but also under increasing demand for other health services (i.e., early intervention of septicaemia prevents mobility problems that have significant long-term human and health costs).

Fully achieved
Mostly achieved
Minimally achieved
Not achieved

3.5. Sustainability

Sustainability is defined as "whether and to what extent the benefits can be sustained after the end of the development assistance".³⁰

3.5.1. **Activity workforce development is a key contributor to sustainable positive results**

The Activity focus on workforce development at the laboratory level through REQA learning, LQMS support and different forms of focused training delivers a foundation for laboratory strengthening that is likely to continue beyond the GFA.

The REQA programme provides both assurance and learning for participating laboratories and, as discussed in the 'Effectiveness' and 'Impact' sections, this is maintained where whole of laboratory buy-in

³⁰ MFAT Evaluation Policy for the New Zealand Aid Programme, June 2014.

Activity focus and effectiveness in workforce development ensures sustainability

and follow-up, and championing of results and follow-up by laboratory management exists. Sustainability is enhanced where results are disseminated beyond the laboratories to management and government administration. REQA has delivered some sustainable results, for example, the previously mentioned changes to procedures in Samoa to ensure reliable results from a test found deficient through the REQA. The nature of this testing, audit and learning programme however is that it must be provided by an external assessment provider.

Through the LQMS programme and associated training, the PPTC's support of PICs to meet set standards has resulted in improved skills and knowledge of laboratory staff, as well as improved laboratory processes and procedures (eg. SOPs documentation, IT development and client feedback mechanisms) which, if maintained by champions like Laboratory Quality Managers, will continue to impact beyond the Activity. Moreover, the PPTC encourages original development of in-country teaching programmes by laboratory management to assist meeting the educational needs of staff over and above what the PPTC provides. Having said this, the PPTC staff in-country visits are infrequent and relatively brief and therefore sustainability is affected by laboratory management support of Laboratory Quality Managers to champion both ongoing standards work and provide support for staff training.

While the PPTC centre-based courses and the DipMLSc are not GFA funded, outcomes reported for both suggested sustainable benefits for PIC laboratories.

The centre-based speciality training provided by PPTC provides both focused learning for beginners and advanced laboratory staff, and the learning is sustained where staff have follow-up on that learning when they return home, either through working in the relevant disciplinary area upon their return to the laboratory or through ongoing learning. The impact is higher when courses are run in combination with practice-based attachments in New Zealand laboratories. Given the access barriers and lower participant numbers compared with in-country and distance learning provided through the Activity, these courses might be more sustainable if they targeted advanced students with a focus on a 'train the trainer' approach with longer practical attachments.

The DipMLSc, while not directly funded through the Activity, is a primary contributor to the sustainability of the PPTC's laboratory strengthening work as it educates staff and the materials are used extensively by laboratory staff even after completion of the Diploma. The addition of a new sixth module in 2013 with a focus on LQMS ensures continuity and process understanding for the participants and lays a foundation for students attending Wellington centre-based LQMS training courses each year. The DipMLSc is particularly valuable for new laboratory workers and for this reason is supporting laboratory workforce development, stability and sustainability in the longer-term. The requirement to complete it will ensure ongoing uptake in Samoa, which has no equivalent training available. Tonga has based its local foundation

laboratory qualification on the DipMLSc materials. All staff interviewed reported using the course materials as reference libraries for laboratory processes and protocols for their day to day work. While WHO has undertaken to finance the training of students starting in the 2015 year to completion, future intakes are not guaranteed, creating questions about its sustainability.

3.5.2. *Quality improvement requires ongoing support at all levels of the health system to sustain outcomes*

In-country factors can limit sustainability

The Activity alone at current levels of resourcing cannot achieve sustainability in the PIC workforce or quality standards. As discussed in previous sections, there are multiple systemic factors, both at the laboratory level and at the level of health systems, that can hinder sustainability of positive change that the Activity is contributing to.

Other issues not previously discussed include that (as suggested by some stakeholders):

- the current Activity focus on laboratory staff and standards is too narrow and enhancing laboratory systems strengthening at the strategic level could address some of the ongoing barriers to laboratory strengthening in the Pacific.
- PPTC might broaden its horizons to take a stronger advocacy role with health managers and officials to raise the profile of laboratory successes and needs; however, the PPTC iterated the importance of local ownership and reported that this this level of advocacy extended beyond the current scope of their work.
- higher laboratory standards would in itself effect good advocacy for laboratories.
- while PPTC has encouraged laboratory managers to share LQMS and REQA progress with management, an enhanced direct relationship between Activity programmes and direct reporting upwards may be more effective in influencing wider system changes needed.

Notwithstanding the above, PPTC has contributed beyond the laboratories themselves at a system level, through working with other donors in laboratory strengthening (including WHO, SPC, and PIHOA) and through engagement with laboratory management, hospital clinicians and health administration during LQMS visits.

While not a major focus of the funded Activity, PPTC have also engaged with regional educational institutions in New Zealand and with the Fiji National University (FNU) in relation to centre-based courses and the DipMLSc to expand future education and training pathways for PIC laboratory staff.

The PPTC could increase its focus on support of management and leadership where needed with more flexibility in terms of its services.

Given the wide range of services provided by PPTC and the limited resources, it is difficult for them to provide extra assistance. Increased targeting of the programmes with reduced services in countries that are doing well and allowing increased services in countries that are needier would increase the sustainability of results. For example, PPTC might work with more advanced laboratory staff to undertake ‘train the trainer’ approaches. It might also select more progressive laboratories like Tonga to take a regional training leadership role, such as through hosting training with staff from other PICs.

The actual and potential risks to the future sustainability of PIC laboratory strengthening relate largely to the ongoing need for the PPTC programmes, and the lack of current alternative options for the assistance being provided to Pacific laboratories – particularly in the area of training and education. Evidence suggests strongly that WHO future funding for both REQA and the DipMLSc cannot be guaranteed. PPTC reported that they field enquiries for significant unmet demand from laboratories outside the current Activity focus such as countries in the North Pacific. There are however limits to the reach of the organisation and over-extending beyond the current reach may pose risks to effectiveness and efficiency with which the programmes are currently delivered.

As a very small organisation with a small financial base, the PPTC is extremely vulnerable to external funding pressures. The current GFA includes the expectation that PPTC will seek to increase its revenue base. A study of PPTC financial information for 2014 and 2015 indicates a modest trend in that direction with MFAT funds reducing from 72 percent to 55 percent of their total budget over these two years.³¹

Fully achieved
Mostly achieved
Minimally achieved
Not achieved

3.6. Cross-cutting issues

The cross-cutting issues criterion was defined as “the extent to which the Activity has contributed to broader development outcomes in human rights, gender and environmental change”.

3.6.1. *No explicit targeting of cross-cutting issues in Activity design or monitoring*

MFAT and PPTC have not targeted cross-cutting issues explicitly through the Activity design, and therefore it does not appear to be a priority for monitoring. Notwithstanding this, the Activity is fundamentally relevant to human rights. Access to well performing health systems resonates strongly with the United Nations Sustainable Development Goal 3, namely to ‘ensure healthy lives and promote well-being for all at all ages’.

³¹ The present evaluation did not clarify how sustainable PPTC alternative income sources were.

The Activity also has an impact on women's access to quality health services. Stakeholders reported that diagnostic testing is important for many women's health issues (such as maternal health and ovarian cancer). Laboratory systems are also key to improving sexual and reproductive health which is an important contributor of women's empowerment. Feedback was received that strengthening the DipMLSc by the addition of a cytology module could contribute to improved early detection of cervical cancer in PICs. Observationally, women appear to make up a high proportion of PIC laboratory staff. There were many women working in the PIC laboratories visited and several in laboratory leadership positions are actively pursuing quality improvement.

PPTC have monitored uptake of its training programmes by gender. All courses are available on an 'open-to-all' basis and there is no evidence of gender discrimination with the proportion of women to men attending training courses in New Zealand equal for the last three years, with 50 percent each male and female students. Interestingly, women are more highly represented in enrolments in the DipMLSc modules (see Appendix 8.4.3.).

No impacts on the environment have been observed.

Part B: Future options for MFAT laboratory strengthening in the Pacific

Part B looks at current and emerging health needs in the Pacific region relevant to laboratory strengthening, and summarises the viability and sustainability of laboratory strengthening in 2015 and beyond, in the context of current donor priorities and approaches. It suggests a framework of key capacity development needs and discusses options for future MFAT support.

3.7. Current and emerging health development needs in the Pacific

Healthy populations are a key enabler for sustainable economic development. Access to high quality health services reduces morbidity and preventable mortality, and improves health outcomes. Strengthened laboratories are critical in the provision of health services and fast, effective diagnosis and treatment of disease contributes to enabling sustainable economic development by increasing the ability of patients and their carers to participate in the productive workforce and in their communities.

NCDs are a significant emerging issue in the Pacific

With infectious diseases largely under control, emphasis in the Pacific now focuses on reducing the prevalence of NCDs which is a significant emerging problem. Diseases like diabetes, if left undetected, can lead to significant disability including blindness, and early preventable death. The economic impacts of the treatment of side effects arising from deficiencies in prevention, early detection and ongoing management have the potential to consume vast proportions of a country's health budget. Early detection, diagnosis and ongoing management of chronic diseases require effective diagnostic laboratory services.

"Efficient and reliable health laboratory services are an essential and fundamental component of any strong and effective health system and its goal to improve health. Reliable and timely results from laboratory investigations are crucial in decision-making in almost all aspects of health services." (WHO, 2010)

Despite the role that health laboratories play in PIC health systems, strengthening laboratory services has not been seen as priority by Pacific Governments (Pacific Health Ministers, 2013). This seems to be changing. One stakeholder who had participated in the Pacific Heads of Health Meeting in Fiji (February 2015) reported a changing emphasis in the Pacific to recognise the need for universal health coverage for better health outcomes, with a focus on all parts of the health system, including medical technology such as laboratory services.

The importance of laboratory services is reflected in national health policies in participating PICs which highlight clear links between the quality of national laboratories and national strategies for prevention and management of NCDs (see section 3.1.1.).

3.8. Future sustainability of laboratory strengthening in the Pacific

Future regional support for health laboratories uncertain

Given that strengthening medical health laboratories is a priority for health systems and improved health outcomes in the Pacific, consideration needs to be given to what level of support is needed and what is currently being provided. Strengthening laboratory services has not previously been a priority for constrained PIC health budgets unable to provide all the health services needed for their populations. External funding therefore has a key role to play.

"Strengthening laboratories in the Pacific is dependent on the attraction of the required level of funding from external donors, because the financial resources of the PICs without external support will be inadequate for this purpose" (SPC, 2013b).

It is concerning therefore that the current level of regional support for strengthening laboratories from other regional donors like WHO and SPC seems unlikely to continue into the future (see also discussion in section 3.5.2.).

3.8.1. Regional support to strengthening laboratories

MFAT, PPTC, SPC, and WHO are key regional providers

MFAT and the PPTC are key providers of laboratory strengthening in the Pacific, focusing on training, quality assessment and support of quality management training and systems. The PPTC also provides consultative services for health laboratory and blood transfusion services in the Pacific and in SE Asia and is an accredited WHO Collaborating Centre.

Other key regional providers and funders of laboratory strengthening are SPC and WHO. PIHOA, the Centers for Disease Control and Prevention (United States) and regional health laboratories have also contributed to a range of initiatives.

Regionally, SPC is a major player in the Pacific, with services focused on infectious disease control. These activities are largely funded under the Pacific Public Health Surveillance Network. It has also used Global Funds in the past. Under SPC's programme a network of regional reference laboratories has been established which are widely used by Pacific countries. The change of emphasis of the Global Fund to focus more on regional activities and a stronger specific disease focus has significantly reduced access to this fund for strengthening laboratory services.

WHO has been a significant driver in terms of training and also the development and implementation of the Asia-Pacific strategy which sets a direction for quality improvement and management of laboratory services (WHO, 2010). It has also produced a tool for developing a national laboratory plan (WHO, 2011)³² and fund the PPTC DipMLSc (POHLN programme) and 34 percent of the REQA programme. Recent evidence indicates that the level of support from WHO to laboratory strengthening in the Pacific may not continue (that is, the re-assignment

of Dr Karen Nahapetyan, who has left the Suva office of WHO with no dedicated technical officer in laboratory services and WHO has indicated that support for the distance learning programme will cease from the end of 2016).

DFAT has been a significant donor to Pacific laboratory strengthening through support of the Global Fund, PPHSN (SPC), WHO and bilateral support (for example, through its support of the Tongan laboratory over the past two years). DFAT is currently reviewing the focus of its aid programme and is unlikely to continue the previous level of support in the future.

3.9. Aligning an approach to MFAT priorities and other donor priorities

**Activity
aligned with
MFAT
Improved
Human
Development
priorities**

Strengthening Pacific health laboratories aligns well with MFAT priorities for the ODA programme. The Activity fits clearly within the current strategic theme of *Improved Human Development*, including improved tertiary and skills training outcomes by providing vocational training opportunities for employment in health laboratories. Strengthening diagnostic laboratory testing through improvement of quality systems and health workforce capability and capacity is also critical in reducing prevalence, morbidity and mortality associated with NCDs as these require external diagnostic measures and are testing dependent (see discussion of relevance to MFAT sector priorities section 3.1.8).

With indications that other donors are reducing their investment in strengthening laboratory services, there could be a huge gap in the support of laboratory strengthening which is likely to lead to lower quality diagnostic services. Increasing the scale of its investment could align the Activity better with MFAT's approach to support bigger, longer and deeper investments. To maximise the impact of development assistance, there should be a level of coherence between donors for real gains to be made (see section 3.3.2.). The exit or reduction of investment in laboratory strengthening by other partners opens up opportunities for more substantial investment which could lead to substantive impact, but it is also useful to work with other partners, for example, the members of the quintelateral group³³ to ensure that such investment complements other development programmes.

3.10. A framework for laboratory strengthening needs in the Pacific

**WHO
strategic
framework**

Pacific health laboratories are constrained to varying degrees by the high costs and difficulties in achieving economies of scale in providing services for small, scattered populations and by professional isolation

³² WHO (2011) Development of National Health Laboratory Policy and Plan, WHO Organisation, India.

³³ WHO, SPC, DFAT, World Bank and MFAT.

and difficulties in maintaining competency when there is an inadequate throughput of some tests.

The Asia Pacific Strategy for Strengthening Health Laboratory Services 2010–2015 (WHO, 2010) identified key strategic elements considered essential to developing coherent and comprehensive laboratory services. These are:

- Leadership and governance – national laboratory policies and plans including monitoring.
- Financing – sufficient resources and infrastructure.
- Health workforce – workforce capability and capacity, including access to training and supervision.
- Information – Use of information technology and monitoring and evaluation.
- Medical products and technologies – procurement and management of equipment and supplies, including maintenance of equipment.
- Service delivery – coordination with clinical services in terms of timeliness and quality of results.
- Quality and safety – quality systems for continuous quality improvement.

Twenty-two Pacific countries agreed to implement this Strategy in partnership with the WHO and the SPC.

Based on the literature and the findings of this evaluation, the main areas for investment that are likely to provide sustainable gains are:

Sustainable gains possible through a regional approach

- A regional approach to workforce and service planning to inform investment decisions.
- Bilateral investment to countries with special needs.
- Workforce development of the laboratory workforce, including workforce planning, training and regulation.
- Quality assurance training, assessment and monitoring.

3.10.1. Future options for laboratory strengthening support

Approach

This section presents activities that MFAT might consider supporting and a future investment strategy for delivering the chosen activities. There are two main options for consideration:

Options are to increase or target future investment

1. Increase the level of investment over the next few years to build on current gains and achieve further significant sustainable quality improvements to Pacific medical laboratories, or
2. Maintain the current lower level of support much more tightly, to achieve real sustainable gains in fewer areas of high need.

Principles for setting priorities

- Activities should be targeted to specific need, with priorities being set by partner countries.
- Activities should be delivered flexibly with programmes tailored to specific country requirements.
- Mechanisms should be in place to ensure activities are accessible.
- Funding should focus on areas and programmes that are the most efficient and cost-effective.

Priorities for activities

Development of regional laboratory activities

Consideration should be given to supporting the continuation of the work that WHO has done in developing a strategy and Pacific laboratory quality standards by supporting the development of a regional workforce plan, including recommendations for regulation, identification of training requirements and programmes available and numbers of laboratory workers required into the future.

LQMS and REQA

The LQMS programme supports specific training, technical assistance in developing plans, and processes and assessment of compliance against the laboratory standards. The visits of laboratory specialists to PICs also provide opportunities for in-country training, mentoring of individuals and supervision of Diploma modules. Through the programme, all five focus countries have increased compliance to WHO standards over the past year which has considerable impact on the scope and quality of laboratory services. The REQA programme is an effective, efficient and accessible way of surveying quality of laboratory tests and providing external unbiased feedback to PIC laboratories. Support should continue for these programme elements.

Future priorities include continued regional work, LQMS, REQA, training, increasing pathologists and clinical exchanges

Training of laboratory technicians and scientists

The distance learning DipMLSc is a highly valued programme that has become the required initial training for laboratory staff in most countries. Its accessibility makes it the initial programme of choice for laboratory workers, except in Tonga which has developed its own orientation programme. Its discontinuation if WHO withdraws support would leave a huge training gap. Provision of in-country training programmes and arrangements of bespoke programmes to meet individual requirements are very effective. Such training should be planned around priority needs such as specific service or procedural gaps in a national laboratory. Provision of specialty short courses of three or four weeks are also valued. Lack of funding support for these programmes over the recent past has denied access to a range of laboratory staff who may benefit from undertaking one of these programmes. The addition of a two-week clinical attachment to these programmes could enhance their value.

Clinical exchanges

There was widespread support, from medical managers and clinicians as well as from laboratory staff, for the value of experience in and exposure to operations in another (more advanced) laboratory. Supporting Pacific laboratory technicians to have placements in another laboratories, if the recipient laboratory meets quality standards, would open the eyes of Pacific technicians to the possibilities and benefits of higher laboratory standards, as well as increase laboratory staff experience and learning.

Training of pathologists

There remains a significant shortage of pathologists in the Pacific and no current training programmes are available as the programme run by the RCPA is not relevant for Pacific medical practitioners. Stakeholders reported that a previous FNU four-year Masters programme is not currently running and medical practitioners are being trained through two year bespoke programmes put together by FNU or the University of Otago.

The current PPTC programme focuses on laboratory technicians, although it has facilitated a bespoke training programme at the University of Otago for one medical practitioner. Tonga provides a good example of the benefits of employing a well-trained pathologist to provide leadership to the laboratory capacity development, specifically for laboratory quality management systems, training programmes for staff and laboratory planning. The current two year assignment, funded by DFAT, is due to finish in July 2015.

Most Pacific countries cannot support full-time pathologists but having medical oversight of the laboratory has proved very useful in Tonga. MFAT could consider supporting the establishment of a scheme to supply visiting pathology specialists who are familiar with the issues faced by

Pacific laboratories to countries that do not have access to pathology services.

Suggestions include:

- Inclusion of pathology in the visiting medical specialist scheme.
- Employment of a pathologist in a Pacific base to oversee a group of PICs.
- Encouragement to the RCPA to support placements of pathology registrars in the Pacific for up to three months as part of their pathology programme.
- Support for exchanges of pathologists between Pacific countries.

A lead regional agency as a hub for Pacific laboratory strengthening

Positioning a single agency as the key regional provider/co-ordinator

One of the Activity's strengths is the dominance of the PPTC in the Pacific, its extensive knowledge, experience and wide networks with relevant stakeholders. Continuing to channel any future MFAT support for strengthening laboratories through a single provider would facilitate efficiency through co-ordination of activities and ease of setting priorities. A regional leading agency would provide a hub for strengthening laboratories, develop familiarity and understanding of the issues facing the PICs and be able to maintain a nexus of relevant expertise. In this way, such an agency would be well placed to take the lead on developing regional activities.

There are several current Pacific organisations that could potentially undertake this role with increased roles and responsibilities, and investment. Potential organisations include, but are not limited to, PPTC, SPC, WHO and FNU.

4. Evaluation Conclusions

4.1. Part A

How well has the Strengthening Pacific Health Laboratory Systems Activity delivered its intended outputs and outcomes as articulated under the current GFA?

4.1.1. Relevance – Fully achieved

The Activity aligns well to strategic PIC health system policies outlining national development needs for laboratory strengthening. The REQA, LQMS and training programmes are highly valued by laboratory stakeholders and appear to be a good fit with expressed PIC aspirations for quality improvement and learning. Numerous laboratory stakeholders highlighted an appreciation for the depth of PPTC understanding of Pacific laboratory contexts that underpinned the PPTC relational and flexible approach to delivery. The Activity aligns with the current New Zealand ODA health development priorities in the Pacific, namely sexual and maternal health, specialised treatment services and NCDs.

4.1.2. Effectiveness – Mostly achieved

Good progress has been achieved against most agreed GFA output and short term outcome indicators and targets. Overall, stakeholders suggested that the Activity's programmes are making a valued contribution to improved laboratory workforce, capacity and quality standards across participating PICs. REQA participation and results have improved, PPTC training is sought-after, though difficult to access, and LQMS flexibility was valued. Overall, laboratory stakeholders identified tangible benefits for learning and improvement.

In-country factors, however, have limited the effectiveness of some programmes in some countries and evidence was mixed on Activity responsiveness to those challenges. Having said this, reasonable explanations were provided by PPTC as to how those challenges could be addressed in future planning of programme delivery.

4.1.1. Impact – Mostly achieved

The Activity has delivered positive changes for participating Pacific laboratories through all of its programmes. Key indicators of impact included increasing DipMLSc endorsement by Pacific health administrations, increasing laboratory workforce participation in distance learning, increasing laboratory participation in REQA and the scope of tests being undertaken, and increasing compliance with WHO quality standards among the five focus PICs. In Tonga, coherent inputs from other donors and in-country commitment in the health administration has augmented the Activity impact, and the laboratory has been significantly strengthened over the past two years. Clinicians in that country highlighted the importance of the laboratory strengthening for health services and patient care.

Focusing programme resources more strongly towards the different needs of different PICs could further enhance the impact of workforce development and quality assurance outcomes being achieved. New approaches to advocacy for laboratory strengthening,

at the levels of health system administration could also go some way to addressing systemic and intractable barriers to impact.

4.1.2. Efficiency/ Value for money – Mostly achieved

The Activity appears to have been implemented efficiently, with minor improvements possible to financial reporting to better enable Activity cost analysis by programme and PIC country. On the basis of the unique Activity contribution delivered across a broad range of programmes and countries, and relative to the modest programme resources used, PPTC appears to be punching above its weight.

To enhance Activity impact, some efficiencies might be achieved through more targeting of Activity resources to country priorities and needs, on consideration of the relative effectiveness of the LQMS, REQA and training programmes.

4.1.3. Sustainability – Mostly achieved

PIC stakeholders highlighted the value of the Activity as lower human and health costs in their countries, and suggested laboratory services in particular would have been worse off without the Activity. Where impact was identified, in-country clinicians emphasised the downstream value of the Activity results to medical professionals and Pacific people in terms of reducing human and health costs in PICs, particularly in relation to NCDs.

The Activity has contributed to workforce development and progress in quality management systems that is likely to continue beyond the GFA. In-country factors previously discussed can undermine the positive results. Even the more progressive Pacific laboratories could slip in capacity and standards if the programmes are not being maintained through in-country champions and commitment. For some of the weaker Pacific laboratories, the need for support is long-term beyond the current funded Activity. A key risk for the goal of strengthening laboratories in future is institutional sustainability, given the unique nature of the PPTC programmes and approach, and vulnerability of PPTC to changes in external funding streams.

4.1.4. Cross-cutting issues – Minimally achieved

The Activity indirectly contributes to human rights, gender and environmental health issues in the Pacific. It does not however explicitly target cross-cutting issues in its design or monitoring.

4.2. Part B

To what extent is the current PPTC Activity well designed to meet regional laboratory needs and MFAT Health Development goals in the Pacific in future?

4.2.1. *Emerging context and needs*

Strengthening laboratory services is very relevant to address current and emerging health development needs in the Pacific region. In particular, early detection, diagnosis and ongoing management of NCDs requires effective diagnostic laboratory services.

There are indications that the current level of regional support for strengthening laboratory services is unlikely to continue into the future with predicted changes to priorities and reduced funding from other key organisations involved in laboratory strengthening such as DFAT and WHO.

Support for laboratory strengthening is well aligned to MFAT priorities for the ODA programme and the wider emphasis on sexual and reproductive health, specialised treatment services and reducing the prevalence and morbidity of NCDs.

4.2.2. *Future considerations*

Sustainable gains are possible through a regional approach with a continued focus on workforce development and quality assurance, supplemented by bilateral investment. The changing landscape of support across the Pacific indicates that different approaches may be more effective and it is an appropriate time for MFAT to review how it targets its support of laboratory services from 2016 onwards.

5. Lessons Learned

This section presents lessons learned to inform continued improvement in delivery of any future Strengthening Health Laboratories Activity in the Pacific.

5.1. Activity specific lessons

The following areas of Activity good practice are useful to learn from:

- REQA effectiveness is enhanced through systematic follow-up of results such as team discussions, sharing results with stakeholders outside of a laboratory and using pin-boards to acknowledge and communicate successes.
- The face-to-face approach of the PPTC LQMS in-country training was particularly valued by PIC laboratory staff, as was distance training through DipMLSc that did not require expense and time away from the laboratory or home country.

Additionally, there were practices that hindered success, that provide useful learning for future investment, for example:

- LQMS effectiveness and efficiency was lessened without collaborative planning and timely communication with PIC laboratories, because laboratory management and staff needed clarity on the purpose and their role in visits.
- PIC students may struggle without good practical laboratory supervision and bench work space to support positive outcomes from DipMLSc distance training.

5.2. Development programming lessons

The following lessons may be more widely applicable to development programming.

- PIC diversity, knowledge of changing needs and priorities should be harnessed through iterative collaborative planning approaches to ensure Activity relevance and effectiveness.
- Increasing the coordination between MFAT development programmes such as the scholarship programme and skills-based programmes would increase the efficiency and effectiveness of the Activity.
- Where an Activity has a broad scope, the identification of country-specific needs will help to focus Activity outputs, development of country-specific indicators and targets, and to prioritise the use of Activity resources for efficiency gains.
- To support evaluation, ARFs will ideally identify any relevant assumptions relating to the intended Activity outcomes, any factors that are known to be outside of an Activity's control, and any implications of these for monitoring and evaluation.
- Activity financial planning and reporting that outlines direct inputs and costs for key Activity components, by year and by country (where the Activity has multi-country reach), will provide a strong basis for cost analysis.

6. Recommendations

The following recommendations inform MFAT and the PPTC on areas for consolidation and improvement around the design and implementation of the current Strengthening Pacific Laboratories Activity. In addition, the recommendations will inform future MFAT decisions regarding any future design of the Activity beyond the current GFA.

This section provides funding recommendations for MFAT specific to the currently funded Activity, detailed operational recommendations for PPTC, and recommendations for MFAT to consider in any future funding of PIC laboratory development support.

Activity funding recommendations for MFAT

The recommendations are:

1. Noting the unique position, approach and strengths of PPTC to provide effective technical support for workforce and quality capacity development in PIC laboratories, that the New Zealand Aid Programme continues its funding support for the Strengthening Pacific Laboratories Activity.
2. That this support includes continued funding for the LQMS and REQA programmes, but with increased flexibility and targeting of programmes to provide more services to countries that are needing more support.
3. That the provision of in-country training through the Activity is increased.

The following table outlines operational level Activity recommendations with references to relevant findings sections.

Activity operational recommendations for PPTC

In relation to the REQA programme, it is recommended that the PPTC:

4. Reemphasises, through in-country training, the importance of systematic use of REQA results as a core component of effective programme delivery (refers sections 3.2.1., 3.2.1.)
5. Considers strengthening current processes for provision of REQA reports directly to hospital and or in-country Ministry management to enable more transparency on the quality of the laboratories and weaknesses and how to follow up. This could trigger management action to improve supply and increase visibility of laboratory strengthening in PICs. (refer sections 3.1.5., 3.2.4., 3.5.2.)

In relation to the LQMS programme, it is recommended that the PPTC:

6. Prioritises the number and length of LQMS visits to target high needs laboratories to maximise responsiveness and efficiency of Activity resources. (refers section 3.1.5.)

7. Increases collaborative upfront engagement with MFAT and other partners for any LQMS projects at the country level on essential preconditions for effectiveness including: development and endorsement of a national laboratory policy; commitment of laboratory management and senior health managers on resources and milestones to implement any LQMS plan; strong communication with laboratories to target quality improvement, to best use information on deficiencies identified between visits, and timely focused follow-up reports and assistance. (refers sections 3.1.5., 3.2.4., 3.3.3.)
8. Provides more 'Train the trainer' approaches in LQMS training, working with more advanced laboratory staff and laboratory quality managers to enhance the sustainability of quality improvement efforts. (refers section 3.5.2.)
9. Supports more progressive laboratories like Tonga to host training with staff from other PICs to enhance sustainability. (refers section 3.5.2.)
10. Considers providing in-country training support in the area of 'personnel management', which may be useful where staff attitudes are limiting uptake of changes for quality improvement. (refers section 3.2.4.)
11. Considers strengthening current processes for provision of LQMS reports directly to hospital and or Ministry management to enable more transparency on the quality of the laboratories and weaknesses and how to follow up, which could trigger management action to improve supply and increase visibility of laboratory strengthening in PICs. (refers sections 3.1.5., 3.2.4., 3.5.2.)

In relation to the Training, it is recommended that the PPTC:

12. Considers the needs of individuals for tiered training (with eg. introductory/intermediate/advanced levels)– as well as practical attachments to laboratories to supplement the theoretical training to better align with distinct groups of student needs. (refers sections 3.1.3., 3.2.3.)
13. Provides two week hands-on supervised laboratory attachments for more recent graduates in PIC laboratories targeted at staff working in that area in the laboratory afterwards, and after speciality courses, to augment advanced courses. (refers sections 3.1.3., 3.2.3.)
14. Considers more formal pre- and post-tests to better demonstrate student learning outcomes. (refers section 3.2.2.)
15. Develops a strategy for maintaining contact with training graduates funded through the Activity to monitor post-training and career pathways to assess relevance and impact of training delivered. (refers section 3.1.4.)
16. Increases in-house support to students, such as by facilitating better access to areas for bench work, and increased supervision. Also increase external supervision and assessment provided by PPTC. For example, expansion of the programme to include one week of practical training and an assessment for each module. Ideally, gaining this experience in another laboratory in the Pacific, such as Fiji or Tonga, which are better equipped, would provide good exposure and learning for the students, albeit would increase the cost of the programme. (refers section 3.2.3.)

17. Considers adding a cytology module, which would support laboratories in PICs to conduct testing to prevent and diagnose cervical cancer. (refers section 3.6.2.)

In relation to the Activity, it is recommended that the PPTC:

18. Seek to work with MFAT to consolidate the current ARF, in particular to ensure outcome indicators are SMART (in particular, are realistic and time-bound for medium and long term outcomes sought) and reported at the country level for all programme components. For example, consider adding indicators to capture the contribution made by the informal support PPTC provides through indirect teaching and training, also clear statements of assumptions and limitations where they are important for measurement. (refers sections 3.3.2., 3.3.3.)

Future funding recommendations for MFAT

In determining any future support to strengthen Pacific laboratories, the recommendations are:

19. Noting the effectiveness of the current Activity, emerging Pacific health needs, and indications of future support from other donors, that MFAT consider an increased level of investment in laboratory capacity development to a level where sustainable gains will be able to be made across the Pacific, or target a lower level of support to selected countries that are identified as more likely to benefit from increased investment and fewer activities. (refers sections 3.3.7., 3.8, 3.10.1.)
20. Noting the demand for and relevance of the DipMLSc course for sustainable Pacific laboratory workforce development, that MFAT consider support of the DipMLSc course. (refers section 3.1.5., 3.3.1.)
21. Noting the likely gains for strengthening in this area, that MFAT considers investment in developing, establishing and maintaining a post-graduate 3 year pathology programme specifically for Pacific medical practitioners. Such a programme should provide a broad training across all medical laboratory disciplines. (refers section 3.10.1.)
22. Building on other clinical exchange mechanisms supported in Pacific health development, that MFAT considers supporting the establishment of a system for enabling PIC laboratory staff to obtain supervised clinical experience in another laboratory, preferably in the Pacific but alternatively in New Zealand. (refers section 3.10.1.)
23. Noting the efficiency currently achieved through regional mechanisms, that future MFAT support is maintained through the regional health programme (see also recommendations 6 - 8) and channelled through a single agency or consortium to provide a Pacific nexus or hub of laboratory expertise and capacity development, Notwithstanding that there are efficiencies in investing in one organisation, that this should not preclude one organisation being a hub with satellite organisations sub-contracted to provide services as necessary. Rather it implies having a single point of contact to ensure donor collaboration and coordination for maximum impact. This activity could comfortably sit within the NCD programme but would need to have specific laboratory and pathology expertise. (refers section 3.10.1.)

24. Any future lead regional activity provider could have the responsibility to lead the development of a regional laboratory plan, including workforce development, to set the priorities for activities for the next five years. (refers section 3.10.)
25. That after identifying priority activities and services, MFAT consider requesting proposals through a contestable tendering process for a regional provider to manage the full investment.
26. That MFAT ensure increased flexibility to target use of any future funding to emerging needs and use of a mix of regional, multi-country and bilateral approaches where appropriate to ensure the best value for money.

7. References

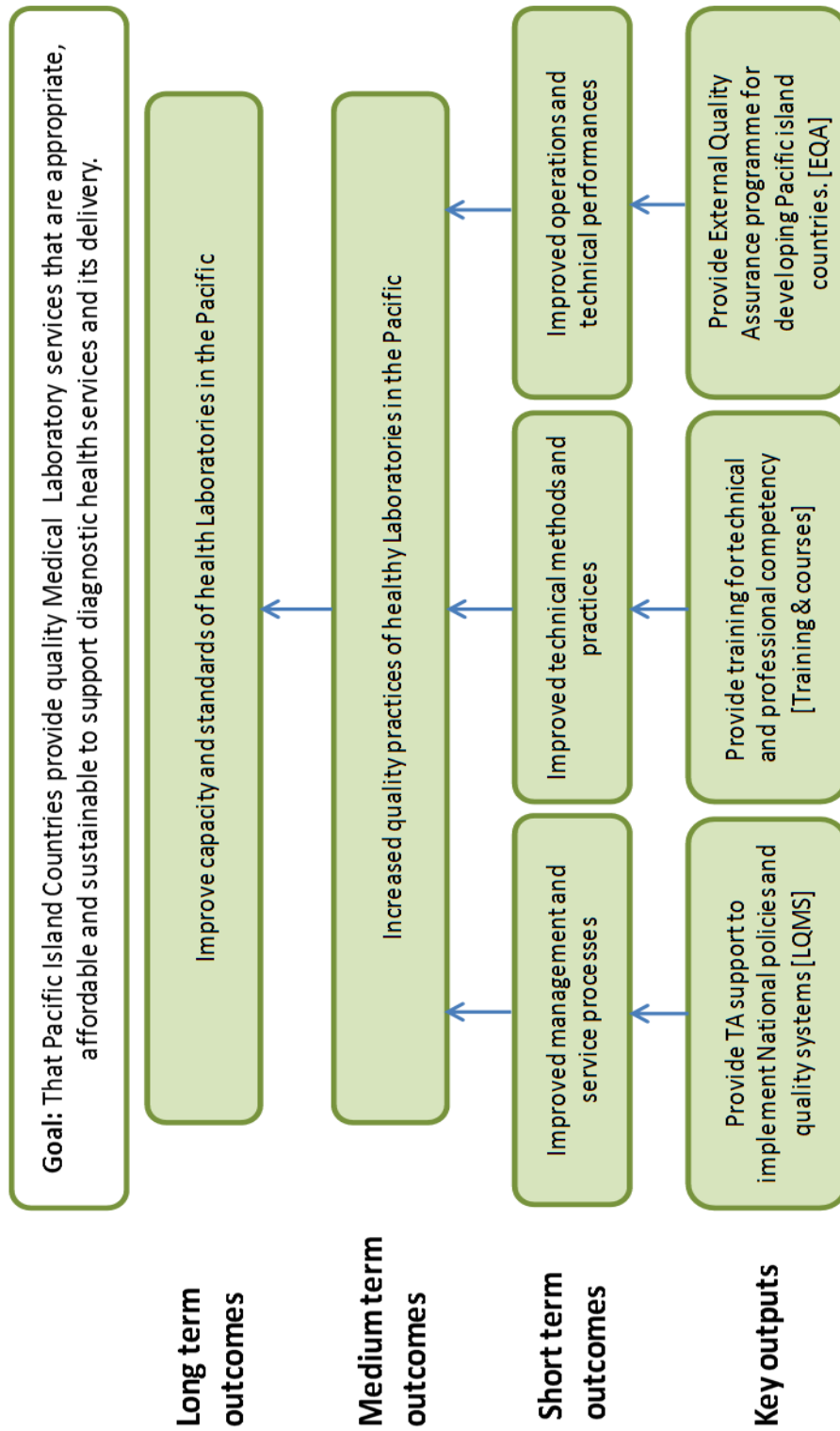
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8. Appendices

8.1. Results Diagram

Activity Results Diagram: Pacific Paramedical Training Centre (P.P.T.C)



8.2. Evaluation Framework

This evaluation framework guides the interpretation and judgement processes undertaken by this evaluation. It outlines evaluation questions and evaluative criteria, and evaluation rubric of performance standards. The detailed evaluation methodology is provided separately as section 8.3.

8.2.1. Evaluation questions and evaluative criteria

- The **key evaluation questions (KEQs)** and sub-questions, which were developed in the initial phase of the project, are presented in the two tables below linked to relevant DAC criteria.
- **Evaluative criteria**, or factors and values by which to assess performance, are indicated for each sub-question.
- **Information sources** used to assess performance against criteria are listed in the far right column.

KEQ1: How well has the PPTC Activity delivered its intended outputs and outcomes as articulated under the current GFA?

KEQ1 Sub-question/s	Related DAC criteria	Evaluative criteria	Information sources
How well is PPTC laboratory strengthening addressing the unique medical laboratory needs and priorities of participating PICs?	Relevance Cross-cutting issues	PPTC planning is aligned with information and dialogue about PICs unique laboratory needs and priorities, including relating to cross-cutting issues	KIIs with PPTC and in-country health stakeholders Documentation on Pacific laboratories PPTC documentation
How efficiently are PPTC conducting their funded outputs under the GFA?	Efficiency	PPTC reviews its operations, and acts on results, to ensure that resources are used effectively, economically, and without waste. The Activity has achieved the best possible outcomes so far during the	MFAT and PPTC Activity monitoring KIIs with PPTC, in-country and regional development stakeholders

KEQ1 Sub-question/s	Related DAC criteria	Evaluative criteria	Information sources
<p>How well are the three Activity initiatives (quality assessment, quality systems and training programmes) meeting the intended GFA outputs and short term outcomes of the Activity Results Framework?</p>	Effectiveness	<p>GFA period relative to the total cost of managing and resourcing it.</p> <p>PPTC's operations and implementation has facilitated it to meet agreed GFA indicators and targets</p>	<p>MFAT and PPTC Activity monitoring</p> <p>KIIs with PPTC and in-country health stakeholders</p>
<p>How effectively are the three Activity initiatives contributing to change in PIC laboratory services (and what are the factors most impacting on this?)</p>	<p>Impact</p> <p>Cross-cutting issues</p>	<p>PPTC has supported laboratories to improve across e.g. leadership, procurement, workforce, policy, service delivery and quality/safety) in line with stakeholder expectations and overall capacity and standards have increased as a result</p> <p>PPTC is working to address cross-cutting issues</p> <p>The degree of change is in line with funder and PIC expectations</p>	<p>KIIs with PPTC, in-country and regional development stakeholders</p> <p>Documentation on Pacific laboratories</p>
<p>How sustainable are the changes being achieved in PICs?</p>	Sustainability	Benefits for PICs through PPTC are likely to continue beyond the GFA	KIIs with PPTC and in-country stakeholders

KEQ1 Sub-question/s	Related DAC criteria	Evaluative criteria	Information sources
			Documentation on Pacific laboratories
<p>To what extent have the costs of the Activity been justified by the evidenced changes or likely future changes?</p>	Value for money	<p>The costs of the Activity, including financial and other inputs was worth it for the results</p> <p>Laboratory services in the Region would have been worse off without the funding.</p>	<p>KIIs with PPTC, in-country and regional development stakeholders</p> <p>Documentation on Pacific laboratories</p>
<p>What, if any, changes to the Activity would improve results in strengthening health laboratories in the Pacific in future?</p>	n/a	n/a	<p>KIIs with PPTC, in-country and regional development stakeholders</p> <p>Documentation on Pacific laboratories</p>

KEQ2: To what extent is the current PPTC Activity well designed to meet regional laboratory needs and MFAT Health Development goals in the Pacific in future?

KEQ2 Sub-question/s	Relates to DAC criteria	Evaluative criteria	Information sources
How well does the PPTC Activity align with current and emerging health needs in the Pacific?	Relevance	PPTC outputs (training and quality assessment) are coherent with other regional and in-country health system priorities and activities, including cross-cutting issues	KIIs with PPTC and in-country health stakeholders Documentation on Pacific laboratories PPTC documentation
How well does the PPTC Activity address MFAT priorities and wider donor approaches in the Pacific?	Effectiveness	PPTC outputs and outcomes consider and/or address donor priorities and approaches in the region	KIIs with PPTC and in-country health stakeholders Documentation on Pacific laboratories PPTC documentation
To what extent does the PPTC Activity address current and emerging health issues in the region in a cost-effective way?	Efficiency	PPTC outputs and outcomes address regional health needs and outcomes in an efficient and cost-effective way	KIIs with PPTC and in-country health stakeholders Documentation on Pacific laboratories PPTC documentation
In what other ways might MFAT address health laboratory strengthening in the Pacific in future?	n/a	n/a	KIIs with PPTC and in-country health stakeholders Documentation on Pacific laboratories PPTC documentation

8.2.2. Evaluation rubric of performance standards

The evaluation rubric below identifies standards of performance that are used to articulate the level Activity achievement against DAC criteria.³⁴

Standards	DAC criteria				
	Relevance	Effectiveness Impact	Sustainability	Efficiency Value for money	Cross-cutting issues
Fully achieved	Development needs and policy linkages appropriately identified and are high priority, and the Activity design in all respects has met them.	Planned Activity outputs and outcomes were track/advanced or better than originally planned in terms of timing, quality or quantity. Planned outcomes may have unplanned positive outcomes.	Positive changes are expected to continue beyond the funding period.	Value for money exceeds normal expectations. Good practice procurement, timeliness of outputs exceeded expectations. Management overheads of funding recipient as expected (or lower).	The Activity is addressing significant cross-cutting issues of gender, human rights and climate change (environmental health) with clear outcomes linked to these.
Mostly achieved	Development needs and policy linkages appropriately identified, and are mostly of high priority; and the design has largely met them.	Most planned Activity outputs and outcomes on track in terms of timing, quality or quantity. Reasonable explanations of variance and/or a plan to address challenges.	Some positive changes are expected to continue beyond the funding period.	Good practice Activity management to meet expectations for value for money. May be minor scope for improvement and/or variations to management overheads.	Some cross-cutting issues of gender, human rights and climate environment being addressed with clear links to outputs and/or early outcomes.
Minimally achieved	Development needs and policy linkages minimally identified. The Activity design requires redevelopment and/or the setting was not right for an intervention at the time.	Only some planned Activity outputs and outcomes have been achieved or advanced. Some, but not all, unforeseen challenges were overcome.	It is unlikely that any positive changes identified will continue beyond the funding period.	More intensive management required to keep Activity on track/deal with unexpected challenges. Issues with procurement and/or timeliness.	The Activity is working towards addressing gender, human rights and climate change (environmental health).
Not achieved	The Activity design was flawed and/or the setting was not right for the intervention at the time.	Serious unresolved challenges to be addressed in achieving outputs and outcomes.	Any positive changes identified are not expected to continue beyond the funding period.	Money wasted; savings could have been made for similar results. At worst, significant wastage, fraud or corruption.	Gender, human rights and environment are not a priority for the Activity.

³⁴ For each set of grouped DAC criteria, please read from the "Fully achieved" standard and progress down the column.

8.3. Evaluation methodology

8.3.1. Approach and principles

This evaluation took a utilization-focused evaluation (UFE)³⁵ approach to generate utility-focused, credible, timely and relevant findings. This involved a responsive process by the evaluation team using appropriate methods for the context and guided by MFAT as the primary intended users.

The evaluation also observed the MFAT evaluation principles of impartiality and independence, credibility, usefulness, partnership and participation, forward planning, and donor cooperation.³⁶

8.3.2. Transparent evaluation framework: evaluation criteria & standards rubric

The evaluation is based on the evaluation questions and rubric outlined in the previous section. The criteria identified as relevant for the evaluation were the OECD DAC criteria, namely Relevance, Effectiveness, Impact, Efficiency/Value for money, Sustainability and Cross-cutting issues. An evaluation rubric was developed as shown in section 8.2.2 and draws on largely on the Activity quality standards as set out by the New Zealand Aid Programme³⁷. The rubric describes performance standards (definition of what constitutes performance at the levels of "Fully achieved", "Mostly achieved", "Minimally achieved", or "Not achieved") for each of the DAC criteria agreed in the Evaluation Plan.

Developing the performance standards to be assessed in an evaluation at the beginning of an evaluation process provides transparency in the evaluative process and evaluative assessments. The evaluation framework was signed off by MFAT on approval of the Evaluation Plan. However, evaluation rubrics are iterative, and the framework was further developed in the final phase of the project - to facilitate clear articulation of the conclusions and recommendations.

8.3.3. Data collection and analysis

Data from the interviews, literature³⁸ and document review (see References), and fieldwork were analysed against the performance standards in the rubric, and an evaluative assessment produced for each criterion. These evaluative assessments are used in Part A of this report only, which evaluates the last two years of the Activity. Part B of the report draws on the findings in Part A to discuss future needs, gaps and risks to inform future funding scenarios for MFAT consideration.

³⁵ Patton, Michael Quinn (2008) Utilization-Focused Evaluation: 4th edition. Thousand Oaks, Ca: Sage Publications.

³⁶ See MFAT (2014) Evaluation Policy for the New Zealand Aid Programme, pp.4-5.

³⁷ http://www.aid.govt.nz/sites/default/files/Activity_Quality_Policy.pdf

³⁸ The literature review drew largely on the previous desk review of laboratory services in PICs (Clark, 2014a).

Interviews

56 interviews were undertaken in Wellington and in selected PICs between February and March 2015 both face to face and by telephone - see Tables below.

Fieldwork was undertaken in-country with visits to Tonga, Samoa and the Cook Islands.

Interview participants were provided with an information sheets about the evaluation and were invited to provide oral consent or to sign a consent form. The interviews were guided by interview guides developed for the different informant groups. The guides were modified by the evaluation team in response to emerging themes and issues.

The names of key informants are not provided because ethical consent to publish names in this report was not requested for this purpose.

General thematic analysis will be used to analyse qualitative interview data, and simple descriptive statistics will be used to add in missing words!

Participants Interviewed by position	
Position	Number
MFAT Staff – International Development Group	8
MFAT staff at international posts	5
PPTC staff and Board members	3
DFAT officials	2
Senior Pacific Government health managers	5
Health service managers and medical directors	4
Laboratory managers and pathologists	6
Other laboratory staff	20
Other (educators, other provider organisations)	3
TOTAL	56

Participants interviewed by country	
Country	Number
New Zealand	12
Tonga	14
Samoa	18
Cook Islands	8
Kiribati (By Teleconference)	2
Marshall Islands (By Teleconference)	2
TOTAL	56

8.3.4. Triangulation

Triangulation, which strengthens any evaluation approach, was addressed in several different ways. Methodologically, through the use of multiple data sources. Second, Dr Eka Buadruomo, Marion Clark, Jessie McMath and Paula White conducted the fieldwork and engaged in multiple team analysis sessions. Paula White and Marion Clark wrote the report which was peer reviewed by Dr Buadruomo, who is also a leading expert on pathology and laboratory services in the Pacific.

This evaluation uses evaluation rubrics with evaluation criteria (success values) and standards (expected levels of success) and these are set out in the evaluation framework (section 8.2).

8.3.5. Limitations

This evaluation process has some limitations, which are outlined below.

Ideally, the development of an evaluative rubric is a collaborative process with key stakeholders undertaken during scoping of the evaluation. However this was not possible given budget and time constraints, and the location of key stakeholders in the Pacific.

Vanuatu was initially intended as a country of focus. However, scheduled phone interviews fell at the same time as Cyclone Pam, as a result of which Vanuatu interviews were cancelled. This limited the data available relating to Vanuatu.

The team also had significant problems with accessing and communicating (phone system issues) with identified stakeholders in both Kiribati and Marshall Islands, therefore stakeholder perspectives from those countries is limited compared with the three countries visited.

Many of the outcomes identified in the Activity Results Framework such as REQA results and student completions of the PPTC Diploma, were found to be problematic as measures of success for the Activity. These indicators (and the targets stated in the Framework) were found to be affected by multiple in-country factors outside of PPTC control. This meant limited outcome information available to assess impact in this evaluation, and the evaluative assessments also drew heavily on information reported by stakeholders.

Any assessment of value for money can usefully draw on financial inputs into an Activity – provided there is sufficient detail of information provided to do so. However, the evaluators were unable to access detailed financial breakdowns of the Activity by country. The evaluation relies heavily on information reported by evaluation participants, PPTC annual reports and high-level budget records.

8.4. Additional Tables

The following tables of data were sourced from PPTC during the evaluation project. This data is additional to data reported to MFAT in Activity Progress Reports.

8.4.1. Enquiries/contact received by the PPTC between October 2014 and February 2015

Country	POLHN	EQA	Training	LQMS	Discipline Specific	Total enquiries
East Timor		2				2
Yap	2	1	1		2	6
Tuvalu	1	1	2			4
Pohnpei		1	2		11	14
Vanuatu	2			1	1	4
Kiribati	4		2			6
American Samoa	2		2			4
Kosrae	1					1
Fiji	5	2	1		1	9
Ebye					1	1
Papua New Guinea	2		1			3
Tonga	1	2	1	1	7	12
Cambodia			1			1
Marshalls			1			1
Lao			1			1
Nauru	1					1
Federated States of Micronesia	1					1
Bhutan		1	3			4
TOTAL	22	10	18	2	23	75

Source: PPTC, 2015.

8.4.2. Students enrolled in PPTC centre-based courses by gender 2013-2015

Year /Country	2013 /all countries	2014 /all countries	2015 /all countries
Male	11 (50%)	7 (50%)	11 (50%)
Female	11 (50%)	7 (50%)	11 (50%)
Total	22	14	22

Source: PPTC, 2015.

8.4.3. Students enrolled in PPTC DipMLSc courses by gender: 2013-2016

Cycle /Country	2013-2014 /all countries	2015-2016 /all countries
Male	11 (38%)	25 (42%)
Female	18 (62%)	34 (58%)
Total	29	59

Source: PPTC, 2015.

8.4.4. REQA programme reach and costs 2014

Programme reach

Number of countries registered	26
Number of laboratories registered	54
Number of laboratories fully participated	38
Number of surveys sent	656
Number of surveys returned	586

Programme costs

Total GFA funding \$NZ (proportion total GFA)	115,120 (21.7%)
Total programme direct costs*	49,048
Travel costs** (proportion of programme direct costs)	32.3%
Costs per registered laboratory***	2,131
Costs per returned survey (approx.) (\$NZ)****	196

Sources: PPTC Progress Report to MFAT, 2014 and PPTC financial data, 2014 (Actual).

*Calculated by multiplying Total direct costs for REQA by the proportion of REQA funded through the GFA.

**Includes international airfares, domestic connections, international accommodation and per diems

***Approximate cost only (total funding divided by number of registered laboratories)

****Approximate cost only (total funding divided by number of surveys returned)

8.4.5. LQMS programme reach and costs 2014

Programme reach

Number of countries* assisted	5
Number of laboratories assisted	8
Number of laboratory visits	16

Programme costs

Total GFA funding \$NZ** (programme proportion of total GFA)	176,701 (33.3%)
Travel costs (proportion of programme direct costs)	31.3%
Cost per laboratory visit***	11,043

Source: PPTC Progress Report to MFAT for 2014, and PPTC financial data 2014 (Actual)

* Kiribati, Cook Islands, Vanuatu, Samoa, Tonga

**Does not include carry-over from previous year

***Approximate cost only (total funding divided by number of laboratory visits)

8.4.6. LQMS Special Project reach and costs 2014

Programme reach

Number of countries* assisted	5
Number of laboratory visits	8
Number of students attending	35

Programme costs

Total GFA funding \$NZ (programme proportion of total GFA)	141,049 (26.6%)
Travel costs (proportion of programme direct costs)	69.4%
Cost per laboratory visit (\$NZ)**	17,631

Source: PPTC Progress Report to MFAT for 2014, and PPTC financial data 2014 (Actual)

* Marshall Islands, Tuvalu, Christmas Islands, Nauru and Niue

**Approximate cost only (total funding divided by number of laboratory visits)

8.4.7. Training programme reach and costs 2014

Programme reach

Number of countries assisted direct (in-country)	4
Number of countries assisted indirectly (from New Zealand)	23

Programme costs

Total GFA funding \$NZ** (programme proportion of total GFA)	97,019 (18.3%)
Travel costs (proportion of programme direct costs)	18.4%

Source: PPTC Progress Report to MFAT for 2014, and PPTC financial data 2014 (Actual)

*Does not include 'NZ Aid Special contract' income

**Approximate cost only (total funding divided by number of countries assisted)

***Approximate cost only (total funding divided by number of training sessions delivered)